

Update – Rangeland Ecological Site Descriptions

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ESD Activities/Efforts

- Interagency Rangeland ESD MOU
- ESIS – ESD
- ESIS – ESI – Range Database
- State & Transition Models
- Riparian Site Complexes
- Wetland Site Complexes

Interagency Rangeland ESD MOU

- Signed 05/2005
 - BLM, USFS, NRCS
- Interagency team developed 1st draft Ecological Site Description Handbook 12/2006
- Interagency policy document and final draft ESD Handbook due in 2008

ESIS - ESD

- ESD Sections
- Minimum ESD Criteria
- ESIS/ESD National Progress
- 2008 ESIS/ESD Upgrade Changes
- Draft ESIS User Guide

ESD Sections

- General Information
- Physiographic Features
- Climatic Features
- Water Features
- Representative Soil Features
- Community Phase Data
- Ecological Site Interpretations
- Supporting Information
- Rangeland Health Reference Sheet

Minimum ESD Criteria - Phase 1

All sections of ESD except:

- Community Phase Data (partial)
 - State & Transition Model
 - Data for reference state
 - Data for reference plant community phase
 - Narratives for other states
 - Photos
- Ecological Site Interpretations

ESIS/ESD National Progress

- 17 states have approved ESDs
- More states beginning to develop ESDs
 - IA, IL, MN, WI, NJ, MO
- National Implementation Strategy
 - Centralized MLRA Leadership
 - Phased Approach
 - Training Assistance
 - Interdisciplinary & Interagency Approach

2008 ESIS/ESD Upgrade Changes

- Rangeland Health Reference Sheets
- Community Phase Data
 - States (reference and alternative)
 - Community Phases
 - State Transitions
 - Restoration Pathways
 - Community Pathways

ESIS – Draft ESD User Guide

Understanding the Ecological Site Information System Database

*Basic ESIS User
Guide*



ESIS – ESI – Range Database

- Version 1.4 currently available
 - USDA-ARS-Jornada Experimental Range
- Approval to integrate PEDON with Range DB
- 3-Tier approach to site data collection
 - Reconnaissance/Traverse
 - Ocular Estimates/Step Transects
 - Point-data Collection at Type Locations



Jornada Experimental Range

Monitoring and Assessment

Home Page

Monitoring & Assessment

Monitoring

Assessment

FAQ

Expand all Submit

[Holloman Air Force Base Sustainable Disturbance website](#)

[Mongolian Information](#)

[Rangeland Monitoring Manual](#)

[Data Forms](#)

[Automated Calculations \(requires Microsoft® Excel\)](#)

[Additional Resources](#)

[Presentations](#)

[Training Videos](#)

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Rangeland Database and Field Data Entry System

Features

- Simple interface (an Access database that doesn't require knowledge of Access to use)
- Tablet PC (touchscreen) and keyboard modes
- Flexible – adapts to most monitoring applications
- Drop-down choice lists increase data entry speed and precision
- Automated indicator calculations and reports, and ability to create user-defined queries
- Import/export to Excel
- Automated species list downloads from USDA-NRCS PLANTS database
- Three levels of user-defined security to increase data entry consistency

[Rangeland Database and Field Data Entry System Poster](#)

Download Instructions (Please read even if it appears intuitive)

1. Print these directions for easy reference.
2. Double-click the link, "Download Rangeland Database", and click "Save". Choose a location to save the file. Save the file to a known location on your computer, for example, the desktop or a new folder.
3. **The saved file needs to be unzipped (some users may see the individual files even though it hasn't been unzipped).** If you do not have software to unzip the file, download an evaluation version from the web such as [WinZip](#). When you double-click the saved file, the unzip software will open. Extract all the files.
4. Double-click "RangedB". Click "Open" in the Security Window. The program will open in Microsoft Access (requires Access 2000 or later)

Rangeland Database and Field Data Entry System

Version 1.4 - 02/15/2008

Exit Access

Help



System Set-Up

Support Tables

Site and Plot Description

Data

Enter/Edit Data

Reports

Enter/View Photos

View PDFs

Administrator

Administrative Functions

Data-Entry Method

Keyboard/Mouse

Touch-Screen

Show 'Shortcut' Menu

Enter/Edit Data

Help Close

Select Method

- ESD Data Entry
- Dry Weight Rank
- Gap Intercept
- Infiltration
- Line-Point Intercept
- Continuous Line Intercept
- Ocular Cover Estimate (Qual. Assess.)
- Plant Density

Select Site and Plot

Site:

Plot:

Select Date Range

ESD Site Selection (Traverse)

Existing Sites:

Site ID: Full Site Name:

Waypoints Display
 Summary
 Detail/Data-Entry

Site Characteristics | Waypoints/Positions | Waypoint Photos

State: County:

MLRA: CRA: LRU:

Investigators:

 Either type Investigator(s) above, or add names from the drop-down:

GPS Coord. System: Datum: Zone: Elevation:

Tier 1 (Low Intensity)

Tier 2 (Medium Intensity and Tier 3 (High Intensity))

ESD Plot and Soil Form (Tiers 2 and 3)

Existing Site/Plot:

Site: Plot:

General | Horizons | Rock Fragments | Plant Composition | Nominal Indicators | Soil Taxon and Ecol. Site/State | Transects

State: County: MLRA: CRA: LRU: Region: Date:

Investigators:

Location: Datum: Zone: Easting: Northing: Elevation:

Community Description: Map unit symbol: Parent Material: Bedrock: Landform: Component Landform:

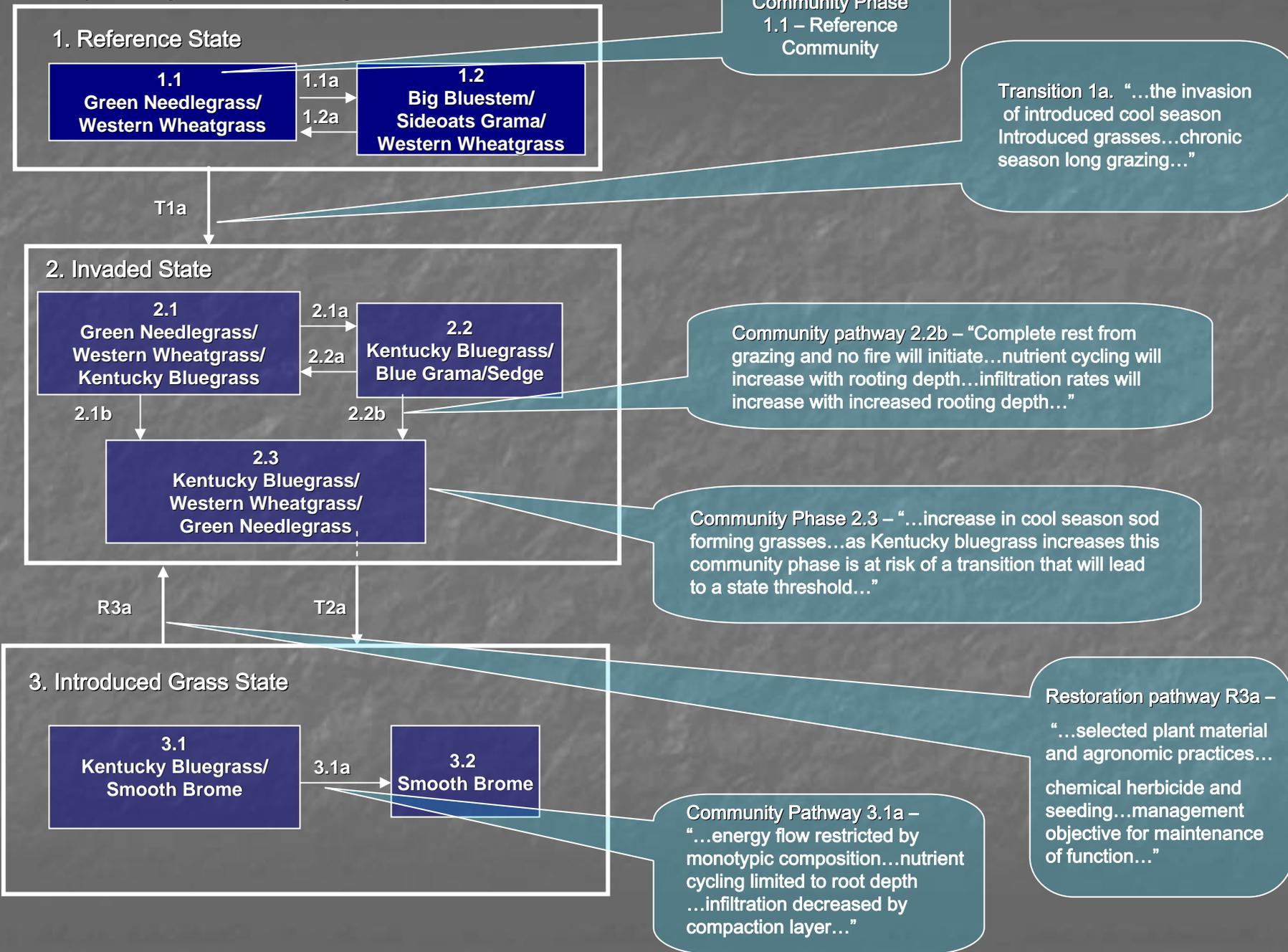
Hillslope Profile Pos: Geomorphic Comp: Run In/Off: Slope (%): Aspect (°): Slope Complexity: Slope Shape:

Notes:

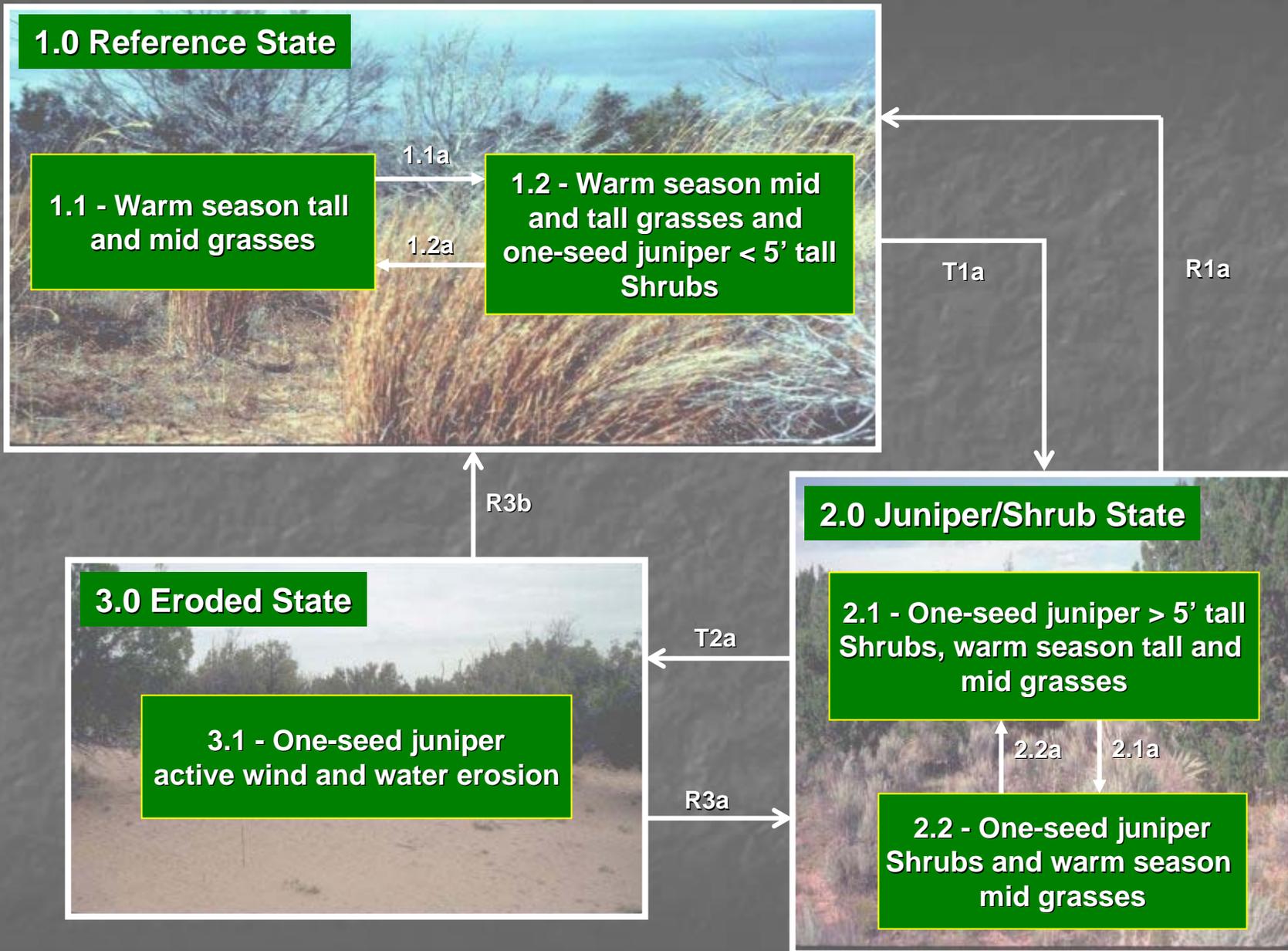
State & Transition Models

- Developed by Teams
- Peer Reviewed
- Reference & Alternative States
- Transitions
- Community Phases and Pathways
 - At-Risk Community Phases
- Triggers
- Thresholds

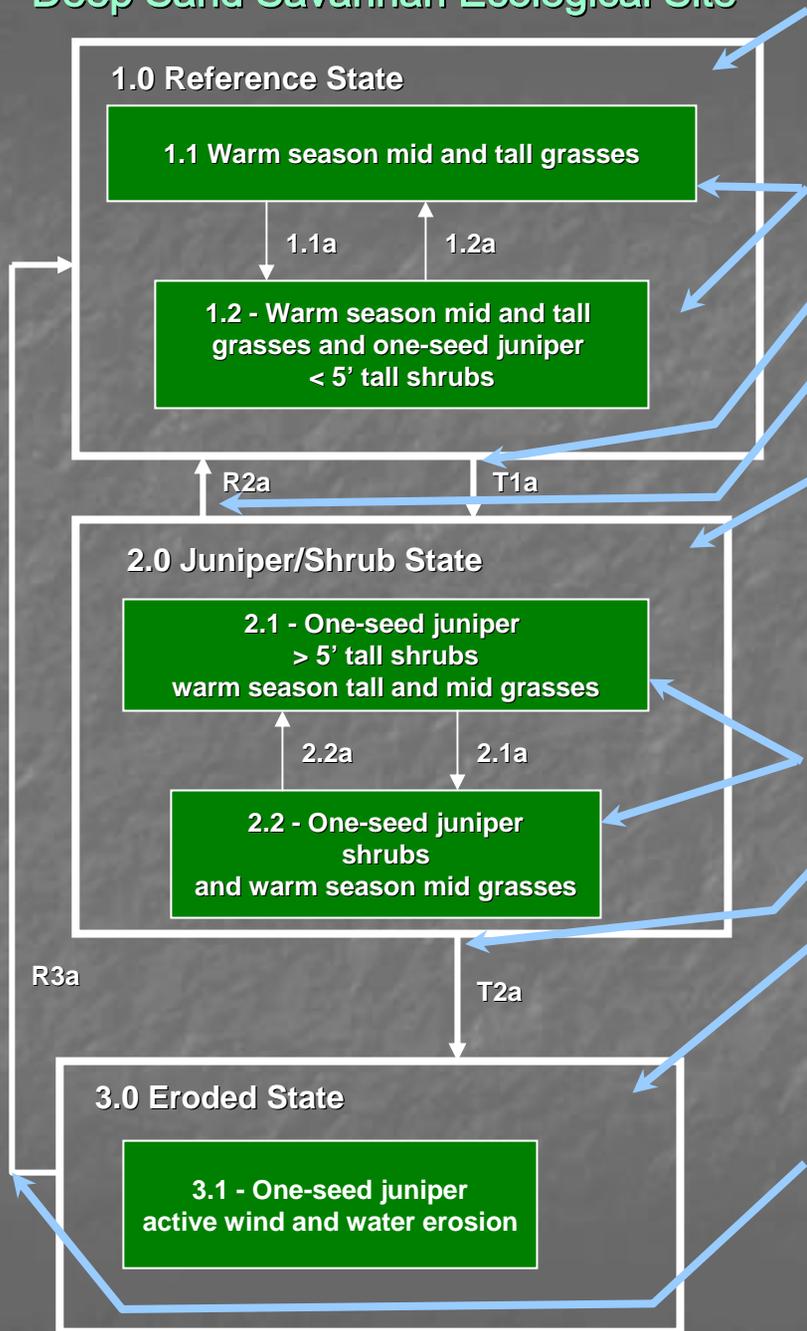
Loamy Rangeland Ecological Site – R055BY011ND



Deep Sand Savannah Ecological Site – R070XC123NM



Deep Sand Savannah Ecological Site



Reference State: Two community phases maintained by frequent fire and weather fluctuations (drought and wet years).

Indicators: High perennial grass cover and production. Litter accumulation.

Feedbacks: Organic matter inputs allows for increased soil moisture, production, root turnover and litter increasing soil surface stability.

At-risk Community Phase: Either community phase is at risk when bare ground increases and organic matter inputs decline.

Trigger: Elimination of fire and overgrazing causing increase juniper canopy

Threshold: Increasing bare ground > ??% and increase in juniper canopy cover to 15%.

Restoration Pathway: Decrease juniper canopy cover, increase organic matter inputs.

Alternative State 2: Juniper canopy cover controls the soil moisture, herbaceous production and organic matter inputs. Management practices applied to maintain current canopy cover and herbaceous production. Manipulation of brush species and prescribed fire and grazing management planned to maintain or improve warm season mid grass production.

Indicators: Juniper canopy cover > 15%, bare ground > 35%.

Feedbacks: Juniper use of moisture, decreasing herbaceous production, decreasing organic matter inputs.

At-risk Community Phase: Either community phase is at risk if juniper seedling increase and canopy cover increases.

Trigger: Juniper seedling established.

Threshold: Bare ground > 50% and soil surface stability < 3.0.

Alternative State 3: Active wind and water erosion taking place. Active sand dunes with juniper trees.

Indicators: Juniper canopy closed, soil surface stability indicators < 3.0, active wind and water erosion prevalent.

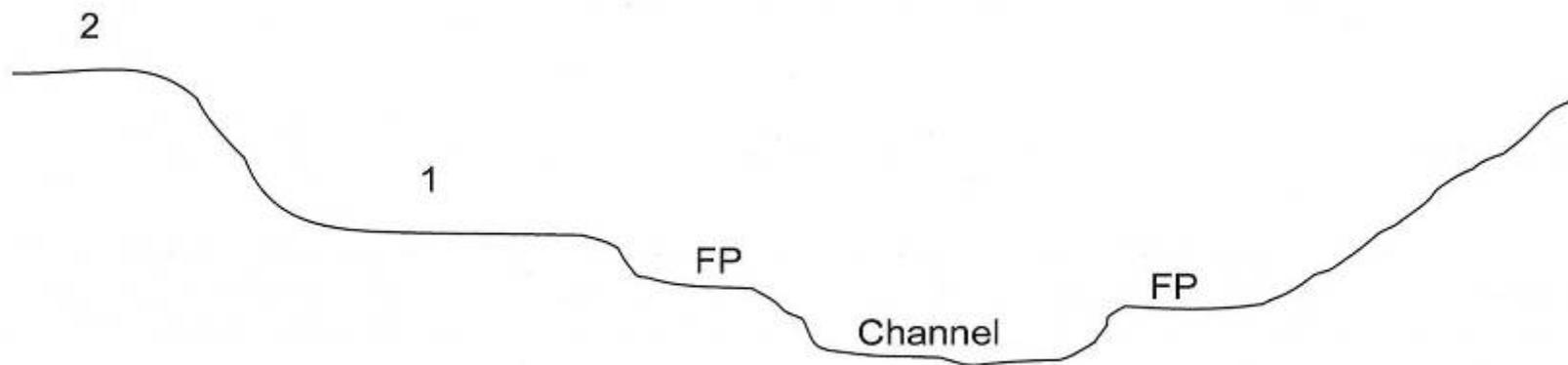
Feedbacks: Juniper use of all available moisture, eliminates organic matter inputs, decreases soil surface stability.

Restoration Pathway: Management and restoration practices planned must decrease juniper canopy with little or no surface disturbance, grazing must plan for increasing herbaceous production and allow for litter accumulation to improve organic matter inputs to stabilize soil surface.

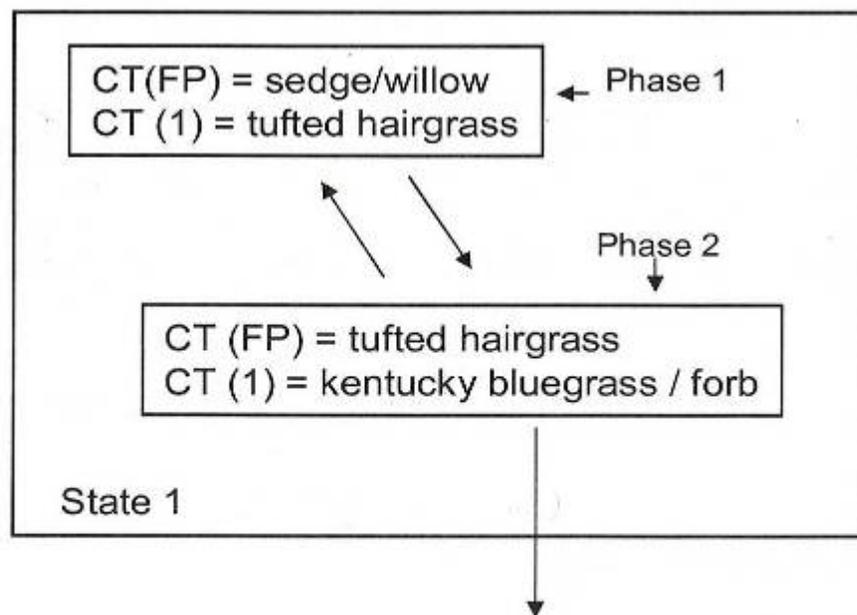
Riparian Ecological Site Complexes

- Valley Type & Channel Type (Rosgen)
- Climate / Elevation Characteristics
- Extends from stream outward to limit of riparian/wetland soil processes
- Includes plant community types linked by hydrological processes
- Community Phases are compilations of Plant Community Types in different temporal and spatial arrangement

Example: state-and-transition model components (state 1 part)



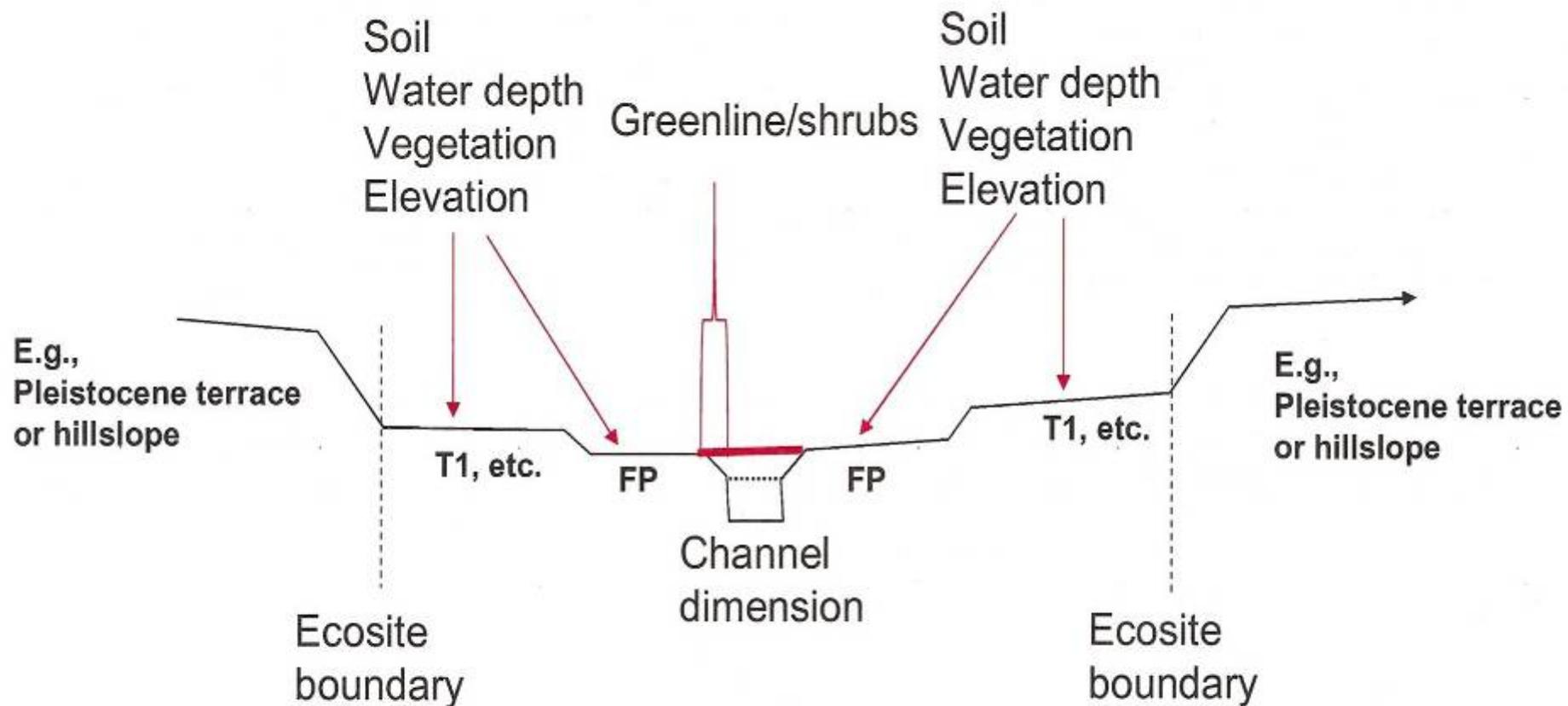
Landform associated with State 1: FP=active floodplain; 1 = tufted hairgrass meadow; 2 = pleistocene terrace



CT = community types found within the riparian complex that includes both the active floodplain and the associated meadow

Phases potentially contain multiple CT's. The shift from phase 1 to phase 2 is caused by a slight incision and/or widening of the channel bed causing a slight lowering of the water table and a shift in species Composition (OBL's to FACW to FAC). Phase 2 is the at-risk phase due to the lack of bank holding plants such as sedges and willows. Proper management of the floodplain area will promote channel narrowing and potentially bed aggradation through sediment trapping by riparian plants.

Proposed ESD field measurements



Qualitative or quantitative-derived class measurements
Valley type/stream substrate
Channel evolution model
Rosgen classification

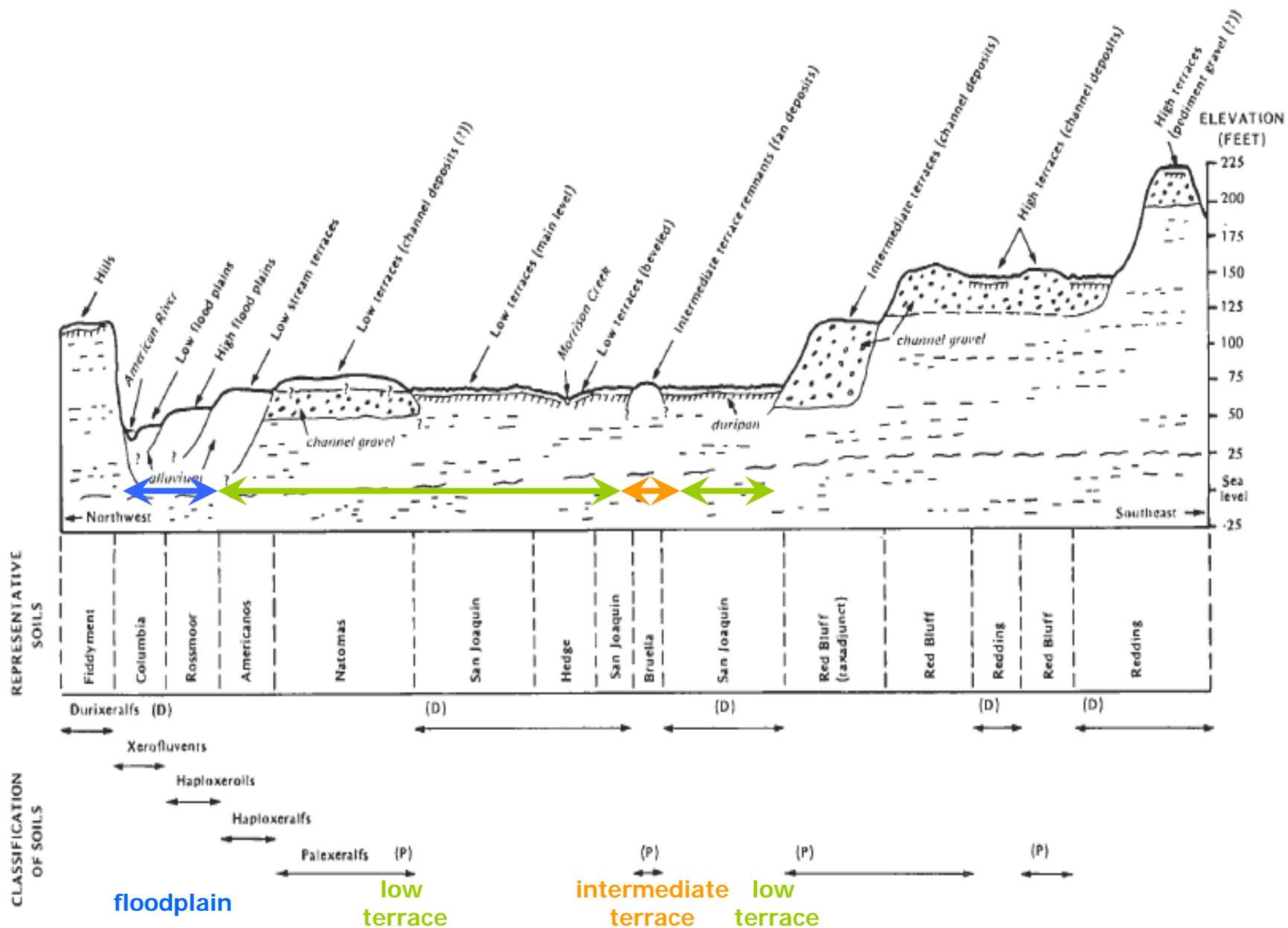


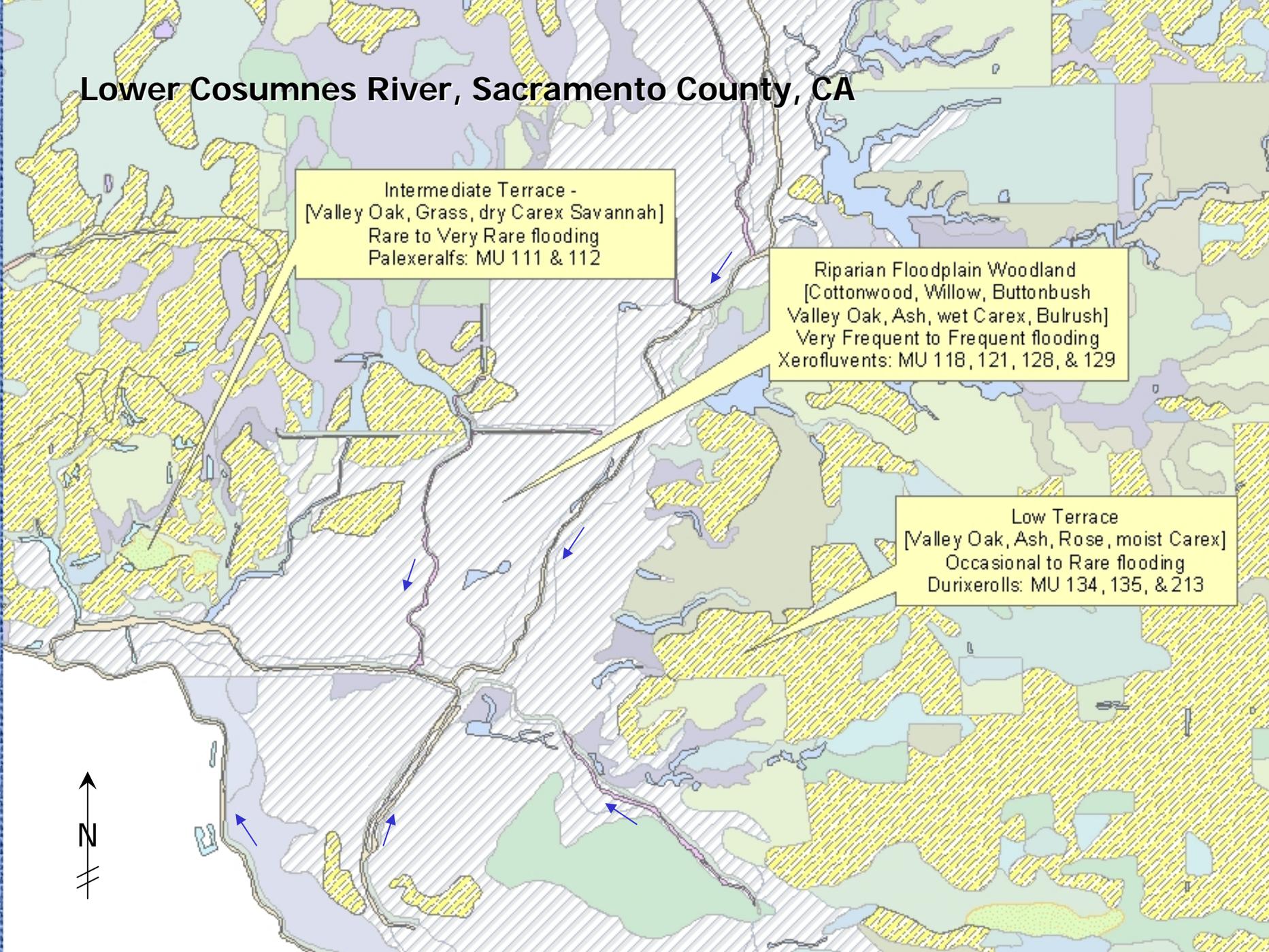
Figure 19.—Idealized cross section of the geomorphic surfaces, soils, and geology south of the American River in Sacramento County. The vertical scale is exaggerated.

Lower Cosumnes River, Sacramento County, CA

Intermediate Terrace -
[Valley Oak, Grass, dry Carex Savannah]
Rare to Very Rare flooding
Palexeralfs: MU 111 & 112

Riparian Floodplain Woodland
[Cottonwood, Willow, Buttonbush
Valley Oak, Ash, wet Carex, Bulrush]
Very Frequent to Frequent flooding
Xerofluvents: MU 118, 121, 128, & 129

Low Terrace
[Valley Oak, Ash, Rose, moist Carex]
Occasional to Rare flooding
Durixerolls: MU 134, 135, & 213



Wetland Ecological Site Complexes

- Includes Sub-Aqueous, Emergent, & Peatlands sites
- Soil surfaces are often organic material
- Boundaries of complexes less obvious?
- Zonation & Diversity
 - Hydrology, Fertility, Disturbance, Competition, Herbivory, Burial (sedimentation)

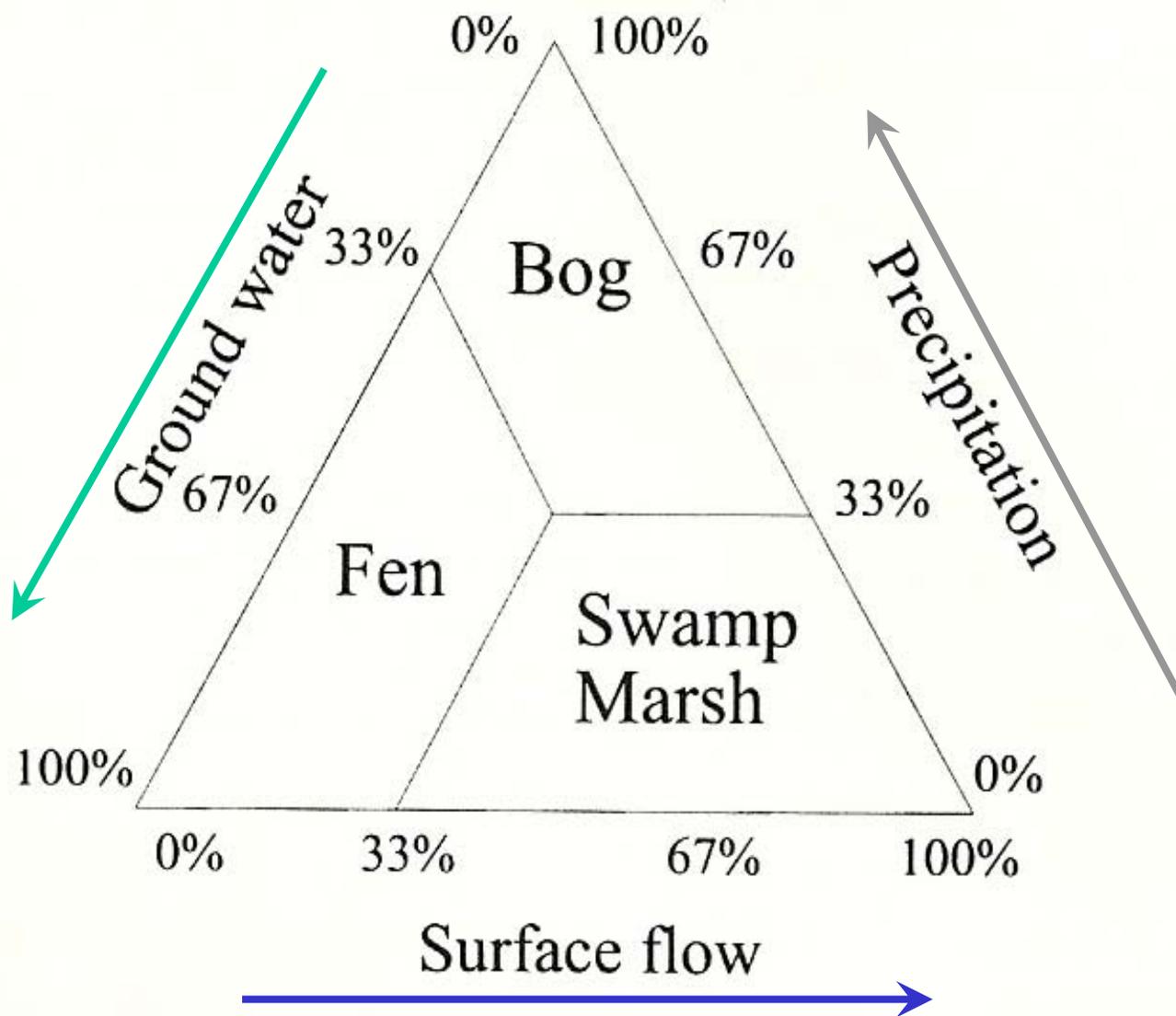


Figure 1.10 The relative contribution of three water sources: precipitation, groundwater discharge, and lateral surface flow determines three main wetland types (modified from Brinson 1993a, b).

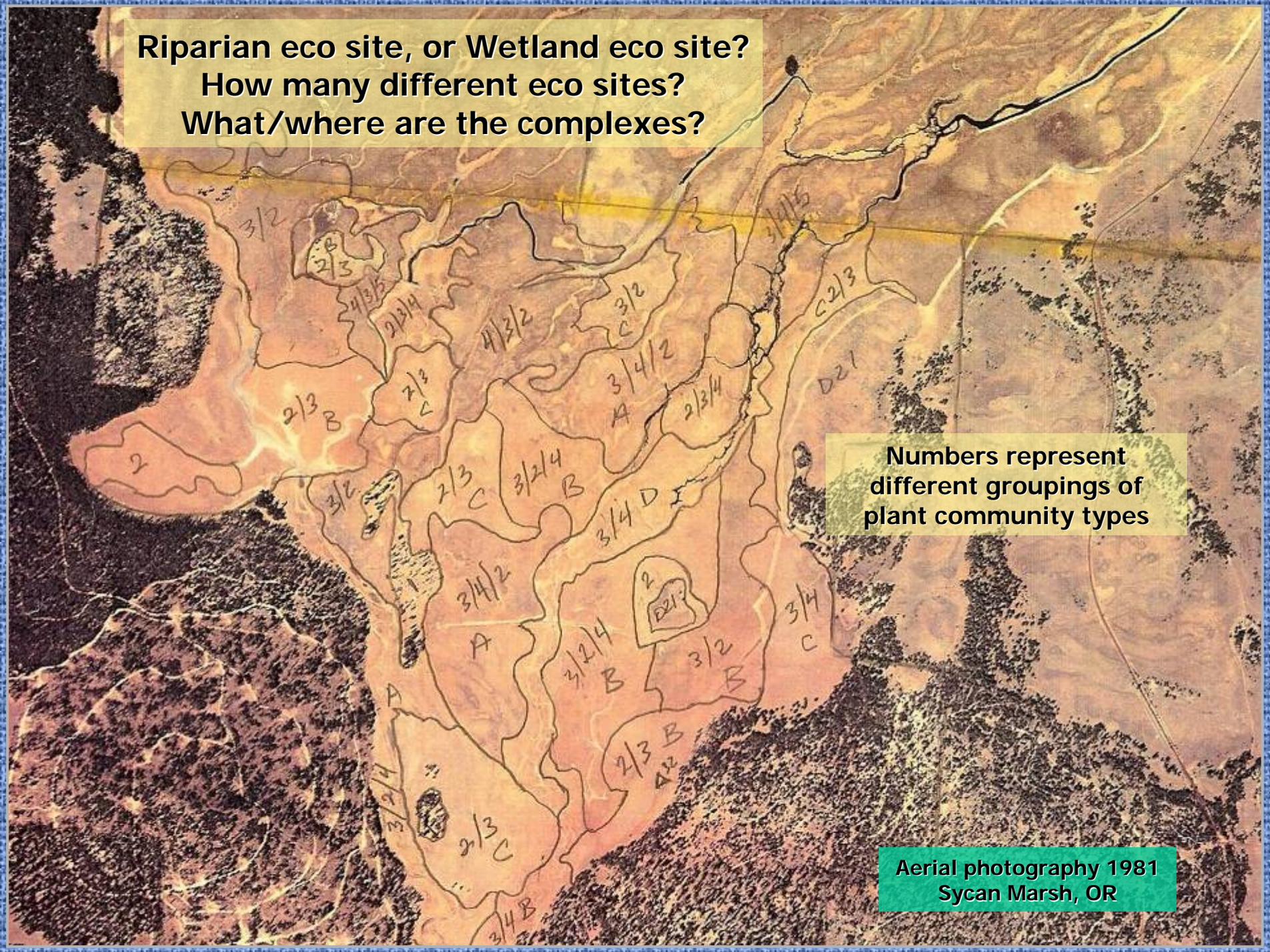
Mountain Fen (poor-moderate rich) New Mexico



Riparian eco site, or Wetland eco site?
How many different eco sites?
What/where are the complexes?

Numbers represent
different groupings of
plant community types

Aerial photography 1981
Sycan Marsh, OR



Wet meadow
[Nebraska sedge]

Beach ridge
[Basin wild rye]

Floating peat mat
[Lodgepole pine,
sedge, sundew]

Mucky peat
[Beaked &
Inflated Sedge]

Marsh [Soft & Hard
stem bulrush]

Moist meadow
[Tufted hairgrass]

**At the headwaters...
Wetland eco sites?
How many different eco sites?
What/where are the complexes?**

**Aerial photography 1981
Sycan Marsh, OR**

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