



## MONTANA'S TIMBER ASSESSMENT AND RECENT HARVEST LEVELS

In "An Assessment of Montana's Timber Situation" (Flowers et al. 1993) we attempted to answer several questions. For the 1990-2010 period, what are the expected levels of timber harvest (by regional timbersheds and ownership classes)? How do harvest levels compare to recent processing levels? What is the resulting standing timber inventory? What are employment and income impacts? And how might selected policy-related issues affect Montana's timber supply?

We projected harvests for five regions or timbersheds in the state (Figure 1), and for four ownership groups: USDA Forest Service, Forest Industry, Nonindustrial Private, and Other (i.e., State, Bureau of Land Management, Native American Tribes). We modeled four harvest scenarios that represented a range of likely outcomes. The focus here is on statewide results, and for only our most likely scenario.

Figure 2 describes total log processing and log deliveries for the state, and log harvests for the five regions of the state. Log processing is an estimate of the amount of timber volume that would be necessary to sustain processing facilities at average levels experienced for the 1986-1990 period. Log deliveries are simply the harvests summed for all the regions and adjusted for exports/imports.

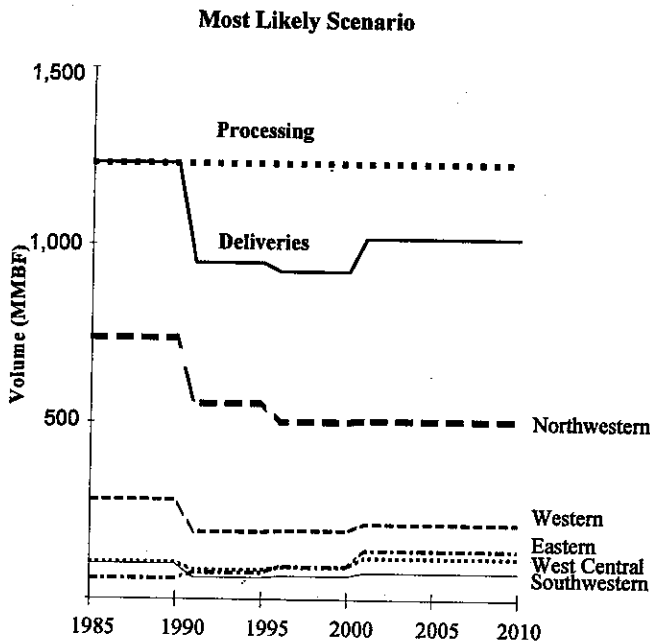


Figure 2.—Annual regional timber harvest and statewide log processing and log delivery levels.

In the first decade, total deliveries were projected to decline by about 280 million board feet from the recent past deliveries. The bulk of this decline occurs because of substantial harvest declines in the northwestern and western regions, which are also the biggest timber producing regions in the state.

The actual harvest in 1991-93 was about one billion board feet. That total was well below recent past levels, but slightly more than we projected. Our underestimate of harvest was largely due to a jump in harvest in the eastern region of the state.

Figure 3 shows that projected harvest would decline from the recent past as a result of a decline in harvest from the USDA Forest Service (i.e., a decline of about 220 million board feet), and from the industrial lands (i.e., a decline of about 140 million board feet). We expected these declines would be partially offset by an increase in harvest on nonindustrial private lands.

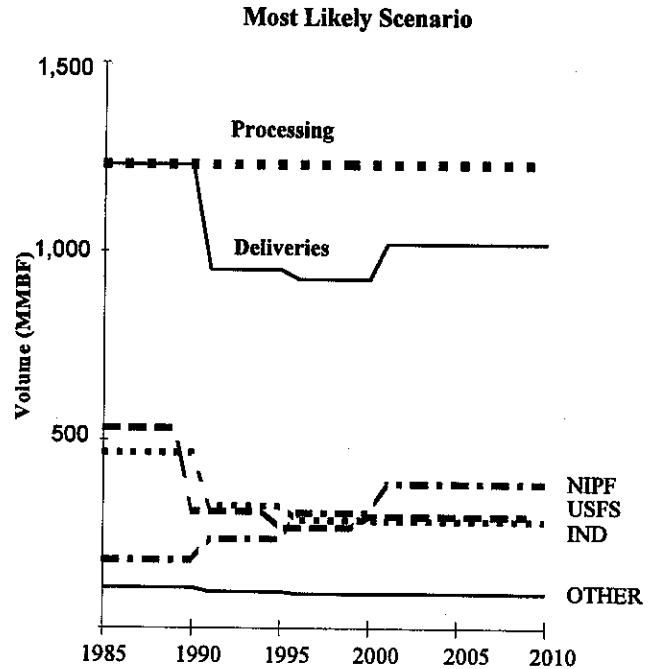


Figure 3.—Annual timber harvest by owner and statewide log processing and log delivery levels.

The actual harvest from USDA Forest Service and industry lands in 1991-93 has declined to about the level we projected for that period. The big difference between our projections and actual harvest in 1991-93 occurred on non-industrial lands. The nonindustrial owners harvested nearly 300 million board feet during the early 90s, substantially more than they have historically and more than we projected.

Figure 4 shows a projected increase in total non-national forest timber inventory to about 27 billion by the end of the projection period, or an increase of about one billion board feet. Industry's inventory declines throughout the projection period, which suggests they will be cutting more than they are growing. The nonindustrial inventory remains relatively stable throughout the projection period, while the other ownership inventory shows a substantial increase.

As you would expect, the employment projections in Figure 5 closely mirror the harvest projections. We projected that about 2,500 workers would be displaced during the 90s, a decline from about 11,500 jobs in the industry down to 9,000 jobs. Actual

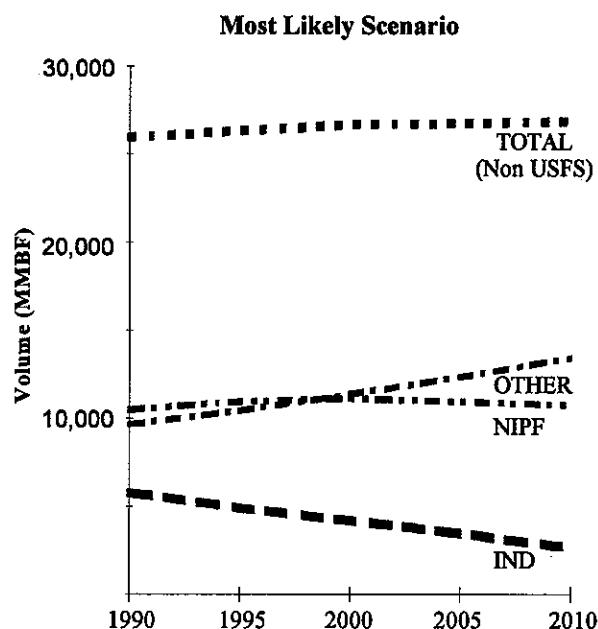


Figure 4.—Montana's non-U.S. Forest Service timber inventory by owner.

employment in the early 90s has not declined as projected. This has been caused by the emergence of a more labor intensive industry, prompted by higher timber and wood products prices. These more labor intensive activities involve attempts to maximize product and value recovery at the mills, for example, finger jointing and edge-gluing small pieces of lumber. Also, more directly related to ecosystem management, many of the changes in silvicultural prescriptions and logging systems which address social and biological concerns have made harvest operations more labor intensive (Keegan 1994). These changes include things like more partial cutting and smaller harvest units.

## ECOSYSTEM MANAGEMENT AND TIMBER HARVEST

As part of the Montana Timber Assessment we also looked at the influence of several policy issues on future harvest. We focused on ten policy issues: old growth, wilderness, forest practices, export policy, below-cost timber sales, threatened and endangered species, New Forestry, budget levels, cumulative impacts, and legal and administrative appeals.

In a survey, we asked land managers how the ten policy issues influenced their past and future harvests. Managers indicated that three policy issues would have the greatest negative influence on harvest: cumulative impacts, appeals and litigation, and threatened and endangered species.

Managers also felt that New Forestry would have a negative influence on harvest. Some felt that this negative influence would be caused by lower harvests per acre, and higher per acre costs.

Despite the results of our policy survey, we believe that the application of New Forestry or ecosystem management may not

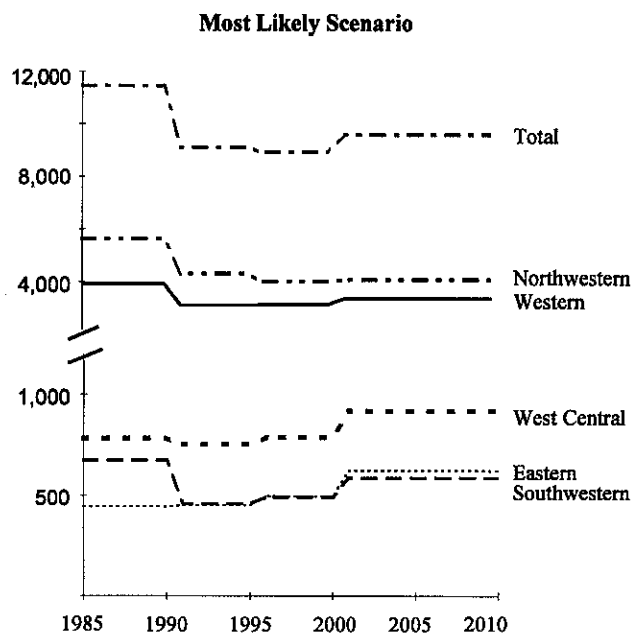


Figure 5.—Projected direct employment in Montana's wood products industry.

ultimately result in a substantial reduction in future timber harvests. In fact, it may offer the path to a sustainable, though not necessarily lower, timber harvest from public lands. Our reasoning is based on an examination of the three policy issues that managers suggested would have the greatest negative influence on harvest, as well as the nearly four-fold increase in timber values that have occurred since the completion of our study.

Managers felt that cumulative impacts would cause the greatest reduction in future timber harvests. This could result from the combined harvests of a number of landowners, causing impacts that approach or exceed recognized thresholds for unacceptable impacts (e.g., water yield thresholds). In the short run, ecosystem management is not likely to reduce the negative influence of cumulative impacts on timber harvests. Areas that are heavily influenced by cumulative impacts must first recover. Following recovery, the landscape planning associated with ecosystem management should allow for a more consistent and reliable harvest in the long run. This will only occur if landowners coordinate their proposed harvests in a way that recognizes ecosystem characteristics and limitations.

The managers we surveyed felt that appeals and litigation followed cumulative impacts as the next most limiting issue on future timber harvest. Proposed USDA Forest Service timber sales continue to be appealed and litigated. Several sales on state lands have also been litigated in recent years. It takes land managers a tremendous amount of time to respond to appeals and lawsuits. These responses come at the expense of other timber volume.

We believe that appeals and litigation come largely from poor analysis and documentation, mistrust, and misinformation. Successful implementation of ecosystem management will help to

address several of the reasons for appeals and litigation. Planning, evaluating, and implementing proposed harvests from an ecosystem perspective should result in a more comprehensive and useful assessment of impacts. If the public can witness improved harvests as a result of ecosystem management, and regain some trust in forest management activities, then fewer appeals and litigation should result.

The managers felt that the occurrence of threatened and endangered species would also continue to cause a substantial reduction in timber harvest. This trend will continue because mitigation measures will be required to preserve the species, and those measures will sometimes include limitations in roading and timber harvesting.

The application of ecosystem management will not preclude the need for mitigation measures to preserve threatened and endangered species. However, if the principles of ecosystem management are applied to long-range land management, there should be less need to list any species as threatened or endangered. We will be maintaining the health of the system and, thereby, maintaining its vital components or species. In the short run, threatened and endangered species will continue to be listed, and the specific habitat needs of those species will continue to result in mitigation that limits timber harvest.

The economics of timber products have changed dramatically since the baseline period, against which we were making our projections. Due to reduced timber availability—particularly in the northwest United States, but also in other parts of the world—timber in this region has become a more valuable resource than at any time during the last fifty years. Recent Montana timber prices were by far the highest for any year since World War II, even when adjusted for inflation (Figure 6). Further, most analysts believe that throughout the coming decades timber and wood products prices will remain substantially above the 1970s and 1980s levels.

Stumpage Price per  
Thousand Board Feet  
1993 Dollars

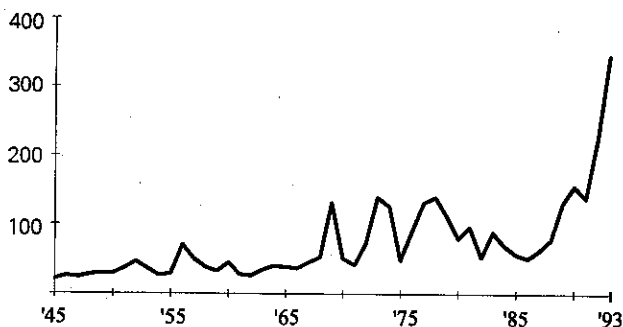


Figure 6.—Montana's National Forest average winning bid stumpage prices, 1945-93.

Prices differences make it particularly difficult to forecast timber supply. For example, 1993 and 1994 timber prices are three to five times above the price levels of the 1970s and 1980s. All other things being equal, we would project more timber available at a higher price. It is certainly possible that, in response to very high prices, more timber harvest on nonindustrial private forest (NIPF) lands could exacerbate some of the problems constraining timber availability on public lands. Since much higher prices for timber make it economically feasible to use timber harvest operations that address many of the biological and social concerns related to timber harvesting, we could see a stabilization or even expansion of the timber supply on public lands.

Despite our speculation on the relationship between timber harvest and ecosystem management, we recognize there remains a great deal of uncertainty surrounding this relationship. This uncertainty will remain until we develop a better understanding of how ecosystem management principles will be applied on the ground, who will apply them, and where.

## LITERATURE CITED

- Flowers P. J., R. C. Conner, D. H. Jackson, C. E. Keegan III, B. Long, E. G. Schuster, and W. L. Wood. 1993. An Assessment of Montana's Timber Situation. Montana Forest and Conservation Exp. Sta., School of Forestry, Univ. Montana, Missoula. Misc. Pub. 53.
- Keegan C. E. 1994. Montana's Forest Products Industry Montana Business Quarterly. Vol. 32, No. 1. Missoula, MT.

## Authors

Patrick J. Flowers  
Chief of the Forest Management Bureau of State Lands  
Forestry Division  
Missoula, MT 59801

Charles E. Keegan III  
Director of Forest Industry Research and Research Professor  
Bureau of Business and Economic Research  
School of Business Administration  
University of Montana  
Missoula, MT 59812