

Appendix 3.2

Access Issue Analysis Report

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Issue Statement: Road access is essential for the public's use and enjoyment of the Forest as well as for the management, protection, and utilization of forest resources. Unfortunately, it will not be possible to entirely avoid impacts to road access, whether from continued inadequate maintenance or from changes in management. Road managers and users, working together, face the challenge of minimizing impacts on the quality and quantity of access while improving affordability and resource conditions.

1. Findings

- Road access is the primary facilitator for local and regional communities to enjoy the socio-economic benefits of the forest. Impacts to road access result in proportional impacts to those benefits.
- Up to 350 miles of roads in Late Successional Reserves are maintained at a higher level than needed for resource management. Some could be closed and managed at ML1, and others could be decommissioned.
- Most roads that provide access for timber management are expected to be retained, but some minor adjustments are anticipated:
 - A minor amount of new spur-road construction is needed to economically utilize the few timber management stands that do not already have road access.
 - Because of lower harvest volumes, some ML2 roads could be more appropriately managed as ML1.
- Tables A3.2- 1a-c display recreation use patterns that can be useful in estimating impacts of potential road management changes on recreation access.
 - Wet weather use restrictions could have substantial impacts on off-highway vehicle (OHV) recreation unless they are implemented in a flexible manner. If the flexible wet weather use restrictions¹ currently in effect for OHV trails were extended to the road system in the OHV areas, impacts on access would be relatively minor.
 - Low use levels in other areas during the normal wet season would allow simple wet weather restrictions to be used without causing substantial impact.

¹ Simple wet weather use restrictions are those that close an area for the entire wet season. Flexible restrictions close an area when roads are wet and subject to rutting, but reopen them during intermittent dry periods when roads have firmed-up and are resistant to rutting.

- Focusing road closures in areas with low recreation use can minimize impacts on recreation access.
- Closing some of the roads in areas of high road density areas has less impact than closing the same mileage of roads in low road density areas.
- It appears that the need for wet weather use restrictions and some closure of ML2 roads can be accomplished in a way that does not have major adverse impacts on any of our main access needs. This will require careful 'needed-vs-unneeded-roads' analysis at the watershed or project scale to provide the information that road managers need to minimize the access impacts of these practices.

Table A3.2- 1a - Spatial and Seasonal Recreation Use Patterns

Covel Ranger District

Area or Destination	Percent of District Use							
	Total Use	Season 1		Season 2		Season 3		Wet Season Use
		Period	Use	Period	Use	Period	Use	
General Area Use								
Howard	13%	Aug 16 – Oct 31	12%	May 1 – Aug 15	1%	Oct 31 – Dec 15	Tr	2%
Blands Cove	5%	Aug 16 – Oct 31	5%	May 1 – Aug 15	Tr	Oct 31 – Dec 15	Tr	1%
Keller	20%	Aug 16 – Oct 31	18%	May 1 – Aug 15	2%	Oct 31 – Dec 15	Tr	4%
Hells ½ Acre	5%	Aug 16 – Oct 31	4%	May 15 – Aug 15	1%			1%
Covelo GFA	15%	Aug 16 – Oct 31	14%	May 1 – Aug 15	1%	Oct 31 – Dec 15	Tr	3%
Sub Total	58%							11%
Destinations								
Eel River CG	4%	Aug 16 – Oct 31	4%	May 1 – Jul 15	Tr	Jul 16 - Aug 15	Tr	1%
Howard / Little Doe	18%	Aug 16 – Oct 31	17%	May 1 – Jul 15	1%	Jul 16 - Aug 15	Tr	3%
Hammerhorn CG	11%	Aug 16 – Oct 31	10%	May 1 – Jul 15	1%	Jul 16 - Aug 15	Tr	2%
Soldier Ridge TH's	6%	Aug 16 – Oct 31	4%	May 1 – Jul 15	2%	Jul 16 - Aug 15	Tr	1%
Greensprings TH	2%	Aug 16 – Oct 31	1%	May 1 – Jul 15	Tr	Jul 16 - Aug 15	Tr	Tr
Sub Total	42%							7%
Overall Percent of District Use Occurring in Wet Season								18%

Table A3.2- 1b - Spatial and Seasonal Recreation Use Patterns

Grindstone Ranger District

Area or Destination	Percent of District Use							
	Total Use	Season 1		Season 2		Season 3		Wet Season Use
		Period	Use	Period	Use	Period	Use	
General Use Areas								
Stonyford OHV	27%	Oct 1 – May 31	22%	Aug 16 – Sep 30	4%	Jun 1 – Aug 15	1%	16%
Grindstone GFA	19%	Aug 16 – Oct 31	16%	May 1 – Aug 15	2%	Nov 1 – Dec 15	1%	4%
Doe Peak	3%	Aug 16 – Oct 15	2%	Oct 16 – May 31	1%	Jun 1 – Aug 15	Tr	1%
Sub Total	49%							21%
Destinations								
Fouts	25%	Oct 1 – May 31	20%	Aug 16 – Sep 30	4%	Jun 1 – Aug 15	1%	14%
Letts-Boardman	14%	Apr 16 – Sep 15	13%	Sep 16 - Thxgiving	1%	Mar 16 – Apr 15	Tr	1%
Little Stony	3%	Oct 1 – May 31	2%	Aug 16 – Sep 30	Tr	Jun 1 – Aug 15	Tr	2%
Plaskett	6%	May 25 – Sep 15	3%	Sep 16 – Oct 31	3%	Snowplow – May 24	Tr	1%
Ides Cove TH	1%	May 20 – Jul10	1%	Jul 11 – Oct 31	Tr			Tr
Sub Total	51%							18%
Overall Percent of District Use Occurring in Wet Season								39%

Table A3.2- 1c – Spatial and Seasonal Recreation Use Patterns

Upper Lake Ranger District

Area or Destination	Percent of District Use							
	Total Use	Season 1		Season 2		Season 3		Wet Season Use
		Period	Use	Period	Use	Period	Use	
General Use Areas								
Upper Lake South	2%	Jul 1 – Sep 30	2%					Tr
Upper Lake OHV	12%	Oct 1 – May31	12%	Jun 1 – Sep 30	1%			8%
Pillsbury North	7%	Aug 16 – Oct 15	6%	Jun 15 – Aug 15	1%			Tr
Hells ½ Acre	5%	Aug 16 – Oct 15	4%	Jun 15 – Aug 15	Tr			Tr
Sub Total	26%							8%
Destinations								
Lake Pillsbury	36%	May 16 – Sep 15	34%	Sep 16 – May 15	2%			1%
OHV Staging Areas	38%	Oct 1 – May 31	36%	Jun 1 – Sep 30	2%			26%
Sub Total	74%							27%
Overall Percent of District Use Occurring in Wet Season								35%

2. Guidelines - The following suggestions are intended to assist Forest Service road managers to effectively implement road-related Forest Plan management direction.

2.1. Need for Forest Plan Amendment

- None identified.

2.2. Identifying Opportunities and Setting Priorities

- Assure that closure or decommissioning for the purpose of improving resource conditions or affordability occurs on the least needed roads.
- Focus the more expensive resource-protection road improvements on the most needed roads.

2.3. Watershed and Project Scale Analysis

- Where there are large private land in-holdings, work with the landowners to evaluate long-range transportation needs and opportunities to coordinate access.
- Inventory all unclassified roads and include in the assessment of needed vs. unneeded roads.
- When identifying needed vs. unneeded roads:
 - Evaluate the extent to which each road is needed for resource management and protection, private land access, and recreation.
 - Consider existing road density, to the extent that adjacent roads may provide alternate access to an area.
 - List roads in order from most-needed to least-needed to assist road managers to minimize access impacts when prioritizing road closure and decommissioning opportunities.

2.4. Construction

- Applicable Forest Plan standards and guides: Facilities & Transportation #1, 2, 14.
- When considering new road construction, assure that the proposed new road is more needed than existing roads in the watershed that have been identified for closure or decommissioning.

2.5. Reconstruction, and Deferred Maintenance

- No recommendations.

2.6. Operation and Maintenance

- Applicable Forest Plan standards and guides: Facilities & Transportation #1, 14.

- In OHV areas and other areas of high wet weather use, consider using flexible rather than simple wet weather use restrictions to minimize impacts on road-dependent recreation access.

2.7. Closure & Decommissioning

- Applicable Forest Plan standards and guides: Facilities & Transportation #4.
- Avoid closing roads with known culvert plugging risk, so that there is ready access for cleaning and storm patrol.
- Develop a schedule and funding strategy for closing 15% ML2 roads forest-wide. Adjust the schedule, strategy, and closure percentage goal as needed to reflect changes in funding and refinement of road maintenance cost information. The underlying objective is to bring the workload into line with available funding.
- Take advantage of opportunities to share closure costs, and provide alternative access by converting roads to trails.

3. Analysis

This discussion focuses primarily on the roads under Forest Service jurisdiction. The development of the access issue is strongly linked to a significant change in the Forest Service's ability to maintain the existing road system in a safe condition with adequate resource protection. The Affordability Issue findings indicate a need to implement seasonal use restrictions and to close some roads in order to achieve a safe, affordable road system. In anticipation of these needed changes, we sought to develop information that would help road managers minimize the impacts on access as they work to plan and implement the changes.

We do not devote much discussion to the following subjects, for the reasons stated:

- Private land access – provision of reasonable access to private land inholdings is required by law, and will continue to be managed as in the past. Access issues vary from parcel to parcel, so are best analysed at the watershed or project scale.
- Access to communities within Mendocino NF – routes that provide the most reliable, cost efficient access to such communities were identified as key routes. By definition, key routes are the most needed of our minimum road system, so we do not anticipate any significant changes in access provided by them.
- Connectivity with public roads – several of the key routes are public roads, and the remainder provide connectivity between public roads and the rest of the road system. We do not anticipate any significant changes in access provided by key routes, so connectivity should remain unaffected.

3.1. Background

Providing reasonable access to the public and private lands within national forests has always been a directive that the Forest Service has had. The primary driver of development of the existing road system was timber management, but other uses also benefited, notably outdoor recreation. Now we are at a point that we have more road access than we need for timber management, and cannot afford to sustain the excess access. While downsizing the road system would have a neutral effect on timber access and positive effect on affordability, it would have a negative effect on recreation access.

Loss of road access for recreation is probably one of the greatest concerns the public has regarding forest road management. At the public meetings, the majority of the participants expressed alarm over recent road closures and increased restrictions on wet weather road use. These people value their access to their national forest as an important part of their quality of life. They perceive a trend that could severely restrict that access.

Admittedly, the Forest Service probably contributed to these concerns by not adequately explaining the need for these actions, or how much more can be expected. Nevertheless, even when these people better understand the reasons for, and scope of needed changes, they will likely remain vitally interested in preserving as much access as is reasonably achievable.

Although forest-scale roads analysis does not propose specific road closures, decommissioning, or other actions, it does point out what concerns there are with the transportation system, and suggest ways to address those concerns. This part of the roads analysis endeavors to develop information that will be useful in minimizing the impacts on road access as we make necessary changes in how we manage the road system

3.2. Changes in Ability to Provide Access

Access is closely related to affordability: if the system cannot be maintained, then we do not have safe, reliable access for users or resource managers. If we do not take deliberate, well-planned steps to make the road system more affordable, deteriorating road conditions will reduce access anyway. Therefore, if we wish to retain an optimum level of access, we cannot afford to avoid or put off making some tough decisions.

Over the past decade or so, as Mendocino NF road managers dealt with inadequate maintenance funding², both the quality and quantity of access has declined. Even though only a small percentage of roads have been closed, those that remain open are rougher due to extended maintenance rotations. Many roads that were easily passable with passenger cars in the past are now best traveled with high clearance vehicles. Even the key routes, which receive the highest level of maintenance, get fairly rough between gradings. Users must drive more slowly on them to be safe and to avoid excessive wear on their vehicles.

The affordability analysis section (Appendix 3.1) of this report indicates that additional reductions in access will be needed to bring maintenance workloads into line with available funding. It further suggests that some combination of wet weather use restrictions and some additional road closures³ will have to form the core of any feasible strategy. Other approaches, such as out-sloping roads and conversion to trails will probably also be available to a limited extent, depending on the availability of non-road maintenance funding sources.

Most of the pain associated with these declines in access will be felt in the recreation sector. Resource management and protection activities have the bulk

² See Affordability Issue discussions regarding coping strategies that have been used.

³ Use of the term 'road closure' means managing the road at ML1 (maintenance level 1), not decommissioning.

of their access needs during the dry season; so wet weather use restrictions would only impose minor inconveniences or additional operation costs. Resource utilization activities such as timber harvest and livestock grazing would also not be substantially affected. Both timber harvest and grazing access needs occur mostly during the dry season, and timber harvest that does extend into the wet season already must operate under restrictions.

On the other hand, our analysis indicates that about 20% to 40% of each Ranger Districts' recreation use currently occurs during the normal wet weather season. Most of this wet weather use⁴ is associated with OHV recreation, and occurs in the Stonyford and Upper Lake OHV areas, and the Fouts, Little Stony, and Upper Lake OHV staging areas. Other recreation activities that run significantly into the wet season are bear hunting, snow-play and Christmas tree cutting.

Wet weather restrictions have been in place for OHV trails for many years, but the restrictions have not applied to the road system. The trail closure has the side benefit of reducing the amount of OHV use on ML2 roads within the Stonyford and Upper Lake OHV areas, but other, non-OHV recreation traffic still occurs there. Implementation of seasonal road closures to complement the trail closures would impact this other traffic.

Because timber management has the greatest ability to 'pay its way' for the road access it needs, it follows that its portion of road access needs are already the most affordable. Therefore, most of our opportunities to increase affordability by closing roads are expected to occur in parts of the road system that do not support timber management. Consequently, we do not expect that actions taken to increase affordability would significantly reduce existing access for timber management.

3.3. Changes in Access Need

Recreation

Existing geographic and seasonal recreation use patterns are displayed in Tables A3.2- 1a-c, and Plates 7 and 8 (all plates are in Appendix 5). The information indicates that certain areas of the Forest receive the lion's share of recreation use, while other areas receive fairly light use. Also, note that although most use occurs during the dry season, a substantial amount of use also occurs during the wet season. These will be important considerations when developing strategies to minimize impacts to recreation access.

The demand for recreation access is expected to continue to grow along with the growth in the local and regional populations. Although precise figures are not

⁴About 30% to 35% of total annual District use, or 80% to 95% of wet season use. Refer to Tables A3.2- 1a-c.

available, we know that significant numbers of visitors come from as far as the South and East Bay Area and the Sacramento metropolitan area.

Currently, demand is near to or greater than supply for recreation opportunities within the general use areas or destinations listed in Table A3.2- 2 (refer to Plates 7 and 8 for locations of the areas and destinations).

Table A3.2- 2 - High Use Recreation Areas & Destinations		
Ranger District	General Use Areas	Destinations
Covelo		Howard / Little Doe, Hammerhorn
Grindstone	Stonyford OHV	Fouts, Little Stony
Upper Lake	Upper Lake OHV	Lake Pillsbury, OHV Staging Areas

Road access is not a limiting factor⁵ for the supply of opportunities for these places, so we do not foresee any need for increased road access⁶. However, decreases in road access for these places would likely have disproportionately high impacts as compared to decreases in road access for other places.

The demand for dispersed recreation opportunities, such as hunting, OHV use, and dispersed camping, is well below the supply. However some saturation of general use areas does occur during peak periods, such as the opening weekends of hunting seasons, or when holiday weekends produce overflow from developed recreation sites. Statewide and nation-wide declines in hunting have been noted (USDI FWS. 2001.), which could relieve some of the peak demand if there were similar local and regional trends. However, we have no trend information that is specific to the Mendocino.

Resource Utilization

In forested areas allocated to timber production, road density is an important factor in determining logging system feasibility. In turn, the different costs associated with the various logging systems affect net revenues from timber sales, including the amount that can be allocated to road maintenance and improvement.

The current road system meets all anticipated needs for arterial and collector road access. However, experience with recent timber sales indicates that a minor amount of local (spur) road construction continues to be needed to economically access timber stands that are beyond the reach of the existing road system. The specifics of where these access needs exist, and the costs of

⁵ Other factors, such as the number of developed recreation sites, miles of trails, or the natural capacity of an area to accommodate use are the limiting factors.

⁶ However, there is demand for increased quality of access, in the form of improved user comfort and higher safe travel speeds.

providing for them must be addressed at the watershed or project scale. We expect that most of such roads could be managed as ML1.

Livestock grazing operations currently take advantage of the existing road system to facilitate moving livestock to, from, and within grazing allotments. There has been some decline in the number of active grazing allotments over the past decade. This has been due to various factors, including 1) increased operating costs associated with more stringent riparian protection standards, 2) economic inefficiencies associated with small operations, and 3) older permittees retiring from the business. Because of the small size of many of the remaining allotments, the number of active allotments may continue to decline over the coming decade.

Road access is important to both the economic efficiency of a grazing operation and the efficiency of permit administration. However, the level of grazing management traffic rarely exceeds a fraction of a percent of the overall traffic within an area. So, it is unlikely that the level of overall need for any particular road will hinge upon grazing management access needs.

In light of these considerations, we anticipate two conditions regarding future access needs for grazing management. First, there should be either a stable or declining number of areas within which road access is needed for grazing management. Second, road access will remain important for grazing management within the remaining active allotments, but will not constitute a significant portion of the overall demand for access for most areas. As a consequence, we expect grazing management to continue to be opportunistic in meeting its road access needs, relying on road access that is provided for other, more substantial road uses.

The needs for mining access have always been a sporadic and incidental part of the access situation on the Mendocino NF. All known mineral deposits⁷ are economically marginal, with claims being active only during occasional periods of artificial market scarcity, such as during World War II. This condition is expected to continue in the future.

Resource Management and Protection

Based on the Mendocino Fire Management Plan (Draft), every Watershed Analysis, and the Forest-Wide Late Successional Reserve Assessment, there is a need to conduct more fuel management in forest vegetation types. This includes areas not managed for timber production, such as Late Successional Reserves. Fuel management activities in forest stands could involve prescribed burning, pre-commercial and commercial thinnings.

⁷ Primarily located in the ultramafic belt on the east side of the Forest. The single exception is a jade claim on the Covelo RD.

Within areas allocated for timber production, the access provided for that purpose is adequate to meet fuel management access needs. The road design standards for accessing commercial thinnings in Late Successional Reserves would also be satisfied by the legacy road systems that exist within them⁸. However, the frequency of entry would likely be much less than that for which legacy system was designed. So, the existing level of access may exceed the need. Specifically, some roads that are currently open could be closed except when needed for silvicultural or fuel management purposes.

The Forest Plan estimates that up to 350 miles of local roads within Late Successional Reserves may be closed to use (LRMP, pg. III-8). This represents about 14% of the entire road system (32% of ML2 road mileage). We expect that some of these will be needed for periodic management activities (silvicultural, fuel management, or other habitat management), and would best be managed as ML1 roads rather than being decommissioned. Unfortunately, no detailed, quantitative analysis of these long-term access needs has been completed. Such information will be needed during watershed scale roads analysis to determine the most efficient reconfiguration of the legacy road systems for achieving management goals.

3.4. Strategies for Minimizing Access Impacts

We began by identifying where anticipated changes in access have the greatest potential for impacting identified access needs. As noted earlier, it appears that aquatic resource protection and affordability are best achieved by emphasizing some combination of wet weather use restrictions and road closures. Therefore, we focused on those two potential changes, and how they could be managed to minimize access impacts.

Wet weather use restrictions are likely to impact recreation access the most. The majority of the wet weather recreation use is associated with OHV recreation, and occurs in the Stonyford and Upper Lake OHV areas (refer to Tables A3.2-1b&c, and Plate 7). Fortunately, the current level of wet season use at these areas has been successfully managed for many years under flexible wet season use restrictions. Under flexible restrictions, OHV trails are closed after each significant rain, and then re-opened when the trails dry out enough to be used without being damaged or causing erosion. Enough 'open' days occur during the typical wet season to accommodate the current use levels. OHV users can call ahead to determine whether or not the trails will be open, and so avoid wasted trips. User acceptance of the restrictions has been fairly good (Applegate, pers. com.).

These trail restrictions have not applied to the roads within these areas, so enough non-OHV use still occurs on them during wet periods to cause surface

⁸ Forest vegetation in these areas was managed for timber production prior to the implementation of the Forest Plan.

damage and increased erosion. Extending flexible wet weather restrictions to the road system in these areas would impact only a minor portion of the current use, but secure substantial reductions in road damage and erosion.

The other potential change in access is the need to close about 15% of ML2 roads. As with seasonal restrictions, the greatest potential for impacts is upon recreation uses. Still, a 15% reduction in road mileage need not translate into a 15% impact on recreation access.

By closing roads in lightly used areas, the degree of impact can be much less than the degree of reduction in open road mileage. The recreation use pattern tables (Tables A3.2- 1a-c) can be used to assist in estimating the relative need for recreation access during watershed-scale analysis. This would provide the recreation access input to the required identification of needed vs unneeded roads.

Watershed- and Project-Scale Roads Analysis

Minimum requirements for roads analysis at these smaller scales are specified at FSM 7712.13c. Of particular relevance to the access issue is the requirement to *identify needed vs unneeded roads*. The identification of needed vs unneeded roads would in turn help inform the *identification of site-specific priorities and opportunities for road improvements and decommissioning*.

In reality, there are not too many truly 'unneeded' roads. Even our most lightly used roads have a few people who perceive them as needed, even if it is just for an occasional visit every year or so. A more useful concept is that some roads are needed more than others, and that we can't afford to keep all of the less needed roads. The most needed roads on the Mendocino are the key routes that have been identified in this forest-scale analysis. The degree of the need for access provided by other roads will have to be determined at the watershed scale.

At that scale, watershed- or site-specific access needs can be identified, so that individual roads can be comparatively rated. The simple existence of demand for access does not constitute 'need' in this context. Need is established in relation to meeting Forest Plan objectives⁹. Roads that are needed the least would then become candidates for closure or decommissioning when identifying and prioritizing such opportunities.

⁹ A needed road would be one that is a necessary part of the minimum road system as defined in CFR 212.5(b)(1): "...the road system determined to be needed to meet resource and other management objectives adopted in the relevant land and resource management plan, to meet applicable statutory and regulatory requirements, to reflect long-term funding expectations, to ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance."

The *character* of access needs should also be identified, as this information will assist road managers in selecting management options that minimize access impacts while achieving the desired affordability or resource protections that are needed.

- Seasonality – Is there a substantial level of wet season access need? If not, implementation of simple wet weather restrictions would probably be acceptable. But if there is, it may be better to implement flexible restrictions in order to minimize access impacts. In some limited cases, the presence of year round residences may preclude implementing any kind of seasonal closure.
- Frequency – Is the access needed on an annual basis, or less frequently? Local (spur) roads that were built to provide access for timber harvest and management may not be needed as frequently as in the past. Such roads could be managed as ML1 (closed and opened only when needed) without significantly impacting the access needs for which they were built.
- Vehicle Type – Is access needed for vehicles with low clearance or high clearance? Does the road need to accommodate large trucks?

In addition to the above considerations, transportation planning guidance in FSH (Forest Service Handbook) 7709.55 should be used to help inform watershed and project scale roads analysis regarding the access issue. Area and network transportation analysis ensures that transportation development, operation, and maintenance effectively contribute to the resource needs of the analysis area.

4. Quantifying Recreation Use Patterns

In order for road managers to minimize impacts on access for forest recreation, they need to know what the patterns of use are. By understanding the amount, timing, and location of various types of recreation use, they can better evaluate the relative levels of impact from proposed changes in road management.

Unfortunately, we don't have reliable, detailed information of this sort. The Forest Service's old Recreation Information Management (RIM) system was once used to track such information. However, it has not been actively maintained for over a decade, and its accuracy has been called into. The National Visitor Use Monitoring (NVUM) program, a new system being implemented by the Forest Service for tracking visitor use, has not yet gathered enough information to be useful at the sub-forest scale (Fiorella, pers. com). So, we relied on the knowledge and experience of our Ranger District recreation managers (Applegate, Smith, Wright) to develop our information.

The recreation managers broke their District into use areas and destinations, and estimated the percent of total annual Ranger District use that occurs in each area or destination. They then identified primary and secondary use seasons for each area or destination, and estimated the percent of each one's use that occurs during each season.

This information is not based on a statistical sampling scheme, and consists only of relative use patterns rather than estimates of specific numbers. For example, we estimated the use in an area such as Lake Pillsbury as a percent of Upper Lake Ranger District's total use rather than as X thousand recreation visitor days. Nevertheless, it is based on the knowledge of recreation managers who each have about 2 decades of experience with the areas for which they estimated use patterns. In statistical terms, our estimates are probably not very precise, but they are probably fairly accurate. In other words, when we estimate that an area receives 3.5% of Ranger District use, it could actually be 7% or 2%, but it is probably not over 7%.

Although this method is somewhat crude, we believe it is more valuable than ignoring the knowledge these managers have acquired over the years. We do know with certainty that visitor use is not uniform throughout the Mendocino NF, nor is it uniform throughout the seasons of the year. This information should be adjusted as better information becomes available, but can be of good use to road managers in the interim.

Estimating Recreation Access Impacts

Tables A3.2- 3a-c display the inputs and calculations used to estimate the spatial and seasonal use distributions for each ranger district. Tables A3.2- 1a-c summarize the results. The tables divide use estimates into "General Use Areas" and "Destinations". Use associated with a general use area relies mainly on the roads within the area, whereas use associated with a destination relies mainly on

the route(s) that provide access to the destination. This distinction is important when gauging the relative impact of a proposed reduction of access.

For example, closing 50% of the roads in the Upper Lake OHV area would impact about 6% of the Upper Lake Ranger District's annual use (50% of 12% of District use that occurs in the general area), but would not necessarily impact use at the OHV Staging Area destinations, unless their specific access roads were closed. On the other hand, a strict, 100% wet weather restriction throughout the area would impact about 34% of the Upper Lake Ranger District's annual use (all of the wet season use for the Upper Lake OHV area and the OHV Staging Area destinations: 8% + 26%).

Tables A3.2- 1a-c can be used to assist in estimating the relative need for recreation access when identifying needed-vs-unneeded roads during watershed scale analysis. They can also be used to help estimate relative impacts of potential changes in access at the watershed or project scale.

Table A3.2- 3a – Covelo RD Recreation Use Pattern Estimates and Calculations

Area	Direct Use (% of Dist)	Indirect Use (% of Dist)	Pct of District Use	Season 1 Pct of Area Use	Season 2 Pct of Area Use	Season 3 Pct of Area Use	Season 1 Pct of Dist Use	Season 2 Pct of Dist Use	Season 3 Pct of Dist Use	Season 1 Pct Wet Wx	Season 2 Pct Wet Wx	Season 3 Pct Wet Wx	Pct Distr Use in Wet Wx
Howard	5.00%	7.65%	12.65%	94.00%	5.00%	1.00%	11.89%	0.63%	0.13%	0.2	0	1	2.50%
Blands Cove	5.00%	0.25%	5.25%	94.00%	5.00%	1.00%	4.94%	0.26%	0.05%	0.2	0	1	1.04%
Keller	20.00%	0.25%	20.25%	90.00%	9.00%	1.00%	18.23%	1.82%	0.20%	0.2	0	1	3.85%
Hells 1/2 Acre	5.00%	0.00%	5.00%	85.00%	15.00%		4.25%	0.75%	0.00%	0.2	0		0.85%
Covelo	15.00%	0.25%	15.25%	94.00%	5.00%	1.00%	14.34%	0.76%	0.15%	0.2	0	1	3.02%
SubT	50.00%		58.40%										11.26%
Destination	Total Use (% of District)	Pct Off-Site Use	On-Site Use (% of Dist)	Season 1 Pct of Area Use	Season 2 Pct of Area Use	Season 3 Pct of Area Use	Season 1 Pct of Dist Use	Season 2 Pct of Dist Use	Season 3 Pct of Dist Use	Season 1 Pct Wet Wx	Season 2 Pct Wet Wx	Season 3 Pct Wet Wx	Pct Distr Use in Wet Wx
Eel River CG	5.00%	20.00%	4.00%	60.00%	30.00%	10.00%	3.76%	0.20%	0.04%	0.2	0	0	0.75%
Howard/Little Doe	23.00%	20.00%	18.40%	60.00%	30.00%	10.00%	17.30%	0.92%	0.18%	0.2	0	0	3.46%
Hammerhorn CG	14.00%	20.00%	11.20%	60.00%	30.00%	10.00%	10.08%	1.01%	0.11%	0.2	0	0	2.02%
Soldier Ridge THs	6.00%	0.00%	6.00%	60.00%	30.00%	10.00%	3.60%	1.80%	0.60%	0.2	0	0	0.72%
Greensprings TH	2.00%	0.00%	2.00%	60.00%	30.00%	10.00%	1.20%	0.60%	0.20%	0.2	0	0	0.24%
SubT	50.00%		41.60%										7.19%

Table A3.2- 3b – Grindstone RD Recreation Use Pattern Estimates and Calculations

Area	Direct Use (% of Dist)	Indirect Use (% of Dist)	Pct of District Use	Season 1 Pct of Area Use	Season 2 Pct of Area Use	Season 3 Pct of Area Use	Season 1 Pct of Dist Use	Season 2 Pct of Dist Use	Season 3 Pct of Dist Use	Season 1 Pct Wet Wx	Season 2 Pct Wet Wx	Season 3 Pct Wet Wx	Pct Distr Use in Wet Wx
Stonyford OHV	4.90%	22.33%	27.23%	80.00%	15.00%	5.00%	21.78%	4.08%	1.36%	71.43%	0.00%	0.00%	15.56%
Grindstone GFA	17.00%	2.00%	19.00%	85.00%	10.00%	5.00%	16.15%	1.90%	0.95%	20.00%	0.00%	100.00%	4.18%
Doe Peak	3.00%	0.00%	3.00%	55.00%	40.00%	5.00%	1.65%	1.20%	0.15%	0.00%	66.67%	0.00%	0.80%
SubT	24.90%		49.23%										20.54%
Destination	Total Use (% of District)	Pct Off-Site Use	On-Site Use (% of Dist)	Season 1 Pct of Area Use	Season 2 Pct of Area Use	Season 3 Pct of Area Use	Season 1 Pct of Dist Use	Season 2 Pct of Dist Use	Season 3 Pct of Dist Use	Season 1 Pct Wet Wx	Season 2 Pct Wet Wx	Season 3 Pct Wet Wx	Pct Distr Use in Wet Wx
Fouts	42.00%	40.00%	25.20%	80.00%	15.00%	5.00%	20.16%	3.78%	1.26%	71.43%	0.00%	0.00%	14.40%
Letts-Boardman	17.50%	20.00%	14.00%	90.00%	7.00%	3.00%	12.60%	0.98%	0.42%	0.00%	55.56%	100.00%	0.96%
Little Stony	4.20%	40.00%	2.52%	96.00%	3.00%	1.00%	2.42%	0.08%	0.03%	71.43%	0.00%	0.00%	1.73%
Bath House TH	0.35%	0.00%	0.35%	50.00%	40.00%	10.00%	0.18%	0.14%	0.04%	40.00%	14.29%	100.00%	0.13%
Dixie Glade TH	0.70%	50.00%	0.35%	100.00%			0.35%	0.00%	0.00%	16.13%			0.06%
Summit TH	0.35%	0.00%	0.35%	65.00%	35.00%		0.23%	0.12%	0.00%	0.00%	13.33%	0.00%	0.02%
Plaskett	8.00%	25.00%	6.00%	55.00%	44.00%	1.00%	3.30%	2.64%	0.06%	0.00%	33.33%	0.00%	0.88%
Crockett TH	0.50%	0.00%	0.50%	65.00%	35.00%		0.33%	0.18%	0.00%	0.00%	13.33%	0.00%	0.02%
Ides Cove TH	1.00%	0.00%	1.00%	65.00%	35.00%		0.65%	0.35%	0.00%	0.00%	13.33%	0.00%	0.05%
Greensprings TH	0.50%	0.00%	0.50%	65.00%	35.00%		0.33%	0.18%	0.00%	0.00%	13.33%	0.00%	0.02%
SubT	75.10%		50.77%										18.26%

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Table A3.2- 3c – Upper Lake RD Recreation Use Pattern Estimates and Calculations

Area	Direct Use (% of Dist)	Indirect Use (% of Dist)	Pct of District Use	Season 1 Pct of Area Use	Season 2 Pct of Area Use	Season 3 Pct of Area Use	Season 1 Pct of Dist Use	Season 2 Pct of Dist Use	Season 3 Pct of Dist Use	Season 1 Pct Wet Wx	Season 2 Pct Wet Wx	Season 3 Pct Wet Wx	Pct Distr Use in Wet Wx
Upper Lake South	2.00%	0.00%	2.00%	100.00%			2.00%	0.00%	0.00%	0.00%			0.00%
Upper Lake OHV	3.00%	9.40%	12.40%	95.00%	5.00%		11.78%	0.62%	0.00%	71.43%	0.00%		8.41%
Pillsbury North	3.00%	4.00%	7.00%	90.00%	10.00%		6.30%	0.70%	0.00%	0.00%	0.00%		0.00%
Hells 1/2 Acre	4.50%	0.00%	4.50%	90.00%	10.00%		4.05%	0.45%	0.00%	0.00%	0.00%		0.00%
SubT	12.50%		25.90%										8.41%
Destination													
Destination	Total Use (% of District)	Pct Off-Site Use	On-Site Use (% of Dist)	Season 1 Pct of Area Use	Season 2 Pct of Area Use	Season 3 Pct of Area Use	Season 1 Pct of Dist Use	Season 2 Pct of Dist Use	Season 3 Pct of Dist Use	Season 1 Pct Wet Wx	Season 2 Pct Wet Wx	Season 3 Pct Wet Wx	Pct Distr Use in Wet Wx
Lake Pillsbury	40.00%	10.00%	36.00%	95.00%	5.00%		34.20%	1.80%	0.00%	0.00%	71.43%		1.29%
Summit TH	0.50%	0.00%	0.50%	65.00%	35.00%		0.33%	0.18%	0.00%	0.00%	13.33%		0.02%
OHV Staging Areas	47.00%	20.00%	37.60%	95.00%	5.00%		35.72%	1.88%	0.00%	71.43%	0.00%		25.51%
SubT	87.50%		74.10%										26.82%

Table A3.2- 4 – RAP Book Questions Relevant to the Access Issue		
RAP Question	Scale of Analysis	
	Forest	Watershed/ Proj
EC2 – What are the indirect economic contributions of roads including market and non-market costs and benefits associated with road system design, management and operations?	x	
EC3 – What are the direct economic impacts of the current road system and its management upon communities around the forest?	x	
TM1 – How does road spacing and location affect logging system feasibility?	x	x
TM2 – How does the road system affect managing the suitable timber base and other lands?	x	x
TM3 – How does the road system affect access to timber stands needing silvicultural treatment?	x	x
MM1 – How does the road system access to locatable, leasable, and salable minerals?	x	x
RM1 – How does the road system affect access to range allotments?	x	x
SP1 – How does the road system affect access for collecting special forest products?		x
SU1 – How does the road system affect managing special-use permit sites (concessionaires, communications sites, utility corridors, and so on)?		x
GT1 – How does the road system connect to public roads and provide primary access to communities	x	x
GT2 – How does the road system connect large blocks of land in other ownership to public roads (as hoc communities, subdivisions, inholdings, and so on)?	x	x
GT3 – How does the road system affect managing roads with shared ownership or with limited jurisdiction?		x
AU1 – How does the road system affect access needed for research, inventory, and monitoring?	x	
AU2 – How does the road system affect investigative or enforcement activities?	x	
PT1 – How does the road system affect fuels management?	x	x
PT2 – How does the road system affect the capacity of the Forest Service and cooperators to suppress wildfires?		x
RR1 – Is there now or will there be in the future excess supply or excess demand for roaded recreation opportunities?	x	x

RR2 – Is developing new roads into unroaded areas, decommissioning of existing roads, or changing maintenance of existing roads causing substantial changes in the quantity, quality, or type of roaded recreation opportunities?	x	x
RR4 – Who participates in roaded recreation in the areas affected by road constructing, changes in road maintenance, or road decommissioning?		x
RR5 – What are these participants' attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?		x
SI1 – Who are the direct users of the road system and of the surrounding areas? What activities are they directly participating in on the forest? Where are these activities taking place on forest?	x	x
SI2 – Why do people value their specific access to national forest and grasslands – why is access important to them?	x	x
SI3 – What are the broader social and economic benefits and costs of the current forest road system and its management?	x	x
SI4 – How does the road system and road management contribute to or affect people's sense of place?	x	x
SI5 – What are the current conflicts between users, uses, and values (if any) associated with the road system and road management? Are these conflicts likely to change in the future with changes in local population, community growth, recreational use, resource developments, etc?	x	x

Information Sources

Literature Cited

USDI Fish and Wildlife Service. 2001. National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.
<http://fa.r9.fws.gov/surveys/surveys.html>

GIS Information Sources

Roads – Cartographic Feature Files, with feature realignments based upon Digital Ortho Quads.

Database Sources

Roads - INFRA database. Includes all roads under FS or County jurisdiction, current as of August 2002. Contains no data for privately owned roads.

Persons Cited as Personal Communication

Name	Discipline	Agency
Applegate, Jeff	Recreation Management	Forest Service
Fiorella, Anna	Visitor Use Survey Mgr	Forest Service
Smith, Brooks	Recreation Management	Forest Service
Wright, Lori	Recreation Management	Forest Service

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Annual Maintenance - Work performed to maintain serviceability, or repair failures during the year in which they occur. Includes preventive and/or cyclic maintenance performed in the year in which it is scheduled to occur. Unscheduled or catastrophic failures of components or assets may need to be repaired as a part of annual maintenance.

Classified Roads – Roads wholly or partially within or adjacent to National Forest System lands that are determined to be needed for long-term motor vehicle access, including State roads, county roads, privately owned roads, National Forest System roads, and other roads authorized by the Forest Service (36 CFR 212.1).

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Custodial Maintenance – Sub-standard maintenance level in which priority maintenance activities address immediate needs such as correcting safety problems, preventing culvert failure, and maintaining proper surface drainage. Work items that can be postponed, such as brush clearing, scheduled culvert and sign replacement, grading for user comfort, and condition inventories are deferred until they are more urgently needed.

Deferred Maintenance - Maintenance that was not performed when it should have been or when it was scheduled and which, therefore, was put off or delayed for a future period.

Design Style - Two styles are discussed, referred to as 'old' and 'new'. *Old style* roads are predominantly of a confined drainage design, characterized by an in-sloped running surface, inboard ditches with ditch relief culverts, and outboard berms. *New style* roads are predominantly of an unconfined drainage design, characterized by an outsloped running surface, rolling dips for cross drainage, and with minimal inboard ditches and outboard berms.

Key Watershed – A 5th field watershed designated under the Northwest Forest Plan for special management to contribute to anadromous salmonid conservation. Key Watersheds have highest priority for watershed restoration.

Maintenance Level 1 - These roads are closed. Some intermittent use may be authorized. When closed, they must be physically closed with barricades, berms, gates, or other closure devices. Closures must exceed one year. When open, it may be maintained at any other level. When closed to vehicular traffic, they may be suitable and used for non-motorized uses, with custodial maintenance. Surface maintenance is only performed for purposes of drainage control and minimizing erosion.

Maintenance Level 2 - Roads open for use by high-clearance vehicles. Passenger car traffic is discouraged and the surface is not maintained for this use. Traffic is minor administrative, permitted or dispersed recreation. Non-traffic-generated maintenance is minimal. Surface maintenance is only performed for purposes of drainage control.

Maintenance Level 3 - Roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities. Typically low-speed, single-lane with turnouts and native or aggregate surfacing. The road surface is maintained to provide the passage of low-clearance vehicles (i.e., passenger cars).

Maintenance Level 4 - Roads that provide a moderate degree of user

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comfort and convenience at moderate speeds. Most are double-lane and aggregate surface. Some may be single-lane. Some may be dust abated. The road surface is maintained to provide the passage of low-clearance vehicles (i.e., passenger cars).

Maintenance Level 5 - Roads that provide a high degree of user comfort and convenience. Normally double-lane, paved facilities, or aggregate surface with dust abatement. This is the highest standard of maintenance. The road surface is maintained to provide the passage of low-clearance vehicles (i.e., passenger cars).

Road Decommissioning – that result in the stabilization and restoration of unneeded roads to a more natural state (36 CFR 212.1, FSM 7703).

Road Maintenance – The ongoing upkeep of a road necessary to retain or restore the road to the approved road management objective (FSM 7712.3).

Road Reconstruction – Activity that results in improvement or realignment of an existing classified road as defined below: a) *Road Improvement* – Activity that results in an increase of an existing road's traffic service level, expansion of its capacity, or a change in its original design function; b) *Road Realignment* – Activity that results in a new location of an existing road or portions of an existing road and treatment of the old roadway (36 CFR 212.1).

Unclassified Roads – Roads on National Forest System lands that are not managed as part of the forest transportation system, such as unplanned roads, abandoned travelways, and off-road vehicle tracks that have not been designated and managed as a trail; and those roads that were once under permit or other authorization and were not decommissioned upon the termination of the authorization (36 CFR 212.1).

Wet Weather Use Regime – Whether or not a road receives significant traffic when it is wet and subject to rutting. *Restricted* refers to situations in which traffic is restricted during wet weather by either administrative means (such as a gate), or by natural features (such as being made inaccessible by snow more or less continuously throughout the wet season). *Unrestricted* refers to situations in which traffic is not so restricted during the wet season.