

An Overview of the Composite Burn Index (CBI) and the Feat/Firemon Integrated (FFI) Database

An Overview of the Monitoring Trends in Burn Severity (MTBS) Project and Field-Based Burn Severity Assessment 02/06/2013

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U.S. Department of the Interior U.S. Geological Survey

Presentation Overview

- Burn Severity
- Composite Burn Index Overview
- CBI Example
- Managing CBI data within FFI
- MTBS Data Validation







Definition of Burn Severity













Time Since Fire







CBI-Forensic Ecology







CBI-Spatial Resolution



CBI-Components

- Burn Index: 0-3
 - 0-Unburned
 - 3-Severe Burn

Five Strata

- 4-5 Ratings Factors
 - Ryan and Noste 1985
 - Landsat
- Averaged

FIREMON LA Form

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C. TALL SHRUBS AND Pre-Fire Cover = \$Foliage Altered (blk-brn) requency % Living Channe in Cover	D TREES 3		Little change		Moderate charge		High change	
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Foliage Altered (blk-brn) requency % Living	%]	Enhan	aced Growth -				1	
Changes in Cowart	0%		20%	-	60-90%	> 95%	Signifent branch loss	
Change in Couler 11	100%	-	90%	**	30%	< 15%	< 1%	
Change in cover 04	Inchanged		15%		70%	90%	100%	-
Spp. Comp Rel. Abund. U	Inchanged		Little change		Moderate change		High Change	
D. INTERMEDIATE TI	REES (SUB	CAN	OPY, POLE-	SIZED	TREES)			
Pre-Fire % Cover =	Pre-Fire N	iumb	er Living =		Pre-Fire Number	Dead =		
% Green (Unaltered)	100%		80%	**	40%	< 10%	None	
% Black (Torch)	None		5-20%		60%	> 85%	100% + branch loss	
% Brown (Scorch/Girdle)	None		5-20%		40-80%	$<40~{\rm or}\!>\!80\%$	None due to torch	
% Canopy Mortality	None		15%	**	60%	80%	%100	
Char Height	None	-	1.5 m	-	2.8 m	-	> 5 m	
Post Fire: %Girdled =	%F	lled =	- %	Tree M	ortality =			
E. BIG TREES (UPPER	R CANOPY,	DOM	MINANT, CO	DOM	ANT TREES)			
Pre-Fire % Cover =	Pre-Fire N	umb	er Living =		Pre-Fire Number	Dead =		
% Green (Unaltered)	100%	-	95%		50%	< 10%	None	
% Black (Torch)	None		5-10%		50%	> 80%	100% + branch loss	
% Brown (Scorch/Girdle)	None	-	5-10%	-	30-70%	< 30 or > 70%	None due to torch	
% Canopy Mortality	None		10%	**	50%	70%	%100	
Char Height	None		1.8 m		4 m	-	> 7 m	
ost Fire: %Girdled =	%F	Iled =	= %	Tree M	ortality =			
Community Notes/Comm	ments:		CBI =	Sum of	Scores / N Rated:	Sum of Se	ores N Rated	CBI
country rotes count		_		Un	derstory (A+B+C)		- Card
				0.	Overstory (D+F	1		
			-	Total P	lot (A+B+C+D+F)	1		
				i otai P	IN (A+D+C+D+E)	/		

30 m Plot: 707 m² 1% = 1x7 m (<2x4 m) 5% = 5x7 m 10% = 7x10 m Venion 4.0 827, 2004

Strata and Factors are defined in FIREMON Landscape Assessment, Chapter2, and on accompanying BI "cheatsheet." www.fire.org/firenow/lchem





CBI Example-Understory Strata



Su	<u>Score</u>	
	Litter/Light Fuels	2.7
Average:	Duff	2.6
2.6	Medium Fuels	2.3
	Heavy Fuels	n/r
	Soil Cover/Color	2.9

Herbs/Low Shrubs

	% Foliage Altered	n/r
Average:	% Living/Resprouting	2.0
2.3	Colonizers	2.2
	Species Composition	2.7

Tall Shrubs/Saplings

	% Foliage Altered	2.8
Average:	% Green (Unaltered)	2.8
2.2	% Living/Resprouting	1.0
	Species Composition	2.0





CBI Example-Overstory Strata

A



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Inte	rmediate	
Tree	es/Subcanopy	Score
verage: 1.9	% Green (Unaltered)	2.4
	% Black (Torch)	1.0
	% Brown (Scorch/Girdle) 2.0
	% Canopy Mortality	2.0
	Char Height	1.9

Big Trees/Upper Canopy

	% Green (Unaltered)	2.3
/erage: 1.7	% Black (Torch)	0.0
	% Brown (Scorch/Girdle)	2.0
	% Canopy Mortality	2.0
	Char Height	2.4

CBI Example-Average CBI Score



Understory Average:



Overstory Average:

1.8

Overall Average:

2.1





CBI-Site Selection

Proposed Plots (X) Added Plots (X)





Carl Ke

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Keep in mind..

Time affects observation
 1st post-fire growing season
 Numeric ratings
 Averages spatial variation
 Fire effects weighted equally
 Observer bias
 Experience improves accuracy
 CBI is not a perfect measure





FFI Database-Website

NEW



FRAMES is undergoing a significant software upgrade this week. Between Thursday, March 3rd and Sunday, March 6th, those with MyFRAMES accounts will be locked out of their accounts. The public view of FRAMES will remain the same Thursday and Friday, then beginning Saturday the site will change to the upgraded view. We appreciate your patience during this transition and we apologize for the inconvenience. Beginning on Monday, March 7th if you notice any problems with the site, please report them to: contact frames@nbii.gov

Agency Oversight Nate Benson - National Park Service Martha Isbister - National Park Service Duncan Lutes - U.S. Forest Service MaryBeth Keifer - National Park Service Alison Forrestel - National Park Service

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FFI Team

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FFI Basics

FFI Training

FFI Software and Manuals

FFI Field Data Forms

FFI Power Points

FFI Fuel Constant Set References

Upcoming Training Classes

In conjunction with the Southern Area Advanced Fire and Aviation Academy Chattanooga, TN June 13 - June 16, 2011 Open to all agencies and locations. Get more information <u>here</u>

FFI: Ecological Monitoring Utilities

Read the FFI Overview

FFI (FEAT/FIREMON Integrated) is a monitoring software tool designed to assist managers with collection, storage and analysis of ecological information. It was constructed through a complementary integration of the Fire Ecology Assessment Tool (FEAT) and FIREMON. FFI was funded by the National Interagency Fuels Coodination Group and developed in cooperation with the National Park Service, U.S. Forest Service, Systems for Environmental Management and Spatial Dynamics.

http://frames.nbii.gov/portal/server.pt?open=512&objID=483&mode=2&in_hi_userid=2&cached=true0





FFI Database-Manuals and Download

FRAMES Home Subject Areas Geographic Areas Partner Sites					
FFI Home Page FFI Software and Manuals FFI Training Schedule FFI Training Materials FFI Help Documents FFI Fuel Constant Set References FFI Field Data					
FFI Manuals and Software FFI Manuals					
FFI User Guide - Most users will want to download this document. Includes FFI and SQL Server installation instructions PDF (14MB): <u>FFI_UG_March2010.pdf</u> HTML (66MB): <u>FFI_UG_March2010.chm</u>					
Protocol Manager User Guide - Download only if using Protocol Manager to create protocols or manage protocol files PDF (17MB): <u>FFI-PM_June2008.pdf</u> HTML (19MB): <u>FFI-PM_June2008.chm</u>					
GIS Module User Guide - Included with the GIS installer below					
PDA Field Handbook - Download only if using a PDA to collect FFI data PDF (2MB): <u>FFI-PDA_June2008.pdf</u>					
FFI Software Installation Files & Training data					
To use the FFI monitoring software you will need to download and install: 1) FFI Install Package for Windows XP/Windows 7 and 2) Microsoft SQL Server Express 2005 Edition SP3. If you want to use the FFI GIS utility then download and install the files in FFI GIS Installers and User Guide. If attending a FFI training class or if you wish to have a practice dataset available for your use download the FFI Training Dataset.					
Download the files to a temporary directory on your hard drive. Installation instructions for FFI and SQL are available in the FFI User Guide posted above.					
General instructions for upgrading to FFI v1.04.01 - Use only when updating to the new version of FFI FFI upgrade installation instructions v1.04.01					
Microsoft SQL Server Express 2005 Edition SP3 32-bit (36MB): SQLEXPR32.EXE					

Microsoft SQL Server Express 2005 Edition SP3 64-bit (56MB): SQLEXPR.EXE

FFI Install Package for Windows XP/Windows 7 (21MB): FFIv10401.zip

FFI Training Dataset (12MB): FFI TrainingData v10401.zip

FFI GIS Installers and User Guide (4MB): FFI GIS Installers and User Guide.zip





FFI Database-Demo

🦉 FFI				
About				
Project Management	Project Management Details			
New - Utilities - Show -	Save Cancel Delete			
All Project Units All Macro Plots				
PDA Coordination				
Data Entry and Edit				
Query				
Reports and Analysis				
Species Management				
Toolbox				
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Burn Severity Comparison



Severity	dNBR
Unburned	-100 - 99
Low-Moderate	269 - 439
Moderate-High	439 - 659
High	659 - 1300







CBI versus dNBR-Thresholding







Questions?

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