

VOLUNTARY PAPERS OF MAJOR INTEREST TO THE DELIBERATIONS (LEVEL 2)

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Managing spruce budworm in Canada within the framework of ecosystem management

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Conifer-feeding budworms in the genus *Choristoneura* are eruptive species that periodically defoliate conifer forests in North America, causing growth loss and, ultimately, tree mortality. These impacts create the need for management interventions. Emerging trends in forestry require a holistic approach that considers the implications of budworm management within an ecosystem context. To minimize the negative impacts of forest practices and preserve ecosystems in perpetuity, we now seek to develop forest-management systems that emulate natural disturbances such as budworm outbreaks. This approach requires a detailed understanding of the ecosystem processes that cause the rise and fall of budworm populations, and of the changes that disturbances bring about. In this paper we review the data needs and present a system to manage budworm populations within the framework of ecosystem management.

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Forest ecosystem management: the millennium planning approach

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Forest management in this century is obliged to promise holistic integration of various forest values, such as recreation, water quality, erosion control and wildlife protection, with the conventional wood production at forest level as they are demanded exhaustively by society. Forest ecosystem (landscape) management provides the right concept, principles, planning approaches and the techniques to design management towards the production of multiple values on a sustainable and shareable basis without jeopardizing the ecosystem health and integrity. This paper explains the conceptual framework of forest ecosystem management, discusses various approaches, and provides the principles and the improvements over the conventional approach focusing on management paradigm, modelling and software engineering techniques. It further looks at the