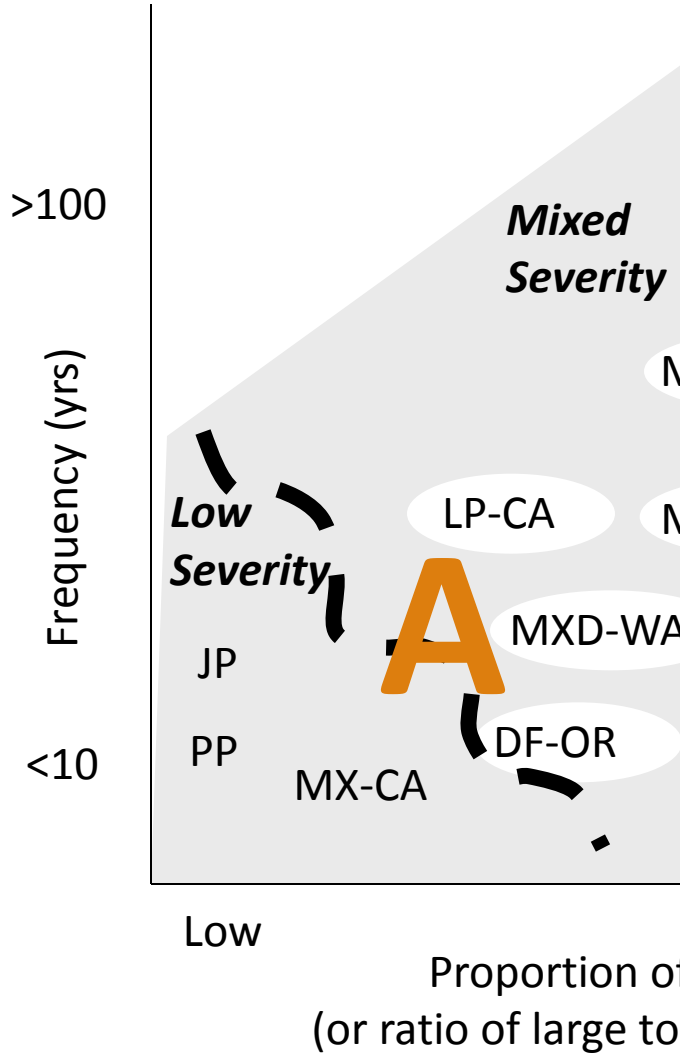
Fire Behavior

- Topography
  - Influences site productivity and forest type/series
- Weather/Climate
  - Interaction with vegetation
- Fuels
  - Type and quantity
  - Continuity/spatial pattern
  - Recovery TIME post-fire

Fire regimes of Plant Association Groups In NWFP Area



Lower total biomass
- low total fuel loads
- slow recovery post-fire

Regular, lengthy fire seasons

Frequent ignition and spread

Topographic continuity

Limited fuel ladders

Long-lived species

Fire-resistant tree species

Slow, episodic recruitment

Frequent, low-intensity fire

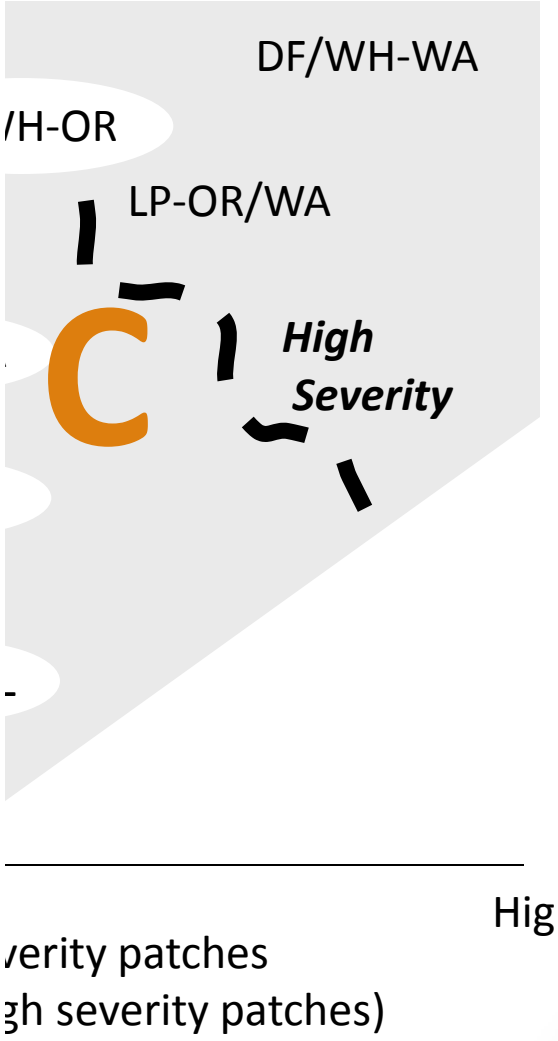
Limited large openings

Perry et al. 2011

Fire regimes of Plant Association Groups In NWFP Area

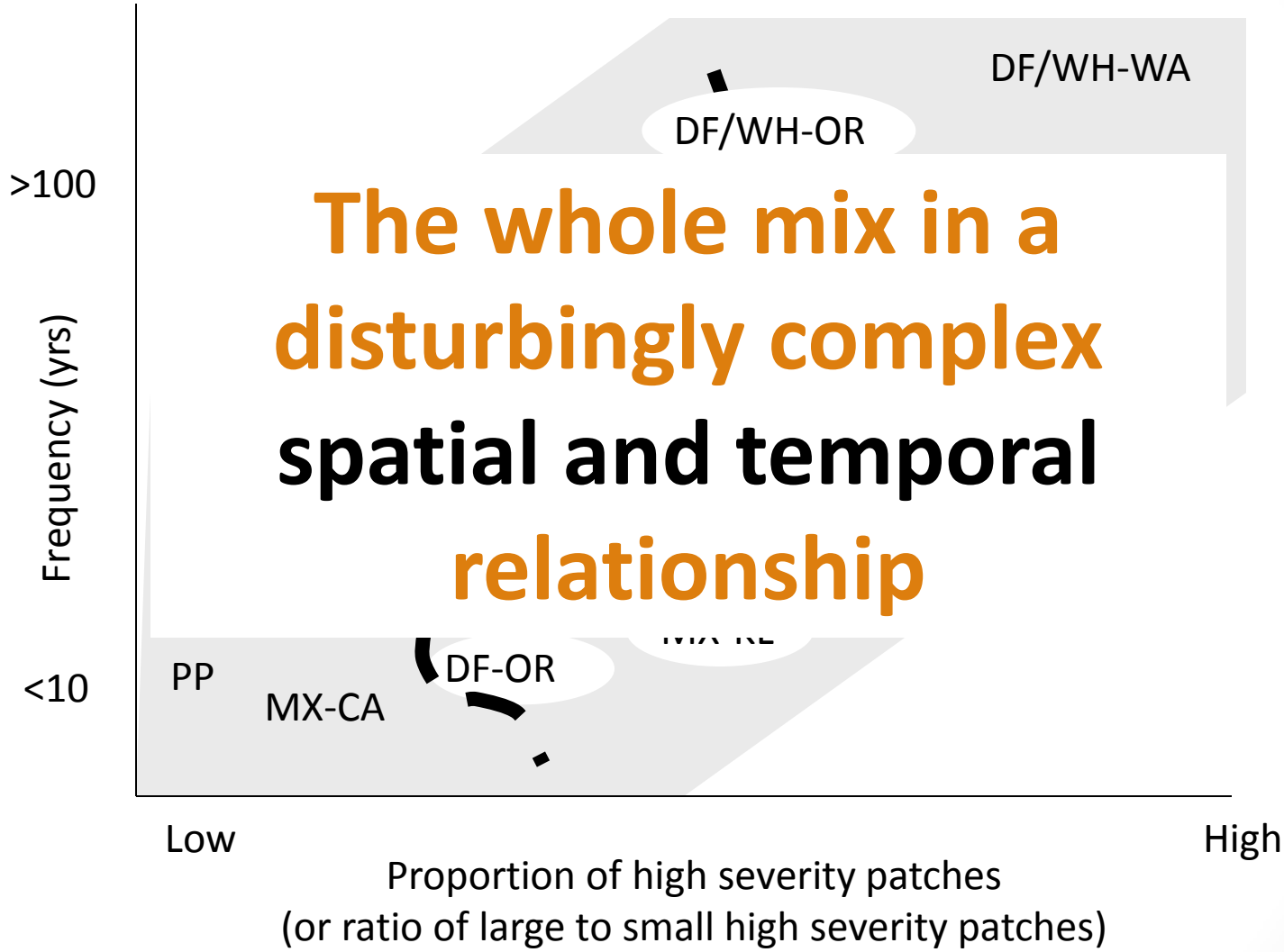
Higher total biomass
- higher total fuel loads
- faster recovery

Regular, moderate fire seasons
Modest ignition and spread
Topographic complexity
Regular fuel ladders
Short- and long-lived species
Resistant trees and resilience
Heavy, regular recruitment
Modest, mixed-intensity fire
Abundant large openings



Perry et al. 2011

Fire regimes of Plant Association Groups In NWFP Area



The whole mix in a disturbingly complex spatial and temporal relationship

Perry et al. 2011

Potential Vegetation Type	Typical Range of fire return intervals	Range of fire severities
Ponderosa Pine (dry to wet), Dry/Moist Douglas-fir, Dry Mixed Conifer, dry Grand Fir	7-25 years	Primarily Low and mixed surface fire dominated
Moist Mixed Conifer, Moist Grand Fir, and Douglas-fir	25-50 years	Mixed, with some high and low
Moist to Wet Grand Fir, Moist Mixed Conifer	50-100 years	Mixed to high, with some low
Wet Grand Fir, Cool Dry Subalpine Fir	>100 years	High with some mixed

RESTORATION SILVICULTURE

A. Dry

- Multi-aged group selection
- Low average biomass
- Complex spatial pattern
- Regular fire – annual

B. Moist

- MAGS w/ larger openings
- Higher biomass/cover
- More complex patterns
- Regular fire (near annual)

C. Wet

- MAGS w/ even-aged units
- Highest cover but variable
- Most complex patterns
- Episodic fire

Mixed Species Forest
Mixed Fire Behavior and Effects
Mixed and Complex Silviculture
Mixed Scales

…and no way to do it without fire!

Integrated Fireshed-Level Adaptive Management Evaluation Sites (iFLAMES)

Landowner partner provides:

- **Modest-sized watersheds/firesheds (>1500 acres)**
- **Planned fuels and restoration treatments**
  - **>60% treatable**

OSU provides:

- **Design/review support (treatments and layout)**
- **Pre-treatment data collection and synthesis**
- **Monitoring and synthesis**

Integrated Fireshed-Level Adaptive Management Evaluation Sites (iFLAMES)

Basic minimum design:

- **Three >100-acre replicates each of:**
  - **Light fuels reduction treatment (~low thinning)**
  - **Heavier restoration treatment (~MAGS)**
  - **Control**
  - **Optional burn-only treatment (some locations)**

Site history, GIS and permanent plots
Overstory and understory data
Implementation and effects monitoring