

CANADA/U.S. MOUNTAIN PINE BEETLE/LODGEPOLE PINE PROGRAM
1981-1988

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ABSTRACT: Concerns over widespread mountain pine beetle outbreaks in the 1970's and early 1980's motivated the Forest Service, U.S. Department of Agriculture, and the Canadian Forestry Service to initiate a joint program to mitigate lodgepole pine losses caused by the insect. Since 1981, cooperative work in the program has resulted in many accomplishments. Although hampered by funding problems, program chairmen from the two Nations expect additional progress in the future.

BACKGROUND

Mountain pine beetle outbreaks have occurred rather frequently in both the western United States and western Canada throughout recorded history. Some have been rather localized, others have covered vast acreages often followed by catastrophic wild fires, mostly in the United States. During the 1970's, severe outbreaks began to develop in a number of areas in the State of Montana, including Glacier and Yellowstone National Parks. By 1980, some 4 million acres in Montana were severely affected by the mountain pine beetle. During the late 1970's, outbreaks were beginning to occur in both increasing numbers and size in Canada--especially in British Columbia and just north of the Canada/U.S. border in Waterton Lakes National Park, Alberta, and adjacent areas. Widespread tree-killing resulted in increasing media and political attention during 1979, 1980, and 1981. A number of Canadians were expressing considerable concern over "the lack of aggressive control action in the United States," particularly in Glacier National Park and in the North Fork of the Flathead River.

Two key forestry coordination and information exchange meetings between U.S. Forest Service and Canadian Forestry Service officials that brought this subject up for possible resolution were held

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in Washington, DC, on November 4, 1980, and in Ottawa, Canada, on June 22-23, 1981. A followup meeting was also held in Victoria, Canada, on February 15, 1982, in conjunction with the North American Forestry Conference. U.S. Forest Service Chief Max Peterson, Assistant Deputy Minister (ADM) for the Canadian Forestry Service Les Reed, and key members of their staffs were in attendance at all of these meetings. The concern and need for action expressed by the two countries over the mountain beetle situation was recorded in the minutes of the 1981 Ottawa meeting as follows:

The Mountain Pine Beetle Program. The Mountain Pine Beetle problem in Western Canada is becoming acute as the beetle moves from the United States to Canada along the Rocky Mountains in both British Columbia and Alberta. It is a problem that is gaining a great deal of political visibility in Canada, even as it did earlier in the United States. The ADM and Chief agreed that there were opportunities here for important joint collaboration between the two countries, perhaps similar to the work already done under CANUSA (Canada/U.S. Spruce Budworm Program). Several points came up as follows:

a. That the R&D review now being performed by the USFS (in cooperation with Canada) would be completed in about a month and this would serve as a point of departure not only for R&D work, but for application and full-scale operational work as well.

b. The two countries could convene a state-of-the-art review in perhaps 3 months in Canada or the United States. In any event, this review of the state-of-the-art would involve political and land management leaders of both countries and would serve as a departure point for the next step in collaboration.

c. There would be no objections to a CANUSA-like program; however, we would draw on improving the operating procedures of the CANUSA program if a Mountain Pine Beetle program were launched.

d. Chief Peterson is to write a letter to ADM Reed outlining how we see the next steps in initiating a joint program on the mountain pine beetle.

e. We would try to bring mountain pine beetle work under a blanket overall agreement between the two countries--the mountain pine

beetle agreement being the first amendment under such an overall accord. A proposed mountain beetle US/Canadian agreement was given to Brandt and Anderson.

Thus, it was agreed at the Ottawa meeting that efforts to mitigate mountain pine beetle-caused losses to lodgepole pine and related resources could be enhanced and made more effective by improving inter-country coordinating mechanisms, and through more wide-spread sharing of knowledge and scientific talent. The letter from Chief Peterson to ADM Reed, outlining the process for initiating a joint program was transmitted to Canada on August 25, 1981.

The letter stressed the immediate need to aggressively implement salvage and fire hazard reduction programs, to increase thinning of younger lodgepole pine stands, and to improve utilization of the species. The emphasis focused on improving the economic situation and providing better access to and within the many unroaded forested areas. The letter included a proposed Memorandum of Understanding (MOU) covering specific mountain pine beetle/lodgepole pine management cooperation needs and accomplishment authorities. This MOU became a supplement to an overall MOU between Canada and the United States covering the entire field of forestry. These documents, covering a 5-year period, were approved by both countries during June 1982. The supplemental MOU on mountain pine beetle, was also signed by all border States and Provinces involved (Washington, Idaho, Montana, British Columbia, and Alberta). This later document has now become a "Project Agreement" supplementing the overall forestry cooperation MOU. Both documents were recently approved by both countries for another 5-year period.

ACTIVITIES

The first step of the original initiative was a "state-of-the-art" meeting which was held at Fairmont Hot Springs, British Columbia, on November 3-4, 1981. This included a very informative field trip demonstrating Canadian control efforts and considerable press coverage. A complete proceedings was published by the Canadian Forestry Service: "Proceedings of the Joint Canada/U.S.A. Workshop on Mountain Pine Beetle Related Problems in Western North America (BC-X-230), 1982." The approximately 70 participants included State Governor and Provincial government representatives as well as all concerned land management agencies and private industry. To provide continuity and to facilitate the overall implementation and coordination of this program, a joint Canada/U.S. Lodgepole Pine/Mountain Pine Beetle Steering Committee was established by the two involved Federal governments. Co-chairmen appointed were Dave Graham (U.S.) and Ross Macdonald (Canada). Other members included Jack Thompson (U.S. Field Coordinator), Max McFadden (U.S. Research Representative), and Tom Sterner (Canadian Coordinator and Research Representative). The current co-chairmen are Gordon Miller (Canada) and

Dave Graham (U.S.). The U.S. "Field Coordinator" position has been replaced by the Local Border Lodgepole Pine Management Coordination Group, currently chaired by John Hughes, USDA Forest Service, Missoula, Montana. The current U.S. Research Representative is Garland Mason, USDA Forest Service, Washington, DC.

As part of the followup to the Fairmont Hot Springs meeting, a joint Canada/U.S. "Executive Summary" of the situation was prepared and furnished to all participants as well as to all key forestry and political leaders. This 15-page document also included statistical and map appendix information showing recent infestation trends and current status by major political subdivisions, and an Action Plan developed in final form during a joint Canada/U.S. October 1982 meeting in Victoria, BC. This Action Plan provided the basis for carrying out a number of specific program goals and objectives in both countries.

One of the major outcomes of the Fairmont Hot Springs meeting was a general consensus that a major accelerated research effort (similar to the Canusa Spruce Budworm Program) was not needed, although some significant research needs were identified. The most urgent program needs identified were: (1) to get agreement on what is really known about the mountain pine beetle and its interactions with lodgepole pine, and (2) to aggressively implement that knowledge in such a way so as to significantly reduce current and future losses in a timely manner.

This was all done in full realization that additional funding would probably not be forthcoming. However, part of the rationale behind the development of the Executive Summary was to provide all key decision makers with enough of the most significant information so that rearranging of current and future funding priorities could be considered. In the U.S., copies went to key congressional members, Senate Committee on Agriculture, House Committee on Interior and Insular Affairs, and both appropriation committees. Similar contacts were made with Cabinet Members in Canada. Except for some polite acknowledgments, there was no significant positive Federal response to the funding needs identified. However, control activities were eventually accelerated considerably, particularly in Alberta and British Columbia.

During the development of the Executive Summary, a number of meetings involving most of the key mountain pine beetle/lodgepole pine scientists in both countries were held. One of these, held in Bend, Oregon, on September 20-24, 1982, included a field trip to view demonstration areas showing dramatic differences in the severity of mountain pine beetle tree-killing between thinned and unthinned stands, many of which were mature (120 years plus). During this meeting, considerable effort was also spent jointly developing a "Statement of Facts" that attempted to more clearly define the "state-of-the-art," and management practices that could be currently

recommended to reduce mountain pine beetle losses. Copies of this document, which was subsequently refined in the U.S. through further exchanges with all scientists and practitioners involved, were circulated to all lodgepole pine area managers and practitioners.

Several meetings were also held during this same general time period to develop specific tasks and further refine responsibilities for accomplishing each Action Plan Item. The wrap-up Canada/U.S. work plan agreement meeting was held in Portland, Oregon, April 19-22, 1983.

Final approved work plans, including specific tasks and assignments, were provided on June 23, 1983, to all responsible units in the U.S. and shortly thereafter in Canada. One of the identified tasks was to develop periodic accomplishment reports showing progress and highlighting future needs. The first of these, which included a complete primary mountain pine beetle contact list and progress through 1983, was distributed in 1984. Progress Report No. 2, adding 1984 accomplishments, was distributed in 1985.

Much has been accomplished--most of it without additional funding. Accomplishments to date are summarized very well in the two Progress Reports and in the 1987 revised Work Plan.

PROGRAM REVIEW

A complete review of the program was carried out in 1985-1986. Each Action Plan Item, and the original tasks developed to accomplish each one, was reassessed in both countries in terms of progress made to date, current applicability, additional needs, and current funding requirements. The revised work plan was provided to all interested parties, including appropriate administrators and Congressional and Cabinet members in May 1987, as a revised "Canada/U.S. Mountain Pine Beetle Program/Work Plan--October 1986." The progress to date was noted in this revised Work Plan, and it serves as Progress Report No. 3. Separate progress reports covering 1985-1986 accomplishments were not published.

The Work Plan was recently revised again this year to update recent personnel changes, clarify some of the task assignments, and to reach agreement on priorities for whatever new funding may be made available. This latest revision was developed during a meeting with United States participants in Salt Lake City on December 3-4, 1987, and through a series of followup communications with Canadian participants. Copies of this revision, which includes an up-date on accomplishments to date, were recently provided to all interested parties.

ACCOMPLISHMENTS

Program accomplishments to date highlight a broad spectrum of successful cooperative activities between Canadian and U.S. scientists and

administrators. Some of the more significant accomplishments include:

1. Conducted Fairmont Hot Springs state-of-the-art meeting in Canada. Meeting initiated the development of a number of special coordination mechanisms and agreement on management strategies that could be immediately and effectively used to reduce future MPB resource damage.
2. Established a joint local border committee to ensure coordination and information exchange on MPB and lodgepole pine management among Canadian and U.S. resource managers with common administrative area boundaries.
3. Completed two up-to-date publications outlining recommended strategies for reducing resource losses under a variety of stand and MPB outbreak situations. For Canada: "Suppression of Mountain Pine Beetle in Lodgepole Pine Forests," McMullen et al, 1986. For U.S.: "Integrating Management Strategies for the Mountain Pine Beetle with Multiple Resource Management of Lodgepole Pine Forestry," McGregor and Cole, 1985 (replaces the 1977 INT General Technical Report-36).
4. Conducted Smithers, BC, May 1985 Symposium. A state-of-the-art meeting hosted by British Columbia Forest Service, Canada--somewhat similar to this symposium.
5. Published an inventory, description, and result highlights of existing MPB/LPP silvicultural studies and demonstration areas.
6. Developed INFORMS and expert system shell that employs artificial intelligence and integrates existing MPB/LPP data bases into a Geographic Information System (GIS).
7. Evaluated a number of lodgepole pine hazard rating systems to determine need and usefulness.
8. Coordinated the evaluation and registration of semiochemicals for manipulating mountain pine beetle populations in the U.S.

FUTURE

We believe this program will continue to receive top-level support in the years ahead in both countries. We plan to continue progress on this program with or without additional funding. We know the efforts being made, including the many innovative ways being used to accomplish most of the identified high-priority tasks without additional funding, are sincerely appreciated by those that appropriate and allocate resources. As additional progress is made in the future, we can expect increasing administrative and political recognition and support. This is truly a cooperative effort supported by a lot of dedicated people in both countries. We hope to build on this spirit of cooperation as we move ahead with this program in the future.

MOUNTAIN PINE BEETLE STATUS--WESTERN UNITED STATES

Kenneth E. Gibson

ABSTRACT: Though many MPB outbreaks are declining westwide, more than 2.5 million acres of host type were infested in 1987. Infestation levels and trends for each Region are noted.

INTRODUCTION

There are few superlatives which have not been used to describe the extent and magnitude of mountain pine beetle (MPB) infestations in the West during the last 20 years. New, in response to management activities and host depletion, many infestations Westwide have died out. Others are on the decline. Still, MPB is far and away the most devastating forest insect in western North America.

Though the focus of this symposium is on MPB effects in lodgepole pine (LPP), beetles regularly infest and kill nearly any pine species--both native and introduced--within their range. In our Region--western Montana and northern Idaho--serious infestations are occurring in ponderosa pine. Past outbreaks have killed hundreds of thousands of western white and whitebark pines as well.

The biology and ecology of MPB and its hosts will be discussed in great detail during the course of this symposium. Suffice it to say, in an introductory manner, that the beetle and its hosts have lived in mutualistic relationships for longer than we have been recording outbreaks. Mountain pine beetle, LPP and stand-replacing fires became a very efficient cycle which resulted in LPP becoming one of the most expansive forest types on the continent. About a century ago, however, land managers adopted a perhaps too successful fire suppression program, and a few decades hence, foresters were left to contemplate literally millions of acres of dead LPP!

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As I mentioned earlier, recorded MPB outbreaks go back as far as do records. It is widely believed that the journals of Lewis and Clark referring to downfall and dead timber were documenting the effects of MPB. More recently, Jim Evenden, early Forest Service entomologist, began surveying and recording MPB infestations throughout the Intermountain west in the 1920's. Localized outbreaks of varying degrees of severity were observed from then until the late 1960's. It was about then that our success in controlling fires began to be manifest in large expanses of mature to overmature LPP. Beginning in LPP stands in Yellowstone National Park and forests in Utah, Idaho, and Montana, the beetle's effect on stand structure over the past 20 years is well documented. In the area encompassed by the Forest Service's Northern Region--Montana, northern Idaho, and Yellowstone National Park--it is estimated that more than 250 million LPP have been killed in the last 20 years.

CURRENT STATUS AND ANTICIPATED TREND

At last, infestations in our Region--and for the most part other Regions as well--are declining. Still, in 1987, more than 2.5 million acres were infested westwide. The following is a Region-by-Region description of MPB outbreak status and the anticipated trend of those outbreaks in the foreseeable future.

Northern Region (Montana, northern Idaho, Yellowstone National Park): The series of outbreaks which continued to build in our Region through the late 1970's reached their peak at more than 2.4 million acres in 1981. Since that time, though some Forests continue to harbor locally severe and occasionally increasing infestations, acres on which infested trees were observed have gradually declined. In 1987, the infested area was reduced to approximately 722,000 acres--which includes all species on all ownerships. That was significantly reduced from 943,000 acres in 1986. Infestations on the Bitterroot, Idaho Panhandle, Kootenai, Flathead, and Nez Perce National Forests are increasing in some localities. Regionwide, however, we expect a continued decreasing trend in 1988 and for the next several years.

Rocky Mountain Region (eastern Wyoming, South Dakota, Colorado): In 1987, MPB infestations were recorded on more than 58,000 acres. Estimated mortality totalled almost 110,000 trees--approximately 30 percent were lodgepole pine, the remainder ponderosa pine. In Colorado,