

NRCS Forest Ecological Sites

Intermountain Forest Tree Nutrition Cooperative

**2011 Annual Meeting
April 5, 2011**

**Frank Gariglio
NRCS State Forester, Idaho**

NRCS Forest Ecological Sites

Purpose & Definitions:



“Forestland landscapes are divided into ecological sites *for the purpose of inventory, evaluation and management. . .*”

An **ECOLOGICAL SITE (ES)** is a distinctive kind of land with specific physical characteristics that differ from other kinds of land in its *“ability to produce a distinctive kind and amount of vegetation”* (NFM)

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Goals in the Development of ESD¹'s:

“These are my goals.....”

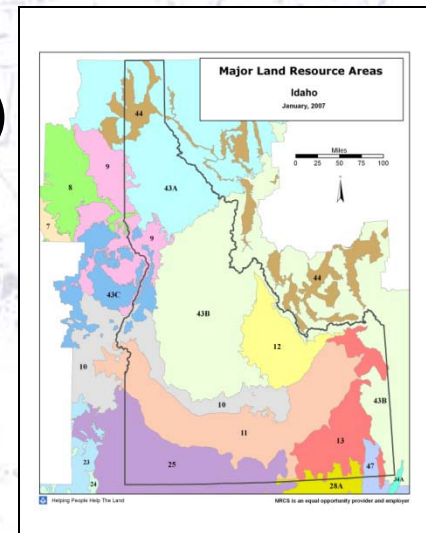
- ESD's will be useful for our *internal* NRCS customers
- ESD's will be useful for our *external* customers
 - Forest industry
 - County appraisers
 - Partner groups
 - Forest consultants
 - University and research foresters
 - Etc.

¹ Ecological Site Description

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Background & Assumptions:

- The **NRCS Soil Survey** will serve as the base for the construction of ESD's.
- ESD's will be comprised of **groupings of soils.**
- The groupings will be based on **ecological and management parameters.**
- The NRCS Major Land Resource Areas (**MLRA**) will be the larger geographically represented boundary for ESDs.



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Draft 5/1/08-Not For Public Release

**UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE**

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Forested

Site Name: Climax (or "Stable") Aspen¹

Site ID: F043B----ID

Major Land Resource Area: 058A Northern Rolling High Plains, Northern Part
For further information regarding MLRAs refer to:
<http://soils.usda.gov/survey/geography/mlra/index.html>

An Idaho map of the MLRA areas can be viewed at:

http://www.id.nrcs.usda.gov/technical/maps/mlra_big.jpg

Physiographic Features

This ecological site typically occurs in narrow valleys (draws, coulees) associated with upland positions and high canyons. On lower elevations this site is limited to cooler north and east aspects.

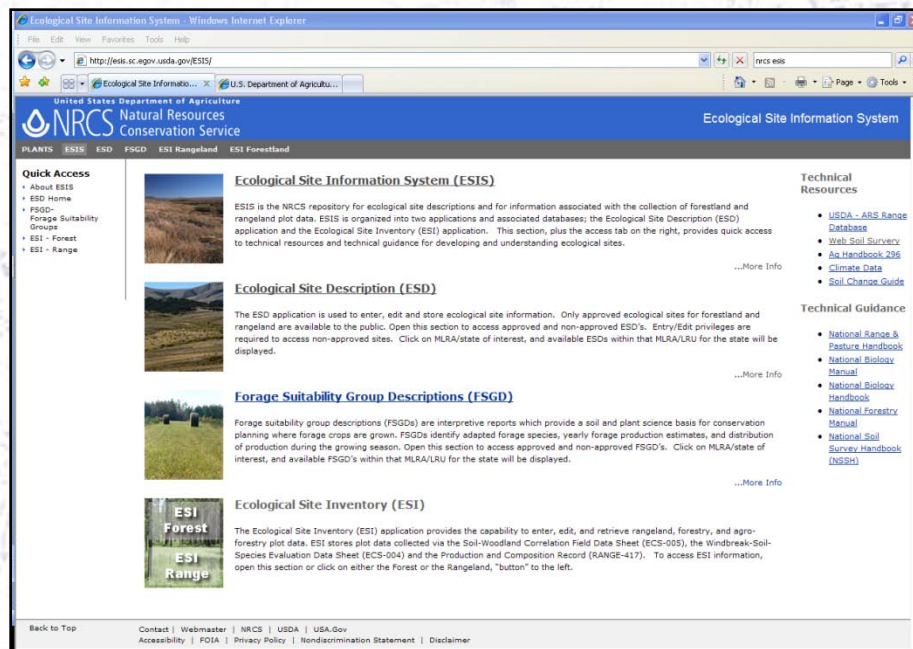
ESD's will include:

- ESD name
- site information
- physiographic features
- climatic, water, soil, wildlife, etc. features
- plant communities
- site index, productivity, management and other interpretations

NRCS Forest Ecological Sites

The Ecological Site Information System (ESIS) is available on the NRCS at this website:

<http://esis.sc.egov.usda.gov/ESIS/>



The screenshot shows the Ecological Site Information System (ESIS) website interface. The browser window title is "Ecological Site Information System - Windows Internet Explorer". The address bar shows "http://esis.sc.egov.usda.gov/ESIS/". The page header includes the NRCS logo and "United States Department of Agriculture Natural Resources Conservation Service Ecological Site Information System". The navigation menu includes "PLANTS", "ESIS", "ESD", "FSGD", "ESI Rangeland", and "ESI Forestland".

Quick Access

- About ESIS
- ESD Home
- FSGD- Forage Suitability Groups
- ESI - Forest
- ESI - Range

Ecological Site Information System (ESIS)

ESIS is the NRCS repository for ecological site descriptions and for information associated with the collection of forestland and rangeland plot data. ESIS is organized into two applications and associated databases; the Ecological Site Description (ESD) application and the Ecological Site Inventory (ESI) application. This section, plus the access tab on the right, provides quick access to technical resources and technical guidance for developing and understanding ecological sites.

...More Info

Ecological Site Description (ESD)

The ESD application is used to enter, edit and store ecological site information. Only approved ecological sites for forestland and rangeland are available to the public. Open this section to access approved and non-approved ESD's. Entry/Edit privileges are required to access non-approved sites. Click on MLRA/state of interest, and available ESDs within that MLRA/LRU for the state will be displayed.

...More Info

Forage Suitability Group Descriptions (FSGD)

Forage suitability group descriptions (FSGDs) are interpretive reports which provide a soil and plant science basis for conservation planning where forage crops are grown. FSGDs identify adapted forage species, yearly forage production estimates, and distribution of production during the growing season. Open this section to access approved and non-approved FSGD's. Click on MLRA/state of interest, and available FSGD's within that MLRA/LRU for the state will be displayed.

...More Info

Ecological Site Inventory (ESI)

The Ecological Site Inventory (ESI) application provides the capability to enter, edit, and retrieve rangeland, forestry, and agro-forestry plot data. ESI stores plot data collected via the Soil-Woodland Correlation Field Data Sheet (ECS-005), the Windbreak-Soil-Species Evaluation Data Sheet (ECS-004) and the Production and Composition Record (RANGE-417). To access ESI information, open this section or click on either the Forest or the Rangeland, "button" to the left.

Technical Resources

- USDA - ARS Range Database
- Web Soil Survey
- Ag Handbook 236
- Climate Data
- Soil Change Guide

Technical Guidance

- National Range & Pasture Handbook
- National Biology Manual
- National Biology Handbook
- National Forestry Manual
- National Soil Survey Handbook (NSGH)

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Web ESIS has two applications:

- ESD (ecological site description-the *developed sites*)
- ESI (ecological site inventory-the associated *data*)

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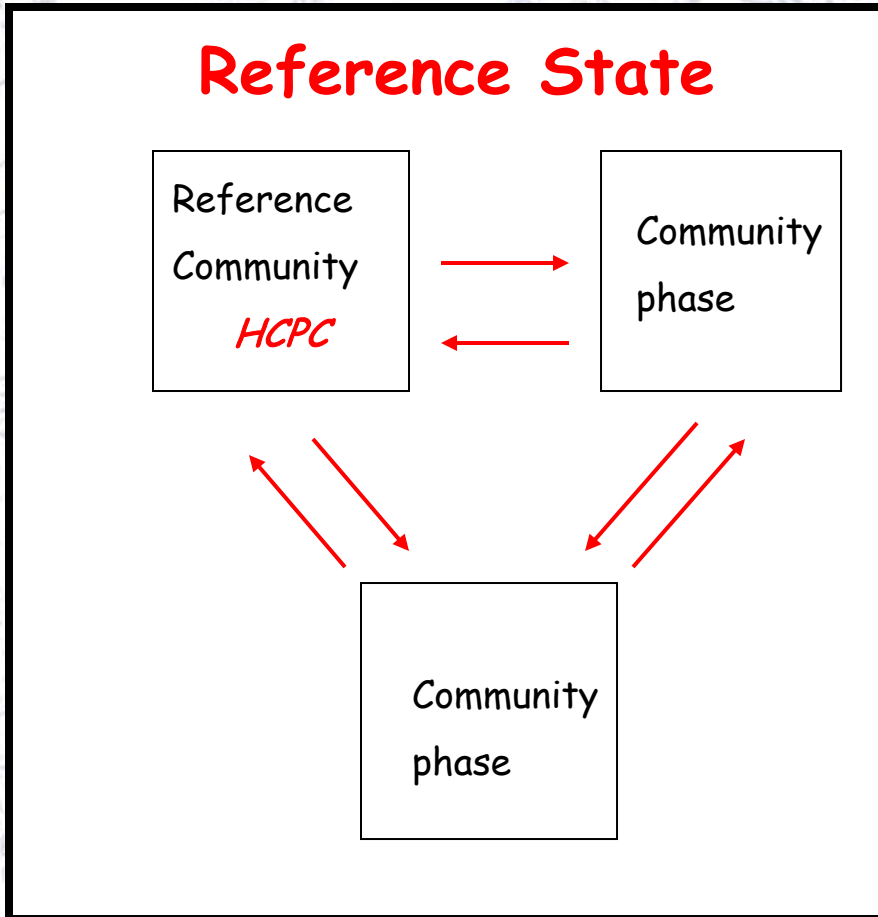
Reference Community: *“Historic Climax Plant Community”*

This is the plant community that existed in “Pre-European” times. This community was in dynamic equilibrium with the environment. It serves as a “benchmark” site to the ESD.



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“State and Transition Models”



This line represents a transition to another state contained within the Ecological Site.

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- Introduction of invasive species
- Damaging fire event
- Conversion to a different land use

A **TRANSITION** represents a change from one state to a completely new, self sustaining state.

A **THRESHOLD** makes the boundary between two states. It is not easily reversed.

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Reference State



Transition



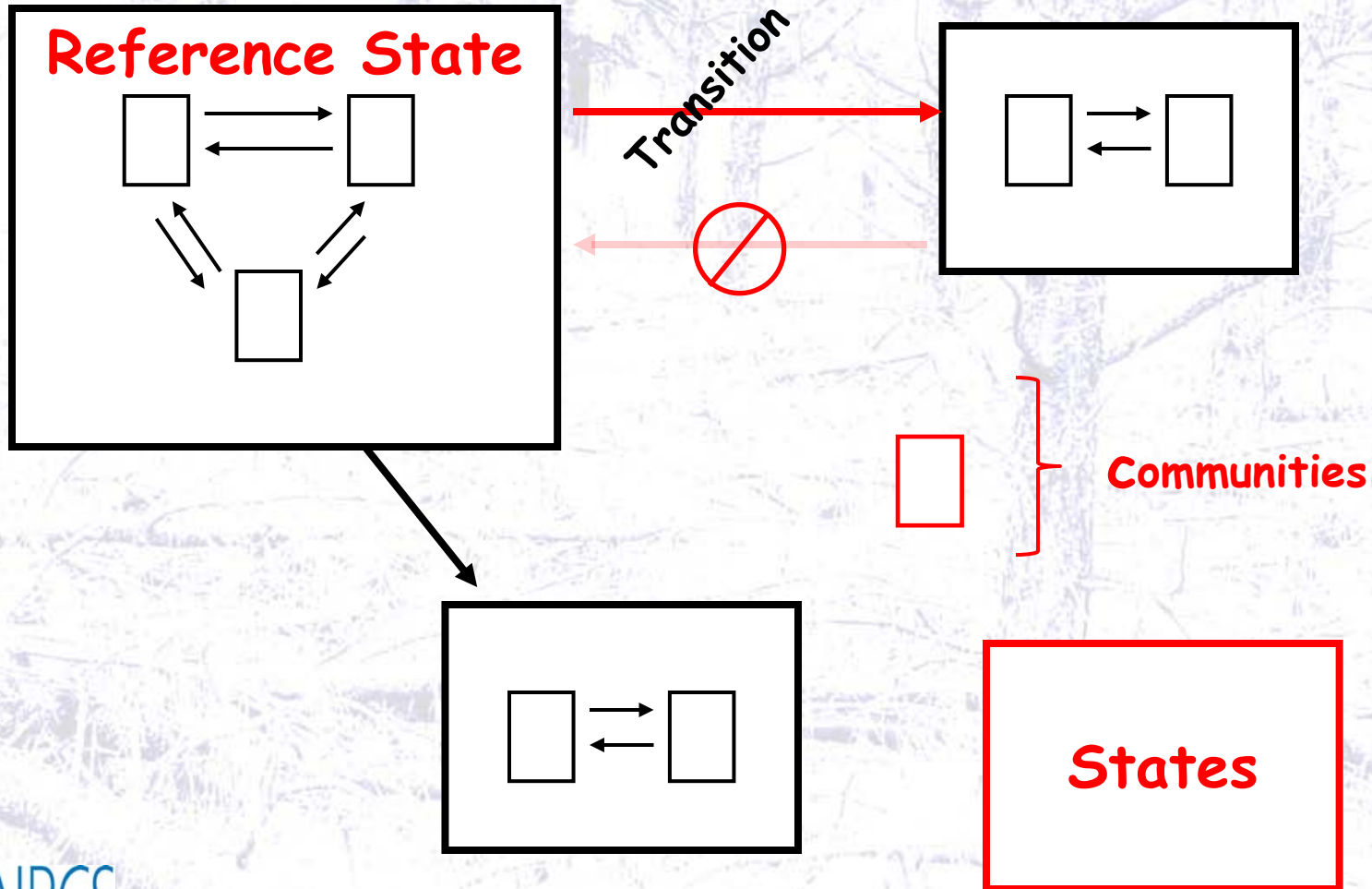
EXAMPLE:

New State



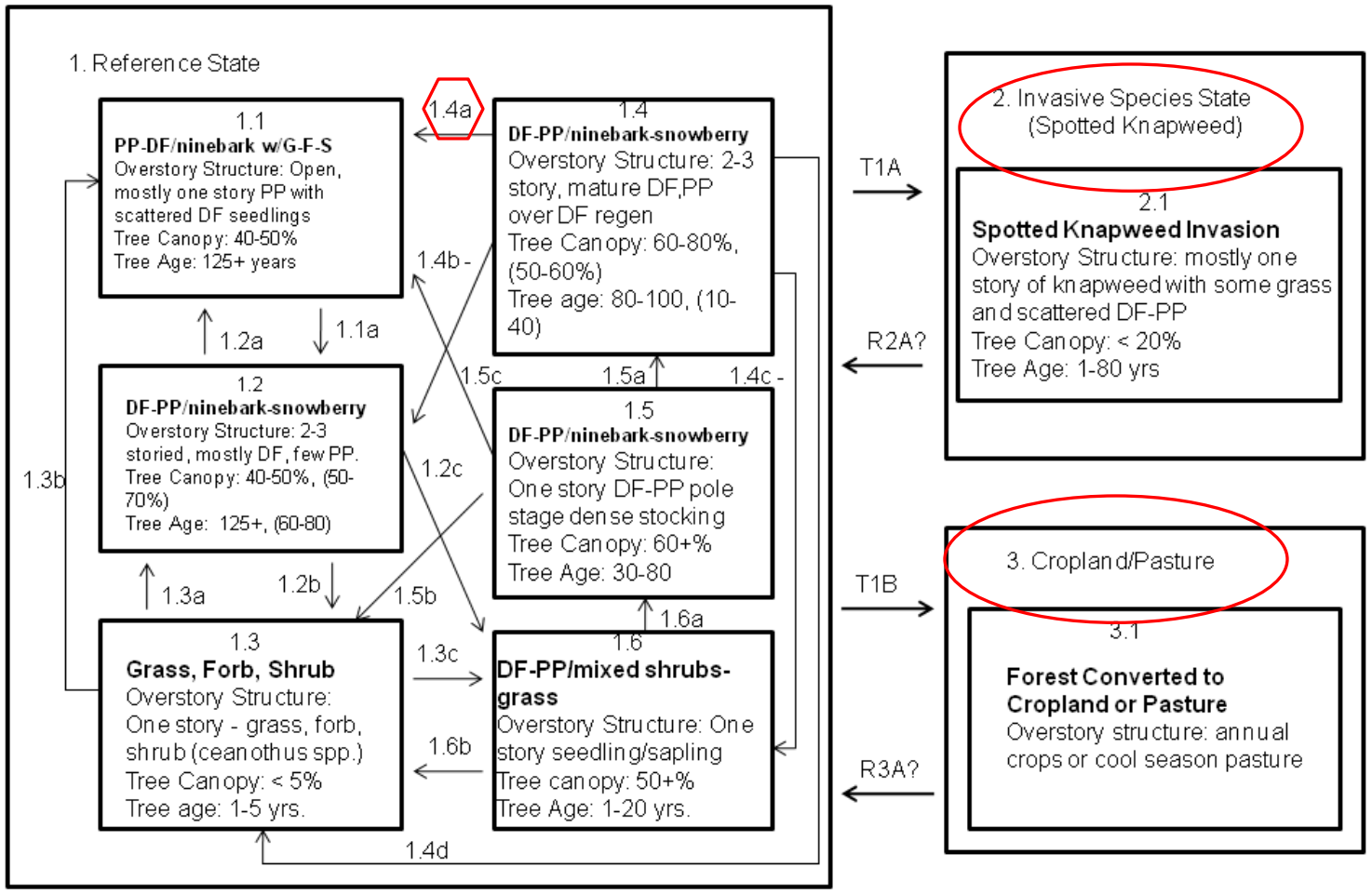
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“State and Transition Models”



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STATE TRANSITION MODEL – Ecological Site F043AY002WA
 Warm Frigid Xeric Loamy Foothills/Mountainsides (Douglas-fir Warm Dry Shrub)
Pseudotsuga-menziesii/*Physocarpus malvaceus*; *Pseudotsuga-menziesii*/*Symphoricarpos albus*



Pathway

NRCS Forest Ecological Sites

UNITED STATES DEPARTMENT OF
AGRICULTURE
NATURAL RESOURCES CONSERVATION
SERVICE

ECOLOGICAL SITE DESCRIPTION (New Format Report)

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Forestland

Site Name: Cool Xeric Coarse Loamy Mountainsides (Douglas Fir Cool Dry Grass)

Pseudotsuga menziesii - Calamagrostis rubescens //
(Douglas fir - pinegrass //)

Site ID: F043AY001WA

Major Land Resource Area: 043A-Northern Rocky Mountains

Climatic Features

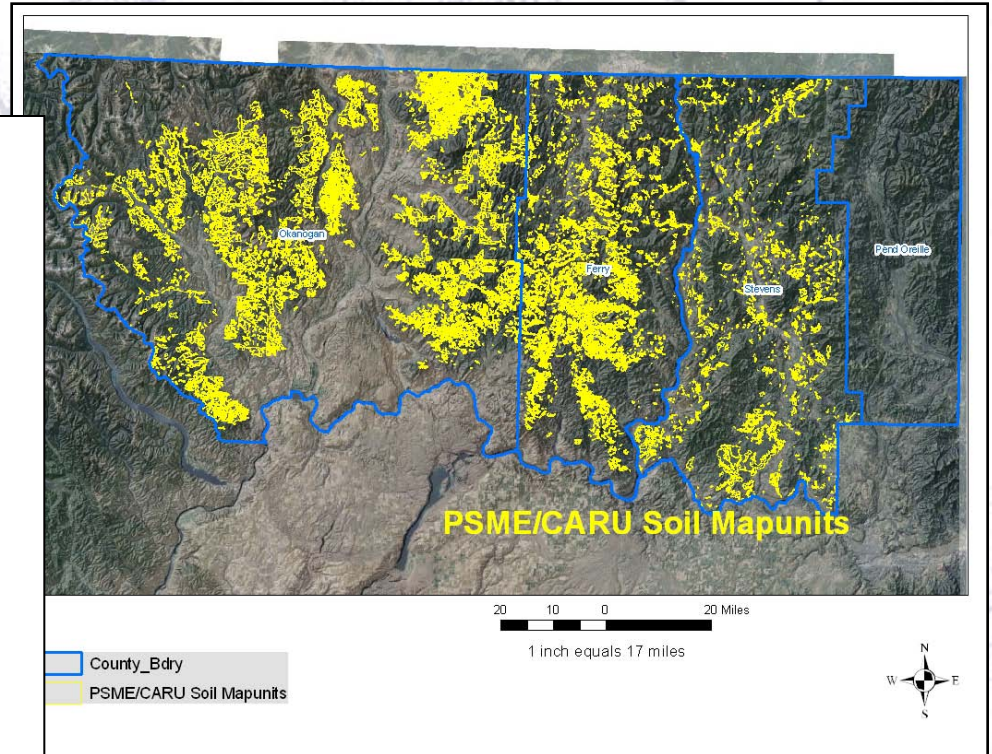
Cool Moist Winters. Warm Dry Summers.

	Minimum	Maximum
<u>Frost-free period (days):</u>	37	120
<u>Freeze-free period (days):</u>	0	0
<u>Mean annual precipitation (inches):</u>	14.0	30.0

Monthly precipitation (inches) and temperature (°F):

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Precip. Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Precip. Max.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Temp. Min.	17.4	22.9	27.7	33.8	41.0	47.4	50.9	50.2	42.4	33.9	27.1	21.1
Temp. Max.	30.8	39.1	48.4	59.2	68.5	75.8	84.7	83.6	73.5	58.2	40.8	32.5

Climate Stations: (1) Colville WB AP WA, Colville, WA. Period of record 1971 - 2011



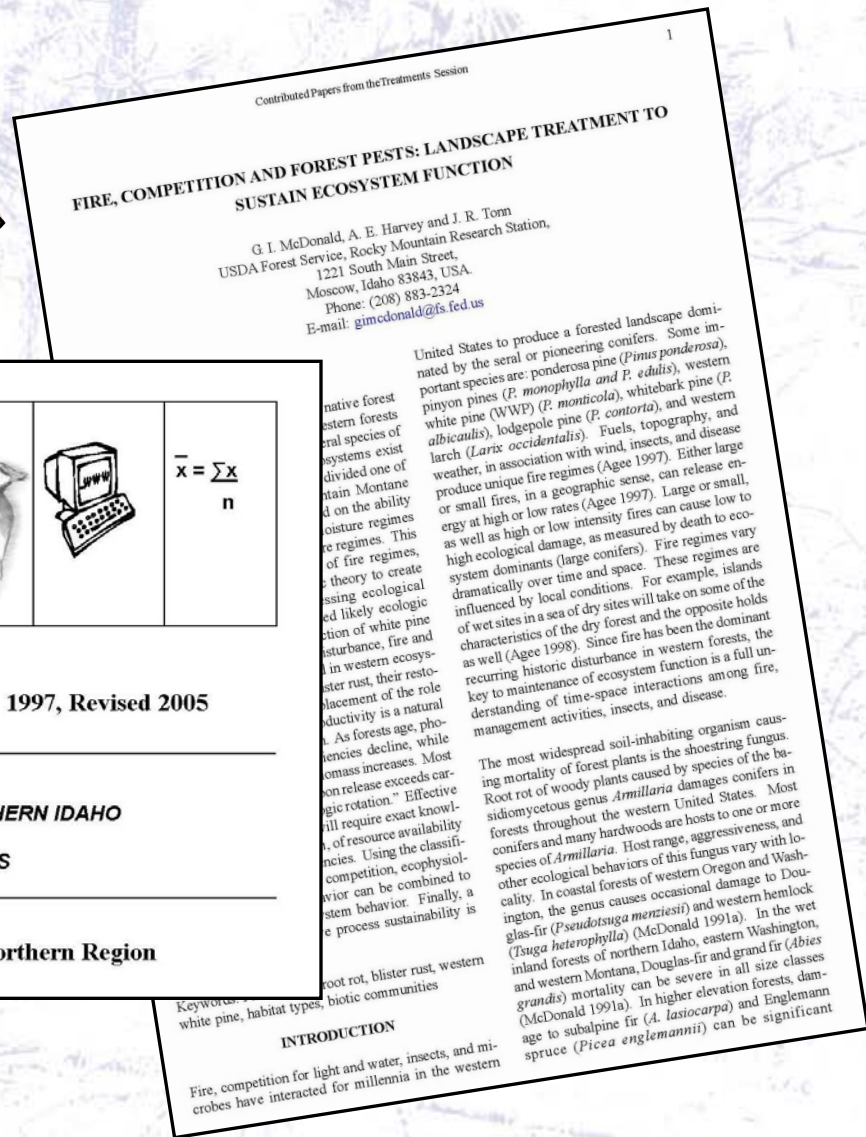
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Progress since April of 2010

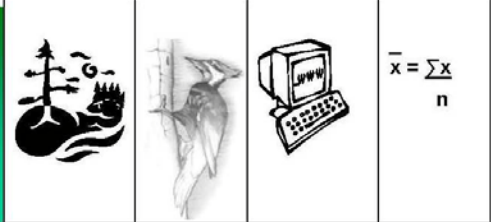
- Linked conceptual development of ESD's with the IFTNC "Site Type Initiative".
- **Adopted the Forest Habitat Type vegetation classification system as a "first cut" in the grouping process. Linked to partner reference documents.**
- Developed NRCS Draft Tech Note(s)
 - Tech Note to adopt and explain the system (*policy*)
 - Subsequent TN for N. Idaho (*management guide*)
- Developed DRAFT ESD on "*Doug-fir cool dry grass*" site
- Collected field vegetation data
- Began development of PSME and ABGR/PHMA types

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Compiled HT Management Guides.....



Region One
 Vegetation Classification, Mapping,
 Inventory and Analysis Report



Report 09-08 v1.0

1997, Revised 2005

BIOPHYSICAL CLASSIFICATION –
 HABITAT TYPE GROUPS AND DESCRIPTIONS OF NORTHERN IDAHO
 AND NORTHWESTERN MONTANA,
 LOWER CLARK FORK AND ADJACENT AREAS

U.S. Department of Agriculture, Forest Service, Northern Region



NRCS Forest Ecological Sites

*Developed NRCS
procedural and
guidance
groundwork.....*



TECHNICAL NOTE

USDA-Natural Resources Conservation Service
Boise, Idaho

TN Forestry No. 14 November, 2010

USING USFS FOREST HABITAT TYPES FOR FOREST SOIL SURVEY AND CONSERVATION PLANNING IN IDAHO

Frank Gariglio, State Forester

DRAFT

COMMON TREES & TREES TO MANAGE DESIGNATIONS
(Soil Survey Interpretation)

Habitat Type SERIES	TYPE	PHASE	USFS, Region 1: Report 09-08 v.1.0 ¹	PFC Management Guide ²	IDL Forest Management Guide ³	Common Trees (Soil Survey)	Trees to Manage (Soils)	Trees to Manage for the ESD/IDL Group ⁴	Fire Ecology Grouping ⁵	
TSHE WH	GYDR		Habitat Group #5	"WH group": DF, WL, GF, WP, WRC, WH, LP & ES (LP & ES-fp)	TSHE HTS- WARM: DF, WL, ES, WP, WC	DF, WL, GF, AF, WP, WC, WH	DF, WL, GF, WP, WC, WH	WP, WL, DF, WC, (ES & Lp-fp)	8	
	ASCA	ASCS, ARNU, MEFE				TSHE HTS- COLD: DF, LP, ES, WP	DF, WL, GF, ES, WP, WH			DF, WL, GF, ES, WP, WH
	CLUN	XETE, MEFE, CLUN, ARNU				TSHE HTS- WARM: DF, WL, ES, WP, WC	DF, LP, WL, GF, AF, WP, WC, WH			DF, LP, WL, GF, WP, WC, WH
	MEFE		Not in guide	Not in guide	Not in guide	LP, WL, ES, AF, WH	LP, WL, ES	5		

¹ Based on USFS Region 1 Vegetation Classification, Mapping, Inventory and Analysis Report (Report 09-08 v1.0), rev. 2005. Art Zack and others.

² From PFC Forestry Tech Paper TP-2003-1

³ From Idaho Department of Lands (IDL) Forest Management Handbook, Rev. 2004. Contact person is John Bruna

⁴ Compiled from USFS, PFC, and IDL guides, in addition to information in "Forest Habitat Types of N. Idaho", USFS, GTR INT-236, as well as previous soil survey designations, and ground based knowledge.

⁵ From "Fire Ecology of the Forest Habitat Types of Northern Idaho", USFS GTR INT-GTR-363. This reference is a good support document for ESD groupings and other local interpretations.



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QUESTIONS ?

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State Forester



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