

# MONTANA

## FORESTRY BEST MANAGEMENT PRACTICES

# 2024

MONTANA'S MONITORING REPORT - EXECUTIVE SUMMARY



# INTRODUCTION

Montana's Forest Practices Program involves both a regulatory and a non-regulatory approach. Forestry Best Management Practices (BMPs) continue to provide guidance on water and soil resource protection standards for timber harvest and other types of forest operations. In 1987 the Montana Legislature passed House Joint Resolution 49 directing the Montana Environmental Quality Council (EQC) to study "how current forest management practices are affecting watersheds in Montana." The EQC established a Forestry BMP technical committee that developed Montana's first statewide forestry BMPs. In 1989 an interdisciplinary working group released the revised Forestry Best Management Practices that, with minor changes over time, we still use today.

Also, in 1989, the Montana Legislature enacted the BMP Notification Law (76-13-131 MCA), which requires private landowners to notify the Montana Department of Natural Resources and Conservation (DNRC) prior to harvesting timber. Once notified, DNRC Service Foresters provide information, education and technical assistance to landowners and loggers on proper harvesting techniques and BMP implementation. Forest practices are administered by the DNRC within a non-regulatory framework with public education and resource protection as the main goals.

**"Montana's Best Management Practices aim to protect watersheds and water quality."**

Since 1991 the Streamside Management Zone (SMZ) Law has regulated forest practices by restricting and regulating --not prohibiting-- commercial forest operations along streams, lakes and other bodies of water. The SMZ Rules were adopted on March 15, 1993 and updated in 2006. They define and clarify the SMZ law and associated enforcement policies. The law also provides landowners and managers flexibility by allowing site-specific exceptions referred to as alternative practices. DNRC-approved alternative practices allow activities that would normally be prohibited by the SMZ Law, but, through review and environmental analysis, are deemed to be a better approach to meeting landowner objectives while still protecting water quality.

This BMP Field Review process has been developed to evaluate whether BMPs are effectively limiting non-point source pollution resulting from timber harvest operations in Montana as required by the 1987 amendments to the Clean Water Act. DNRC evaluates forest practices for BMP implementation and effectiveness every two years and presents the findings to the EQC. This report summarizes the findings of the 2024 Forestry BMP Field Review cycle effort.

## Field Review Objectives:

The BMP field reviews have been conducted every two years beginning in 1990 with the exception of 2020 due to the Covid pandemic; 2024 represents the 17th cycle. As with previous reviews, the 2024 objectives were:

1. Determine if BMPs are being utilized on timber harvest operations.
2. Evaluate the effectiveness of BMPs in protecting soil and water resources.
3. Assess the implementation of the SMZ Law and Rules to determine effectiveness in terms of protecting water quality.
4. Collect solid information to refine and focus ongoing educational efforts.
5. Provide information for the need to revise, clarify, or strengthen BMPs.

## Field Review Process:

As in past cycles, three interdisciplinary teams were formed to conduct the field reviews in 2024. Teams covered the northwest, the west, and the central/east regions of the state. A total of 35 professionals representing conservation groups, mills, local, state and federal agencies, were led by a single team leader to ensure a consistent assessment process regardless of location and ownership. Each team is comprised of a fisheries biologist, forester, hydrologist, conservation organization representative, road engineer, soil scientist and a non-industrial private forest landowner and/or a logging professional. Additional observers are always welcome. The landowner and logger that worked on the project are also encouraged to attend.

# INSPECTION AND APPLICATION

## Site Inspections:

The teams conducted the 2024 field reviews from early July to mid-August. During each on-site review, team members and landowners, or their representatives, meet at an off-site location prior to inspection. The team leader provides maps and field review forms. A landowner/contractor briefing to the team giving background information such as, silvicultural prescription, season of operation, and associated practices may be included. The final decisions as to which roads and harvest units will be reviewed are then made by the team. Teams and observers then travel to the site. All decisions regarding what to review, including which roads, SMZs, new culvert installations and harvest units, are determined before the team enters the area. Once on site, team members walk the site as a group and review BMP practices conducted in the predetermined areas. Landowners, operators and observers are encouraged to join in the discussion. Teams typically spend about two hours inspecting each site. Before leaving the site, the team gathers to determine the official BMP ratings.

2024 Site Totals	Comparison
Industrial Sites - 5	16%
State Sites - 6	19%
Federal Sites - 15	48%
NIPF Sites - 5	16%

## Application of BMPs:

The application rating measures whether the BMP was applicable to the site, and if so whether it was applied to the correct standards, the appropriate number of times and/or in the proper locations. Field review teams rated a total of 919 practices over the course of the 2024 BMP field reviews to assess how landowners and operators applied BMPs. Not all BMPs are applicable to all sites. Teams identified 32 departures, 28 of which were given a rating of “3” (minor), and four were rated a “2” (major). There were no ratings of “1” (gross neglect). Table 1 illustrates the application of BMPs for all rated practices.

Ownership Group	Number of Practices Rated	Number and Percentage (%) of Practices Rated in Each Category			
		Meet or Exceed	Minor Departures	Major Departures	Gross Neglect
State	200	193 (96.5%)	7 (3.5%)	0%	0%
Federal	502	479 (95.4%)	19 (3.8%)	4 (0.8%)	0%
Industry	127	125 (98.4%)	2 (1.6%)	0%	0%
NIPF	90	90 (100%)	(0%)	0%	0%
All	919	887 (96.5%)	28 (3.0%)	4 (0.4%)	0%

Table 1: Application of BMPs by Ownership Group



Temporary erosion control near a stream crossing



Culvert that needs cleaning



A maintained surface drainage feature

# EFFECTIVENESS OF BMPs AND SMZs

## Effectiveness of BMPs:

The effectiveness rating evaluates each BMPs protection of soil and water resources. During the 2024 field reviews, 15 of the 919 practices evaluated had impacts. Nine received ratings of “3” (minor and temporary impacts), four received ratings of “2” (major and temporary or minor and prolonged impacts) and two received ratings of “1” (major prolonged impacts) as illustrated in Table 2. Minor is defined as sediment reach a draw while major is defined as deliver to a stream, lake or other body of water. Adequately applied BMPs have been shown to be effective in protecting water quality and minimizing the risk of sediment entering surface water.



Drainage installation frequency to minimize erosion, reduce maintenance costs and protect water quality.

## Streamside Management Zones:

The field review teams also evaluated application and effectiveness of the Montana SMZ Law. Teams rated the same eleven practices used as in previous review cycles. The SMZ law and rules were applicable to 24 of the 31 sites. Harvest in the SMZ took place in only four of the sites. SMZ rules were applied correctly 99.5% of the time. Table 3 summarizes these findings. Out of the 192 ratings for application and effectiveness, the teams only found one departure for application and one corresponding major impact for effectiveness due to sidecast of soil into a stream during road maintenance activities.

Fish passage BMPs for new culvert installations on fish streams were adopted in 2010 and these ratings are included with the SMZ statistics. Two sites qualified and were rated a “4” (operation meets requirements) with no observable impacts.

Ownership Group	Number of Practices Rated	Number and Percentage (%) of Practices Rated in Each Category			
		Adequate Protection	Minor Impacts	Major & Temporary/Minor & Prolonged Impacts	Major & Prolonged
State	200	196 (98.8%)	4 (32%)	0%	0%
Federal	502	492 (98%)	4 (0.8%)	4 (0.8%)	2 (0.4%)
Industry	127	126 (99.2%)	1 (0.8%)	0%	0%
NIPF	90	90 (100%)	(0%)	0%	0%
All	919	904 (98.4%)	9 (1%)	4 (0.4%)	2 (0.2%)

Table 2: Effectiveness of BMPs of Rated BMPs by Ownership Group and Rating Category



Stream crossing installed to minimize sediment delivery to the stream and provide fish passage.

Ownership Group	Number of Practices Rated	Number and Percentage (%) of Practices Rated in Each Category			
		Adequate Protection	Minor Impacts	Major & Temporary/Minor & Prolonged Impacts	Major & Prolonged
State	30	30 (100%)	0	0	0
Federal	118	117 (99.2%)	0	1 (0.8%)	0
Industry	27	27 (100%)	0	0	0
NIPF	17	17 (100%)	0	0	0
All	192	235 (99.5%)	0	1 (0.5%)	0

Table 3: SMZ Departures by Ownership

# DISCUSSION AND CONCLUSIONS

Montana’s combined regulatory (SMZ) and voluntary (BMPs) approach to protecting water quality while actively managing forests continues to be successful. This level of success is only achievable through continued involvement and support from private business, local, state and federal agencies and a wide range of forest landowners.

Evidence of this support can be found in the number of individuals that have participated on field review teams since the monitoring process began in 1990. A total of 222 landowners, foresters, engineers, hydrologists, fish biologists, loggers and conservation organization representatives have completed field reviews of over 700 sites. In 2024, 35 individuals attended calibration training and participated as a team member.

## Combined BMP/SMZ Application Ratings Across All Ownerships:

Of all practices rated, 97% were properly applied according to BMP/SMZ standards. Although 55% of harvest sites had at least one instance where a BMP was inadequately applied, most of these departures were minor (28 of 32) and most impacts were minor as well (9 of 15). Of the 31 sites, three sites or 10%, had one or more major BMP departures in application. For comparison, four sites or 11%, had a major BMP departure in application during the 2022 field reviews. In an effort to gain insight regarding the practices with the higher po-

tential to directly impact water quality, eight high risk BMPs have been identified and analyzed separately. The application of eight high-risk BMPs were evaluated separately because these are among the most important for protecting soil and water resources. In 2024, these high risk BMPs were properly applied 87% of the time across all ownerships.

## Combined BMP/SMZ Effectiveness Ratings Across All Ownerships:

For all applied BMP/SMZ practices, 98.6 % were shown to be effective for preventing natural resource impacts. This is on par or slightly higher than the overall effectiveness derived during the 2022 field reviews. BMP effectiveness has been at 95% or above since 1998. The most frequent departures and impacts were associated with road maintenance and road surface drainage, which is consistent with past review cycles. Of the 31 sites, 10 or 32% had one or more impacts in BMP effectiveness. This compares with 37% in 2022. Minor impacts in effectiveness produce minor impacts to soil and water resources. For example, eroded material reaches a draw, but not a stream. Major impacts for BMP effectiveness were found on four sites (13%), compared to six sites or 16%, in 2022. High risk BMPs were effective in providing adequate protection to soil and water resources 95% of the time.

The greatest departure for 2024 was related to the maintenance of drainage structures. However, the greatest number of impacts were associated with routing road drainage through adequate filtration.

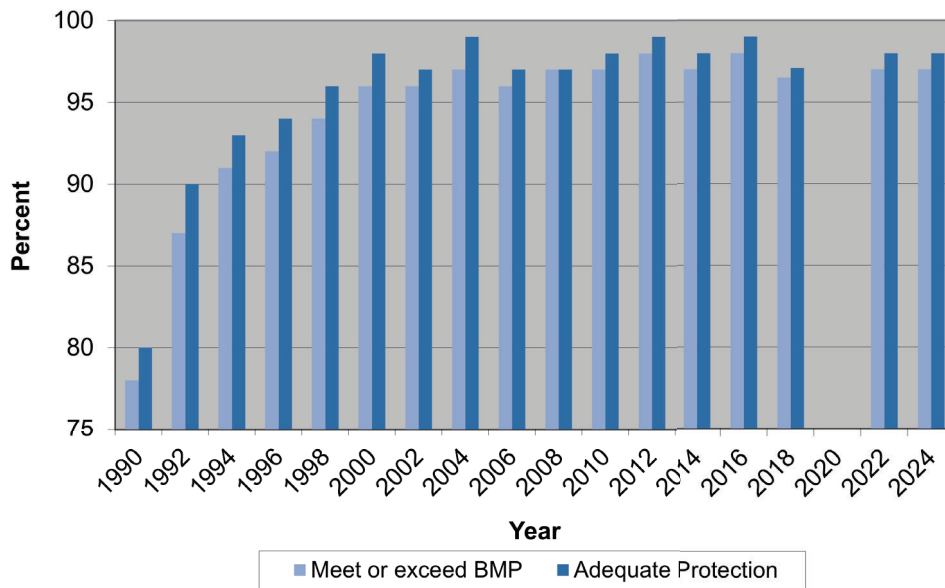
Practice	State	Federal	Industry	NIPF	Avg.
BMP/SMZ Application	90.7%	96.1%	98.7%	100%	97%
BMP/SMZ Effectiveness	98.3%	98.2%	99.4%	100%	98.6%

Table 4: Summary of 2024 BMP/SMZ Application and Effectiveness by Ownership Group

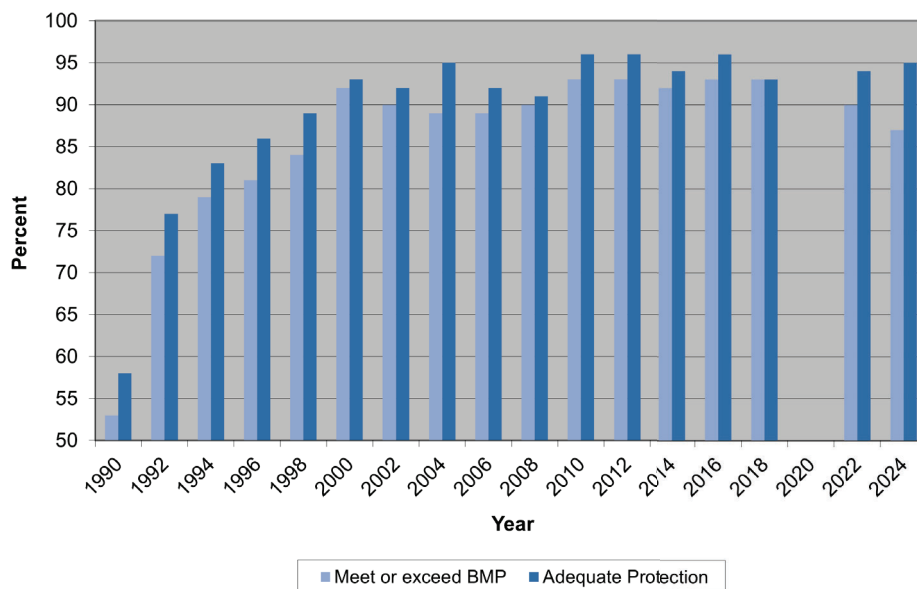
# APPLICATION AND EFFECTIVENESS

The following graphs and table illustrate conclusively that voluntary BMP implementation is working in Montana. A steady increase in proper application and effectiveness is evident from 1990 through 2000. Since 2000, the BMP reviews have shown a very high and sustained compliance rate; hovering around 98%. This success is a tribute to the continuing efforts of all landowners and loggers working in Montana's forests.

**Application & Effectiveness  
Percentage Ratings by Year**

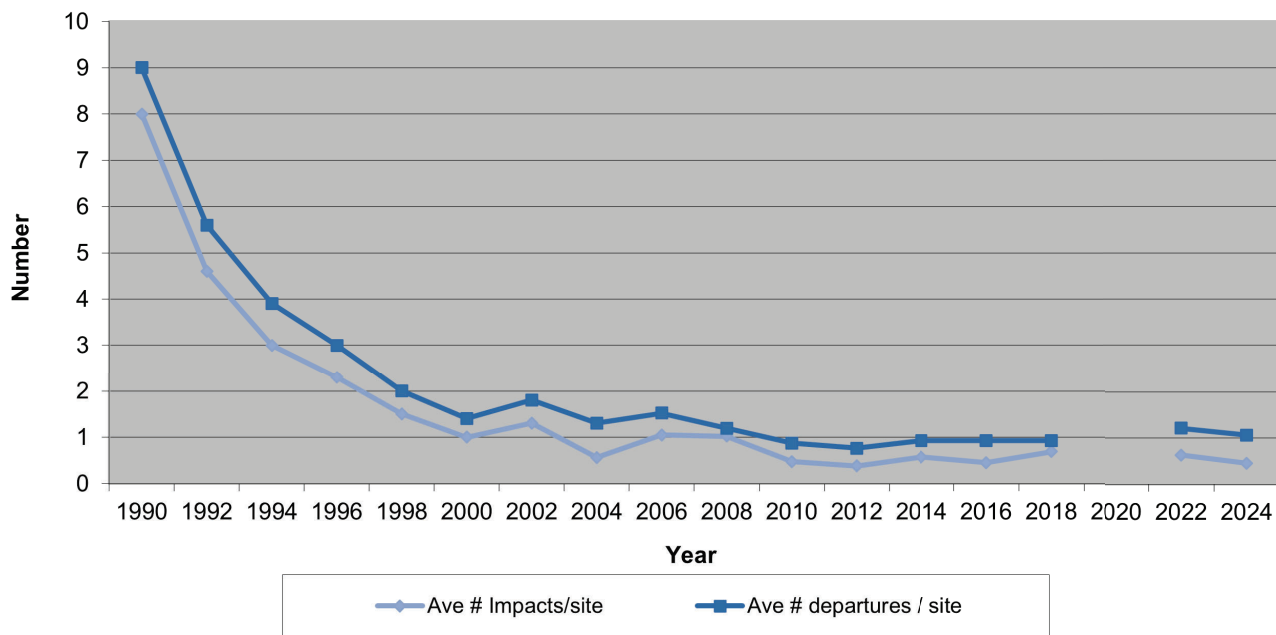


**High Risk BMP  
Application & Effectiveness  
Percent by Year**

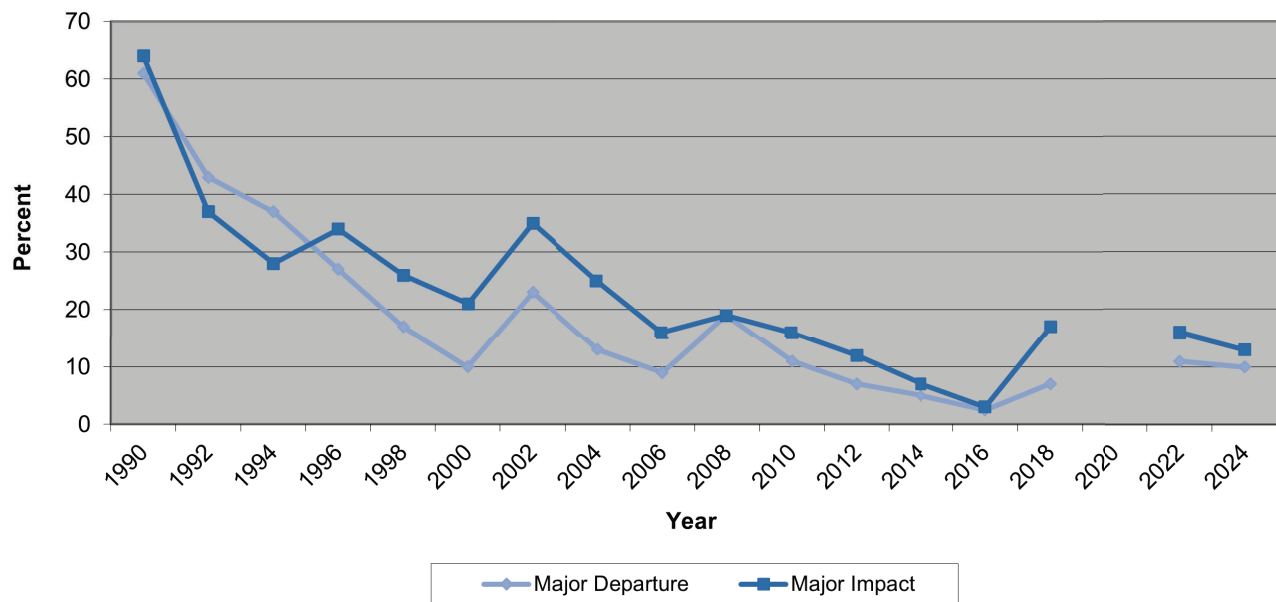


# SUCCESSIVE BMP FIELD REVIEW RESULTS 1990-2024 CONTINUED

Average Number of Departures & Impacts per Site



Percent of Sites with at least one Major Departure and/or Major Impact



Category	2024	2022	2018	2016	2014	2012	2010	2008	2006	2004	2002	2000	1998	1996	1994	1992	1990
Application of all practices that meet or exceed BMP requirements.	97%	97%	97%	98%	97%	98%	97%	97%	96%	97%	96%	96%	94%	92%	91%	87%	78%
Application of high risk practices that meet or exceed BMP requirements.	87%	90%	92%	93%	92%	93%	93%	90%	89%	89%	90%	92%	84%	81%	79%	72%	53%
Number of sites with at least one major departure in BMP application.	3/31 10%	4/38 11%	3/42 7%	1/42 2.5%	2/42 5%	3/42 7%	5/45 11%	8/42 19%	4/44 9%	5/39 13%	10/43 23%	4/42 10%	8/47 17%	12/44 27%	17/46 37%	20/46 43%	27/44 61%
Average number of all departures in BMP application, per site.	1.1	1.21	0.93	0.93	0.93	0.76	0.87	1.19	1.52	1.30	1.80	1.40	2.00	3.00	3.90	5.60	9.00
Percentage of all practices providing adequate protection.	99%	98%	98%	99%	99%	98%	98%	97%	97%	99%	97%	98%	96%	94%	93%	90%	80%
Percentage of high risk practices providing adequate protection.	95%	94%	93%	96%	94%	96%	96%	91%	92%	95%	92%	93%	89%	86%	83%	77%	58%
Number of sites having greater than a minor impact	4/31 13%	6/38 16%	7/42 17%	1/40 2.5%	3/42 7%	5/42 12%	7/45 16%	8/42 19%	7/44 16%	10/39 25%	15/43 35%	9/42 21%	12/47 26%	15/44 34%	13/46 28%	17/46 37%	28/44 64%
Average number of impacts per site.	0.5	0.63	0.69	0.325	0.57	0.38	0.47	1.02	1.05	0.56	1.30	1.00	1.50	2.30	3.00	4.60	8.00