



CONSUME v. 3.0

<http://www.fs.fed.us/pnw/fera>

Introduction

Fire is a natural process in many ecosystems, and managers are increasingly expected to use fire as a landscape-level fuel treatment to improve ecosystem health and reduce the likelihood of catastrophic fires.

Fuel consumption is the key variable in the modeling of fire effects. It is one of the most critical attributes for understanding when and how fire should be applied to meet site and landscape objectives, and assessing wildland fire consequences.

Research has provided a wealth of information on fuel consumption, however, the emphasis has been on forested landscapes and little effort has been directed toward the non-forested fuel types such as chaparral, sagebrush, grasses, and palmetto/gallberry types in the West, Hawaii and South; pinyon-juniper in the Southwest; Alaska boreal forest types; and hardwood types in the East and South. Additionally, relatively little work has been accomplished to characterize long duration fuel consumption from the burning of large, rotten logs, stumps, or deep concentrations of organic material such as duff or moss, often prevalent in forested areas where natural fire has been eliminated for the past 80 to 100 years. Fire is becoming an important landscape-level fuel treatment tool in these fuel types. In order for managers to develop improved wildland fire plans that meet specific land management objectives, research is required to better characterize both the fuel loading and fuel consumed during wildland fires in these fuel types.

Fuel Consumption Research

Seventy-one sites have been inventoried and burned in black and white spruce/hardwood forests (Alaska), chaparral (California), ponderosa



pine/mixed-conifer forests (Oregon), and pine/hardwood forests (South Carolina, Tennessee, and Florida). Additionally, thirty-five sites were inventoried and burned in sagebrush on BLM, National Park Service, and U.S. Fish and Wildlife Service lands in eastern Oregon, Nevada, Wyoming, Utah, and California. Data from all burns have been compiled and analyzed. Consumption models have been built for fuel categories within the following fuelbed types: black and white spruce/hardwoods; longleaf and loblolly pine; ponderosa pine; grass; and sagebrush.

CONSUME Software

CONSUME is a user-friendly software application designed for resource managers with some working knowledge of Microsoft Windows® applications. Land managers and researchers input fuel characteristics, lighting patterns, fuel conditions, and meteorological attributes, then CONSUME outputs fuel consumption and emissions by combustion phase and by fuelbed category. CONSUME 3.0 is designed to import data directly from the Fuel Characteristic Classification System (FCCS), and the output is formatted to feed other models and provide usable outputs for burn plan preparation and smoke management requirements. Additionally, training and a user's manual are available. CONSUME can be used for most forest, shrub and grasslands in North America. CONSUME 2.1 is currently available for use, and CONSUME 3.0 will be released in November 2006.



For More Information Contact:

Roger Ottmar
Fire and Environmental Research Applications Team
USDA Forest Service Pacific Wildland Fire Sciences Lab
400 North 34th Street, Suite 201
Seattle, Washington 98103
Office phone: (206) 732-7826
Cell phone: (206) 849-3172
E-mail: rottmar@fs.fed.us

Visit the CONSUME Website at:

<http://www.fs.fed.us/pnw/fera/products/consume.html>

