Leturture survey:

EMERGING METHOD FOR EARLY DETECTION OF FOREST FIRES:

Introduction

Forest fire is a hysterical fire occurring in a vegetation and it may spread rapidly resulting in fierce blowups and shoulder the physiognomies of a fire storm. Fire has a prodigious capability to rescind the unabridged shrubbery cover but the fared burning or prescribed burning can rejuvenate landscapes, facilitates crop production, pest control and prevents disastrous effects of uncontrolled firestorm or wildfire.

The Native Americans are categorized as the first forests managers of America's forest. They used fire to manage their forest, change the background and the ecology of plants and its communities. Today our forest management tools are improved in terms of discoveries and science knowledge. Different research personnel's develop different tools to manage forests resources. However, fire plays an important role in determining different types of ecosystems. Natural and manmade fires are important forest management tools, and problems can develop when fire is abolished. In most of the countries, they have passed laws to define prescribed fire burning as a legal activity with ecological and social benefits. People use fire for their own remunerations but sometimes fire impends the human life.

Among different types of benefits from using prescribed burning as a forest resource management tools, reduction of hazardous fuels, preparation of sites for seeding or planting, improvement of wildlife habitat, disposal of logging debris, disease control and many others benefits are gained by means of prescribed burning method. Fire has played a major role in shaping the forest ecosystems. Some of the regenerations are dependent on burning and others are prone to burning which ultimately leads to extinction of local species and trigger substantial changes in the ecosystems.

Humans have altered the intensity and frequency of burns and they have changed the landscape so that the naturally occurring fires are suppressed. In early days, humans believed that fire is only a disastrous agent. These believe has finally been subdued and redefined the use of fire as a management tool through their experience. The most widely used burning system as a forest management tool is a prescribed burning in which early burning is initiated with a particular management objectives so as to reduce the hazardous fuels, set up soils for seeding and plantation and many others.

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"Fire cause disturbances which is inherent, unavoidable and affects in all levels of an ecosystem" (White and Jentsch, 2001). The disturbances caused by the fire cannot be avoided and it can occur in the young, recently established vegetation as well as in a fully grown natural forest. Fire has concentrated effects on vegetation development since fire wipe out unwanted vegetation and thus creating emergent space for other species to occupy (Oliver, 1990). The

skillful burning of the vegetation cover has affected water and vegetation composition of the disturbed areas and eventually adapted to the new conditions. Besides the influential effect on water moisture content and vegetation composition, fire also increases the frequency of sheet flow and rill formation (Naveh, 1984).

The government and the forest department of Mississippi State in USA had learned from their practical experiment, the effects and benefits of prescribed burning. Before acquiring all these knowledge, they have lost most of their natural forest to fire. They learned that fire is created with a set of goals and in a controlled manner will be the best tool for forest management, but it is cautioned regarding the creation of public nuisance due to this activities. Ten Southern states of Mississippi State in USA have passed laws to define prescribed burning as a legal activity with ecological and social benefits (Brasher, 1992).

Using fire as a forest management tools in a controlled method improves wildlife habitat, reduces perilous fuels, prepare sites for seeding and plantation, and manage competing vegetation and controls pests and diseases. Unwanted species, understorey trees and shrubs with dead needles and leaves act as a stepladder fuels, allowing fire to climb up the overstorey crowns and ultimately maximizes the level of devastation by uncontrolled fire. In this case, prescribed fire in advance serves as a management tool where the competing vegetation is controlled. “Since the earliest times, fire has patently been one of the agent where the habitats of plants and animals are modified and changed” (Walter Hough, 1926).

A fungal infection called Brownspot can be eliminated along the diseased needles without killing the terminal bud by implementing prescribed burning as a practical method. This type of method also reduces problems of root rot where the environment of the forest floor is rehabilitated. In the southern Appalachians, fire is being used in white pine seed orchards to destroy hibernating white pine cone beetles. (Brown, A.A. & Davis, K.P. 1973. (2nd ed.), p. 584).

Conclusion

The main objective of this literature review is to provide an overview of the understanding of the effects of forest fire on the natural vegetation and how forest fire acts as a forest management tool. It was basically understood that the forest fire occurs naturally or humans induce fire to accomplish their management objectives such as to reduce precarious fuels preventing from wildfires and manage forest for environmental conservation, various production and recreation.

In general, forest fire leads to further conversion of the natural habitat. Most of the recommendations cited in this literature review conveys that fire acts as forest management tools but it also alters the natural ecosystem where the well-established vegetations are disturbed. The natural forest fire occurs unexpectedly but we can prevent wildfires from its occurrence by implementing the practice of prescribed burning thereby reducing the hazardous fuels. Now we came to know that fire act as a forest management tool but we should keep in mind that management of forest with pine tree using fire can eliminate oak regeneration. In other words, the behavior and response to the fire by one population or community of vegetation is different to others.

References

Bloesch, U. (1999). Fire as a tool in the management of a savana/dry forest reserve in Madagascar. *Applied Vegetation science*, 117-124.

Brasher, K. (1992). *MSU Forest and Wildlife Research Center.*

Cooper Robert, W. (1971). *Current use and place of prescribed burning.*

Hough, W. (1926). *Smithsonian Institution.* Smithsonian Institution.

K.B Piatek, D. M. (2009). *Attitudes of West Virginia landowners on the use of prescribed fire as a forest management tool.*

Mobley Hugh, E. (1996). *Southern Forestry smoke management guidebook.*

Naveh, Z. (1984). *The vegetation of the carmel and Nahal sefunim and the evolution of the cultural landscape. In: A. Ronen (Ed.), Sefunim Prehistoric sites Mount Carmel, Israel. BAR International Series 230, 23-63.*

Oliver, C. (1990). *Forest Stand Dynamics. 1st Ed. USA : McGraw Hill. p.467.*

Pua Kutiel, M. I. (1993). *Fire impacts on soil nutrients and soil erosion in a Mediterranean Pine forest plantation.*

Sangye, M. (2005). *The impact of fire frequency on the regeneration of Pinus roxburghii in Eastern Bhutan.*

White, P. (2001). *The search for generality in studies of disturbances and ecosystem dynamics. Progress in Botany*