



"Our environment is our future"

RESEARCH COLLOQUIUM SERIES

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A TOOL FOR INCORPORATING SITE LEVEL CLIMATE CHANGE IMPACTS INTO LAND MANAGEMENT DECISIONS

Friday
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3:30 - 4:30

LECTURE THEATRE

7 - 152

Drought is one of the leading causes of forest mortality related to climate change. We have developed a tool to predict risk of stand-level tree species mortality from drought and drought-related insect attack. Within climatically homogeneous areas, we use past and predicted future climate data, along with typical site and soil conditions for ecosystem units, to calculate actual (AET) and potential evapotranspiration (PET) for these units. Knowledge of tree species drought tolerance limits, which can be expressed by AET/PET, can then be used to develop tree mortality risk maps using forest cover and ecosystem unit maps as input layers in a GIS. Risk related to tree mortality agents that are enhanced by drought (eg, bark beetle species) can also be mapped based on ecosystem-specific AET/PET values and tree species and age derived from forest cover polygons. The accuracy and reliability of the maps was tested with field data and dendrochronology lab analysis. The tool we have developed can be used to map the risk of drought-related mortality at a relatively fine scale for any plant species with a well-established drought tolerance. This tool thus provides information at an appropriate scale to guide operational forest management adaptation to climate change and complements other tools such as large-scale bioclimate envelope models.