

Case Closed: *Public Motorized Trespass and Administrative Activity on Closed Roads in the Upper Swan, Lower Swan, and Noisy Face Geographic Units*

By Rebekah J. Griffin

December 2004

Prepared for:

Swan View Coalition and
Montana Ecosystems Defense Council
3165 Foothill Road
Kalispell, MT 59901
(406) 755-1379

Friends of the Wild Swan
P.O. Box 5103
Swan Lake, MT 59911
(406) 886-2011

Executive Summary

256 road closures in the Upper Swan, Lower Swan, and Noisy Face Geographic Units were inspected to determine 1) the effectiveness of closure devices in blocking public motorized trespass, and 2) where administrative use of gated roads is apparent. 52.7% (135) showed evidence of public motorized trespass. An additional 9.8% (25) showed evidence of "administrative" activity, which may have included unauthorized use of gate keys. 37.5% (96) of the closures effectively blocked public motorized trespass and showed no signs of "administrative" use. However, 42.7% (41) of these "effective" closures had unused detour spaces on one or both sides of the closure device, indicating potential for future failure.

Introduction

In 1995, the U.S. Fish and Wildlife Service and Flathead National Forest issued Amendment 19 to the Flathead Forest Plan. The amendment prohibits the use of gates on roads closed to meet total road density and grizzly bear security core requirements, requiring permanent barriers and road reclamation instead. Gates are allowed only to reduce open road density. The Swan Valley Grizzly Bear Conservation Agreement was issued later in 1995 by the U.S. Fish and Wildlife Service, Flathead National Forest, Montana Department of State Lands, and Plum Creek Timber Company (USFWS 1995). The Conservation Agreement applies the above Amendment 19 requirements to areas of mixed land ownership in the Swan Valley, although via threshold standards for road densities and security core requirements more relaxed than those applied to areas of predominantly Forest Service ownership.

In 1998, the Access Technical Group, part of the Interagency Grizzly Bear Committee (IGBC)'s Northern Continental Divide Ecosystem (NCDE) Managers' Subcommittee, issued a Proposed Approach to road management intended to replace Amendment 19 provisions (NCDE 1998). The Proposed Approach called for an 80% reduction of Amendment 19 road reclamation, and replacement of permanent grizzly bear security core areas with moveable "seasonally secure areas" temporarily protected by gates (Hammer 2001, NCDE 1999). The Proposed Approach was subsequently faulted by peer review (McClellan et al. 2000). In its Response to Peer Review, the Access Technical Group acknowledged that the success of their Proposed Approach would "hinge upon the effectiveness of the gates in eliminating trespass by the public and on the commitment by Federal Agencies to reducing administrative use to near zero" (NCDE 2001).

Although the Proposed Approach was faulted by peer review, it is being considered for implementation during revision of the Flathead Forest Plan and other land management plans in the NCDE. This report assesses the degree to which gates and other types of road closures effectively eliminate public motorized trespass and reduce "administrative" use to near zero, as the Access Technical Group stipulated. 256 road closures were inspected in the Upper Swan, Lower Swan, and Noisy Face Geographic Units, all of which constitute occupied grizzly bear habitat. For each of the 256 roads, type of closure device was noted, evidence of closure violations documented, and closure effectiveness ultimately determined.

Methods

This study encompassed road closures located in the Upper Swan, Lower Swan, and Noisy Face Geographic Units, managed largely by the Flathead National Forest's Swan Lake Ranger District (SLRD), the Department of Natural Resources and Conservation's Swan River State Forest (SRSF), and Plum Creek Timber Company. An attempt was made to inspect every year-round closure depicted on the 2001 SLRD Travel Map and a 2004 map provided by the SRSF. Additionally, four roads were inspected that were not on the SLRD Travel Map, but were listed in the Flathead National Forest's 2002 Travel Management Guide, an inventory of all open and closed roads. Of the 256 road closures inspected, 169 were located on the SLRD, and 87 on the SRSF. Only 10 closures in the study area were not inspected. These were inaccessible due to logging activities, poor road conditions, or the inspector's inability to locate the road.

Physical inspections of road closures took place from June to October 2004. Because this was a time period in which most roads with seasonal closure orders were open, only those roads on which motorized use was prohibited year-round, or was to be "eliminated" or "discouraged" per the Travel Management Guide, were inspected. An exception to this was SLRD Road 5388, which was inspected on June 30, the last day of its seasonal closure. At each closure, a Road Closure Effectiveness Form (see Appendix A) was completed. This form allowed for an objective assessment of closure effectiveness to be made based on several criteria:

1. No motorized tracks over or through the closure device
2. No motorized tracks around the closure device
3. In the absence of a physical closure device, no motorized tracks beyond the point where the device should be located, according to the map and/or Travel Management Guide

If all three of the above criteria were met, the closure was considered effective. If any one of the criteria was not met, the closure was considered ineffective.

For any closure meeting criterion #2, no motorized tracks around the closure device, the inspector noted the presence of unused detour spaces—that is, sufficient space on either side of the closure through which a motorcycle, ATV, car, or truck could pass. Although these "potential detours" did not make a closure ineffective according to the system outlined above, they allowed the inspector to predict the closure's long-term ability to restrict motorized use, and are hence useful for discussion purposes.

SLRD roads were identified, both in the field and in data analysis, by their official number. At many of the SLRD closures, road numbers were displayed on signs; for those roads lacking signs, numbers were verified using the SLRD Travel Map

and/or Travel Management Guide. Since the Department of Natural Resources and Conservation does not inventory or number its roads, the inspector assigned each SRSF road an eight-digit number based on its geographical position. The first two digits denoted the township, the second two the range, and the third two the section. The final two digits were assigned in ascending order (01 to 99) to roads in a single section. Each road on the SRSF map was marked with the final two digits in its number, allowing a geographical record of the numbering system to be retained.

Digital photos of the closure device and/or evidence of trespass were captured at 233 of the 256 roads we inspected. The photo files were renamed to reflect the official or assigned road number, along with the date of inspection. Photos were occasionally used during data analysis to verify “ineffective” ratings. Photos can be made available to agency personnel requesting more information about a particular closure.

Following on-site inspections, Road Closure Effectiveness Form data was entered into a Microsoft Excel spreadsheet (see Appendix B), and sorted to answer specific questions. Calculations included effectiveness of road closures as a whole, effectiveness of road closures managed by each of the two agencies, effectiveness of the various types of closure devices, and effectiveness of roads with and without closure orders. Ineffective closures were categorized according to cause of ineffectiveness, listed by order of priority as follows:

1. Gate left open or unlocked
2. Gate vandalized to allow passage
3. Permanent barrier vandalized to allow passage
4. Insufficient boulder barrier
5. Active detour around the closure device
6. “Administrative” use with no active detour
7. Lack of physical closure device

Here, “administrative” use is defined as a locked gate with motorized tracks passing through, rather than around, the closure. Of course, such use might not always be administrative, since unauthorized persons with keys would also be able to access the road. Category #7 includes roads lacking any type of closure device, as well as roads closed using the post-and-sign method, in which a sign prohibiting motorized use is present, but no physical barrier exists.

Many closures exhibited violations in more than one of the above categories. For example, 20 gates showing “administrative” use had also been detoured around. For simplicity, closures with multiple violations were always placed in the higher priority category. After assigning each ineffective closure to a single “cause of ineffectiveness” category, relative frequency of each cause was determined.

Results

1. Overall Results

Of the 256 road closures inspected, 37.5% (96) showed no signs of public motorized trespass or “administrative” use. The remaining 62.5% (160) displayed evidence of motorized travel over, through, or around the closure, with 52.7% (135) due to public motorized trespass, and 9.8% (25) due to “administrative” use. Of the 160 ineffective closures, 50.6% (81) were blocked with gates, 45.6% (73) with permanent barriers, 1.3% (2) with post-and-sign, and 2.5% (4) with no closure device at all.

Causes of ineffectiveness among the 160 ineffective closures were distributed as follows:

- 8.8% (14) due to a gate left open or unlocked
- 3.8% (6) due to a vandalized gate
- 23.1% (37) due to a vandalized permanent barrier
- 5.0% (8) due to an insufficient boulder barrier
- 40.0% (64) due to active detours around the closure device
- 15.6% (25) due to “administrative” use with no active detour
- 3.8% (6) due to lack of physical closure device

Of the 96 roads that were effectively closed, 42.7% (41) showed potential for future motorized use, based on the presence of unused detour spaces around the closure devices.

On both SLRD and SRSF lands, closure effectiveness varied depending on the device used. Creeks without bridges were found to be completely effective at blocking motorized use, at 100% (2 of 2 roads). Roads that contained no formal closure device, but were completely reclaimed by trees and brush, also displayed 100% effectiveness (6 of 6 roads). Permanent barriers were less effective, at 43.0% (55 of 128 roads). Gates were only 28.9% effective (33 of 114 roads). The most ineffective closure device appeared to be the post-and-sign method. Two of the roads inspected were “closed” using only signage; both were still in use. Similarly, roads lacking closure devices and not reclaimed by vegetation were 0% effective (0 of 4 roads).

2. Swan Lake Ranger District Results

Of the 169 road closures inspected on the SLRD, 31.4% (53) showed no signs of public trespass or “administrative” use. The remaining 68.6% (116) displayed evidence of motorized travel over, through, or around the closure. Of these 116 ineffective closures, 39.7% (46) were blocked with gates, 57.8% (67) with permanent barriers, 0.9% (1) with post-and-sign, and 1.7% (2) with no closure device at all.

Causes of ineffectiveness among the 116 ineffective closures were distributed as follows:

- 5.2% (6) due to a gate left open or unlocked
- 5.2% (6) due to a vandalized gate
- 31.0% (36) due to a vandalized permanent barrier
- 6.9% (8) due to an insufficient boulder barrier
- 40.5% (47) due to active detours around the closure device
- 8.6% (10) due to “administrative” use with no active detour
- 2.6% (3) due to lack of physical closure device

Of the 53 roads that were effectively closed, 47.2% (25) exhibited unused detour spaces around the closure devices, and thereby showed potential for future motorized use.

Effectiveness of the various closure devices on SLRD roads was roughly equivalent to overall closure device effectiveness (see Overall Results). An exception to this was permanent barriers, which, on the SLRD, were only 29.5% effective (28 of 95 roads), as compared to 43.0% effectiveness for the two agencies combined.

3. Swan River State Forest Results

Of the 87 road closures surveyed on the Swan River State Forest, 49.4% (43) showed no signs of public trespass or “administrative” use. The remaining 50.6% (44) displayed evidence of motorized travel over, through, or around the closure. Of these 44 ineffective closures, 79.5% (35) were blocked with gates, 13.6% (6) with permanent barriers, 2.3% (1) with post-and-sign, and 4.5% (2) with no closure device.

Causes of ineffectiveness among the 44 ineffective closures were distributed as follows:

- 18.2% (8) due to a gate left open or unlocked
- 2.3% (1) due to a vandalized permanent barrier
- 38.6% (17) due to active detours around the closure device
- 34.1% (15) due to “administrative” use with no active detour
- 6.8% (3) due to lack of physical closure device

Note that on the SRSF, we found no instances in which a gate had been vandalized to the degree that motorists could get through the closure. Also, none of the roads we inspected were closed with boulder barriers, so the category “insufficient boulder barrier” is not applicable.

Of the 43 roads that were effectively closed, 37.2% (16) had unused detour spaces, indicating potential for future motorized use.

Effectiveness by closure device on SRSF lands was similar to overall closure device effectiveness (see Overall Results). Again, an exception to this was permanent barriers. At 81.8% (27 of 33 roads), SRSF permanent barriers had an effectiveness frequency almost twice that of permanent barriers for the two agencies combined.

Discussion

One theme that emerged from this study's "effectiveness by closure device" analysis was that only those roads made impassable were consistently free of motorized use. Road reclamation and removal of bridges resulted in 100% effectiveness; all other methods fell short of this ideal.

Permanent barriers were significantly more effective than gates and signs—but they were by no means infallible. In our study, 37 permanent barriers were vandalized, meaning an earth berm driven over or boulders moved. An additional 28 permanent barriers were detoured around. Moreover, 8 boulder barriers were so loosely constructed that motorists were able to get through the boulders. Summing these numbers, we see that 73 of 128 permanent barriers, or 57.0%, did not effectively block motorized use. The difference in the effectiveness of permanent barriers on SLRD (29.5% effective) and SRSF (81.8% effective) land suggests that permanent barriers can be made more effective through better design, better installation, and more frequent maintenance. To meet the total road density and grizzly bear security core requirements of Amendment 19 and the Swan Valley Grizzly Bear Conservation Agreement, barriers either need to be made fully effective or replaced with road reclamation, including the removal of culverts and bridges.

The ineffectiveness of gates was due to their being left open or unlocked, vandalized, detoured around, or crossed by persons with keys. The latter category, termed "administrative" use in this report, accounted for 25 ineffective gates, or 21.9% of all gates inspected. The majority of gated roads exhibiting "administrative" use were heavily marked with car or truck tracks, indicating that these roads were accessed regularly. While some roads showed lower levels of "administrative" use, the use was still significant enough to be evident on a random day of inspection. These results indicate that administrative use is not near zero, as was stipulated by the Access Technical Group's 2001 Response to Peer Review.

More importantly, gates are not effectively eliminating public motorized trespass, as the Access Technical Group also required. In addition to gates experiencing "administrative" use, 14 were left open or unlocked, 6 were vandalized to allow passage, and 36 were detoured around. Public motorized trespass, then,

accounts for 56 ineffective gates, or 49.1% of all gates inspected. All told, 81 of the 114 gates inspected, or 71.1%, did not effectively block motorized use. Gates appear to be a highly ineffective option for increasing grizzly bear security.

Two closure methods, the post-and-sign and the “do nothing” strategy (in which the road is closed only by the decree of the map or Travel Management Guide, but not through any type of visual device or road reclamation) were never effective at stopping motorized use.

Of course, type of closure device is only one factor involved in road closure effectiveness. We can also compare the closure effectiveness of SLRD roads with and without legal closure orders. That is to say, were closures at which motorized travel was to be “eliminated” or “discouraged” as effective as closures for which a legal closure order had been issued to prohibit such use? 61 of the 169 SLRD roads we inspected were closed with an “eliminate/discourage” designation, and 94 with a legal closure order; the remaining 14 were unknown because they were not included in the Travel Management Guide. Effectiveness of the “eliminate/discourage” roads was 36.1%, as compared to 26.6% for roads with legal closure orders. At first glance, these results seem surprising. Shouldn’t roads that are legally closed experience less use than roads for which motorized travel is “discouraged”?

The answer to this question takes us back to our first analysis, closure effectiveness as a function of type of closure device. The vast majority (90.2%) of “eliminate/discourage” roads were blocked with permanent barriers, while most (66.0%) roads with closure orders were blocked with gates. As was demonstrated earlier in this report, gates are significantly less effective (28.9%) than permanent barriers (43.0%) at restricting motorized use. This is largely due to the ability of people with keys, whether authorized or unauthorized, to bypass gates. At permanent barriers, there is no such thing as motorized “administrative” use.

One remaining analysis is to note road closure effectiveness trends over time. Hammer (1986) assessed the effectiveness of SLRD road closures at eliminating trespass by passenger-type vehicles. He physically inspected 53 closures, presenting his results in spreadsheets and a report. Thirty-eight of these closures are included in the present study, and can indicate the degree to which SLRD closure ineffectiveness is being resolved over time. Of the 38 closures common to the two studies, 31.6% were ineffective at blocking passenger vehicle trespass in 1986, as compared to 28.9% in 2004. This 2.7% improvement is unacceptably modest, given the 18-year time span.

In summary, the effectiveness of a particular closure is best predicted by the type of closure device used. The top methods are road reclamation and bridge removal at creek crossings, followed by permanent barriers. Gates and signs are significantly less effective. When no closure device is used, and the road has not

been reclaimed by vegetation, motorized trespass is, according to this study, inevitable. These findings provide insight into why Amendment 19 requires permanent barriers *and* legal closure orders—and gives preference to road reclamation—in lowering total road density and providing security core areas in grizzly bear habitat. These findings should also be useful as the Swan Valley Grizzly Bear Conservation Agreement and Flathead Forest Plan both undergo revision.

This road closure survey reveals several flaws in the Access Technical Group's Proposed Approach to road management. One of the plan's more glaring inadequacies is its assumption that gates will effectively eliminate motorized trespass by the public. Public trespass was shown to be occurring at 49.1% of the gates we inspected. A second major flaw is its reliance on agencies to bring administrative use to "near zero." "Administrative" use was occurring at 21.9% of the gates in this study, at levels significant enough to be evident on a random day of inspection. With an overall ineffectiveness frequency of 71%, gates cannot serve as the Access Technical Group's solution to road management dilemmas. Neither do permanent barriers appear to be the panacea. As was set forth in Amendment 19, more effective closure methods are needed to ensure security for the grizzly bear and other sensitive species. This report confirms that road reclamation, including the removal of culverts and bridges, should be the preferred method.

Sources

Flathead National Forest. 2002. Travel Management Guide. 10/28/02.

Flathead National Forest. 2001. Swan Lake Ranger District Open Roads Map. 11/01.

Hammer, Keith. 2001. Gate-crashing: Road closure gates cannot effectively eliminate trespass. Swan View Coalition. 2/01.

Hammer, Keith. 1986. An on-site study of the effectiveness of the U.S. Forest Service road closure program in MS-1 grizzly bear habitat, Swan Lake Ranger District, Flathead National Forest, Montana. Swan View Coalition and Resources, Ltd. 11/86.

McLellan, B., M. A. Sanjayan, and N. Silvy. 2000. Peer review of the motorized access management strategies for grizzly bear habitat in the Northern Continental Divide Ecosystem. 9/19/00.

NCDE Access Technical Group. 2001. Response to peer review of the A19 and Proposed Approach to managing access in grizzly bear habitat. Interagency Grizzly Bear Committee. 1/24/01.

NCDE Access Technical Group. 1999. Summary of questions and results for NCDE access management "Test Subunit Analysis." Interagency Grizzly Bear Committee. 4/27/99.

NCDE Access Technical Group. 1998. Rationale and choices made in the review and development of an access direction proposal for the NCDE grizzly bear ecosystem (draft). Interagency Grizzly Bear Committee. 11/24/98.

Montana Department of Natural Resources and Conservation. 2004. Swan River State Forest Open Roads Map. 10/04.

U.S. Fish and Wildlife Service. 1995. Finding of no significant impact for the proposed Swan Valley Grizzly Bear Conservation Agreement. Ralph O. Morgenweck. 12/5/95.

Appendix A:
Road Closure Effectiveness Form

Road Closure Effectiveness Form
Swan View Coalition and Friends of the Wild Swan
June 2004 Version

This form is used to determine whether a road closure device is or is not effective in eliminating motorized use of the road behind the closure device.

1. Road number for the road closure # _____.
2. Beginning Milepost _____ and Ending Milepost _____ of the closed segment (taken from the Forest Service inventory).
3. Ranger District and Forest = _____.
4. Type of closure device:
 - 4.1 Gate = Steel Wood Other _____
 - 4.2 Barrier = Earthen Boulders Concrete Other _____
 - 4.3 Post and Sign
 - 4.4 Other _____
 - 4.5 No closure device is present .
5. If a gate, is it shut and locked? (Y/N) ____
 - 5.1 If not, is this due to vandalism (gate damaged or destroyed)? (Y/N) ____
 - 5.2 Either way, are there motorized tracks visible behind the gate? (Y/N) ____
 - 5.3 If so, what type of tracks? Motorcycle 4-wheel ATV Car/Truck
6. If a permanent barrier, has it been vandalized enough to allow passage by motorized vehicles (gate destroyed, earth berm driven over, boulders moved aside, etc. - report detours around the barrier in #7, below)? (Y/N) ____
 - 6.1 Are there any motorized tracks visible over or through the closure device? (Y/N) ____
 - 6.2 If so, what type of tracks? Motorcycle 4-wheel ATV Car/Truck
7. Is there evidence of motor vehicles detouring around the closure device, not including a simple closure sign (wheel tracks, broken brush, etc.)? (Y/N) ____
 - 7.1 If so, is the detour large enough for a car or truck vehicle, as opposed to an ATV (is the detour wider than 50")? (Y/N) ____
 - 7.2 What type of tracks and/or vegetation damage is present?
 Motorcycle 4-wheel ATV Car/Truck
8. Is there a space wide enough for a potential detour around the closure device (but no motorized use is yet apparent)? (Y/N) ____
 - 8.1 If so, what is the widest space available for a potential detour?
 Motorcycle 4-wheel ATV (40" - 50") Car/Truck
9. If simply a closure sign, are there motorized tracks visible beyond it? (Y/N) ____

9.1 If so, what type of tracks? [] Motorcycle [] 4-wheel ATV [] Car/Truck

10. If there is no closure device present, are there motorized tracks visible beyond where it should be located (see Milepost listed in the inventory)? (Y/N) _____

10.1 If so, what type of tracks? [] Motorcycle [] 4-wheel ATV [] Car/Truck

11. If the Forest Service inventory lists Road Vehicle (Car/Truck), Motorcycle and/or ATV use as "Prohibited," what are the closure dates:

11.1 Prohibited yearlong []

11.2 Prohibited _____ through _____

11.3 Does the FS inventory list a closure "CFR Order?" (Y/N) _____

11.4 If prohibition dates are listed, was the closure inspected within those dates? (Y/N) _____

12. Is the closure (check only one):

12.1 [] Effective (No evidence of motor vehicle use over, through, around, or beyond the closure device).

12.2 [] Ineffective (Evidence of motor vehicle trespass over, through, around, or beyond the closure device or gate not closed and locked. Inspected during "prohibited" closure period for gates and signs; anytime for permanent barriers and "eliminate/discourage" closure listings.)

12.3 [] Gate or sign closure inspected outside the "prohibited" closure dates.

13. Take at least one photo of the closure device, focussing on evidence the device is either ineffective or potentially ineffective (tracks beyond, through, or detouring around the device, potential detour around the device, etc.) Place a small blackboard in the photo with the road number (and milepost if there is more than one closure with the same road number being inspected). This will insure the photos are correctly identified and indexed.

13.1 Roll number _____ and Frame number _____ of photo print film.

13.2 File number of digital photo _____.

Date: _____ Inspector's Signature: _____

Appendix B:

Road Closure Effectiveness Data

Key to Abbreviations:

Agency

F= Federal
S= State

Closure Device

BB= boulder barrier
BE= earthen barrier
BO= other barrier
BR= guard rail
GS= steel gate
GW= wooden gate
N= no closure device
S= post-and-sign

Gate

LA= locked, ATV tracks
LC= locked, car/truck tracks
LM= locked, motorcycle tracks
LN= locked, no tracks
NNC= not locked, not due to vandalism, car/truck tracks
NVC= not locked due to vandalism, car/truck tracks
NVM= not locked due to vandalism, motorcycle tracks

Barrier

N= not vandalized, no tracks thru
NA= not vandalized, ATV thru
NC= not vandalized, car/truck thru
NM= not vandalized, motorcycle thru
VA= vandalized, ATV thru
VC= vandalized, car/truck thru
VM= vandalized, motorcycle thru

Detour

DA= detouring ATV
DC= detouring car/truck
DM= detouring motorcycle
N= no detour

Potential Detour

PA= potential for ATV
PC= potential for car/truck
PM= potential for motorcycle
N= no potential detour

Sign / No Closure Device

NC= not reclaimed, car/truck tracks
RN= reclaimed, no tracks

Inventory

ED= "eliminate/discourage" designation
PSC= "prohibit seasonally" closure order
PYC= "prohibit yearlong" closure order

Assessment

E= effective
I= ineffective