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*prepared for  
Friends of the Wild Swan*

*PO Box 5103  
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## *Counting Culverts:*

### *An Assessment of Integrated Road and Culvert Management On the Flathead National Forest*

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#### *Executive Summary*

*Flathead Forest Plan Amendment 19 is an integral part of the Flathead's program for reclaiming roads for the benefit of water quality, fish, and wildlife habitat security. Since 1995, it has benefited water quality and fish by requiring that stream-bearing culverts be removed during road reclamation necessary to achieve grizzly bear habitat security objectives. Watershed improvement funds financed 70% of the Flathead's road reclamation from 1995-1999, 80% of which occurred in grizzly bear habitat. Wildlife funds financed less than 1% of the road reclamation, while volunteer services provided the equivalent of 3% and new national road reclamation initiatives financed 26%.*

*An analysis of the Flathead's road reclamation program reveals the Flathead has failed to seize opportunities to promote its road reclamation program and prioritize funding for it. As national Forest Service initiatives have provided increased emphasis and funding for road reclamation, the Flathead has instead worked at cross-purposes to rescind Amendment 19's road reclamation and culvert removal requirements. As a result of inadequate priorities, funding, planning and implementation, the Flathead has failed to meet Amendment 19's mandatory 5-year objectives for road reclamation. This report looks at why this has occurred and suggests ways in which the situation can be corrected.*

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## Introduction

The reclamation of roads has been identified on many National Forests as a primary means to protect and restore water quality, fisheries and wildlife habitat security. On the Flathead National Forest, all stream-bearing culverts in roads to be reclaimed to provide security for grizzly bear must be removed to protect water quality and fish from the inevitable failure of the culverts. This

integrated program is found in large part in Amendment 19 to the Flathead Forest Plan. Information provided by the Flathead, however, shows that it has been unable to either adequately maintain its roads and culverts or provide for their timely removal. This report will look at why this is and suggest what can be done about it.

## Inventories and Monitoring

While the Flathead reports publicly that it has 3,761 miles of roads, it reports to Fish and Wildlife Service that it has 5,025 miles of roads. [1] The Flathead has inventoried some 287 bridges, 55 culverts larger than 7' diameter, and some 5,500 smaller culverts. It has not tracked which of the smaller culverts either bear streams or drain water and sediment from road ditches (which collect and sometimes redirect sediment-laden water towards streams). Moreover, an undisclosed number of the smaller culverts remain uninventoried. [2] It appears that only about 5,555 large and small culverts out of an estimated 80,000 are accounted for in the Flathead's inventories. [3]



Keith Hammer photo

*Culverts stockpiled for 45 installations in 2.5 miles  
of new road near Emery Creek,  
Flathead National Forest.*

The Forest Service Manual requires a systematic monitoring of the Flathead's bridges in order to minimize bridge failures. However, the Flathead has no systematic monitoring program for inspection of its culverts. [4]

While it is not uncommon for culverts to fail and roads to wash out on the Flathead, it keeps no central inventory of such events. Such damages are generally only compiled in a central location following specific weather events, such as rain-on-snow, which cause enough immediate damage in a geographic area to perhaps qualify for emergency repair funds. For example, an April 4, 1990, Flathead report documents the damage caused largely by undersized culverts in the face of a November, 1989, rain-on-snow event that resulted in the need for \$391,000 in repairs to failed roads, culverts and bridges. [5]

Such rain-on-snow events are not uncommon, however, and blowouts of undersized culverts are a persistent problem often resulting from short-term cost-saving decisions at the time of their installation. The most recent such failure on the Flathead was during rain-on-snow in November, 1999, with a 54" diameter culvert washing out and sending 1,000 cubic yards of road downstream towards the bull trout spawning beds of Trail Creek. This culvert has since been replaced

with a 72" diameter culvert designed to withstand a 100-year rainfall event. [6]

Montana Department of Fish, Wildlife and Parks' sediment source surveys of South Fork Flathead River tributary streams supporting bull trout spawning and rearing indicate that nearly half of the surveyed road segments received a high priority ranking; meaning culverts were either partially plugged or had failed, or that the roads were

delivering sediment to live streams. These surveys found 52 culverts partially plugged or undermined and 13 culverts that had failed in these bull trout streams. [7] Such surveys, however, are not conducted on the Flathead in a routine manner, nor are they timely monitoring in terms of preventing culvert failures. Scattered records indicate that culverts that have failed may be left un-repaired for years, with additional road washing into the stream each year. [8]



Nokio Creek, Flathead National Forest

Fish and Wildlife Service photo

*Unable to fit through a 54" culvert,  
Nokio Creek washes out Road #114  
on November 13, 1999.*



Nokio Creek, Flathead National Forest

Forest Service photo

*The aftermath:  
Over 1,000 cubic yards of road and  
sediment were washed down  
Nokio Creek.*

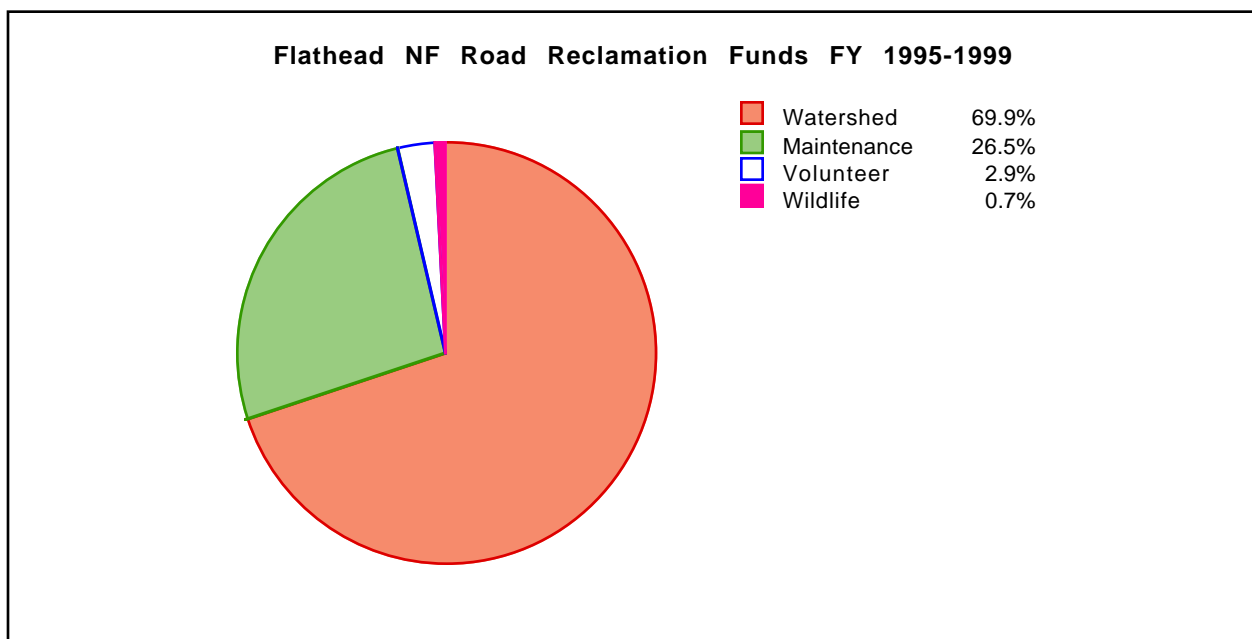
## Funding

Nationally, the Forest Service has an \$8.4 billion backlog in maintaining its roads, bridges and culverts. Because it receives less than 20% of the funding necessary to maintain its 386,000 miles of inventoried roads, this backlog grows each year. An estimated 60,000 miles of additional, uninventoried roads exist nation-wide. [9] The Flathead National Forest reported in 1998 it has been able to properly maintain only 40% of its existing road system. [10]

According to federal agencies: "Lack of road maintenance can result in elevated sediment delivery to streams as compared to existing baseline levels, primarily from high levels of sediment delivery due to culvert failures, fill slope failures, ditch failures, and surface erosion." [11] Also, the Forest Service recognizes that road reclamation is cheaper in the long run than road maintenance. [12] As a result of these circumstances and an increasing awareness of the environmental costs of building and maintaining roads, the Forest Service has proposed to limit new road construction and reclaim some of its existing roads so it can better maintain the roads it keeps. [13]

With this shift in road management emphasis, road maintenance funds earmarked specifically for road reclamation (also known as obliteration or decommissioning) have been allocated to individual National Forests for the first time. On the Flathead National Forest, \$107,000 was allocated expressly for road reclamation work in Fiscal Year 1999 and \$78,511 was allocated in FY 2000. [14] These earmarked funds have proven inadequate on the Flathead, however, and their use is being hamstrung by a lack of companion funds for the planning of the road reclamation work. [15]

For FY 1995-1999, the specially earmarked road maintenance funds account for 26% of the total \$404,500 in road reclamation costs, with watershed improvement funds providing 70%, volunteer services providing the equivalent of 3%, and wildlife funds providing less than 1%. [16] This dearth of wildlife funding is notable, given these fiscal years represent the first five years of implementation of Flathead Forest Plan Amendment 19's road reclamation to meet grizzly bear security objectives.





## Amendment 19

In addition to Forest Plan requirements to maintain and improve water quality and habitat for fisheries, the Flathead in 1995 adopted Amendment 19 to its Forest Plan in order to secure grizzly bear habitat via road closures and road reclamation. Amendment 19 was established as an integrated program that would also benefit water quality and fisheries by requiring that all stream-bearing culverts be removed from all reclaimed roads. [17] Amendment 19 further requires that measurable road density and grizzly bear security objectives be met on a 5- and 10-year implementation schedule clearly divorced from the Flathead's timber sale program. [18]

Prior to Amendment 19, the Flathead Forest Plan had no clear requirement for road reclamation to benefit grizzly bear or other wildlife and contained less restrictive standards for limiting open road densities with gates. It contained no limit on total road densities, nor any clear timetable by which open road density standards would be met. [19] The Flathead essentially proceeded to implement its open road density standard in areas where it was planning timber sales, thus allowing other areas of the Forest to retain persistently excessive open road densities. In response to several lawsuits filed by conservation groups and a resulting court order, the Flathead issued Amendment 19. It is in the "terms and conditions" of Fish and Wildlife Service's biological opinion on Amendment 19 that legally-binding time limits are set for the accomplishment of the amendment's road density and grizzly bear security objectives, without regard for the timber sale program. [20]

In the first five years of Amendment 19 implementation, the Flathead actively reclaimed 184 miles of road and declared another 89 miles as being reclaimed naturally. Of these 273 miles of road, 20% was reclaimed primarily for the benefit of water-

sheds and fish, in habitat deemed unoccupied by grizzly bear. [21] Conversely, prior to the receipt of road maintenance funds earmarked specifically for road reclamation in FY 1999, watershed improvement funds provided 95% of all road reclamation financing on the Flathead. [22]



Rock Creek, Flathead National Forest Keith Hammer photo

*Properly removing a culvert before it fails returns the road to the contour of the land, rather than washing it downstream, and reestablishes a broad streambed that minimizes erosion.*

While on the one hand taking credit for benefiting bull trout by removing culverts in roads reclaimed to benefit grizzly bear, the Flathead has on the other hand attempted to rescind its Forest Plan requirement that these culverts be removed at all. This was done in May 1999, when the Flathead Forest Supervisor issued Implementation Note #13, directing that "[d]rainage structures on streams may be left in place if [f]unding to fully reclaim the road is unavailable, and it is desirable to consider the road reclaimed for grizzly bear security." [23]

Similarly, the Interagency Grizzly Bear Committee is attempting to rewrite its road management guidelines to allow Forests like the Flathead to greatly reduce their road reclamation programs in favor of a return to the use of gates, which are of limited benefit to

wildlife and generally do nothing to benefit water quality and fish. [24] The IGBC proposal would reduce Amendment 19 road reclamation by some 80% and replace the essentially permanent grizzly bear security core areas secured by road reclamation with moveable “seasonally secure areas” temporarily protected by gates. [25] In other words, concerted attempts have been made to eviscerate Amendment 19’s road reclamation and culvert removal requirements.

Ironically, these efforts to abandon road reclamation come at a time when presidential initiatives have been launched to reduce the road system on the National Forests to a size that can be adequately maintained in order to restore ecosystem integrity. Although previously allowed to spend up to 5% of its road maintenance budget on road

reclamation, the Flathead allocated no maintenance dollars for reclamation prior to being awarded funds earmarked specifically for that purpose under the new national initiatives in fiscal year 1999. [26] As mentioned earlier, watershed improvement funds carried 95% of the Flathead’s road reclamation program prior to FY 1999.

While the Flathead has issued decisions to reclaim another 344 miles of road, the work has yet to be accomplished. [27] As a result of inadequate priorities, planning, funding and implementation, the Flathead has fallen far short of its mandatory Amendment 19 5-year implementation objectives and has asked Fish and Wildlife Service for more time to accomplish those objectives. [28]

## The Problem

While numerous problems contribute to the Flathead’s failure to meet its road reclamation and culvert removal objectives, it is due in large part to the fact the Flathead has failed to seize opportunities to consolidate its road reclamation and culvert removal programs and has instead worked at cross-purposes to such an integrated program. As discussed previously, Amendment 19’s grizzly bear security program requires the removal of stream-bearing culverts from reclaimed roads. This not only benefits watersheds and fish, but allows the Flathead to utilize these funds in grizzly bear habitat when wildlife funds are scarce.

Similarly, in terms of benefits to multiple resources, the Flathead was legally required by Fish and Wildlife Service to develop and implement along with Amendment 19 “a public information program on the positive effects of road closures for fish and wildlife, water quality, and other Forest resources.” [29] In spite of written and binding assurances to FWS that it would develop a fact sheet describing the benefits of road closures and obliteration, the Flathead has never done so. [30] Rather than proactively demonstrating to the public the benefits of a road management program that is integrated to benefit multiple species and resources, the Flathead has instead placed

*"The information indicates a stable [road reclamation] program, but at a rate which would have to increase to meet Forest Plan five and ten year objectives."*

Flathead Forest Plan  
Monitoring Report 1993-1997

itself in a defensive position and has worked alongside the Interagency Grizzly Bear Committee to eviscerate such a program.

In several major respects, the Flathead has simply failed to place highest priority on meeting the legally required 5- and 10-year road reclamation objectives of Amendment 19. In its 1995 requests for carry-over funds, the Flathead placed a higher priority on securing funding to grant Plum Creek Timber Company road access through grizzly bear habitat than on securing the funding necessary to implement the then-fledgling Amendment 19 road reclamation program. Plum Creek's access requests were prioritized as "critical," and the implementation of Amendment 19 as "not critical," to implementation of the Flathead Forest Plan. [31] Similarly, in its 1998 review of implementation of Amendment 19, the Flathead found the "information indicates a stable recent program, but at a rate which would have to increase to meet Forest Plan five and ten year objectives." Astoundingly, however, it recommended the Forest "continue on present course," rather than pick up the tempo. [32]

In the end, the Ranger District on the Flathead with the least grizzly bear habitat to manage, Tally Lake, is the only district to formulate a road reclamation work plan during the implementation of Amendment 19. [33] With limited exceptions, road reclamation work has been directed to areas where the expenditure of watershed improvement funds can be justified or where concerns for grizzly bear security can be addressed during the National Environmental Policy Act (NEPA) planning process for pending timber sales. Flathead officials point out that this latter phenomenon is due to the fact that, while they may receive funding for conducting road reclamation, it is most often not accompanied by funds to conduct the NEPA planning that must precede the reclamation work. [34]

Hence, these officials argue, they are predisposed to conserve their timber sale and/or NEPA planning money by planning road reclamation only in conjunction with and in areas where they are planning timber sales. This, of course, has inappropriately re-wed the road management and timber sales programs in a way that Amendment 19 intended to divorce them. As a result, road reclamation has often been planned and conducted at a pace and in areas where timber sales are desired, rather than in places where road reclamation is needed the most in terms of securing wildlife habitat, restoring watershed integrity, and meeting legally binding road reclamation objectives.



Road #2902, Flathead National Forest Forest Service photo

*Culverts are removed to prevent the road from washing down the creek, as happened here.*

Moreover, the implementation of road closures and reclamation have often relied upon timber sale generation of Knutson-Vandenberg funds, which are dependent upon the bid price of the sale but are not fully included in the calculation of the minimum acceptable bid. Thus, the K-V funds generated are often inadequate to accomplish the promised road closure and obliteration work.

Sadly, the incentives to wed road reclamation and watershed rehabilitation to timber sales is not limited to the Flathead. Across the western United States, hydrologists and



other specialists are watching funding for vegetative treatments and timber sales skyrocket as a means to theoretically reduce watershed damage due to wildfire. Meanwhile, programs to make these watersheds more resilient via proven road reclamation go begging and agency specialists are often assigned to mitigating the adverse effects of timber sales rather than being allowed to

focus on conducting proactive watershed restoration. It is of little comfort to find that the Forest Service's most recent Cohesive Strategy for watershed "restoration" uses fire-related vegetative conditions to prioritize which watersheds receive vegetative treatments first, rather than which watersheds contain the most roads in need of reclamation. [35]

## *The Solution*

An integrated restoration program can no longer be defined as one in which vegetative treatments and logging take priority over road reclamation and other watershed restoration measures. This bias is persistent and clearly evident in the agency's myopic focus on attempting to return forests to pre-settlement vegetative conditions while completely ignoring the fact that pre-settlement conditions included no roads whatsoever. This bias flies in the face of an increasing body of scientific and agency literature finding that roads have the single most adverse and lasting impact on watersheds and ecosystem integrity. [36]

The tendency to link all other restoration activities on the National Forests to timber sales and vegetative treatments has become heavily institutionalized in both the Forest Service and the Congress. It equates quite literally to a failure to see the problems in the forests for the trees. This link must be broken if road reclamation programs which fully integrate protection for multiple spe-

cies and forest resources are to receive adequate independent funding and timely implementation.

In the case of the Flathead, Washington and Regional offices of the Forest Service have neither supplied, nor has the Flathead apparently requested of them, the funds necessary to fully implement its Amendment 19 integrated road reclamation program. As already noted, the special funds the Washington and Regional offices have supplied the Flathead to conduct road reclamation work have apparently not been accompanied by funds to firstly plan the road reclamation work. Rather than attempting to piggy-back its road reclamation program on increased funding for timber sales and vegetative "restoration" treatments, the Flathead needs to request and receive adequate funding for both the planning and the execution of an integrated road reclamation program that can be focused on watersheds and habitats most in need of road reclamation.

## *Shortcuts and End-Runs*

The Flathead is only one of many National Forests to attempt short-cuts in its road reclamation programs. It is in good company in learning the hard way that these short-cuts are not ecologically acceptable. Following the Summer 2000 wildfires on the Bitterroot and Lolo National Forests, for example, agency experts are reexamining their former practice of assuming revegetated

roads to be reclaimed without firstly returning the road prism to the contours of the land. With the vegetation removed by fire, the means by which these long-forgotten roads continue to accumulate and re-channel water has been exemplified in the resulting magnification of soil erosion and mud flows.

The Flathead has also dropped from its road inventories and considered reclaimed scores of roads that have naturally revegetated in the absence of use. As noted earlier, 89 miles of inventoried road have been designated naturally reclaimed under Amendment 19.

Even on the roads actively reclaimed under Amendment 19, however, the Flathead has seldom, if ever, returned the entire road prism to the contour of the land. Generally, recontouring occurs only immediately adjacent to streams where Amendment 19 has required removal of the culverts. The majority of the remaining road prism, and increasingly the ditch-relief culverts, are left to continue accumulating and re-channelling water and sediment in the watershed, even though Amendment 19 requires that ditch-relief culverts be removed in “most cases.”[37] While this practice may stretch limited road reclamation dollars, it limits the overall effectiveness of such watershed restoration efforts both in the short term and in the face of inevitable long-term events such as wildfire.

As noted briefly earlier, the Flathead attempted to further stretch its road reclamation dollars and to fend off public criticism of road reclamation by attempting to ignore the Amendment 19 requirement that all stream-bearing culverts be removed during reclamation. Upon the advice of its own fisheries biologists and attorneys, however, the Flathead abandoned this end-run in the face of a threatened lawsuit. [38]

And, most recently, the Flathead and IGBC’s attempted end-run of Amendment 19 has been faulted by the scientists providing independent peer review of its proposal to replace essentially permanent grizzly bear security core areas secured by road reclamation with constantly moving “seasonally secure areas” temporarily protected by gates. The Peer Review 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.” Conversely, the Peer Review found that the newly proposed approach relies too heavily on the use of gates and seasonally secure areas that change from season to season, concluding the “proposed approach’s added complexity unfortunately necessitated several additional assumptions, some of which are tenuous.” [39]

The Flathead and IGBC, however, have yet to abandon their attempt to eviscerate Amendment 19’s road reclamation requirements. [40] In summary, the primary means by which the agencies firstly developed and have since attempted to end-run Amendment 19’s road reclamation requirements, rather than fully implement them, are illustrated by the following chronology.

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### *Chronology of Flathead Forest Plan Road Reclamation Requirements*

1986 Flathead Forest Plan: No road reclamation requirements specific to grizzly bear security.

1995 Forest Plan Amendment 19: Requires that an estimated 650 miles of road be reclaimed in grizzly bear habitat, from which all stream-bearing culverts and most ditch-relief culverts must be removed.

1999 Implementation Note 13: “Drainage structures on streams may be left in place if [f]unding to fully reclaim the road is unavailable, and it is desirable to consider the road reclaimed for grizzly bear security.” (Approved 5/99 and rescinded 11/99).

1999 IGBC proposal: Would reduce the amount of road reclamation required by Amendment 19 some 80% by replacing essentially permanent grizzly bear security core areas secured by road reclamation with moveable “seasonally secure areas” temporarily protected by gates.

## Conclusion

A number of employees on the Flathead have made honest attempts to meet and implement Amendment 19 and other Forest Plan requirements for the management and reclamation of roads and culverts. No one Flathead employee, however, has as his or her sole responsibility these tasks alone. Nor has the Flathead developed a clear work plan by which these responsibilities are shared in a manner that insures the timely implementation of Amendment 19 and other Forest Plan requirements.

Citizen groups have hired watershed restoration consultants to provide the Flathead with expertise on proper road reclamation and culvert removal. These groups have also offered to provide consultants and training to the Flathead on the revegetation of reclaimed sites, but the Flathead has declined the offer. [41] While some citizen groups and Flathead employees have attempted to insure that road reclamation is done properly and is presented in a proactive manner, leadership on the Flathead and in the IGBC has failed completely to produce even the most rudimentary fact sheet for public distribution, listing the numerous benefits of road reclamation.

This is all the more unacceptable given the Forest Service's acknowledgment that it has too many miles of roads to adequately maintain. Hence, the Forest Service acknowledges, it must reduce the size of its road system not only for environmental reasons, but because it is cheaper in the long run to reclaim a road than to maintain it. In other words, the money saved through road reclamation is needed to better maintain the roads retained as a part of the long-term transportation system.

Ultimately, it is a lack of support to planning and field personnel that has resulted in the Flathead's failure to meet its Amendment 19 and other road reclamation objectives. This lack of support is most obvious in the failure of the Flathead to prioritize and secure the funds necessary to develop an adequate work plan and to assign the necessary tasks and funding to planning and field personnel. This situation is bound to continue until the Flathead places a higher priority on the timely accomplishment of Amendment 19 and other Forest Plan road and culvert management objectives than on efforts to end-run them.



Flathead National Forest

Forest Service photo

*Road #114 deposited downstream from the Nokio Creek culvert failure.*

# Notes

1. Flathead Forest Plan Monitoring and Evaluation Report 1993-1997, dated September 1998. Programmatic Biological Assessment for Road Maintenance: Bull Trout . . . Western Montana; Montana Level I Team of Forest Service and Bureau of Land Management; 4/16/99.
2. Flathead NF 11/24/99 and 10/26/00 responses to FOIA requests.\*
3. Using the recent 2.5 miles of new road construction in the Flathead's Emery Creek as an example, there were 45 culverts installed, for an average of 18 culverts per mile (personal communication with Al Sorenson; Flathead NF; 11/21/00). Using the 3,761 and 5,025 miles of road reported to exist on the Flathead (see Note 1), an estimate of a total 67,698 to 90,450 culverts is derived.
4. Flathead NF 10/26/00 response to FOIA requests.\*
5. Flathead NF Flood Damage report to the Regional Forester; 4/4/90.
6. Fisheries Biological Assessment for Nokio Creek Culvert Replacement. Pat Van Eimeren; Flathead NF; 6/20/00.
7. Montana Dept. of Fish, Wildlife and Parks survey report to Flathead NF; Tom Weaver; 12/18/95.
8. Swan Lake Ranger District photo report on failed culvert on Road 9569 in Kraft Creek; 10/18/99; included in Flathead NF 2/28/00 response to FOIA requests.\*
9. Forest Service Roadless Area Conservation FEIS; Volume 1; 11/00. News Release; Washington Office Forest Service; 1/22/98.
10. Flathead NF press release; 11/16/98.
11. See Note 1, second reference.
12. Missoulian new article by Michael Jamison; 11/20/98. Allen Rowley, of the Flathead NF, is reported as stating that, while road reclamation may cost some \$5,000 per mile, maintaining an open road may cost \$6,000 per mile.
13. See Note 9. See also National Forest System Road Management Strategy Draft EA; Washington Office USFS; 2/16/00.
14. Obliteration Miles and Funds; Flathead NF; 9/26/00; included in Flathead NF 10/26/00 response to FOIA requests.\* Transaction Register Budget Authority; Flathead NF; 5/19/00.
15. Personal communication with Debbie Manley and Terry Chute; Flathead NF; 10/11/00 and 11/9/00, respectively. Both claim that road maintenance funds specially earmarked for road reclamation can only be used for the actual reclamation, not for the NEPA planning of the reclamation.
16. See Note 14, first reference.
17. Flathead Forest Plan Amendment 19 Amended EA and Decision Notice; Flathead National Forest; 3/95.
18. Amended Biological Opinion on Flathead Forest Plan Amendment 19; Kemper McMaster, Fish and Wildlife Service; 2/17/95.
19. Land and Resource Management Plan and EIS for the Flathead NF; James Overbay; 1/22/86.

20. Friends of the Wild Swan was a co-plaintiff in all three lawsuits. In pertinent part, *Resources Limited v Robertson* alleged that the Flathead Forest Plan violated the Endangered Species Act by failing to insure it would not jeopardize the continued existence of the threatened grizzly bear, largely because its allowable timber sale quantity could not be implemented without violating the Plan's grizzly bear management standards. The Ninth Circuit Court of Appeals ruled in favor of the plaintiffs on 11/1/93, essentially ordering the Flathead to Amend its Forest Plan and re-consult with Fish and Wildlife Service to insure that it would not jeopardize grizzly bears.

Simultaneously, *Swan View Coalition v Turner* alleged that the excessive open road densities that were persisting on the Flathead were resulting in an illegal "taking" of threatened grizzly bear through the adverse modification of their feeding, breeding and sheltering habits. It further alleged that FWS's biological opinion approving the Flathead Forest Plan did not contain an adequate "incidental take statement" allowing for such a level of taking to occur legally. The District Court on 12/7/92 found the incidental take statement to indeed be inadequate and ordered the case to trial in order to determine if the taking could be traced to excessive open road densities.

Also simultaneously, *Swan View Coalition v US Forest Service* alleged that the Forest Service and FWS violated the ESA by failing to use the best available scientific data in planning and approving the Flathead's Lost Silver timber sale, which was to be located in Montana Department of Fish, Wildlife and Park's South Fork Grizzly Bear Study area. The South Fork Study investigated, in part, the effects of both open and closed roads on grizzly bear. It concluded that grizzly bears continue to avoid roads closed by gates and recommended that road reclamation would be required in order to provide adequate secure areas for grizzly bear.

By issuing Amendment 19 in 1995, the Flathead responded to the court's order in *Resources Limited* by reducing its allowable timber sale quantity from 100 million board feet per year to 54 and by issuing new grizzly bear management standards, particularly in regards to limiting both open and total road densities and providing adequate security core areas. These new standards were based on data collected by the South Fork Study. Through formal consultation, FWS issued a biological opinion which included an incidental take statement whose legally-binding terms and conditions required that the Flathead meet certain road density and security core objectives at the end of the fifth and tenth years of Amendment 19 implementation. It also required the Flathead to implement "a public information program on the positive effects of road closures for fish and wildlife, water quality, and other Forest resources," starting in the first year. These measures rendered the two *Swan View* lawsuits moot and they were dismissed.

21. Reclamation Projects spreadsheet; John Ganiere; Flathead NF; 6/12/00.

22. See Note 14, first reference.

23. Flathead NF's Top Ten Proposals for Road Projects Related to Bull Trout; Cathy Barbouletos; 1/11/99. Flathead LRMP Implementation Note #13; Cathy Barbouletos; 5/6/99.

24. Rationale and Choices Made in the Review and Development of an Access Direction Proposal for the NCDE Grizzly Bear Ecosystem; Ake, Carney, Dolan, Godtel, Gore, Harris, Mace, Madel, Servheen, Soukkala, Vandehey, Waller and Wittinger; NCDE Access Task Group of the Interagency Grizzly Bear Committee; 10/98 Draft.

25. Summary of Questions and Results for NCDE Access Management "Test Subunit Analysis"; NCDE Subcommittee of the Interagency Grizzly Bear Committee; 4/27/99. In a computer-modeled test of 9 grizzly bear management subunits, Amendment 19 would require the reclamation of 64 miles of road to meet total road density limits, while the new proposal would require only 12 miles of road reclamation.

26. See Note 14, first reference.

27. See Note 21.

28. Flathead NF letter to Fish and Wildlife Service; Cathy Barbouletos; 5/12/00; with Flathead NF 1999 LRMP Amendment 19 Monitoring Report enclosed.



29. See Note 18.

30. Flathead NF letter to Fish and Wildlife Service; Rodd Richardson; 11/27/96. Personal communication with Allen Rowley, Flathead NF; 11/29/00.

31. Carryover Request; Flathead NF; 11/17/95.

32. See Note 1, first reference.

33. Flathead NF 11/24/99 and 10/26/00 response to FOIA requests.\* Tally Lake Ranger District is the only district on the Flathead which prepares work plans for the expenditure of watershed improvement funds.

34. See Note 15.

35. Protecting People and Sustaining Resources in Fire-Adapted Ecosystems, A Cohesive Strategy: The Forest Service Management Response to the General Accounting Office Report GAO/RCED-99-65; October 13, 2000. See Assumptions in Appendix D.

36. See Notes 9 and 13. See also generally the various scientific and NEPA documents prepared for the Interior Columbia River Basin Ecosystem Management Project. Swan View Coalition and Friends of the Wild Swan have also summarized these findings and compiled a lengthy bibliography in this regard in their 7/11/00 comments on the Roadless Area Conservation DEIS.

37. See Note 17.

38. Fisheries Biological Evaluation for Amendment 19; Donald Hair, Flathead NF Fisheries Biologist; 2/4/95. Directive rescinding Implementation Note #13; Cathy Barbouletos, Flathead Forest Supervisor; 11/19/99. Missoulian news article by Michael Jamison; 11/24/99. Presented with the requirements mandated by its fisheries biologist, the plain language of Amendment 19, and a 60-day notice of intent by Friends of the Wild Swan and Swan View Coalition to sue on behalf of threatened grizzly bear and bull trout, the Flathead withdrew its Implementation Note #13, stating it had talked it over with its attorneys and decided the conservation groups "were right."

39. Peer Review of the Motorized Access Management Strategies for Grizzly Bear Habitat in the Northern Continental Divide Ecosystem; Dr. Bruce McLellan, Dr. M. A. Sanjayan and Dr. Nova Silvy; 9/19/00.

40. Personal communication with Cathy Barbouletos, Flathead NF, and Ann Vandehey, FWS; NCDE Inter-agency Grizzly Bear Committee subcommittee meeting; 11/29/00.

41. Friends of the Wild Swan, Swan View Coalition and Wildlands CPR paid for and hosted a 3-day workshop presented by Pacific Watershed Associates on the Flathead NF May 31-June 2, 1996. By letter of 7/20/98, Glacier View Acting District Ranger Debbie Manley refused Swan View Coalition's offer to provide the services of Bitterroot Restoration in conducting a hands-on workshop in revegetating sites where culverts have been removed.

\*The Freedom of Information Act (FOIA) requests referenced in these notes refer to those made of the Flathead NF in the matter of road and culvert management by Swan View Coalition and Friends of the Wild Swan on 8/10/99 and 6/13/00.