CHAPTER 3. LANDSCAPE DISTURBANCES

Road and Trail Distribution – North Fork Valley

This section evaluates the pattern of road and trail distribution on the North Fork Valley Geographic Area and the associated influences of this transportation network on vegetation and habitat. Both direct and indirect effects of roads and trails are discussed.

Existing Roads and Trails

Initial travel management planning efforts were completed on the North Fork Valley Geographic Area in 2000, as part of the Gunnison National Forest Travel Plan. As a result, inventories of existing roads and trails are relatively complete. Route by route determinations to identify which roads and trails will be maintained as part of the transportation system, what types of use will be allowed on those routes, and which routes will be eliminated, or decommissioned have not yet been made for the Gunnison National Forest (North Fork Valley and Gunnison Basin Geographic Areas). Only the decision to limit motorized and mechanized travel to existing routes has occurred.

All existing roads and trails known to occur on the North Fork Valley Geographic Area were considered in this evaluation. For roads, this includes both classified or system roads (National Forest System Roads, county roads, state highways, federal highways, privately owned roads, Forest Service authorized roads) and unclassified roads (roads not currently identified as part of any of the above referenced systems). Roads are further categorized by maintenance level which relates to the type of road surface and type of vehicle: Level 1 – closed more than one year or administrative use only, level 2 – rough, high clearance vehicles, level 3 – native to gravel surface, passenger vehicles, level 4 – smooth gravel surface, passenger vehicles, level 5 – dust-free-possibly paved, passenger vehicles. The majority of roads on the Gunnison Basin Geographic Area are Level 2 roads.

Trails are also divided between classified (or system) and unclassified trails. Trail use can be separated by motorized (ATV and motorcycle) and non-motorized (mountain bike, pack animal, hiker) uses. All trails within Wilderness areas are non-motorized and most trails outside of wilderness are open to some type of motorized use (ATV or motorcycle).

On the Gunnison National Forest, unclassified roads and trails have yet to be evaluated to determine which ones will be included in the road system and which will be decommissioned. Currently all unclassified roads and trail on the Gunnison National Forest remain open to public travel.

To evaluate the direct influence roads and trails have on vegetation, the existing transportation inventory was compared to the existing vegetation cover. The following map (Figure 1) displays the road and trail transportation network. The following tables list the miles of roads (Tables 1 and 2) and trails (Table 3) that occur in the different cover types on the North Fork Valley Geographic Area.

Figure 1. Map of Existing Roads and Trails, North Fork Valley Geographic Area

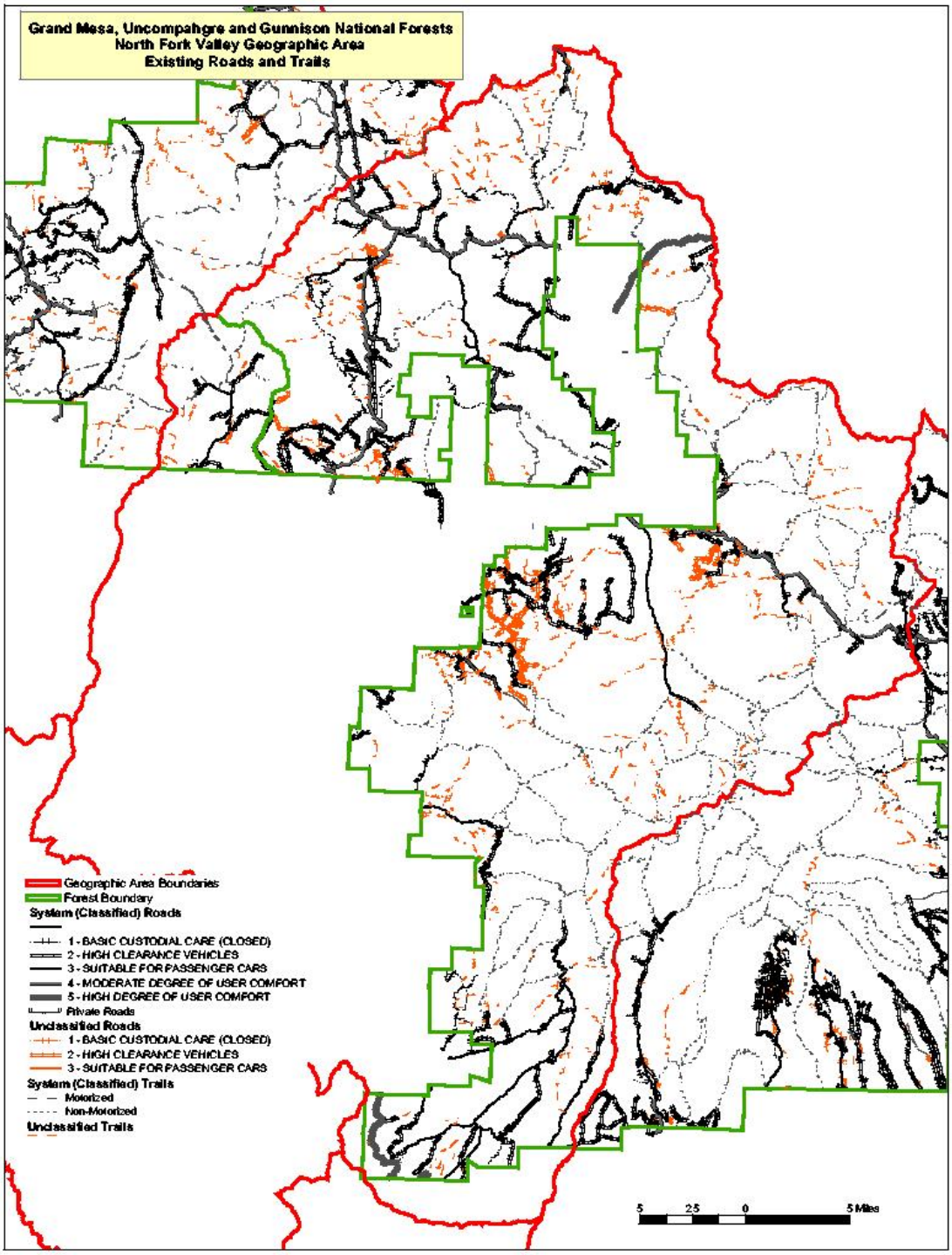

Table 1. Miles of Existing Roads within Different Cover Types, North Fork Valley Geographic Area (System miles in unshaded rows, unclassified miles in shaded rows)

Cover Type	1 - BASIC CUSTODIAL CARE (CLOSED)	2 - HIGH CLEARANCE VEHICLES	3 - SUITABLE FOR PASSENGER CARS	4 - MODERATE DEGREE OF USER COMFORT	5 - HIGH DEGREE OF USER COMFORT	SubTotals*	Grand Total
Grass/Forb	4	41	24	5	0	75	**79**
		4				4	
Sagebrush	6	10	2	6	3	27	**28**
		1				1	
Gambel Oak	9	58	13	5	6	91	**117**
		26				26	
Mixed Mountain Shrub	4	11	5	3		23	**26**
		3				3	
Snowberry		4	0	3		7	**7**
		0				0	
Willow	2	5	4	1	1	12	**12**
		0				0	
Cottonwood	0	2	1	0	0	3	**3**
Aspen	21	80	15	18	3	136	**154**
		18				18	
Pinyon/Juniper	1	1				2	**2**
		0				0	
Ponderosa Pine		0				0	**0**
Lodgepole Pine							
Limber Pine							
Douglas-fir	0	1	0			1	**1**
		0				0	
Blue Spruce							
Spruce/Fir	13	20	16	4	0	52	**54**

Cover Type	1 - BASIC CUSTODIAL CARE (CLOSED)	2 - HIGH CLEARANCE VEHICLES	3 - SUITABLE FOR PASSENGER CARS	4 - MODERATE DEGREE OF USER COMFORT	5 - HIGH DEGREE OF USER COMFORT	SubTotals*	Grand Total
		2				2	
Bristlecone Pine							
Bare/Rock	0	1		5	1	7	**7**
Water	0	0	1	0		1	**1**
		0				0	
Subtotal	60	233	80	49	14	437	**493**
		55				55	
Grand Total	**60**	**288**	**80**	**49**	**14**	**493**	**493**

Table 2. Miles of Existing Roads within Different Cover Types, North Fork Valley Geographic Area

Cover Type	System Roads		Unclassified Roads		Total Road	
	Miles	**%**	**Miles**	**%**	**Miles**	**%**
Grass/Forb	75	17	4	8	79	16
Sagebrush	27	6	1	1	28	6
Gambel Oak	91	21	26	48	117	24
Mixed Mountain Shrub	23	5	3	6	26	5
Snowberry	7	2	0	0	7	1
Willow	12	3	0	0	12	3
Cottonwood	3	1		0	3	1
Aspen	136	31	18	32	154	31
Pinyon/Juniper	2	0	0	0	2	0
Ponderosa Pine	0	0		0	0	0
Lodgepole Pine		0		0	0	0
Limber Pine		0		0	0	0
Douglas-fir	1	0	0	0	1	0
Blue Spruce		0		0	0	0
Spruce/Fir	52	12	2	3	54	11
Bristlecone Pine		0		0	0	0
Bare/Rock	7	2		0	7	1
Water	1	0	0	0	1	0
Total	437		55		493	

More miles of roads occur in aspen (31 percent) than in any other cover type on the North Fork Valley Geographic Area, followed by Gambel oak (24 percent), then grass/forb (16 percent) cover types. For system roads, the breakdown is similar to that for total roads. For unclassified roads, most are found in Gambel oak (48 percent), then aspen (32 percent). Many unclassified roads were created by users during past hunting seasons, which is the reason why these routes occur in habitats more frequented by big game during the fall.

Table 3. Miles of Existing Trails within Different Cover Types, North Fork Valley Geographic Area

	System Trails				Unclassified Trails		Total Trail	
Cover Type	**Motorized**	**Non-Motorized**	**Miles**	**%**	**Miles**	**%**	**Miles**	**%**
Grass/Forb	7	39	46	15	26	8	72	11
Sagebrush	0	0	0	0	2	1	2	0
Gambel Oak	5	12	17	6	65	19	82	13
Mixed Mountain Shrub	3	15	18	6	19	5	37	6
Snowberry	1	0	1	0		0	1	0
Willow	0	11	12	4	9	3	21	3
Cottonwood		1	1	0	1	0	2	0
Aspen	20	115	135	44	162	48	297	46
Pinyon/Juniper			0	0	1	0	1	0
Ponderosa Pine			0	0	0	0	0	0
Lodgepole Pine			0	0		0	0	0
Limber Pine			0	0		0	0	0
Douglas-fir		2	2	1	1	0	3	0
Blue Spruce			0	0		0	0	0
Spruce/Fir	4	64	68	22	52	15	120	19
Bristlecone Pine			0	0		0	0	0
Bare/Rock	0	6	7	2	4	1	10	2
Water		0	0	0	0	0	0	0
Total	40	266	307		340		647	

More miles of trails occur in aspen (46 percent) than in any other cover type, followed by spruce/fir (19 percent), then Gambel oak (13 percent) cover types. For system trails, the majority occur in aspen (44 percent) and spruce/fir (22 percent) cover types, followed by grass/forb (15 percent). For unclassified trails, most are found in aspen (48 percent), then Gambel oak (19 percent).

Currently 47 percent of the existing trails are classified as system trails, and most of the system trails (87 percent) of the system trails are non-motorized, primarily because they are within designated Wilderness areas. The majority of trails outside of Wilderness are currently unclassified trails. The size and composition of the trail system will change once route-by-route travel management decisions have been made on the North Fork Valley Geographic Area.

Table 4 displays a comparison of the percentages of total road miles and total trail miles by cover type, to the percentages that each cover type occurs on the North Fork Valley Geographic Area.

Table 4. Comparison of Distribution of Roads and Trails to Distribution of Cover Types, Grand Mesa, Uncompahgre and Gunnison National Forests

Cover Type	% of Roads within Cover Type	% of Trails within Cover Type	Cover Type % of GMUG
Grass/Forb	16	11	8
Sagebrush	6	0	1
Gambel Oak	24	13	12
Mixed Mountain Shrub	5	6	5
Snowberry	1	0	0
Willow	3	3	2
Cottonwood	1	0	0
Aspen	31	46	41
Pinyon/Juniper	0	0	1
Ponderosa Pine	0	0	0
Lodgepole Pine	0	0	0
Limber Pine	0	0	0
Douglas-fir	0	0	0
Blue Spruce	0	0	0
Spruce/Fir	11	19	24
Bristlecone Pine	0	0	0
Bare/Rock	1	2	6
Water	0	0	0

There are proportionately more roads in grass/forb, sagebrush, and Gambel oak than would be expected if roads were equally distributed across all cover types. In contrast, there are proportionately less roads in aspen, spruce/fir and bare/rock cover types. Lower elevations and lower elevation cover types have more roads. A large percent of the higher elevations are included in designated Wilderness areas, where roads do not occur.

There are proportionately more trails in grass/forb and aspen than would be expected if trails were equally distributed across all cover types. In contrast, there are fewer trails in spruce/fir or bare/rock cover types. On the North Fork Valley Geographic Area, these later two cover types occur primarily in Wilderness areas where there tend to be more trails; however, these cover types are also on steeper areas, which tend to preclude trails.

Areas Influenced by Existing Roads and Trails

Direct and indirect effects from transportation networks and the use of those networks have been shown to influence areas up to ½ mile away from a given road or trail. To evaluate the amount of area potentially affected by existing roads and trails on the North Fork Valley Geographic Area, the existing transportation network was buffered by ½ mile on either side. Figure 2 shows the extent of area within ½ mile of an existing road, Figure 3 shows the extent of area within ½ mile of an existing trail, and Figure 4 shows the combined area of the North Fork Valley Geographic Area that is within ½ mile of either an existing road or trail.

Table 5 lists the acres by cover type that are within ½ mile of an existing road or trail on the North Fork Valley Geographic Area. This table also shows the percentage of the total buffer area that is comprised by each given cover type, the percentage of the total cover

type that occurs within ½ mile of an existing route, as well as the acres and percentage of the total cover type that is not within ½ mile of an existing route.

Seventy-eight percent of the North Fork Valley is within ½ mile of an existing road or trail. This is slightly smaller than the 80 percent of the entire GMUG. Aspen, spruce/fir and Gambel oak cover types make up the bulk of the acres within the buffer around existing transportation routes (44, 22, and 13 percent, respectively). The majority of all cover types on the North Fork Valley Geographic Area, except for bare/rock lie within ½ mile of an existing road or trail.

Spruce/fir, aspen and bare/rock cover types make up the bulk of the acreage that is outside the ½ mile buffer around existing roads and trails (31, 30 and 176 percent, respectively). Converse to the above situation, the minority of all cover types on the North Fork Valley Geographic area, except for bare/rock are outside the area of influence from roads and trails. Most of the bare/rock cover type is above timberline, in Wilderness areas.

Figure 2. Area Within ½ Mile Of An Existing Road, North Fork Valley Geographic Area

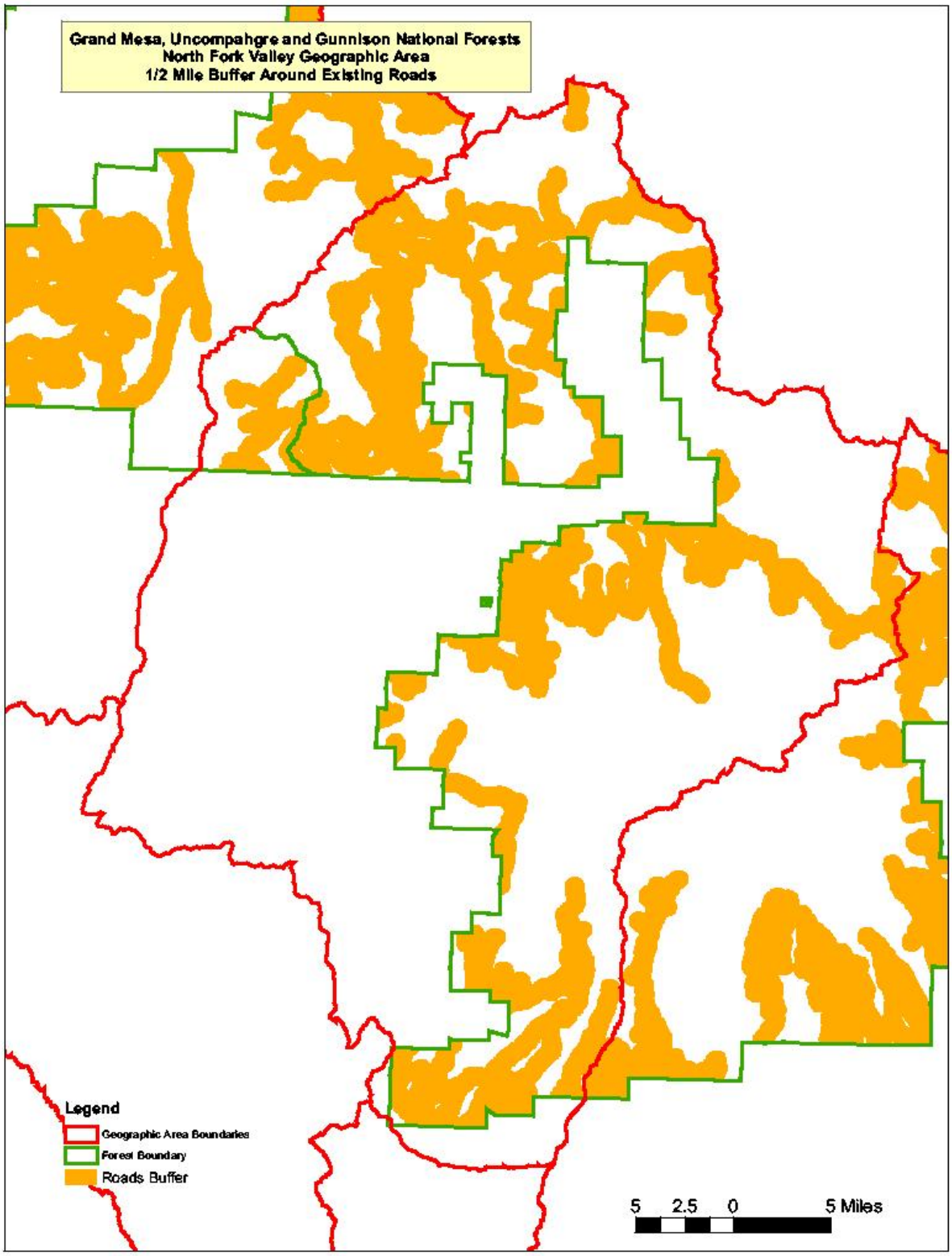

Figure 3. Area Within ½ Mile Of An Existing Trail, North Fork Valley Geographic Area

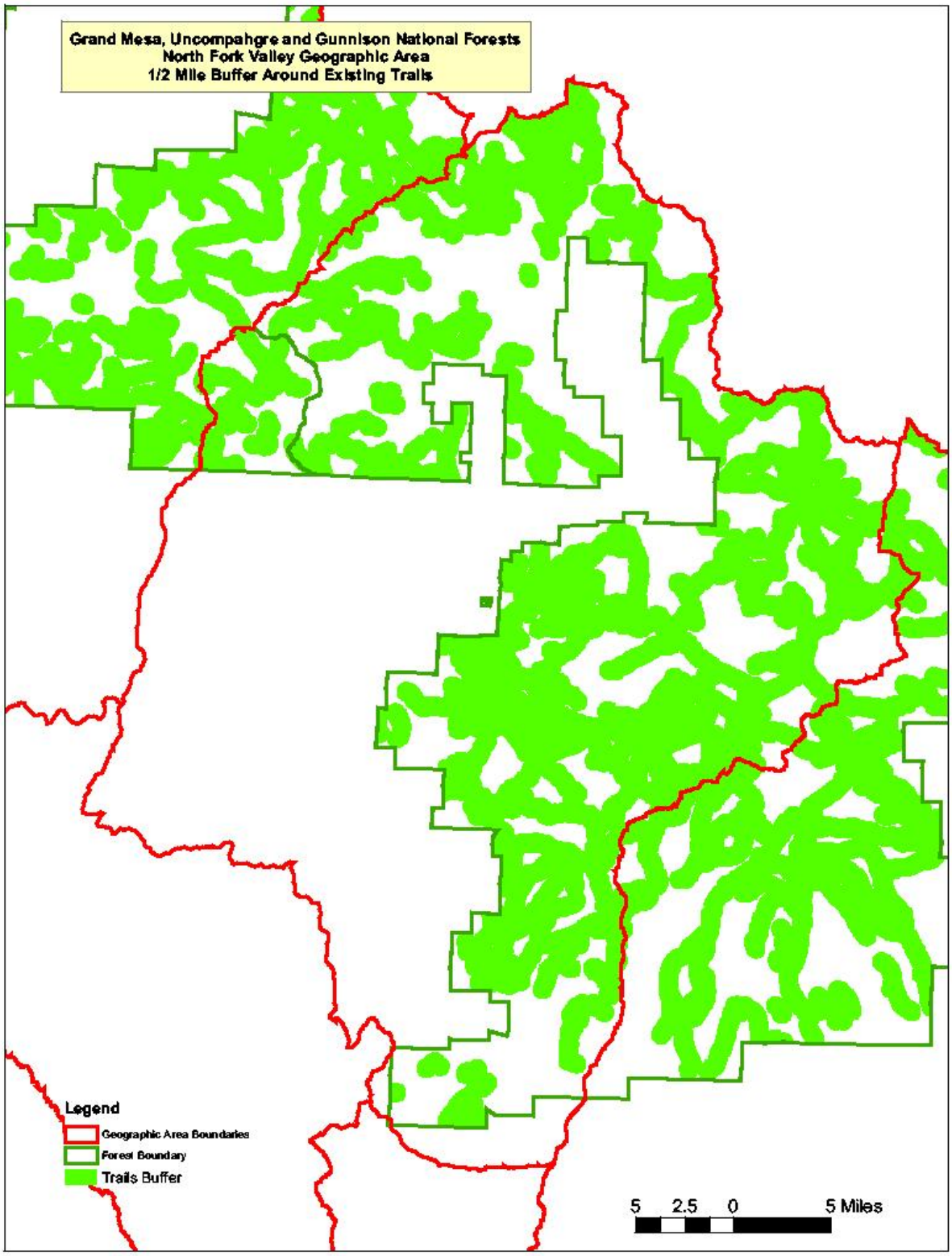

Figure 4. Area Within ½ Mile Of An Existing Road or Trail, North Fork Valley Geographic Area

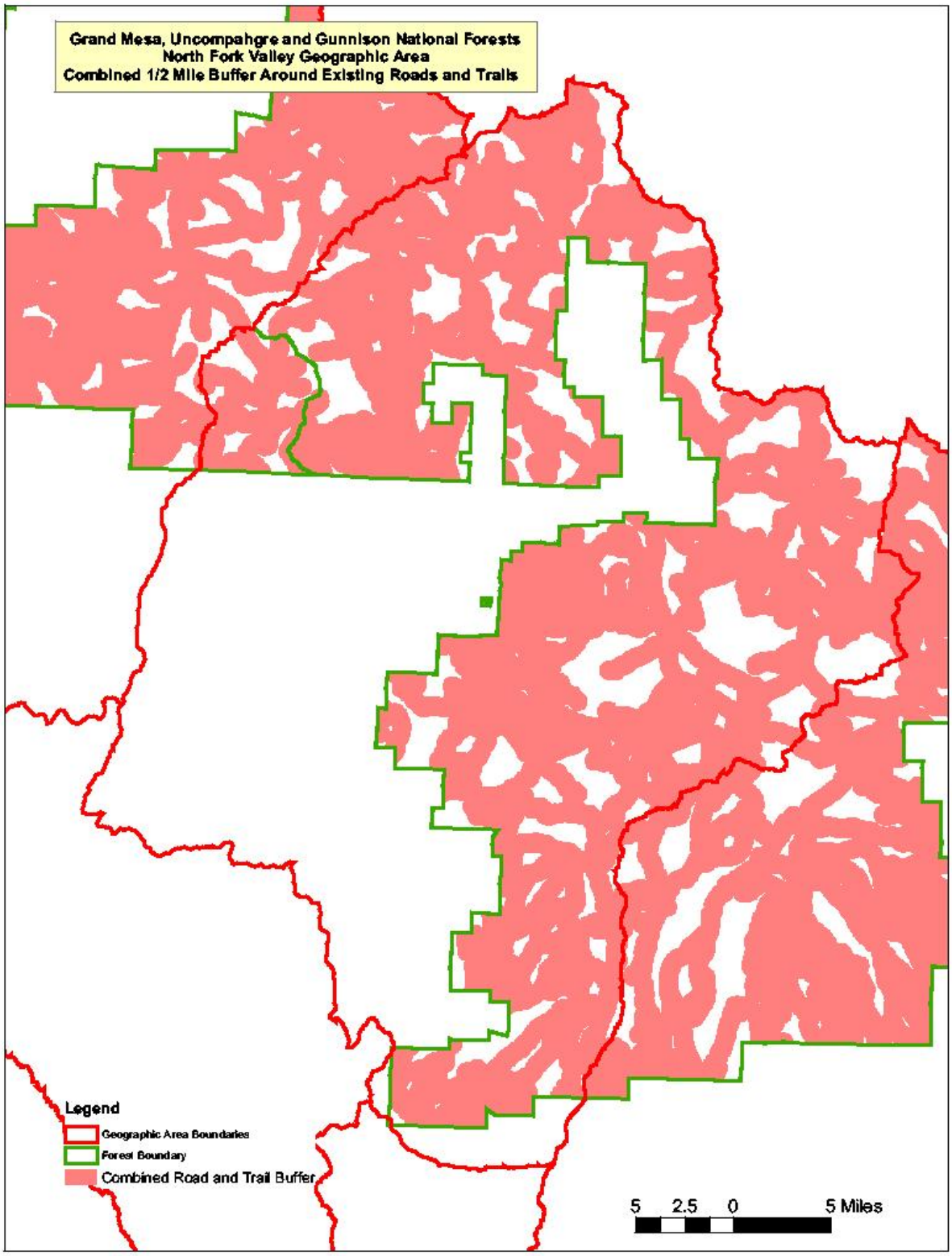

Table 5. Relative Amounts Of Acres In Cover Type, Inside And Outside Of ½ Mile Buffer Around Existing Routes, North Fork Valley Geographic Area.

Cover Type	Total Acres (NFV GA)	Acres in Buffer	% of Buffer	% of Total Cover Type in Buffer	Acres Outside 1/2 mile Buffer	% of Area Outside of Buffer	% of Total Cover Type Outside Buffer
Grass/Forb	38,460	30,781	8	80	7,679	7	20
Sagebrush	5,499	4,810	1	87	689	1	13
Gambel Oak	60,681	52,759	13	87	7,922	7	13
Mixed Mountain Shrub	23,519	18,823	5	80	4,696	4	20
Snowberry	1,266	1,010	0	80	256	0	20
Willow	10,135	7,121	2	70	3,014	3	30
Cottonwood	746	679	0	91	67	0	9
Aspen	205,410	171,648	44	84	33,762	30	16
Pinyon/Juniper	2,744	1,869	0	68	875	1	32
Ponderosa Pine	259	253	0	98	6	0	2
Lodgepole Pine	0		0			0	
Limber Pine	0		0			0	
Douglas-fir	1,181	896	0	76	285	0	24
Blue Spruce	0		0			0	
Spruce/Fir	121,391	86,598	22	71	34,793	31	29
Bristlecone Pine	0		0			0	
Bare/Rock	32,028	12,858	3	40	19,170	17	60
Water	1,224	1,152	0	94	73	0	6
Grand Total	504,542	391,255		78	113,287		22

Key Findings

- Miles of existing (known) road network on the North Fork Valley Geographic Area

System	Unclassified	Total
437	55	493

- Roads occur mostly in aspen (31 percent), Gambel oak (24 percent), and grass/forb (16 percent) cover types.

- Miles of existing (known) trail network on the North Fork Valley Geographic Area

SystemTrails			Unclassified Trails	Total Trail Miles
Motorized	Non-motorized	System Subtotal		
40	266	307	340	647

- Trails occur mostly in aspen (46 percent), spruce/fir (19 percent), and then Gambel oak (13 percent) cover types.

- Seventy-eight percent of the North Fork Valley Geographic Area is within ½ mile of an existing road or trail.
- Seventy percent or more of most cover types on the North Fork Valley Geographic Area occur within the ½ mile buffer.

Trends

- Because the existing road network is so extensive, the potential for future road development is low. Any new road construction that does occur will be associated with either oil and gas development or timber management, and these new roads will only be open to administrative traffic and/or temporary in nature.

Management Implications

- Travel management decisions (route-by-route) need to be made and implemented to reduce the impact of existing roads and trails.
- In areas of important wildlife habitat (i.e., Dyer, Flatirons) focus on reducing high road and/or trail density to reduce human disturbance and improve habitat effectiveness to encourage wildlife species to remain on NFS lands.