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Roads to Ruin:
The Flathead National Forest Shirks Its Road Reclamation Duties

by
Keith Hammer

Swan View Coalition
3165 Foothill Road
Kalispell, MT 59901
keith@swanview.org

Easy-to-access culverts on open roads can blow out, like this one, while culverts on closed roads get inspected even less often. Though the Flathead National Forest has found up to half of its culverts on closed roads at high risk of failing, it has neither inspected them regularly nor removed them as promised. (Forest Service photo, Nokio Creek, 1999)

Executive Summary

In order to protect water quality and fish, the Flathead National Forest is required to either remove or monitor annually all culverts and bridges in roads closed in threatened bull trout habitat. Similarly, the Flathead is required to develop a monitoring plan for each road it chooses to simply close in providing Security Core habitat for threatened grizzly bear, rather than conducting the preferred reclamation by removing all stream-crossing structures.

Our investigation finds the Flathead has developed none of the required stream-crossing monitoring plans for roads closed to provide Security Core. Nor has it annually monitored stream-crossing structures on closed roads in bull trout habitat.

Though the Forest Service (FS) set forth these requirements and the need for them, the Flathead has failed to implement them. Rather than correct the problem, it has instead set upon a course to do away with such requirements - as culverts and bridges continue to fail on roads both open and closed to motor vehicles.

This report will discuss how the Flathead tracks its roads and stream-crossing structures, discuss how it does and does not monitor them, and provide examples of the consequences when it fails to adequately manage them. It will conclude with recommendations on how to get the effort back on track rather than abandon it to the detriment of fish, wildlife and taxpayers.

Reclamation of 60 miles of road in the Big Creek watershed removed culverts and restored native stream channels, like this reclaimed crossing. This resulted in Big Creek being the first watershed in Montana restored and removed from its list of watersheds "impaired" by logging and road-building. (Forest Service photo)

Why the Fuss About Roads and Culverts?

Grizzly bear research indicates bears are displaced by motorized vehicles and other human uses of bear habitat. They are displaced from habitat near roads, even roads closed by gates to motorized vehicles, due to vehicle trespass and non-motorized uses of the road behind the gate. Moreover, female bears raising young need 68% of their habitat to be essentially free of roads. [1]

MT Dept. Fish, Wildlife and Parks photo

Flathead Forest Plan Amendment 19 (A19) was issued in 1995 to incorporate this research and includes limits on Open Motorized Route Density (OMRD) and Total Motorized Route Density (TMRD) - and a required minimum of 68% Security Core. A gate can be placed on a road to reduce OMRD but the road must be reclaimed/ decommissioned and removed from the road "system" in order to not count as a road and reduce TMRD. Road reclamation requires that all stream-aligned culverts and bridges be removed so they can't plug or fail during indefinite long-term closure.

While road reclamation is preferred to increase Security Core habitat, permanent road barriers like earthen berms are allowed and culverts may remain, but a culvert "monitoring plan must be developed and its implementation assured." [2, 3]

Requirements for maintaining FS roads in bull trout habitat place even more emphasis on not leaving stream-crossing structures to fail behind road closure devices. Biological Opinions (BiOps) issued by Fish and Wildlife Service (FWS) require that all culverts behind gates and permanent barriers be monitored annually and that, if annual monitoring behind barriers "is not feasible, remove all stream crossing structures when the road is closed." The BiOps require the removal of all stream-crossing structures when roads are reclaimed, so annual inspections shouldn't be an issue. [4]

In other words, when done properly, road closures and reclamation benefit bears, other wildlife, water quality, fish, and the American taxpayer. The FS and FWS agree that road reclamation that removes all stream-crossing structures, as well as the ditch-relief culverts that channel ditch water under the road, "offers the greatest long-term benefit by reducing sediment delivery, reducing the risk of culvert failure, and the need for maintenance. [5]

Joel Sartore Nat. Geo. Stock w/ Wade Fredenburg photo

Are Culvert and Bridge Failures That Big a Problem?

FWS finds all abandoned culverts eventually fail. More broadly, plugging by stream bedload and woody debris was the most common cause in cited studies of culverts. Those smaller than 24" diameter accounted for 81% of the plugged culverts. [6]

Even a small stream in an 18" dia. culvert can do a lot of damage, as shown in our 2015 photos on this page of such a crossing on Pinnacle Ridge Road 1673. Steep streams like this tributary move bedload downhill. It in this case entirely fills the culvert catch basin, plugs the culvert, and sends the stream over the road where it carries away the road fill and fine sediments that can choke trout spawning beds.

The author witnessed this same culvert plugged with bedload and failing in 1973 as an employee of the Flathead National Forest. The Flathead reports roads have increased sediment levels in Pinnacle Creek nearly twelve-fold over natural levels! [7]

Large culverts like the 54" dia. culvert pictured on the cover of this report can still overflow. The one pictured sent 1,000 cubic yards of road fill downstream. [8] A rust line greater than one-third the height of the culvert indicates this culvert was undersized and at increased risk of failure. [9]

Bridges are not immune to washing out, especially during high flows in Spring or with rain falling on fresh snow. A 1990 report by the Flathead documents $319,000 in necessary repairs to roads, culverts and bridges in the South Fork Flathead and Spotted Bear areas damaged during a rain-on-snow event in November 1989. [10]

As A19 was being written, Montana Department of Fish, Wildlife and Parks (MDFWP) used a helicopter to survey culverts on closed roads in the South Fork Flathead and Spotted Bear area, finding 52 culverts partially plugged or undermined and 13 culverts that had failed in bull trout streams. [11] Such findings are among the reasons A19 and FWS's Road Maintenance BiOps include requirements to either remove culverts from closed roads or monitor them regularly to prevent blowouts. [12]

Road 1673 looking upstream at plugged catchment.

Road 1673 looking downstream at road-fill erosion.

How Aware is the Forest Service of this Problem?

The Forest Service is well aware of the problems associated with roads, culverts and bridges. Following is what the Forest Service wrote in its 2014 Biological Assessment (BA) of road-related activities in bull trout habitat:

"Existing roads are considered a primary source of sediment related impacts to bull trout in developed watersheds (USFS 1998, page 38), and the degraded baseline conditions caused by roads and sediment were part of the rationale for listing bull trout as threatened. . .

The road related activities addressed in this BA . . . are necessary to . . . reduce the risk of damage to watersheds realizing that significant environmental events are likely to occur. . .

The activities described in this BA can occur on a routine basis . . .

The BTCS [Bull Trout Conservation Strategy] recognized that road interactions and activities associated with roads are a high concern. Road densities have been demonstrated as an effective proxy for departure from historic condition, the state of current condition, and ostensibly past management (Rieman et al. 2000). The correlation of higher road densities with fewer bull trout is repeated throughout the planning area, the Columbia River Basin, and other areas where native fisheries and land management issues overlap (Ripley et al. 2005, Quigley and Arbelbide 1997, Riggers and Mace 1997). . .

Road related activities include maintaining the driving surface, reducing the environmental impacts of existing roads, and decommissioning roads. . .

Appendix E addresses how roads placed in a closed or stored status, or decommissioned, are to be treated. . .

Culverts that remain in the road behind gates and berms that are not properly sized, positioned, and inspected will be considered for removal. These have an increased risk for failure by reducing awareness of potential maintenance needs. The accumulation of debris has the potential to obstruct culverts and other road drainage structures. Without maintenance and periodic cleaning, these structures can fail, resulting in sediment production from the road surface, ditch, and fill slopes. The design criteria to address drainage structures left behind gates and berms require annual monitoring of these structures. This programmatic BA recognizes that as the number of closed roads grows (as anticipated), the burden of annual inspection will increase. . .

In the recent past these land management units have maintained an average of approximately 19 percent of the open road system, or 3727 miles each year . . . The overall condition of the existing road network and amount of maintenance needed to maintain the entire road network is unknown. . .

Road decommissioning will result in long-term benefits by reducing sediment sources, reducing the risk of culvert failure, and eliminating the need for maintenance."

[13, parenthesis in original, emphasis added; 14].

So the Forest Service Must be Pursuing Road Decommissioning to Eliminate Culverts and Maintenance Costs?

Rather than continuing to embrace its road decommissioning obligations, the Flathead's decommissioning program has come nearly to a standstill. [15] FWS initially required the Flathead to meet its A19 OMRD objectives within 5 years and its TMRD and Security Core within 10 years as mandatory terms and conditions of its 1995 BiOp. [16] When the Flathead failed to meet those conditions, FWS began issuing BiOps allowing the Flathead to simply make some bit of progress as it plans timber sales and other projects. [17]

Road decommissioning removes culverts, restores streambed gradients, removes road fill, and stabilizes slopes. Paul Harvey photo

When the Flathead began revision of its current (1986) Forest Plan in 2006, it proposed to halve its timber sale program and the "suitable timber base" acreage supporting it. This was partly due to recognizing the Flathead was receiving only 15% of the funds needed to properly maintain its road system, which was built primarily for logging access, and that it needed to continue decommissioning up to 500 miles of road over the coming decade to further reduce impacts to fish and wildlife. [14; 18; 19]

The 2006 Forest Plan revision effort was suspended, then taken up again in late 2013. The Flathead's 2014 Planning Assessment concludes "During the past two decades, appropriated funding for roads construction and maintenance has decreased. . . The overall trend affecting the Flathead NF transportation system is that budgets for repairs and maintenance are expected to continue to decrease . . . [20]

Regardless of failing budgets, the Flathead's 2015 Proposed Forest Plan would increase the suitable timber base half-again over the 2006 proposal, requiring more roads be retained for logging access. It would do away with further implementation of the A19 road management program and treat grizzly bear as a species no longer protected by the Endangered Species Act. [21]

Similarly, the Flathead's 2014 Travel Analysis Report finds only 54 miles of its 3,518-mile road system should be decommissioned, in spite of A19's legally required objectives for grizzly bear never being met to provide the promised bear habitat security. The TAR also portends a shift to "storing" roads rather than decommissioning them, claiming that storing a road is cheaper, largely because the culverts need not be removed for "storage." [22]

Is the Delay in Road Decommissioning Hurting Anything?

Here, in part, is what the Flathead wrote FWS about the effects to bull trout of its delayed implementation of A19's road closure and decommissioning objectives:

"The delay in achieving the implementation schedule has resulted in roads existing on the landscape longer than anticipated. . .

A blown-out culvert in the long-closed Bunker Creek Road 549 in 2014, upstream of bull trout critical habitat.

In 2007, 30 miles [of closed roads] were surveyed and 9 failed culverts were found and about 50% of the culverts were at a high risk of failure. It is estimated that there are about 760 miles of bermed roads on the Forest and until these roads are surveyed, it is reasonable to state that conditions exist on them that could contribute sediment to stream networks downstream. . .

These surveys do not exist for every road [so we] infer from the surveys that have occurred that the retention of roads have resulted in unwanted culvert failures or debris slumps that have entered streams and have impacted bull trout habitat. . .

Retention of these roads and lack of maintenance has resulted in culvert failures that have contributed sediment into bull trout waters . . . and is 'likely to adversely affect' bull trout. . .

If the A19 objectives were achieved we would have more roads that would have been reclaimed (i.e. culverts removed, stream channels restored, road surface water barred and treatment that would put that road in a self-maintaining state) and fewer potential effects. Decommissioning . . . would result in a long-term reduction of sediment and improve watershed and stream conditions." [23, emphasis added]

Shown on this page are just two of the problems we found behind the closure berm on Bunker Creek Road 549 the last two summers, in a bull trout watershed. [24]

Wildfire burned this Road 549 bridge over Bunker Creek in 2015, stranding 3 bridges and 30 culverts beyond!

Then Certainly Culverts are Being Removed or Monitored!

Though the Forest Service is well aware of the damage being cause by failing culverts, culvert failures remain a common occurrence. Though it long ago set forth its own requirements for monitoring culverts annually on closed roads in bull trout watersheds, and FWS agreed it must do so, it has not done so. [4; 5; 24; 25; 26]

Though the Flathead required that it either remove culverts or develop a monitoring plan for each road it closes with a berm to provided grizzly bear Security Core habitat, the Flathead has not prepared a single such monitoring plan! [2, 27] This even though it has bermed or simply abandoned several hundred roads to increase Security Core (and even more to lower TMRD). [28]

Monitoring culverts on closed roads is not an easy task, which is why it is best to remove them instead.

The Flathead, like other National Forests, uses an INFRA database to track culverts, bridges and other travel route infrastructure. The 2015 INFRA data it provided us lists 14,460 culverts and 231 bridges on its National Forest System Roads (NFSR). Not all culverts are listed in INFRA, however, especially smaller diameter culverts. [29]

The failure to include smaller culverts in INFRA compounds the problem of trying to track culverts at risk of blowing out. This is especially true given that studies show 81% of plugged culverts are less than 24" diameter. [6] The culvert size issue aside, we found the 2015 INFRA data extremely inconsistent in tracking problem culverts and those that had been replaced due to problems. [24; 30]

In short, the Flathead does not know with certainty how many culverts it has, where they are all located, what condition they are in, or which have failed. This lack of culvert surveys and adequate database make it difficult to determine the Forest-wide and system-wide effects on water quality and fish.

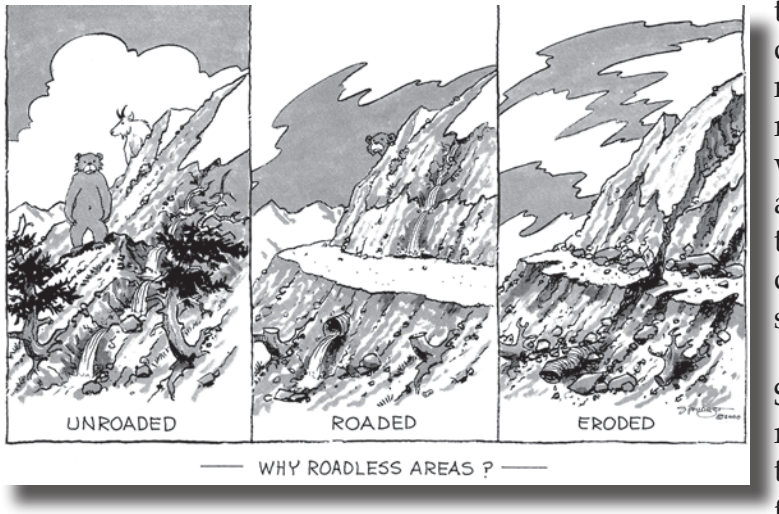
Indeed, the Flathead finds "If road surveys existed on every road system, we would be better able to determine if culverts have failed on closed roads and what the associated affects would be on streams and bull trout." [23] The Forests in Western Montana in 2014 were left to conclude "The overall condition of the existing road network and amount of maintenance needed to maintain the entire road network is unknown." [5]

Rather than proposing to significantly reduce the size of its road system to be more fiscally and environmentally responsible, the Flathead intends to make it larger by beginning to rebuild roads it previously decommissioned! [Appendix A; 31]

What's the Problem?

It has become increasingly clear the FNF simply doesn't want to take full responsibility for either removing culverts from closed roads or inspecting them annually to insure they do not plug and fail - as required by the programmatic bull trout BiOp. While the FNF, when challenged, recently agreed to an annual culvert monitoring program in its Chilly James Restoration Project, it simultaneously claims it need not do this elsewhere in bull trout habitat. [26]

This is akin to how the FNF failed to implement its programmatic A19 road closure and decommissioning objectives, leaving 126 miles of road decommissioning scheduled but never implemented and much of the Forest never scheduled to meet A19 objectives. [15, 17] Now the FNF is trying to cheat A19, leaving unattended culverts in "impassable" and other "stored" or abandoned roads from which culverts were promised to be removed! [32]



While the FNF claims A19 has since 1995 allowed it to not count "impassable" or "stored" roads in TMRD, it only began doing so in 2012. [33, 34] When pressured, the FNF now states there "is no forest policy concerning [stored road] treatments and TMRD calculations" and that it is up to the District Ranger whether or not to include "stored" roads in TMRD. [35]

In a broader context, the Forest Service appears to be favoring politics over science and trying to keep its admittedly bloated road system. Whereas its initial directive to arrive at a "minimum road system" clearly "points to a smaller road system," subsequent directives and travel planning like that on the FNF show that the road system may instead get even larger. [36]

The agency's recently released Ecosystem Restoration Policy could not be more telling. The word "road" appears not at all in the policy, as though roads do not compromise ecosystem resilience and we needn't do anything about them to restore damaged ecosystems. [37]

Such notions run contrary to the primary findings of the Interior Columbia Basin Ecosystem Management Project, which essentially found that ecosystems with roads and management were generally less resilient than those remaining roadless and without management. Many studies caution that trying to restore ecosystems through more management could do more harm than good. [38]

Simply put, the Forest Service is retaining its bloated road system so it can argue for more funds to feign "restoration" by logging, thinning, and burning in ways that require retention of the very roads that cause and enable the ecosystem damage! [37, 38]

Aren't Collaborative Groups Coming to the Rescue?

Unfortunately, collaborative groups have been used on the FNF to promote the myth that the primary problem with forest ecosystems is that there are too many trees rather than too many logging roads. In spite of plentiful scientific research and advice to the contrary, some collaborative groups have outright lied that logging is needed to restore forests and then argued that stream-aligned culverts be left in "reclaimed/decommissioned" roads.

The collaborative group Flathead Common Ground was launched on the FNF by Defenders of Wildlife, National Wildlife Federation and Intermountain Forest Industries Association. An invited panel of scientists reviewed the collaborative's "ecologically driven" logging proposal and reported back in 1997.

The Southwest Crown Collaborative visits a completed logging unit in the Meadow Smith timber sale in 2012.

The panel did not agree that the logging was ecologically driven and concluded "the desire to harvest timber products should be explicitly recognized here as the driving force." The panel also found it was "unclear the extent to which road closure entails gating only, gating plus culvert removal, or reclamation/obliteration." [39]

The collaborative's final proposal nonetheless still called its logging "ecologically driven." DOW and NWF in particular refused to abide by A19's requirement that all stream-aligned culverts be removed from the 120 miles of road the FNF said needed to be reclaimed in the Paint-Emery Project area. Indeed, they argued against it. [40]

The Collaborative Forest Landscape Restoration Program (CFLRP) says plenty about logging as restoration but barely mentions decommissioning existing roads. [41] This bias is similarly reflected in its accomplishments. Its 5-year report finds CFLRP exceeding its logging goals but falling far short in removing roads and the weeds they spread. [42]

The Southwest Crown Collaborative (SWCC), which is partly funded by CFLRP, on 9/11/12 recorded the FNF Supervisor as saying the Swan Lake Ranger District "has already decommissioned 800 miles of roads due to grizzly bears, so there aren't as many opportunities today" for decommissioning. [43] Swan View Coalition showed this to be in error and the District Ranger subsequently agreed only 74 miles have been decommissioned in the District - about half of that in the SWCC area. [44]

Meanwhile, other collaborators are urging Congress to fund them and to ignore those who may have a better grip on the facts and resort to litigation when necessary. [45]

In Plain Language, What's Going On?

The Forest Service complains it doesn't get enough funding to maintain its roads yet refuses to significantly reduce its road network. Instead it simply blocks more roads shut to save on maintenance while largely ignoring the culverts and bridges on those closed roads as though they'll maintain themselves. [46, 47]

When it does get funding for road maintenance, it skims 55% off the top of that and uses it instead for "timber support." [48] Though timber sales are supposed to then help maintain the roads used to haul the logs, a vicious downward spiral is set in motion as timber sales are used to justify more roads and roads are used to justify more timber sales! [49]

Water collecting in the ditch of this closed road contributed to mass failure into Sullivan Creek, a key bull trout spawning stream.

The conservation community has helped lobby Congress to provide funds to repair or decommission roads via the Legacy Roads and Trails Program. [50] This once independent budget line item, however, has now been combined with other budget sources into an Integrated Resource Restoration budget line item. This makes it harder to insure that money to fix or decommission roads is not instead used to accomplish logging targets and other logging-as-restoration objectives - concerns expressed by the Forest Service itself. [51]

On the FNF, its choices for decades have been crystal clear, especially in bull trout habitat: either remove all the culverts from closed roads or commit to monitoring and maintaining them annually. This it has not done, nor has it met similar requirements when closing roads to provide grizzly bear Security Core habitat. As roads, culverts and bridges continue to wash out and collapse, as pictured on this page and page 7, it becomes even harder to monitor culverts and bridges stranded further up the road. [52]

The FNF is attempting a revisionist history of A19, as though it did not require "reclaimed" roads to be treated as "decommissioned" roads to be removed from the road system. Its increasing reliance instead on simply calling roads "impassable" and "stored" to decrease road densities reneges on promises it made its biologists, the courts and the American public. [53]

No National Forest should need the additional force of law afforded threatened and endangered species to make it do the right thing. Simple common sense and fiscal responsibility indicate the Forest Service needs to decommission a significant portion of its road system in order to adequately manage the remainder in an ecologically sound manner. [54]

Recommendations

Based on our investigations, we recommend the following to the Forest Service:

1. Continue A19 as an integrated road management program and reduce the Suitable Timber Base and Allowable Sale Quantity accordingly, as proposed in 2006. [55]

2. Recognize that A19 dovetails with requirements for managing roads in bull trout habitat and the agency's duty to arrive at an environmentally and fiscally sustainable "minimum road system."

The last three miles of Bunker Creek Road 549 was decommissioned under Clinton's 1998 Clean Water Action Plan. Here a bridge was removed at Warrior Creek.

3. Apply the road closure, reclamation and culvert monitoring programs developed for bull trout and grizzly bear across the entire Flathead National Forest, so the benefits are extended to all fish and wildlife and are not dependent upon Endangered Species Act listings and protections. [56]

4. Inventory all stream-crossing structures on the Forest and include them in the INFRA database, in a manner that insures inspections, problems and repairs are fully accounted for and easily traceable. [57]

5. Commit to the annual inspection and necessary cleaning of all stream-crossing structures. If this is unrealistic, reduce the size of the road system to a size that is realistic. [58]

6. Quit skimming 55% off the top of road maintenance funds for "timber support" and put it directly to work maintaining roads where needed most. [59]

7. Recognize that calling logging and other vegetative treatments requiring roads "restoration" is at odds with considerable science and at odds with ecosystem restoration requiring the removal of roads. [60]

8. Recognize removing culverts from roads is cheaper than maintaining them in the long term. [61]

9. Work with the public to secure funding and independent budget line items for decommissioning roads - and keep them independent line items. [62]

10. Recognize litigation is as important as collaboration in helping guide the agency. [63]

"The simplicity of A19 and its ability to permanently secure areas for grizzly bears makes it a powerful tool in the conservation of the grizzly bear."

Dr. Bruce McLellan, Dr. M. A. Sanjayan
and Dr. Nova Silvy
9/19/2000

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We met several times with Rob Carlin, Kathy Ake and Trisha Cassner and wish to thank them for their efforts to answer our questions and to provide INFRA and other infrastructure data to us in formats we could use in Excel and Google Earth.

We also wish to thank Spotted Bear District Ranger Deb Mucklow, Ron Krueger and other FNF staff who followed up on our numerous reports of plugged or partially plugged culverts, in some cases removing the debris before further damage could occur and in others confirming our discovery of culverts where they were thought not to exist.

Disclaimer and Need for Further Study

This investigation and report were made without the benefit of full access to the INFRA database. It nonetheless reports on a handful of the problems found by comparing INFRA data using Excel and Google Earth to field observations. Space here does not allow a discussion of every problem found. We reserve for another time a discussion of the stream-aligned culverts found in decommissioned, "impassable/stored" and other roads where they should not exist either by definition, requirement, common sense, or because they were specifically reported as having been removed.

With full access to the INFRA data and its database capabilities, more could be gleaned concerning the adequacy of the data and its ability or inability to indicate where culverts and bridges have been stranded beyond culverts and bridges that have been removed by act or nature. Such further study could also produce recommendations for improving how INFRA could track the history of each structure and when it was last inspected, cleaned, identified as a problem, repaired, or scheduled for further action.

Notes and Sources

1. See generally Fish and Wildlife Service's 1/6/95 Biological Opinion on Flathead Forest Plan Amendment 19, as amended 2/17/95, for the biological rationale adapting research to Forest Plan objectives and standards, including the BiOp's Incidental Take Statement. Kemper McMaster, Field Supervisor, Montana Field Office.

2. Flathead Forest Plan Amendment #19: Allowable sale quantity and objectives and standards for grizzly bear habitat management. Decision Notice signed 3/1/95 by Joel Holtrop, Flathead Forest Supervisor. See also Amendment 19 Appendix D: Forest Plan Appendix TT Definitions and implementation direction for restricted roads, reclaimed roads, and security core areas.

3. For more information regarding how Amendment 19 has been dovetailed with the work of the Interagency Grizzly Bear Committee and implemented on the Flathead National Forest, see Keith Hammer's white paper "Only decommissioned roads removed from the Forest Development Road System may be omitted from calculations of Total Motorized Route Density on the Flathead National Forest. Dated 6/4/15 and updated by addendum 2/7/16. This white paper is also included as Appendix A to this report.

4. Biological Opinion on the effects to bull trout and bull trout critical habitat from the implementation of proposed actions associated with road-related activities that may affect bull trout and bull trout critical habitat in Western Montana. Jodi Bush, Field Supervisor, Ecological Services Montana Field Office of Fish and Wildlife Service. April 15, 2015. The 2015 BiOp follows similar BiOps dated 4/26/99, 8/1/01, and 4/29/08. All these BiOps, and the Forest Service Biological Assessments they respond to, express concerns about continued failure of culverts. The 8/1/01 BiOp and all that follow require the annual inspection of culverts on closed roads.

5. Biological Assessment of Road related activities that affect bull trout and bull trout critical habitat in Western Montana. Prepared by USDA Forest Service Northern Region and UDI Bureau of Land Management Missoula Field Office. Dated 5/5/14, revised 12/15/14.

6. Biological Opinion on the Effects of the Moose Post-Fire Project on bull trout. U.S. Fish and Wildlife Service, Montana Field Office. Dated 11/14/02. Citing Copstead, R. L. and D. K. Johansen. 1998. Water/road interaction: examples from three flood assessment sites in Western Oregon. USDA Forest Service, San Dimas Technology and Development Center, San Dimas, California.

7. Due to a switchback in Pinnacle Ridge Road 1673, another 18" dia. culvert carries the same small stream under the road immediately uphill of the crossing shown in the photos. While the upper culvert was not failing in 1973 when the author inspected it then as a Forest Service employee, its catch basin was filled with bedload and the culvert was overflowing the road when inspected on 6/26/15, sending more bedload and road fill downhill to fill the catchbasin at the lower crossing and contributing to its failure also.

The Flathead's August 1993 DEIS for the Middle Fork Ecosystem Management Project, reported another "recent culvert washout and repair" in the Pinnacle Creek watershed, but did not specify exactly where. The DEIS did note lower Pinnacle Creek was in the worst condition of all streams in the Project area. It noted a 1,177% increase in sediment over natural conditions and concluded "The existing sediment yield increase is from roads. Roads will continue to generate sediment indefinitely unless they are restored to pre-road condition."

When Road Management Objectives for this road were established in 2009, the two 18" dia. culverts weren't even listed as existing, let alone included under "Special Maintenance Criteria Details." A Forest Service Avalanche Ranger reported the 2015 failures in late winter and both culverts with a history of failure on the small tributary to Pinnacle Creek are reported to have since been replaced with 48" dia. culverts.

8. Counting culverts: An assessment of integrated road and culvert management on the Flathead National Forest. Keith Hammer. December 2000. Available at
http://www.swanview.org/reports/Culvert-Report.pdf

9. Culvert Monitoring Form 5/2005 provided by the Flathead National Forest on 2/5/16.

10. See Note 8, citing Flathead NF Flood Damage report to the Regional Forester, 4/4/90.

11. See Note 8, citing MDFWP survey report to Flathead NF by Tom Weaver, 12/18/95.

12. See Notes 2 and 4.

13. See Note 5.

14. In preparation for revision of the Flathead, Lolo and Bitterroot Forest Plans, Forest Service fisheries biologists in 2000 conducted "baseline bull trout risk assessments." These risk assessments were made on a 6th Code Hydrologic Unit Code (HUC6) basis and detailed among other things the miles of roads and streams in each HUC, the density of roads, the proximity of those roads to the streams, and the number stream crossings by roads.

We analyzed this risk data and found, based on road density and its location relative to streams, that the Flathead National Forest rated 70% of its HUC6 sub-watersheds to be Functioning at Risk or Functioning at Unacceptable Risk to bull trout. It found 30% of the sub-watersheds Function Appropriately. Our analysis of the data is presented in our May 2004 report "Watersheds at Risk: Roads threaten bull trout on the Bitterroot, Flathead and Lolo National Forests." The report is available at:
http://www.swanview.org/reports/Watersheds_at_Risk_report.pdf

We also applied a "Road:Stream Ratio" analysis to this same HUC6 data. We found that only 23% of the HUC6 sub-watersheds within the Flathead National Forest boundary remain roadless and that, on the whole, the developed sub-watersheds had 20% more miles of road than streams (9,092 miles of road compared to 7,607 miles of streams). We also found that 92% of the developed sub-watersheds had road densities in excess of levels where most bull trout populations occur and in excess of recommended standards for grizzly bear recovery. This analysis is detailed in our April 2003 report "Off the Charts: Roads outnumber streams in developed Flathead watersheds." The report is available at:
http://www.swanview.org/reports/Off_the_Charts_report.pdf

15. The Flathead National Forest tracks its Road Decommissioning Projects in a spreadsheet updated annually. These are roads intended to be decommissioned, removed from the "road system," and tracked instead as "historic" roads once the decommissioning work and re-vegetation become effective. The spreadsheet also tracks decisions to decommission roads where the decommissioning has not yet occurred.

The 2/18/16 spreadsheet concludes decisions have been made since 1992 to decommission 889 miles of road; that 162 of those miles needed no work as they were naturally re-vegetated, that 601 of those miles needed work and were actively decommissioned, but that 126 of those miles remain in the road system and have not been decommissioned as planned. The spreadsheets and other Flathead documents show that the Flathead decommissioned an average of 43 miles of road per year from 2003 - 2013 [see Note 19, below] while decommissioning only 12 miles total in 2014 and 2015.

As discussed in Appendix A to this report, where A19 used the term "reclaimed," the A19 EA made clear that reclaimed roads would also be removed from the road system, also known as "decommissioned."

16. See the Incidental Take Statement in Fish and Wildlife Service's 1/6/95 Biological Opinion on Flathead Forest Plan Amendment 19, as amended 2/17/95. Kemper McMaster, Field Supervisor, Montana Field Office.

17. FWS's 2015 BiOps and Incidental Take Statements regarding the Forest-wide effects of Amendment 19 to grizzly bear [see Note 15] were replaced by successive BiOps and Incidental Take Statements on 10/25/05 and 1/31/14 to address revised A19 implementation schedules. Currently, FWS prohibits the Flathead from making any net increase in OMRD or TMRD or any net decrease in Security Core; to abide by any access management implementation schedules made a part of individual projects; and to otherwise proceed "with reductions of access densities and increases in core as authorized by project decisions without time tables, as funding allows." This is followed by the Conservation Recommendation that the Flathead "Continue to manage access on the Forest to maintain or achieve lower road densities . . . low road densities would also benefit other wildlife and public resources. Low road densities may result in lower maintenance costs that free up funding for other resource needs."

18. US Forest Service Western Montana Planning Zone. 2004. Analysis of the management situation for the Bitterroot, Flathead and Lolo National Forests. 3/2/2004. Missoula, MT

19. Flathead National Forest. 2006. Proposed Land Management Plan. April 2006.

20. Flathead National Forest. 2014. Assessment of the Flathead National Forest - Part 2. April 2014.

21. Flathead National Forest. 2015. Proposed Action - Revised Forest Plan. March 2015.

22. Flathead National Forest. 2014. Travel Analysis Report for Flathead National Forest. The final TAR includes the same economic analysis as the draft TAR and suffers from the same flaws described in Swan View Coalition's comments on the draft TAR.

Namely, the TAR: 1) compares the cost of decommissioning to the cost of ML-1 road maintenance, not to the true costs of properly "storing" a road with no risk of culvert or bridge failures and no need for maintenance, falsely concluding "You can store the road forever cheaper than decommissioning" and 2) presumes that the road will be rebuilt or reconditioned in the future, making decommissioning appear all the more costly and short-circuiting the whole purpose of the TAR in helping determine which roads should never be rebuilt in order to arrive at a fiscally and environmentally sustainable "minimum road system."

Our full comments on and other documents related to the draft TAR can be found at:
http://www.swanview.org/articles/newsletter-alerts/help_decommission_old_logging_roads_that_are_trashing_the_environment/194

23. Flathead National Forest. 2010. Fisheries Biological Assessment: Amendment 19 objectives and standards for grizzly bear habitat management revised implementation schedule. Pat Van Eimeren - Flathead National Forest Fisheries Biologist. 6/2/10.

24. Bunker Creek Road 549 (and its spur Middle Fork Road 2820) have been closed yearlong to protect wildlife habitat since 3/26/96, initially with a gate and then with an earth berm at Milepost (MP) 3.7 on Road 549. In 1998 and 1999, Road 549 was decommissioned above its junction with Road 2820, from MP 9.7 to its end MP 12.9, using funds provided by President Clinton's 1998 Clean Water Action Plan, which called for the decommissioning of 5,000 miles of road a year by 2002 on federal lands. (See Note 15. The Clean Water Action Plan is at https://www.epa.gov/aboutepa/president-clinton-announces-clean-water-action-plan)

Bunker Creek, below its confluence with Middle Fork Creek, has since been designated bull trout "critical habitat." The Road 549 bridge burned in 2015 and pictured on page 7 of this report is 50 yards upstream from the confluence with Middle Fork Creek and the beginning of downstream "critical habitat." The bridge debris and the worst of the slumping road fill has since been removed.

Similarly, the burned bridge is 50 yards from the junction with Road 2820 and 175 yards from the decommissioned portion of Road 549. We surveyed the decommissioned portion of Road 549 in 2014. This appears to be a good job of decommissioning and not a single bridge or culvert remains.

Road 2820, on the other hand, has relied on the earth berm on Road 549 for its closure to motor vehicles and had motorcycle tracks evident during our visit in 2014. According to the Flathead's INFRA database, which is used Forest Service-wide to track travel route infrastructure, Road 2820 still has 3 bridges and 30 culverts in place. (The Flathead in 2015 provided us with Excel spreadsheets and Google Earth KML files containing INFRA and other data relative to National Forest System Roads, decommissioned/historic/non-system roads, "impassable" NFSR roads, road barriers, road gates, existing culverts and bridges, and disposed/removed culverts and bridges on the Flathead).

When we requested pursuant to the Freedom of Information Act (FOIA) all culvert inspection plans and forms for Road 2820, the only ones provided were 12 stream-bearing culvert inspection forms from a 2010 survey, along with the survey log noting the cleaning of additional cross-drain culverts. Although this is a bull trout watershed, no requisite annual culvert inspections were provided. Although this is a bermed road in grizzly bear Security Core, no requisite monitoring plan for the road and culverts was ever prepared. The 2010 survey reported three plugged and failed stream-bearing culverts, another half-dozen partially plugged culverts cleaned during the survey, and rated half of the dozen stream-bearing culverts as medium or high risk of blockage or failure.

On 8/28/14 we found two of these Road 2820 culverts again partially plugged with woody debris and noted one had overflowed and sent part of the roadbed downstream toward Middle Fork Creek. We alerted the District Ranger, who sent a couple employees up with hand tools to clean the woody debris out.

On 8/28/14 we also encountered a Forest Service employee and "Call When Needed" backhoe contractor digging out the failed 24" dia. culvert at MP 6.2 in Road 549, as pictured on page 7 of this report, and laying in a second 24" dia. culvert alongside it. The 2015 INFRA data shows two culverts now at this location, but no remarks to indicate one of them had failed or why a second culvert was necessary. A 2010 culvert survey log for Road 549 indicates this culvert was at that time a "washout, deposition upstream of road, downstream side of road washout is 5-10 ft deep."

We alerted this 8/28/14 crew, which had temporarily removed the earth berm closure to get equipment in to make the repair at MP 6.2, to a 4' dia. culvert at MP 6.9 that was nearly completely plugged with logs and bed load and would likely fail with the next big storm or Spring runoff. They ran the backhoe up the road and cleaned the culvert inlet, heading off another culvert failure and sediment load into Bunker Creek. The 2015 INFRA data contains no remarks that this culvert nearly failed and needed cleaning in 2014. Nor does the 2015 INFRA data note the 2010 culvert survey log indicated the crew had at that time cleared the culvert of all but "large immovable logs," which are perhaps among the logs that trapped bedload against the culvert inlet as shown in our 2014 photo below, left. The small remaining hole into the 4' dia. culvert inlet was smaller than a volleyball. The culvert pictured on the right is provided for comparison and is a Forest Service photo of a 4' dia. culvert blowing out in 2014 behind a gate on Emery Creek Road 546.

We requested pursuant to the FOIA all culvert inspection plans and forms for Road 549. The only ones provided for the road behind the closure berm were 2 stream-bearing culvert inspection forms from a 2010 survey, along with the survey log. The 2010 survey log accounts for only 36 of the 51 culverts that the 2015 INFRA data list as existing behind the closure berm. Although this is a bull trout watershed, no requisite annual culvert inspections were provided. Although this is a bermed road in grizzly bear Security Core, no requisite monitoring plan for the road and culverts was ever prepared.

25. Through a series of FOIA requests and meetings with FNF staff spanning from November 2014 through February 2016, we learned that annual monitoring of stream-crossing culverts behind road closures in bull trout habitat is not being conducted Forest-wide. When we asked for such culvert monitoring records for five specific closed roads in bull trout habitat, FNF could provide no annual inspection reports for those roads. Though we were provided INFRA road infrastructure data for FNF culverts and bridges, we were informed the INFRA data would not show when a culvert was last inspected (personal communication with Kathy Ake and Trisha Kassner, 6/24/15) - which it indeed does not.

26. The FNF insists "The Forest is not required to monitor every stream crossing in every bull trout watershed across the forest [and the annual culvert monitoring requirement on closed roads does not apply until] a project utilizes the programmatic [Biological] Opinion." (Chilly James Restoration Project Decision Notice and Finding of No Significant Impact, Appendix 4 Response to Public Comments, Richard Kehr, 4/15/16).

On the other hand, the Chilly James DN cited above then continues: "Roads with stream crossings that are closed by a berm or gate in bull trout watersheds in the project area will have annual culvert monitoring and reporting as required by the bull trout biological opinion . . . The Chilly James project is very similar to work described in the 2015 programmatic Biological Opinion for road-related work . . . However the project does have more actual activity (number of cross-drains to be cleared and culverts removed) than normally allotted and thus a stand-alone Biological Opinion was prepared."

The Chilly James DN essentially claims that the annual culvert monitoring requirement in the programmatic BiOp does not apply until the Forest Service says it does. We will let the referenced 2008 Biological Opinion speak for itself, along with its 2015 updated Biological Opinion (see Note 4 and page 3 of this report). Similarly, we will let the Forest Service's Biological Assessment prepared for the 2015 update speak for itself (see Note 5 and the summary of the BA provided on page 5 of this report).

27. On 7/15/15, we submitted a FOIA request and asked the FNF to provide copies of all the culvert monitoring plans required for each road closed, rather than decommissioned, to provided grizzly bear Security Core habitat - as required by A19 since 1995. In his FOIA response dated 9/22/15, FNF Supervisor Chip Weber responded: "as was mentioned in our August 6th meeting, there are no monitoring plans as you requested in your July 15th request."

28. We utilized INFRA data and Google Earth kml road files provided by the FNF to determine how many roads have been simply closed, rather than decommissioned, to increase grizzly bear Security Core habitat. Bermed ML-1 roads numbered 228, Impassable TMRD roads numbered 48, and Impassable Not TMRD roads numbered 45, for a total of 321 roads. [See Appendix A to this report for a discussion of ML-1 and Impassable roads]. For comparison purposes, 435 of FNF's decommissioned roads also serve to increase Security Core.

29. Personal communication with Kathy Ake and Trisha Kassner, 6/24/15. Our Counting Culverts report in 2000 estimated 80,000 culverts may exist on the FNF. The report is accessible via Note 8.

30. The INFRA data provided by the FNF included 14,460 culverts. In the "Remarks" data column, only 110 culverts were mentioned as having problems and similarly, though not the same culverts, 110 were mentioned as having been replaced. This appears to be a gross under-representation of problem culverts, given some individual culvert surveys have reported up to 65 failed or failing culverts on the handful of

roads surveyed (see Notes 11 and 24, for example). If there exists a portion of the INFRA database that better tracks problem culverts, we were not provided nor made aware of it by the FNF.

31. Though FNF's implementation of A19 road decommissioning has been sluggish, it has recently come nearly to a standstill. While the FNF proposed in 2006 to decommission up to another 500 miles of road, assessments in the past couple of years call for only 54 miles of road decommissioning ever and the elimination of A19 altogether (see page 6 of this report). More recently, FNF logging proposals like the Trail Creek Fire Salvage Project have begun proposing to rebuild previously decommissioned roads, bring them back into the roads "system" and keep them there - to the detriment of water quality, fish and wildlife (see pages 11 - 14 of Appendix A to this report).

32. A particularly egregious example of leaving unattended culverts in "impassable" roads is the recently "waterproofed" Raghorn Road 10802 in the Coal Creek watershed, which is "critical habitat" for bull trout and an "impaired" Water Quality Limited Stream. Road 10802 was among many roads initially scheduled for decommissioning in 1992 but for which implementation languished for decades. Finally, a 2010 decision was issued to remove all 13 culverts from the "long abandoned" Road 10802. But in 2012 only three culverts were removed, stranding numerous stream-crossing culverts beyond! More details can be found on pages 12-14 of Appendix A to this report.

33. Protocol paper for motorized access analyses application rule. Draft NCDE Grizzly Bear Conservation Strategy Appendix 5. Kathy Ake. February 2013.

34. 2012 Annual Flathead National Forest Plan Amendment 19 implementation monitoring report and responses to Amendment 19 revised implementation schedule terms and conditions. June 2013. Flathead National Forest. This announcement that the FNF was not including many "impassable" roads in calculations of TMRD coincides with the significant slowdown in the FNF's road decommissioning, which is required by A19 to remove a road from TMRD calculations. Decommissioning dropped from an average of 43 miles per year to only 6 miles per year (see Note 15).

35. See the Chilly James DN cited in Note 26. In its Appendix 4 Response to Comments, the DN more fully states: "There is no forest policy concerning ISS treatments and TMRD calculations. Roads and specific treatments are assessed by the Interdisciplinary Team at the project area scale as described in the EA. Whether or not a road will be managed to meet 'reclaimed' status under Amendment 19 and contribute or not contribute towards TMRD is specifically addressed within the EA . . ."

This District-level discretion was confirmed by Mark Ruby during an informal Objection resolution meeting for the Chilly James Restoration Project on 4/5/16, stating that the District Ranger has the discretion to either include or not include an ISS road that otherwise meets "reclaimed" status (though not removed from the transportation "system" and considered decommissioned) in TMRD calculations. For more detail on ISS, impassable, reclaimed, and decommissioned roads and their inclusion in or exclusion from calculations of TMRD, see Appendix A to this report.

In short, it does little good to have a well-written program like A19 or the programmatic bull trout BiOp for road-related activities if it is going to be cherry-picked and rendered piecemeal at every project. Rather than a program, this is called "making it up as we go along."

36. Deputy Chief Joel Holtrop's 11/10/10 directive for implementing Travel Management, Implementation of 36 CFR 212, Subpart A stated that the travel management process "points to a smaller road system." Deputy Chief Leslie Weldon on 3/29/12 replaced Holtrop's directive and, among other things, removed the phrase "points to a smaller road system." The FNF is now proposing to reconstruct previously decommissioned roads and keep them in the road system (see Note 31).

37. Forest Service Ecosystem Restoration Policy. RIN 0596-AC82. Notice of Final Directive. Thomas Tidwell. 4/18/16 as reported in the Federal Register, Vol. 81, No. 81, 4/27/16, pages 24785-24793. The Policy notes

"Ecosystem restoration can be achieved by a range of management activities, such as forest thinning to reduce tree density, prescribed fire to reduce fuel buildup, replacing culverts to better connect streams, or fencing to restrict disturbances." No mention is made of removing culverts or roads to restore ecosystems. The policy goes on to promote tree- and carbon-removing "forest treatments" with the expectation that "more carbon will continue to be sequestered than would otherwise occur without the treatment" - while acknowledging "research on whether restoration increases carbon stocks is inconclusive."

38. See our annotated bibliography at http://www.swanview.org/reports/Annotated_Bibliography.pdf The first nine pages contend with roads. For convenience, we include several relevant citations here:

"High integrity [forests] contain the greatest proportion of high forest, aquatic, and hydrologic integrity of all [] are dominated by wilderness and roadless areas [and] are the least altered by management. [] Low integrity [forests have] likely been altered by past management [] are extensively roaded and have little wilderness." (U. S. Forest Service. 1996. Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin and Portions of the Klamath and Great Basins. General technical report PNW-GTR-382. September 1996. Pages 108, 115 and 116).

"High road densities and their locations within watersheds are typically correlated with areas of higher watershed sensitivity to erosion and sediment transport to streams. Road density also is correlated with the distribution and spread of exotic annual grasses, noxious weeds, and other exotic plants. Furthermore, high road densities are correlated with areas that have few large snags and few large trees that are resistant to both fire and infestation of insects and disease. Lastly, high road densities are correlated with areas that have relatively high risk of fire occurrence (from human caused fires), high hazard ground fuels, and high tree mortality." (U. S. Forest Service. 1996b. Status of the Interior Columbia Basin: Summary of Scientific Findings. General technical report PNW-GTR-385. November 1996. Page 85).

"Proposed efforts to reduce fuel loads and stand densities often involve mechanical treatment and the use of prescribed fire. Such activities are not without their own drawbacks -- long-term negative effects of timber harvest activities on aquatic ecosystems are well documented . . .

Species like bull trout that are associated with cold, high elevation forests have probably persisted in landscapes that were strongly influenced by low frequency, high severity fire regimes. In an evolutionary sense, many native fishes are likely well acquainted with large, stand-replacing fires . . .

Attempts to minimize the risk of large fires by expanding timber harvest risks expanding the well-established negative effects on aquatic systems as well. The perpetuation or expansion of existing road networks and other activities might well erode the ability of populations to respond to the effects of fire and large storms and other disturbances that we cannot predict or control . . .

Watersheds that support healthy populations may be at greater risk through disruption of watershed processes and degradation of habitats caused by intensive management than through the effects of fire."
(An Assessment of Ecosystem Components in the Interior Columbia Basin and Portions of the Klamath and Great Basins, Volume 3 (ICBEMP): pages 1340-1342).

"Fire and the associated hydrologic effects can be characterized as pulsed disturbances as opposed to the more chronic 'press' effects linked to permanent roads or extended timber harvest activities . . . It also is not clear that attempts to manipulate the structure and processes of whole ecosystems (i.e. beneficially manipulate the fire regime) can ever be successful . . . The perpetuation or expansion of existing road networks, and other activities might well erode the ability of populations to respond to the effects of large scale storms and other disturbances that we clearly cannot change." (Bruce Reiman, Danny Lee, Gwynne Chandler and Deborah Meyers. 1997. Does Wildfire Threaten Extinction for Salmonids? Responses of Redband Trout and Bull Trout Following Recent Large Fires on the Boise National Forest. USDA Forest Service, Intermountain Research Station; Boise, Idaho. 1997.)

"Rehabilitation of road-miles cannot be accomplished alone by gating, berming, or otherwise blocking the entrance to a road permanently or temporarily, or seasonally closing roads, but will require obliteration, recontouring, and revegetating." (U.S. Fish and Wildlife Service Regions 1 and 6. 1998a. Biological Opinion for the Effects to Bull Trout from Continued Implementation of Land and Resource Management Plans and Resource Management Plans as Amended by the Interim Strategy for Managing Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, Western Montana, and Portions of Nevada (INFISH), and the Interim Strategy for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (PACFISH). 8/14/98.

39. University of Montana Science Advisory Committee letter to Intermountain Forest Industry Association's Brendan Moynahan and Defenders of Wildlife's Hank Fisher regarding its review of Flathead Common Ground's Draft Proposal. Daniel Pletscher. 1/3/97.

40. Flathead Common Ground [Final] Recommendations. 2/24/97.

In an 8/4/99 email response to criticism from Swan View Coalition and others, National Wildlife Federation's Tom France and Sterling Miller, along with Defenders of Wildlife's Hank Fisher, state that leaving some stream-aligned culverts in roads to be reclaimed/decommissioned would save the FNF money, acknowledge NWF and DOW don't know "how many culverts would be left and what their locations are," agree "a watershed inventory should have been completed," and yet conclude leaving unidentified stream-aligned culverts "poses little risk to fish populations." They concluded this would "achieve important security for grizzly bears sooner rather than later, both in Paint Emery and across the entire forest."

Indeed, only a few months earlier, the FNF decided to attempt this "let's not and say we did" approach to A19 road reclamation in its 5/6/99 "Implementation Note #13." Swan View Coalition and others filed notice they would sue and reminded the FNF of its A19 duties to remove all stream-aligned culverts from reclaimed roads in order to protect water quality and fish as it secured bear habitat. FNF rescinded Note 13, stating "We talked it over with our attorneys and we decided they [Swan View Coalition and Friends of the Wild Swan] were right." This matter is more thoroughly discussed on page 7 of Appendix A to this report.

41. The CFLRP is set forth in Title IV of the Omnibus Public Land Management Act of 2009, available at:
https://www.gpo.gov/fdsys/pkg/PLAW-111publ11/pdf/PLAW-111publ11.pdf

42. Collaborative Forest Landscape Restoration Program 5-Year Report. USDA Forest Service. FS-1047. March 2015. Available at:
https://gallery.mailchimp.com/1947d6cd971c70f8ef837d21a/files/CFLR_5_Year_Report_USFS_lowres_4_6_15.pdf

43. Initial meeting notes of the 9/11/12 SWCC Executive Committee, prior to updating/correction on 12/11/12.

44. Keith Hammer email to Chip Weber and the SWCC, dated 11/28/12 re: the SWCC meeting notes cited in Note 43, above. Richard Kehr email to Matthew Koehler, dated 8/4/15. Keith Hammer email to Richard Kehr and the SWCC, dated 8/11/15. Keith Hammer's 8/11/15 email attached a letter to the SWCC, which included a Google Earth map using FNF road data layers to demonstrate the plethora of roads in the Swan Valley from which to choose for decommissioning. This letter and map are available at:
http://www.swanview.org/reports/SLRD_Road_Decommissioning.pdf

45. Joint letter from 43 Montana collaborators to Senator Steve Daines. Julia Altemus, Montana Wood Products Association, et al. 1/14/15. Available at:
http://www.swanview.org/reports/FinalPartnersLetter_1_14_15_Final.pdf

The above letter is also included in a packet of information prepared by Keith Hammer on 9/27/15 detailing "How Congress and the Forest Service are Paying Collaborative Partners." The packet includes links to the SWCC web site, which lists its collaborative partners and provides a listing of CFLRP and other funds

provided some of those partners, often in exchange for little more than an in-kind contribution in labor worth one-fifth the amount of cash the partner may receive from the federal government. This packet is available at: http://www.swanview.org/reports/Full_Packet_2.pdf

46. Flathead National Forest. 2014. Travel Analysis Report for Flathead National Forest. Page 5: "Current and projected funding is far reduced from the funding needed to maintain the needed road system. . . Approximately 3,465 miles of roads [are] 'likely needed for future use' [and] 55 miles of road were identified as 'likely not needed for future use'."

47. Legacy Roads and Trails Program FAQS: "The Forest Service generally has the funding to maintain 20% of our road network each year. In 2011, the Forest Service maintained 16% of its road network [and] decommissioned 581 miles" of its 375,000 mile road network. Available at http://www.fs.fed.us/restoration/Legacy_Roads_and_Trails/faqs.shtml

48. Flathead National Forest. 2014. Travel Analysis Report for Flathead National Forest: Appendix E.

49. The Forest Service has a long history of using taxpayer "capital investment" funds to build roads into remote areas where the timber industry refused to bid on the timber, often multiple times. Our "A Tale of Two Subsidies" details two such "hard money" projects totally $840,000 to build 27 miles of new road and reconstruct 14 miles of existing roads when no timber sale bids were received. The Bent Flat and Sunset Beaver roads were built into sensitive areas, including grizzly bear habitat, and it was subsequently necessary to decommission some of these roads. In the Bent Flat area, FNF is now proposing to rebuild 7 miles of previously decommissioned roads to log trees burned in 2015. See pages 10-11 of Appendix A to this report for more about the Trail Creek Fire Salvage Project. "A Tale of Two Subsidies" is available at: http://www.swanview.org/reports/A_Tale_of_Two_Subsidies.pdf

50. See Note 47 for source.

51. Evaluating the Integrated Resource Restoration Line Item: Results from Phase 1. 2014. Ecosystem Workforce Program Working Paper #47. Courtney Schultz, Katherine Mattor and Cassandra Moseley. Spring 2014. Available at http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_47.pdf

52. INFRA data provided by the FNF indicates there are 24 culverts remaining in Sullivan Creek Road 547 above the 2014 mass failure at MP 3.5, with 5 of them larger than 18" diameter. FNF on 2/5/26 could provide only 4 culvert monitoring reports for this road in a bull trout watershed, rather than the requisite annual reports. The reports provided were written after the mass failure that occurred in 2014. A 3' dia. culvert at MP 4.26 was rated as "high risk" because it had a rust line greater than one-third the height of the culvert, had floatable debris upstream and is located less than 600 feet above a bull trout spawning reach. An old wooden bridge over Sullivan Creek and more culverts on Road 2801 are also stranded beyond the mass failure on Road 547.

The FNF has refused to decommission Road 547 and claims the mass failure was a natural occurrence caused by Sullivan Creek eating away at the toe of the slope. This even though the toe of the slope remains largely in place, still supporting some of the slumped hillside, and the apex of the slump is located in the road bed. When inspected in 2015, the apex has further collapsed, removing the entire width of the road bed. Links to our requests that all culverts and bridges be removed above the mass failure, FNF's response, and relevant new articles are available at:
http://www.swanview.org/articles/whats-new/help_decommission_old_logging_roads_that_are_trashing_the_environment/194

See Note 24 for information on the culverts and bridges stranded beyond the burned bridge in Bunker Creek Road 549, as pictured on page 7 of this report.

53. See Appendix A to this report, particularly pages 2-3, which explain how the A19 EA accounted for reclaimed roads miles by removing them from the road system, which is also the definition of a decommis-

sioned road. See also pages 6-7 of Appendix A, which describe the conditions placed on A19 by the Forest's fisheries biologist (and later incorporated into A19's Appendix D).

Though the FNF reported to the Flathead Basin Commission and others that it "decommissioned" South Coal Ridge Road 1604, it instead has retained it in its road system as an "impassable/stored" road not included in the calculation of TMRD. The Flathead Basin Commission makes clear in a footnote: "Decommissioning of a Forest Service road means that it will be removed from the official transportation system." FNF hydrologist Craig Kendall confirms the road has been "decommissioned" by removing culverts and installing 75 water bars along the road surface, noting that "sediment delivery is expected to be reduced from an annual average of 558 lbs to 8.5 lbs in locations where ditch lengths are reduced from 500 feet to 50 feet . . . due primarily to shortening of ditch lengths by constructing water bars." (Final Report: Coal Creek Restoration Project. DEQ Contract No. 205042. Flathead Basin Commission. 7/30/08).

Google Earth KML road files and INFRA data provided by the FNF, however, show Road 1604 has been retained in the road system as a "stored" Maintenance Level 1 road not included in calculations of TMRD, rather than removed from the system as "decommissioned." This is important because it signals an intent on the part of the FNF to rebuild the road in the future, which would remove the water bars and largely negate the reductions in sediment delivery to Coal Creek intended to meet the Coal Creek TMDL, a plan intended to help remove Coal Creek from the list of streams "impaired" by sediment. Coal Creek is also suffering low bull trout spawning success.

Google Earth KML road files provided by the FNF indicate 110 road segments are considered "impassable" and <u>are not included</u> in calculations of TMRD. Another 174 road segments are considered "impassable" and <u>are included</u> in calculations of TMRD. Roads in either category of "impassable road" may exist in grizzly bear Security Core. All "impassable" roads are retained in the "system" as Maintenance Level 1 "stored" roads.

54. See Note 47. The FAQ responses include the following: "The 'Travel Management' analysis effort that is currently under way will help the Forest Service identify how to best 'right-size' our vast road network . . . The Forest Service recognizes that a significant number of roads need to be removed to bring the road system down to a manageable, maintainable system that still meets the needs of the agency and forest users."

55. The FNF led an effort by the Interagency Grizzly Bear Committee NCDE Subcommittee to replace A19's road reclamation, permanent road barriers and Security Core habitat with an approach dependent instead on road gates and Seasonally Secure Areas that fluctuate as gates are swung open and shut. This "Proposed Approach" was submitted for peer review and the reviewers found the "simplicity of A19 and its ability to permanently secure areas for grizzly bears makes it a powerful tool in the conservation of the grizzly bear in the NCDE . . . The proposed approach's added complexity unfortunately necessitated several additional assumptions, some of which are tenuous . . . we caution against any relaxation of establishing permanently secure areas . . ." Dr. Bruce McLellan, Dr. M. A. Sanjayan and Dr. Nova Silvy. 2000. Peer review of the motorized access management strategies for grizzly bear habitat in the Northern Continental Divide Ecosystem. 9/19/2000.

Moreover, and as detailed on page 3 and in Appedix A to this report, FNF's fisheries biologists insured that A19 road closures and reclamation to benefit grizzly bears would also protect water quality and fish by requiring all stream-aligned culverts be removed from reclaimed roads and all culverts in closed roads be either removed or inspected regularly. Indeed, page 12 of the A19 Decision Notice summarizes its multiple-resource benefits as follows: "Motorized access restrictions and road reclamation will provide other benefits in addition to increased habitat security for grizzly bears. Decreased motorized access density will improve the habitat effectiveness for numerous species of wildlife, including wolves, fisher, lynx, elk, wolverine, and marten. Motorized access restrictions will change hunting opportunities from roaded to unroaded in some portions of the Forest. This is expected to increase the proportion of older bulls and bucks in elk and deer populations. Road reclamation, while likely causing some short-term increases in sediment, will in the long-term improve water quality and fish habitat by reducing fine sediment and stream channel erosion." (See Note 2).

56. The replacement of failed culverts in westslope cutthroat trout habitat and subsequent requirements that they then be monitored annually is not without precedent on the FNF. A Decision Memo for several Emery Creek Culvert Replacements, for example, notes Emery Creek "has one of the highest densities of [westslope cutthroat] trout tributary to Hungry Horse Reservoir." It also documents the failure of a 4' dia. culvert "during the 2014 spring runoff," as pictured in this report, in the lower right of Note 24. (Emery Creek Culvert Replacements Decision Memo. Robert Davies. 8/25/14).

Montana Dept. of Fish, Wildlife and Parks issued Stream Protection Act "124" Permits for these culvert replacements on several Emery Creek tributaries, requiring that the new culverts be inspected annually, post-runoff and/or during runoff "to insure that the new pipe arch is effectively moving water and debris and that any new failures are avoided." (Leo Rosenthal. MDFWP Stream Protection Act 124 Permits dated 9/22/14 for Remington Creek, 9/22/14 for Royal Creek, and 10/9/14 for Emery Creek).

57. Culvert inspection reports currently occupy some 45 file cabinet drawers on the FNF. A similar or larger number of file drawers contain information on bridges, road engineering and road work contracts. (Personal communication with Michele Dragoo and Rob Carlin, 8/6/15). Only in rare instances was culvert inspection information included in the INFRA data provided us by the FNF. Moreover, we were told that INFRA would not indicate the date of the last culvert inspection (see Note 25).

It is important that stream-crossing structures be fully inventoried and their inspection and repair tracked in a searchable database. This would help, among other things, to identify culverts like those that repeatedly failed in Pinnacle Ridge Road 1673 due to significant bedload movement and undersized culverts (see page 4 of this report). Pinnacle Ridge Road 1673 is a seasonally open road, so its not like these culverts never get driven by or can't be inspected from the comfort and convenience of a motor vehicle. Indeed, the focus on monitoring culverts on closed roads per A19 and the bull trout BiOps for road-related activities is intended to address the issue of more difficult inspection and less likely discovery of plugged culverts. This should not be construed to indicate that stream-crossing structures on open roads don't plug and fail and hence need not be inspected annually.

58. See note 57.

59. See page 11 of this report and Note 48.

60. See pages 9 and 10 of this report and Note 38.

61. FNF's Allen Rowley in 1998 told the Missouian newspaper that it is cheaper to reclaim a road than continually maintain it (see our Counting Culverts report via Note 8). In proposing road "storage" for 9 miles of road in a manner that would remove all stream-aligned culverts, Swan Lake Ranger District notes "Rather than investing in BMPs [Best Management road maintenance Practices] now, it is more cost-efficient to remove any potential impact it has to aquatic resources up front [and be] placed in a condition that does not require maintenance." (Request for public input: Chilly James Restoration Project. Richard Kehr. 2/14/14.)

62. See page 11 of this report.

63. Were it not for lawsuits filed by Swan View Coalition and others, the 1986 Flathead Forest Plan would have built 75 miles of road per year until its already abundant 4,000 miles of roads was increased to 6,000. Because the 1986 Plan did not have adequate road density standards and all five Ranger Districts reported they could not produce the Allowable [Timber] Sale Quantity [ASQ] without violating the Plan's grizzly bear standards, we went to court. The court told the agency to rework its Plan to provide adequate grizzly bear security and the FNF wrote A19. Besides the motorized access management discussed in the report, A19 also lowered FNF's ASQ from 100 MMBF/year to 54, although only 10MMBF of that reduction was due to grizzly bear standards and the rest was due to improved planning for the protection of old growth forests, elk winter range, whitetail deer winter range, etc. (See Note 2). A more detailed accounting of these lawsuits is provided in our Counting Culverts report accessible via Note 8 of this report.

A19 was precedent-setting. A19's form of managing motorized access was applied to the other National Forests in the NCDE, though it is unfortunate the culvert removal and monitoring requirements were not. Because of those culvert removal requirements, the FNF has demonstrated and been able to claim progress in making things better for threatened bull trout. The FNF has consequently reclaimed/decommissioned 763 miles of road and has only built 13 miles of road in roadless areas since 1986. Especially when considered within the context of broader agency initiatives like the Roadless Rule and Travel Planning Rule, A19 has made it easier for the FNF to adjust to initiatives aimed at minimizing roads and their environmental effects. How much of this progress would have been made without litigation?

More recently, Swan View Coalition and others filed a lawsuit against the Glacier Loon Fuels Reduction and Forest Health Project. In it they also challenged the continued logging of now-federal former Plum Creek lands by The Nature Conservancy for Plum Creek without the full application of A19, federal law and ESA consultation requirements. When the Court said Plum Creek and TNC must apply all federal law, they chose instead to cancel their "timber supply agreement." So the FS is no longer constrained from decommissioning former Plum Creek roads until the agreement would have expired in 2018 or until logging cleanup by TNC was completed as late as 2021. As a result, the Chilly James Restoration Project will begin decommissioning roads in the "impaired," Water Quality Limited Jim Creek in Summer 2016. (See *Swan View Coalition v Weber*, CV 13-129-M-DWM, Court Order dated 9/25/14. See also the Chilly James Decision Notice cited in Note 26).

Litigation could have been avoided. The FNF could have followed the plain language of A19 and the law and perhaps the SWCC would have rallied around it. But the FNF instead refused. Swan View Coalition and others were there in SWCC meetings and letters urging compliance, but it took a lawsuit instead. The bottom line is that old Plum Creek roads in a heavily damaged watershed can be decommissioned in Summer 2016 because a lawsuit helped clear that path. The Forest Service needs to acknowledge the essential constructive path, checks and balances provided by litigation rather than demonize those who work to enforce land management laws and help insure collaborative groups have access to accurate information.

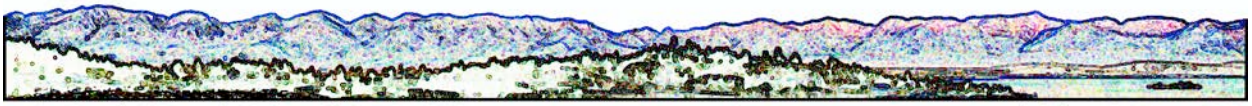
Photo Credits

The photos used in this report are by Keith Hammer/Swan View Coalition unless otherwise noted in the text or caption.

Appendix A

Keith Hammer's white paper "Only decommissioned roads removed from the Forest Development Road System may be omitted from calculations of Total Motorized Route Density on the Flathead National Forest, dated 6/4/15 and updated by addendum 2/7/16, begins on the following page.

Swan View Coalition *Nature and Human Nature on the Same Path*



3165 Foothill Road, Kalispell, MT 59901 swanview.org & swanrange.org ph/fax 406-755-1379

Only Decommissioned Roads Removed from the Forest Development Road System May be Omitted from Calculations of Total Motorized Route Density On the Flathead National Forest

Keith Hammer
June 4, 2015

Updated by Including Addendum
February 7, 2016

Executive Summary

This paper is written in response to attempts by the Flathead National Forest and the Draft NCDE Grizzly Bear Conservation Strategy to omit from calculations of Total Motorized Route Density (TMRD) roads that may be impassable to motorized vehicles but have not been adequately decommissioned and removed from the Forest Development Road System (System).

The administrative record and the plain language of Flathead Forest Plan Amendment 19 (A19) show that a road must be reclaimed/obliterated/decommissioned (hereafter "Reclaimed") and removed from the System before it is no longer considered a road that must be included in calculations of TMRD.

TMRD standards require road reclamation and removal of the road from the System, while Security Core standards do not. Road reclamation is A19's preferred method of increasing Grizzly Bear Security Core because it simultaneously protects water quality and fish through required culvert removals and other hydrologic stabilization work. Reclamation of roads is not absolutely required in Security Core and roads restricted by berms, boulders or dense vegetation may suffice, provided "a monitoring plan to detect any erosion or culvert blockage problems" is implemented.

The A19 administrative record does not support the notion that a road can remain in the System as a road and yet not be counted as a road in calculations of TMRD. As long as the road remains in the System, even if placed in Intermittent Stored Service (ISS) or any other "storage" or "impassable" category, it is considered a road and must be included in the calculation of total road miles and TMRD.

Current and past attempts to exclude System roads from calculations of TMRD appear to arise from interpretations like those guided by the ill-fated and short-lived Implementation Note #13 in 1999 - which ran counter to the A19 administrative record.

Rather, implementation must be guided by the plain language of Amendment 19, as clarified by its Appendix D definitions and the administrative record discussed below.

Amended EA for Amendment 19

The essential question of whether open and restricted roads need to be reclaimed and removed from the System in order to meet TMRD and other A19 standards was resolved, according to the Flathead National Forest, in the Amended A19 Environmental Assessment and its Appendix D. This Appendix was also issued as Appendix D to A19 and as Flathead Forest Plan Unbound Appendix TT. In the Amended EA's Response to Public Comments, the Flathead responds:

> Total motorized access density objectives must be met after including open and restricted motorized roads and trails, except for those that have been reclaimed . . . In response to comments that the definitions of restricted and reclaimed roads and core areas did not adequately express our intent, additional text . . . has been included as Appendix D [and] would be incorporated into the Forest Plan as Unbound Appendix TT.

(Forest Plan Amendment 19 Amended Environmental Assessment. February 1995. Page 107.) The Amended EA continues in its Response to Public Comments:

> Comment(s): The preferred alternative should make clear that meeting the Total Motorized Access Density (TMAD) objective will require reclaiming open and restricted roads.
>
> Response: Chapter III of the EA describes the miles of road reclamation and road restrictions estimated to result from implementation of each alternative. In addition, Appendix D has been added to the EA. This Appendix defines in detail "reclaimed road" and "restricted road."

(Forest Plan Amendment 19 Amended Environmental Assessment. February 1995. Page 133.) Indeed Chapter III of the Amended EA, in describing the chosen Alternative 3C, concludes:

> To meet the standards and short-term objectives in MS-1 and MS-2 areas, approximately 350 miles of open roads and 125 miles of currently restricted roads would need to be reclaimed in the short term (5 years). To meet long term (10 years) standards and objectives, another 175 miles of already-restricted roads would need to be reclaimed.

(Forest Plan Amendment 19 Amended Environmental Assessment. February 1995. Page 95.)

Also, apparently in response to public comments including ours, the Amended A19 EA reworked Figures 22 and 23 to reflect the reclamation of Chapter III's estimated 475 miles of road and their removal from the road System to meet the 5-year A19 standards. Figure 23 shows no category for "stored" or "impassable" System roads that would not

be counted in calculating TMRD. Reclaimed roads are accounted for in the reduction of total road miles in the System.

In other words, if it remains a System road, it gets counted as a road. That this common sense understanding predated A19 is confirmed by Figure 22's notation of 420 miles of roads that were in 1990 "obliterated and removed from the forest inventory."

Amendment 19 and Interagency Grizzly Bear Committee Definitions

The A19 process and the Interagency Grizzly Bear Committee (IGBC) process on which it is based include the same three classifications of roads: Open, Restricted, and Reclaimed. Neither includes a category for "stored" or "impassable" roads that remain on the System yet would not be counted as roads in calculations of TMRD.

In part the definitions of Restricted and Reclaimed roads are as follows, first from A19:

> RESTRICTED ROAD . . .
>
> A road on which motorized vehicle use is restricted during the entire non-denning period. The road requires physical obstruction and motorized vehicle use in the non-denning period is legally restricted by order . . .
>
> Outside of security core areas, motorized administrative use is acceptable at low intensity levels . . .
>
> All restricted roads will be included in calculating total motorized access route density . . .
>
> RECLAIMED ROAD . . .
>
> A reclaimed road has been treated in such a manner so as to no longer function as a road or trail and has a legal closure order until reclamation is effective. This can be accomplished through one or a combination of treatments including: recontouring to original slope, placement of natural debris, or revegetation with shrubs or trees . . .
>
> Administrative use of reclaimed roads may not occur . . .
>
> The entire road will receive treatment such that maintenance or entries to maintain "road drainage" is not needed. This will require removal of culverts or other water passage structures that are aligned with stream channels. In most cases this will also require that road related sediment sources be repaired and the road reworked to eliminate ditch water flow without the aid of cross drain culverts . . .
>
> Reclaimed roads that fully satisfy the definition of a reclaimed road will not be included in calculations of open road density, total motorized access density, or

> security core area. Roads that have been treated, but that do not yet fully satisfy the definition of a reclaimed road will be included in calculations for total motorized access route density . . .
>
> The acceptable lag time for the treatment to become effective and the expected persistence of people to continue to use a road should dictate the amount and type of initial, and perhaps follow-up, treatment required . . .

(Flathead Forest Plan Appendix TT; a.k.a. Appendix D to Amendment 19.)

Now, according to the IGBC:

> Reclaimed/Obliterated Road -- a route which is managed with the long term intent for no motorized use, and has been treated in such a manner so as to no longer function as a road. An effective means to accomplish this is through one or a combination of several means including: recontouring to original slope, placement of logging, or forest debris, planting of shrubs or trees, etc. . .
>
> Total Motorized Route Density calculations will include open roads, restricted roads, roads not meeting all restricted or obliterated criteria, and all motorized trails.

(Interagency Grizzly Bear Committee Task Force Report: Grizzly Bear/Motorized Access Management; Interagency Grizzly Bear Committee; July 29, 1998; emphasis added.)

Protocol Papers for Amendment 19 and the IGBC Task Force Report

Protocol Papers prepared for both A19 and the IGBC Task Force over the years consistently document the use of only the initial three classifications of roads: Open, Restricted, and Reclaimed. None include a category for roads to remain in the System yet not be counted in calculations of TMRD:

> . . . each road was classified as open, restricted, or reclaimed.

(Kathy Ake and Nancy Warren. 9/1/94 updated 2/17/95.) In 2001, the Protocol Paper provides a bit more specific definition of road, as follows, but repeats the three allowed classifications of roads:

> Definitions are based upon the IGBC Motorized Access Management report with verbal clarification from individual committee members (see Amendment 19 project file) . . .
>
> ROAD . . . All created or evolved routes that are >500 feet long (minimum inventory standard for the Forest Service INFRA data base), which are or were reasonably and prudently drivable with a conventional passenger car or pickup. Within the three classes below . . . OPEN ROAD . . . RESTRICTED ROAD . . . RECLAIMED/OBLITERATED ROAD.

(Protocol paper. Kathy Ake; 11/20/01; emphasis added).

Even the 2013 draft Protocol Paper Kathy Ake prepared as Appendix 5 to the Draft NCDE Grizzly Bear Conservation Strategy starts off on the right foot by clarifying that:

> Sometimes referred to as a reclaimed or obliterated road, a historical road has been treated in such a manner so as to no longer function as a road or trail, and the road is no longer considered part of the agency's road system.

When the 2013 Protocol Paper begins discussing the Draft Grizzly Bear Conservation Strategy, however, it introduces a new and fourth classification of roads as "Closed Yearlong Impassable" (hereafter "Impassable"):

> Similar to historical roads, roads that are naturally revegetated, have the entrance obliterated for >0.1 miles, or have the bridge or large >4ft culvert removed are also not included in the analyses, i.e. they do not count in OMRD or TMRD, nor are they buffered in the Secure Core analysis. These roads are impassable by any vehicle (passenger car, truck, 4WD vehicle, ATV, motorcycle, etcetera). These roads are still on the system. Revegetated roads defined as so grown-in that they are no longer drivable. The vegetation is such that it is easier to walk on the side-hill as opposed to down the center of the road bed.

(Protocol Paper for Motorized Access Analyses Application Rule. Draft NCDE Grizzly Bear Conservation Strategy Appendix 5. Kathy Ake. February 2013.)

This new, fourth classification of roads is introduced to the public for the first time in the 2013 draft Grizzly Bear Conservation Strategy while simultaneously stating it "Has been incorporated this way since IGBC motorized access or Flathead NF's A19 started." This interpretation is not supported by the administrative record.

In an 8/18/94 letter to the A19 Interdisciplinary Team Leader, Flathead Forest Wildlife Biologist Nancy Warren documented her clarification on this very issue with members of the IGBC Motorized Access Task Force:

> Is it correct to classify all bermed, barricaded, tank-trapped, or overgrown (to just a path) roads as restricted roads, even though they may not be "reasonably and prudently driveable with a conventional passenger or pickup", even though use by all-terrain vehicles may not be restricted?
>
> Tom Puchlerz [IGBC Task Force Chair] indicated that the intent was to classify as "restricted" roads that could easily be re-opened by removing a barricade or tank trap. If the road was so overgrown or rough that reconstruction would be needed [and] if there were no access, then it would be <u>classified as reclaimed/ obliterated</u>. Tom Wittinger and Chris Servheen agreed with this interpretation.

(Nancy Warren to Jim Morrison; letter dated 8/18/94; emphasis added).

The IGBC Task Force did not suggest a new, fourth classification of road. Nancy Warren instead reports that, if the road is so overgrown and rough as to require reconstruction to become passable again, it should be classified as Reclaimed. The Flathead's A19, however, requires among other things that all stream-bearing culverts be removed from that road and that it be removed from the System in order to be fully Reclaimed.

Moreover, as detailed above and summarized below, the A19 administrative record does not support use of a fourth classification of Impassable road. In response to public comment, the Amended A19 EA estimates the miles of open road that will need to be closed to motor vehicles and the miles of open and already restricted roads that will need to be reclaimed to meet A19 standards. Nowhere does it mention that roads can be simply rendered "impassable" and retained as part of the System while not being counted in calculations of TMRD.

Nor do any of the Protocol Papers prior to 2013 highlight that "impassable" roads can simply be omitted from calculations of TMRD. Nor does either the 1994 or 1998 IGBC Task Force Report say or allow this. Indeed, they make it clear that a road must meet all of the criteria for a Reclaimed road to not be counted in calculations of TMRD. Simply put, under A19, an Impassable road that remains on the road System is a Restricted road and must be counted in calculations of TMRD until it has all of its stream-bearing culverts and bridges removed, fully meets all other Reclaimed road criteria, and is removed from the System.

Road Treatments Required by the Amendment 19 Fisheries Biological Evaluation

A19 reluctantly allows stream-bearing culverts and bridges to remain behind berms, concrete and boulder barriers on Restricted roads in Security Core, provided "a monitoring plan to detect any erosion or culvert blockage problems" is implemented. However, A19 expressly requires that all those stream crossing structures be removed from Reclaimed roads that will no longer be included in calculations of TMRD. This is due in large part to the Fisheries Biological Evaluation for A19:

> Implementation of the preferred alternative would result in the following: . . .
>
> Direction for reclaiming/obliterating roads including removal of culverts which greatly reduces the risk of future sedimentation problems resulting from culvert failure on reclaimed roads.
>
> Direction for restricted roads in core habitat areas to implement road drainage treatments similar to reclaimed roads, or to develop and implement a monitoring plan to detect any erosion or culvert blockage problems . . .
>
> The determination [of effects on fish] assumes incorporation of the proposed definitions and minimum treatment requirements for reclaimed and restricted roads.

(Biological Evaluation for Bull Trout, Cutthroat Trout, and Shorthead Sculpin: Potential Effects from Implementing Amendment 19, Alternative 3 to the Forest Plan. Donald E. Hair. 2/4/95.)

The Fisheries Biological Evaluation, like all the other A19 and IGBC documents, contends with the effects of Open roads, Restricted roads, and Reclaimed roads. It does not mention a fourth classification of Impassable roads, let alone say that they are considered separate from Restricted roads. Nor does it say Impassable roads can be excluded from calculations of TMRD while leaving stream-bearing culverts to blow out behind an obliterated entrance, the first already blown-out or otherwise removed >4ft culvert, or in a roadbed grown thick with vegetation but still harboring stream-bearing culverts.

Indeed, this fourth classification of Impassable roads appears to have all the trappings of an under-the-radar, end-run around the clear language and requirements of A19. We don't doubt the Flathead has done this. We simply disagree that this is allowed by A19 - for all the reasons provided above.

Implementation Note #13

On May 6, 1999 the Flathead issued Implementation Note #13 under the guise of clarifying A19's Appendix D definitions. It in fact contradicted them, in part by allowing stream-bearing culverts to remain in Reclaimed roads in violation of the conditions of the Fisheries Biological Assessment and the plain language of A19.

Swan View Coalition and Friends of the Wild Swan on September 23, 1999 filed a 60-day notice of intent to file suit under the Endangered Species Act and the Forest Supervisor rescinded Implementation Note #13 on November 19, 1999. Flathead Forest spokesman Allen Rowley was quoted in the November 24, 1999 Missoulian: "We talked it over with our attorneys and we decided they (conservation groups) were right."

So here we are in 2014 with the Flathead claiming it can simply render or find a road impassable, keep it on its road System, not remove all stream-bearing culverts, and yet not count it in calculations of TMRD either. (Personal communication with Kathy Ake 10/15/14 and Kathy Ake's Appendix 5 to the draft Grizzly Bear Conservation Strategy.) Indeed, connected Roads #10753 and #10754 in the Flathead's Canyon Creek drainage have seven washed out culverts, have never been adequately repaired or reclaimed, and yet are not included in the Flathead's calculation of TMRD. (Terms and Conditions Monitoring Report: Bull Trout Biological Opinions for Post-fire Salvage Operations, Flathead National Forest, 2007-2009; Craig Kendall; October 28, 2009; Appendix A Summary of Road and Culvert Surveys - checked against "Impassable" road data files provided by Kathy Ake 1/27/15). A19 certainly did not intend for the Flathead to allow culverts to blow out and to then take credit for the reduction in TMRD as though the blown-out roads had been properly reclaimed!

Leaving culverts to potentially blow out in roads not counted in TMRD would have been allowed by Implementation Note #13. It appears the Flathead formally rescinded Note #13, then went ahead and implemented portions of its intent anyway - in clear

violation of the plain language of A19 and in spite of assurances by the Forest Supervisor that the plain language of Flathead Forest Plan Appendix TT/A19 Appendix D would be implemented:

> . . . I have reviewed the language of LRMP Implementation Note #13 and the existing Forest Plan Appendix TT and have determined to rescind Implementation Note #13 to avoid any confusion or misunderstanding with the implementation of Appendix TT . . . The definitions and direction contained in Appendix TT will be used by the Flathead National Forest unless and until the Forest Plan is subsequently amended or revised and any consultation obligations are satisfied with the U.S. Fish and Wildlife Service.

(Letter of Supervisor Cathy Barbouletos to attorney Dan Rohlf. 11/19/99.)

No such amendments or revisions have taken place and Appendix TT/D remains the law of A19. A19's requirements to protect fish are not at odds with its requirements to protect grizzly bear. A19's requirements to remove stream-bearing culverts from Reclaimed roads and to regularly inspect and clean culverts on Restricted roads are indeed common sense measures required by Fish and Wildlife Service in numerous biological opinions regarding bull trout. Rather than graciously comply with the multiple-species requirements of A19, it appears the Flathead has instead employed a shrouded classification of Impassable road to reportedly benefit bears while ducking corresponding requirements to protect water quality, bull trout and other aquatic life.

The Flathead's Road Decommissioning Spreadsheet

The Flathead's Road Decommissioning Spreadsheet lists "Road Decommissioning Projects" since A19 was first issued in 1995. It tracks five categories of Reclaimed roads:

Category 1 - System roads reclaimed and moved to Historic but still monitor for A19

Category 2 - System roads reclaimed and moved to Historic = revegetated - no monitoring

Category 3 - Roads reclaimed and left as System roads, still monitor for A19

Category 4 - Moved to Historic, naturally revegetated, no contract work needed, no monitoring

The fifth category is "Only Has Decision," meaning reclamation plans have yet to be implemented on those miles of road.

This spreadsheet shows clearly that the goal is to remove Reclaimed Roads from the System as the reclamation treatments become effective. Interestingly, all roads from Category 3 were shifted to other categories in 1999, the same year as the short-lived Implementation Note #13, and it has remained at zero road miles ever since.

A19 allows only three classifications of roads. Open and Restricted roads must be included in calculations of TMRD and only Reclaimed roads are excused from those calculations. Like all the other documents in the A19 administrative record, the spreadsheet does not contain a classification or category for Impassable roads excused from calculations of TMRD while remaining on the System.

According to A19 and Appendix TT/D, the only roads excused from calculations of TMRD should be included in this spreadsheet of Reclaimed roads. But they aren't all included because a shrouded classification of Impassable roads exists, though contrary to A19. (Personal communication with Kathy Ake 10/15/14; Kathy Ake's Appendix 5 to the draft Grizzly Bear Conservation Strategy; and "Impassable" road data files provided by Kathy Ake 1/27/15.)

Conclusion

At every turn, A19 NEPA documents and the Flathead National Forest have pointed to Forest Plan Appendix TT/A19 Appendix D as the guiding light and requirements of A19. Appendix TT/D provides for only three classifications of roads: Open, Restricted, and Reclaimed. It provides no classification for Impassable roads. Under A19, if a road is rendered impassable by either an act of nature or by human intervention, it remains an Open or Restricted road until it meets all criteria for a Reclaimed road and is removed from the road System.

This interpretation describes the publicly observable practice of implementing A19. This interpretation has been the Forest Service's direct response to public comments raising these very questions since 1995. This interpretation is consistent with the Forest Service itself asking these very questions of the IGBC Motorized Access Task Force. This is also the only interpretation of Appendix TT/D supported by the A19 administrative record.

The public discovery of the Flathead's shrouded category of Impassable roads that need not be included in calculations of TMRD came about only due to its disclosure in Appendix 5 of the 2013 Draft NCDE Grizzly Bear Conservation Strategy. Even then, its disclosure is largely obscured by footnotes attempting to detail the differences in motorized access management between the Flathead and the four other Forests in the NCDE - partly because the other Forests apparently do not require all stream-bearing culverts and bridges to be removed from Reclaimed roads.

Simply put, and for the reasons provided above, the Flathead must consider its Impassable roads to be Restricted or Open roads, include them in calculations of TMRD, and set about either repairing or reclaiming these roads to adequately protect water quality, fisheries and wildlife. It violates A19 and a wide variety of conservation laws for the Flathead to retain what at this juncture appears to be a "junk pile" of unattended old roads. It adds insult to injury to suggest that these roads are environmentally benign by implying they have been managed according to A19's standards for protecting water quality, fish and wildlife.

Addendum Added February 7, 2016

"Storing" Roads is Not the Functional Equivalent of "Decommissioning"

The preceding portions of this paper remain unchanged. The preceding explains why "impassable" roads can't be omitted from Total Motorized Route Density (TMRD) under Forest Plan Amendment 19 (A19). This addendum explains why neither "impassable" nor "stored" roads are the functional equivalent of decommissioned roads. The Flathead is proposing to reconstruct previously decommissioned "non-system" road templates for logging, then place them back into the road "system" under "Intermittent Stored Service" (ISS) - as though ISS is the functional equivalent of "decommissioning."

ISS is not the functional equivalent of decommissioning. Nor did the A19 Amended EA assess the effects of road reclamation/decommissioning as though roads removed from the road system would periodically be rebuilt, requiring culverts to be reinstalled and vegetation to be removed from the roadbed each time they are brought back into service under ISS.

The Flathead's Trail Creek Fire Salvage Project proposal, for example, proposes to "construct approximately seven miles of new system roads on existing templates to access proposed harvest units and then place these seven miles, plus approximately an additional mile of road, into storage and classify the roads as intermittent stored service (ISS) roads following salvage harvest operations . . . to facilitate harvest activities and long-term resource management." (Trail Creek Fire Salvage Project proposal released for public review by Spotted Bear District Ranger Debbie Mucklow via cover letter dated 1/26/16).

These roads would largely be rebuilt on "historic" road templates decommissioned and removed from the road system as recently as 2000 and 2004. (Personal communication with Matt Shaffer, FNF, and FNF's 3/23/15 Road Decommissioning Projects spreadsheet). "Upon completion of the project, the first portion of the road would be recontoured to the original hillslope . . . Beyond the first portion of the road (200 - 600 feet) the roadway would be treated to discourage use including sporadic placement of natural debris where available and seeding or planting to encourage re-vegetation." (Trail Creek Fire Salvage Project proposal released for public review by Spotted Bear District Ranger Debbie Mucklow via cover letter dated 1/26/16).

While the Trail Creek proposal says that the new road design would "favor rolling dips over culvert installation," it does not say culverts will not be installed where necessary and it does not say that they would be removed post-project if they are installed. The proposal does make it clear that the road template would be brushed out and the road surface bladed to allow for log hauling.

The proposal does acknowledge it would need site-specific amendments to A19 to allow for summertime heavy equipment work on these road templates, which is not allowed in Security Core during the non-denning period for grizzly bears. The proposal

would then simply have the public and other agencies believe that post-project ISS is the functional equivalent of decommissioning and complies with A19.

As described on pages 3 and 4 of this paper, A19 requires that a reclaimed/ decommissioned road be "treated in such a manner so as to no longer function as a road or trail" and the IGBC further emphasizes "the long term intent for no motorized use." To the contrary, ISS designation has the long-term intent of intermittent motorized use of the road and retains it in the road system. This is not the functional equivalent of a decommissioned road that is removed from the system precisely because the long term intent is to eliminate motorize use and render the road environmentally benign in the watershed. This is clearly evident in Amended EA's assessment of the effects of A19 road decommissioning, particularly on pages 65-67:

> Road reclamation can decrease rates of surface erosion by up to 95 percent . . . With road reclamation, culverts will be removed at stream crossings . . . The potential increase in sediment due to culvert removals and other ground disturbance will be balanced by an immediate decrease in peak flows and subsequent stream channel erosion due to dispersing runoff concentrated by the roads . . . Soil compaction on the reclaimed roads will gradually decrease as the roads revegetate with woody shrubs and conifer. After 50 - 100 years, these areas will have increased infiltration and productivity rates similar to undisturbed sites. Water quality and fisheries will improve from the road reclamation activities . . . culvert removal will reduce the risk of culvert failures . . . [and the A19 EA alternative proposing the fewest open roads and the greatest amount of Security Core] would improve watershed conditions more than all other alternatives.

What the A19 Amended EA did not do was assess decommissioned roads as if they were to be ISS roads intermittently used for logging access. While A19 requires that Security Core remain in place and effective for at least 10 years, it did not contemplate nor assess the effects of roads being decommissioned, rebuilt, then decommissioned again on a repeating basis of every 10 years or so, or simply at the whim of the Forest Service. Such a repetitive process clearly has significant negative impacts to vegetation, soils and water quality not contemplated nor assessed in A19. In Trail Creek and other projects, the Flathead is ignoring and shortchanging the benefits to soils, water quality and fish that were fully integrated into A19 grizzly bear security standards.

ISS and Road "Storage"

The Flathead's Travel Analysis Process, as documented in the June 2014 Beaver Creek Analysis and elsewhere, defines ISS as "Closed to traffic. The road is in a condition that THERE IS LITTLE RESOURCE RISK IF maintenance IS NOT PERFORMED (self-maintaining). (FSH 5409.17-94-2)." (Emphasis in original). FSH 5409.17-94-2 in turn defines "Road Storage [as] The process/action of closing a road to vehicle traffic and placing it in a condition that requires minimum maintenance to protect the facility for future use."

This is little more than Maintenance Level 1 "storage," which is defined in the Flathead's 2014 Forest-Wide Travel Analysis Report as follows:

> These roads have been placed in storage between intermittent uses. The period of storage must exceed 1 year. Basic custodial maintenance is performed to prevent damage to adjacent resources and to perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage facilities and runoff patterns. Planned road deterioration may occur at this level.

A19 road decommissioning requires that "drainage facilities" like stream-aligned culverts be removed, not maintained. A19 decommissioning also requires that "runoff patterns" be "reworked to eliminate ditch water flow without the aid of cross drain culverts," not to maintain runoff patters through culverts. (A19, Appendix D). Hence, again, ISS and other "stored" roads are not the functional equivalent of an A19 decommissioned road. Properly decommissioned roads, unlike those repeatedly reused, should pose no risk to a watershed, require no maintenance, and are allowed to re-vegetate. That re-vegetation not only deters human use of the old travel-way, it also over time de-compacts any road surface that was not mechanically de-compacted at the time of decommissioning.

The Problems with "Storage" and "Impassable" Exemplified

So, what could possibly go wrong in the Flathead's pursuit of replacing road decommissioning with road "storage" and/or classifying roads "impassable?" In addition to misrepresentations made to the public and other agencies like Fish and Wildlife Service (FWS), plenty. Take Raghorn Road #10802 in the Coal Creek watershed as an example:

According to the Flathead's 3/23/15 Road Decommissioning Projects spreadsheet, the Flathead decided to reclaim Road #10802 on 9/25/92 as a part of the North Coal Salvage Timber Sale. The Biological Assessment for this timber sale was supplemented on 4/15/94 and FWS concurred with its findings on 5/5/94, citing the same grizzly bear research and findings soon to be incorporated into A19 in 1995.

Given the importance of Coal Creek to bull trout and westslope cutthroat trout, the Flathead revisited the pre-A19 decisions for Road #10802 and two others in the watershed. The subsequent 7/27/10 decision by District Ranger Jimmy DeHerrera for these roads decided to remove all 15 culverts from the three roads, 13 of them on Road #10802, including all cross-drain culverts:

> These actions are being proposed to protect important bull trout spawning areas. If these culverts fail during a storm event, unnecessary sediment would be transported downstream jeopardizing spawning and rearing habitat for fish and impacting water quality. A TMDL [Total Maximum Daily Load plan for an "impaired water body"] was also completed for Coal Creek in 2005 and road waterproofing was identified to alleviate sediment conditions in Coal Creek."

On 6/21/2010, FWS concurred with the decision to remove all the culverts. Coal Creek was soon after designated Bull Trout Critical Habitat, adding additional Endangered Species Act prohibitions to damaging threatened bull trout habitat. In 2012, however, the Flathead considered the road "waterproofed" after removing only 3 culverts less than half way up the 3.69-mile-long Road #10802, leaving other culverts in place! (Waterproofing Rd. 10802 map and notes by Pat VanEimeran and John Littlefield, November 2012).

Several of the remaining culverts beyond those removed are stream-aligned and at least two of them were flowing water when I inspected them on 8/20/15! VanEimeran and Littlefield's November 2012 notes cited above also document water flowing across and under the road at these locations!

The Flathead's INFRA database and KML (Google Earth Keyhole Markup Language) road files provide by Kathy Ake in 2015 nonetheless classify the entire road as a Maintenance Level 1 "system" road that is "impassable" and hence not included in A19 calculations of TMRD. This even though the road is not impassable according to the "impassable" criteria Ake listed in the Draft Grizzly Bear Conservation Strategy (see page 5 of this paper): 1) the first portion is not naturally re-vegetated to the degree it hinders motorized or foot travel - in fact the brush was cut back, apparently to provide passage for the culvert-removal machinery in 2012, 2) the entrance to the road has not been obliterated, and 3) the three culverts removed were 36" diameter culverts that don't meet the minimum 4' culvert removal criteria to qualify as an impassable barrier.

When compared to Ake's Conservation Strategy criteria, Road #10802 is not an "impassable" road but a bermed road. Under A19 this bermed road can be and is largely located in Security Core habitat. Though decommissioning the road is preferred under A19, a berm closure of restricted road in Security Core is allowed - **provided** the Forest develops and implements "a monitoring plan to detect any erosion or culvert blockage problems" on each such road. (Biological Evaluation for Bull Trout, Cutthroat Trout, and Shorthead Sculpin: Potential Effects from Implementing Amendment 19, Alternative 3 to the Forest Plan. Donald E. Hair. 2/4/95.)

Hair's culvert monitoring requirement, above, is also repeated in A19's Appendix D definition of a restricted road. In spite of this, the Flathead has not developed a single culvert-monitoring plan for any of the many score of bermed roads in Security Core, let alone for Raghorn Road #10802! (Chip Weber's 9/22/15 response to Swan View Coaltion's 8/7/15 FOIA request).

Whether a bermed road or an "impassable" road, as made clear in this paper, Road #10802 must nonetheless be included in calculations of TMRD. And this brings us back to the plain language interpretation of A19: a road must have all stream-aligned culverts removed, all cross-drain culverts removed or rendered non-essential and harmless, and be removed from the road "system" before it is no longer a road counted in TMRD. Moreover, Road #10802 should have all of its culverts removed because the Flathead promised the public and FWS that it would do so in National Environmental Policy Act and ESA consultation documents!

Raghorn Road #10802 is but one example of what goes wrong when the Flathead fails to follow the plain language of its own Forest Plan and road decommissioning decisions. Instead of a decommissioned road that no longer functions as a road or trail, Road #10802 can be easily walked or ridden on a mountain bike or driven for at least the first mile by violating the berm closure in/on a motorized vehicle. Bears and other wildlife are left with easier human access into their habitat than promised and bull trout are left with culverts that remain ticking time bombs instead of having been removed as promised. FWS has concluded:

> Culverts left in place behind gated and bermed roads . . . pose a risk to bull trout . . . Whatever the design life, any crossing structure would have a 100% chance of failure over its installation life if it is not removed after the road is abandoned.

(FWS's Montana Field Office, Biological Opinion on the Effects of the Moose Post-Fire Project on Bull Trout, 11/14/2002).

Conclusion

The public is left with little reason to trust the Flathead as it repeatedly attempts to end run A19's fiscally responsible program to restore grizzly bear habitat security in a way that provides the same benefits to other wildlife and fish. If the Flathead wants to change A19, it needs to issue a major Forest Plan amendment with full public disclosure and involvement. It cannot lawfully or ethically change A19 by simply claiming that "impassable" and ISS "system" roads are not really roads, are equivalent to decommissioned roads removed from the "system," and need not be included in TMRD.