



Synthesis of Appalachian Fire History, SBR FLN 2017

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Image: *Autumn Scene*, Thomas Moran (c. 1868)



**CONSORTIUM OF
APPALACHIAN FIRE
MANAGERS & SCIENTISTS**



United States Department of Agriculture

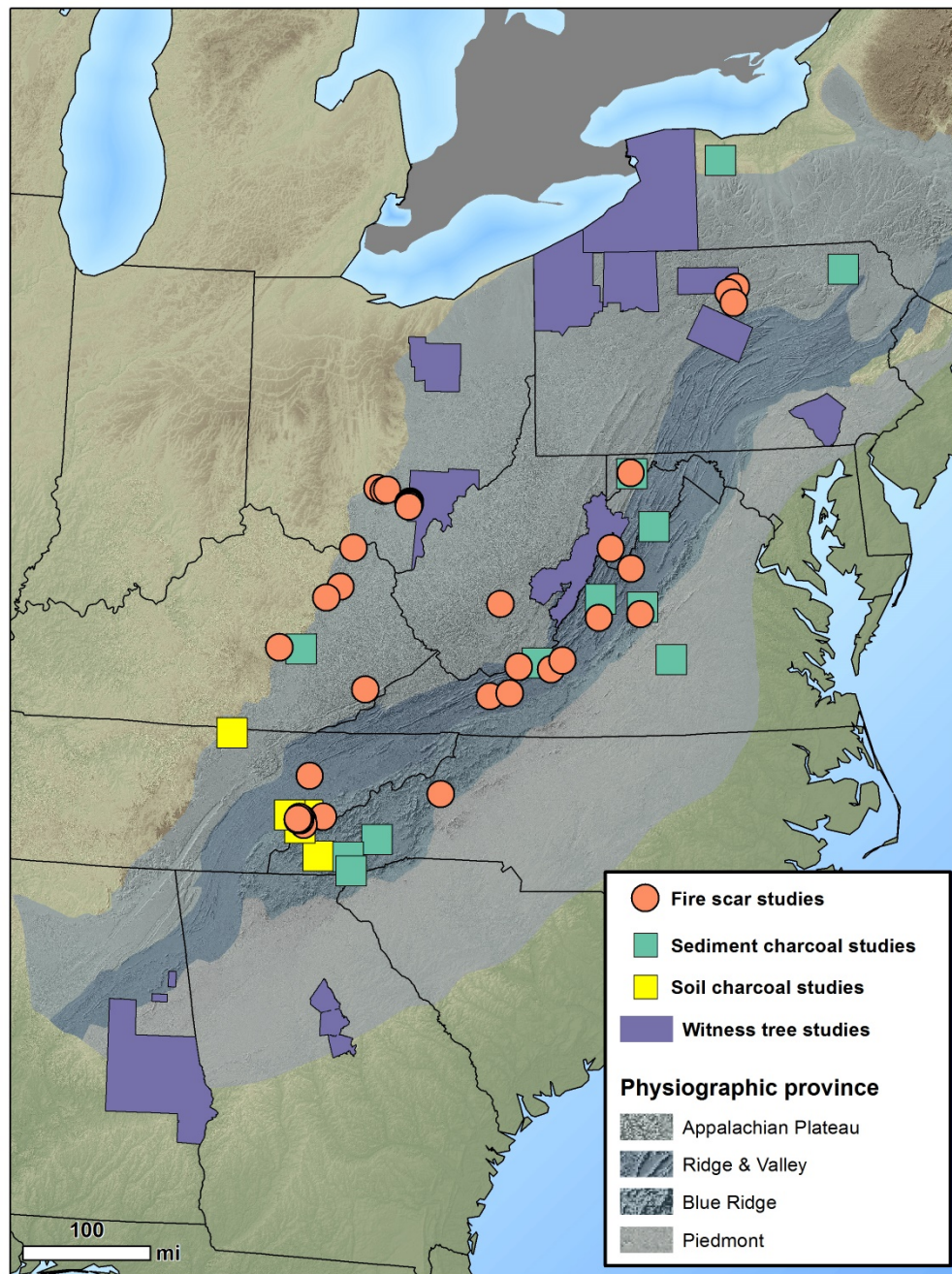
Fire History of the Appalachian Region:

A REVIEW AND SYNTHESIS

Charles W. Lafon, Adam T. Naito, Henri D. Grissino-Mayer,
Sally P. Horn, and Thomas A. Waldrop



Forest Service
Southern Research Station
General Technical Report SRS-219
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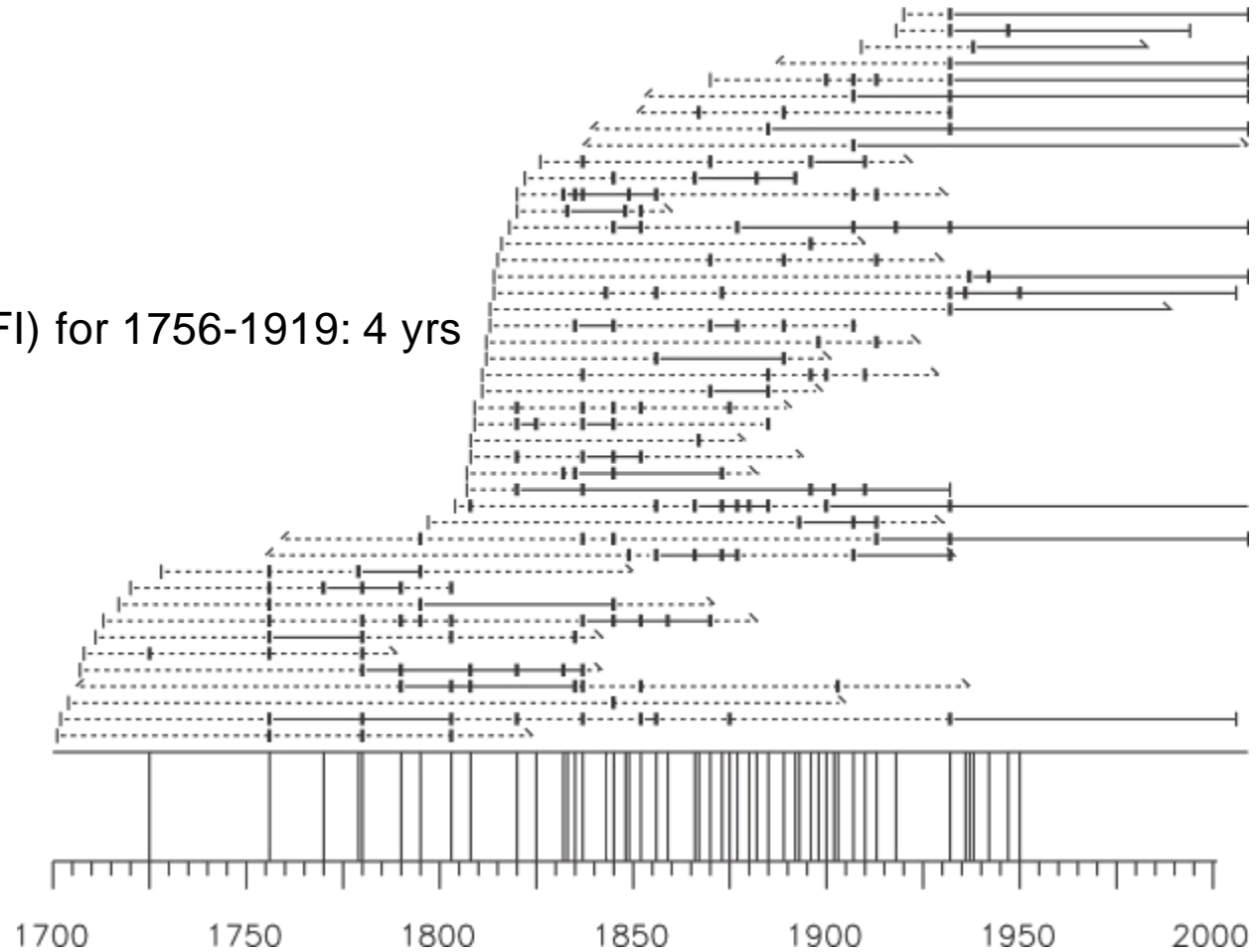


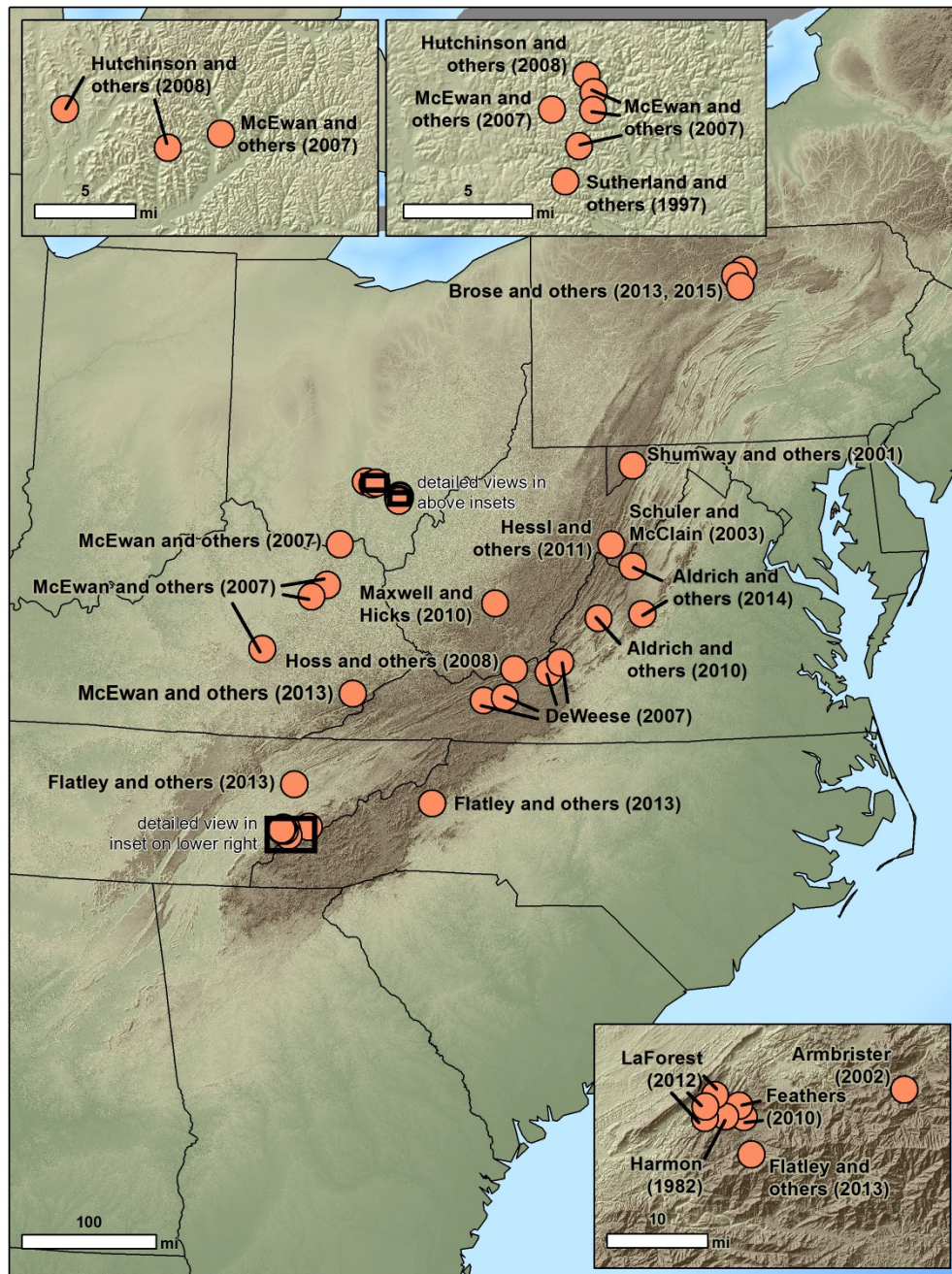
Photo courtesy of Jean Wulfson

Fire Chronology for Linville Mountain in Pisgah NF, NC

First scar: 1725

Mean Fire Interval (MFI) for 1756-1919: 4 yrs





Mean Fire Interval across 44 fire-scar sites:

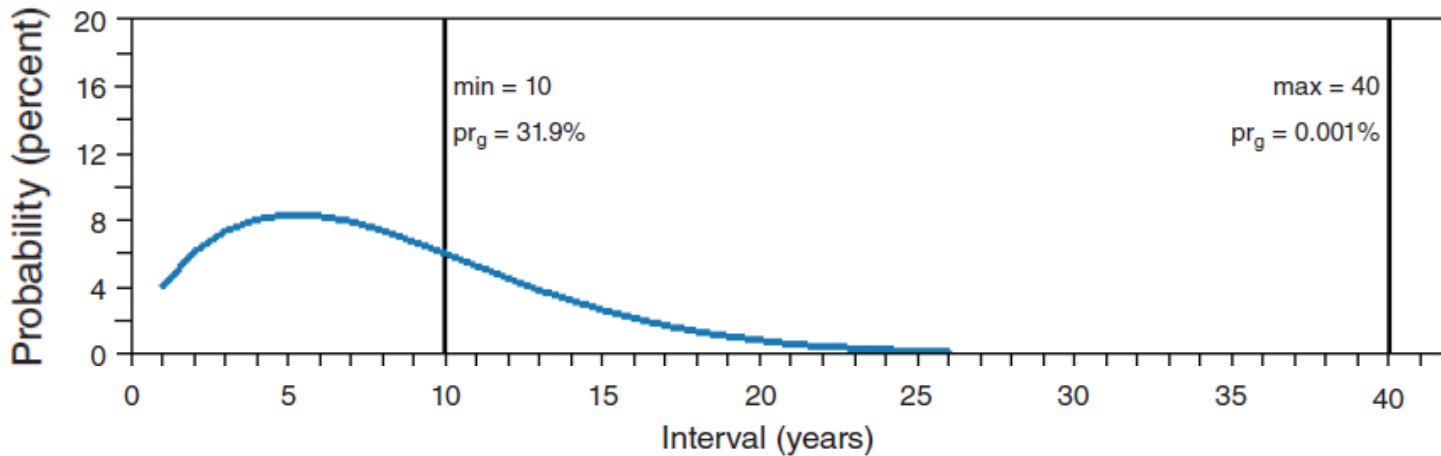
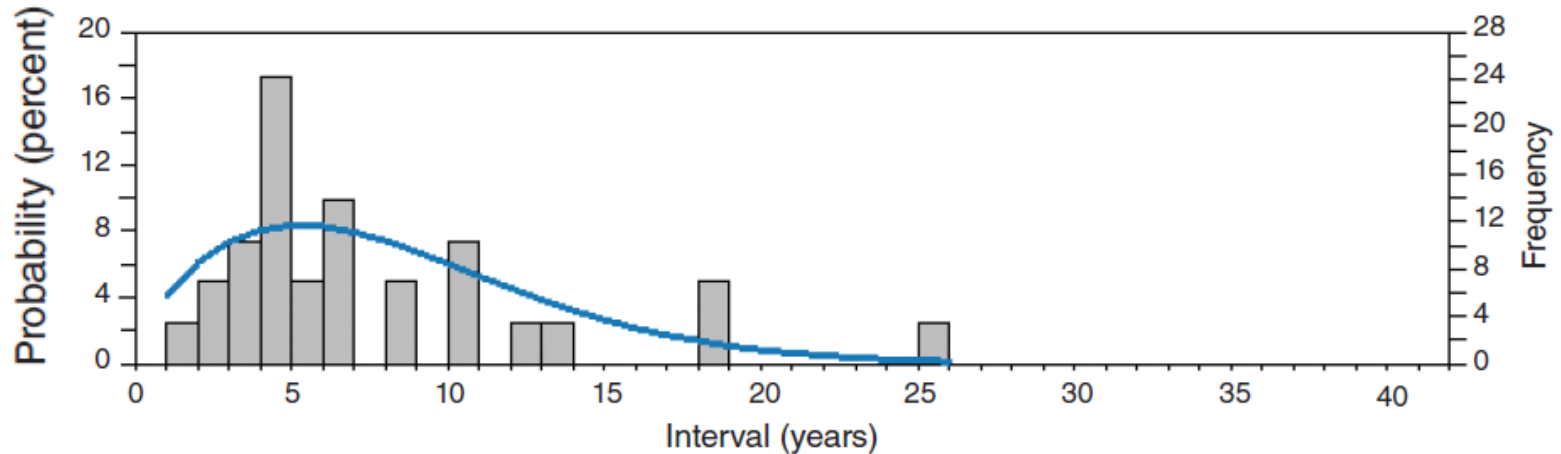
Shortest MFI = 2 years (GSMNP)

Longest MFI = 20 years (eastern WV)

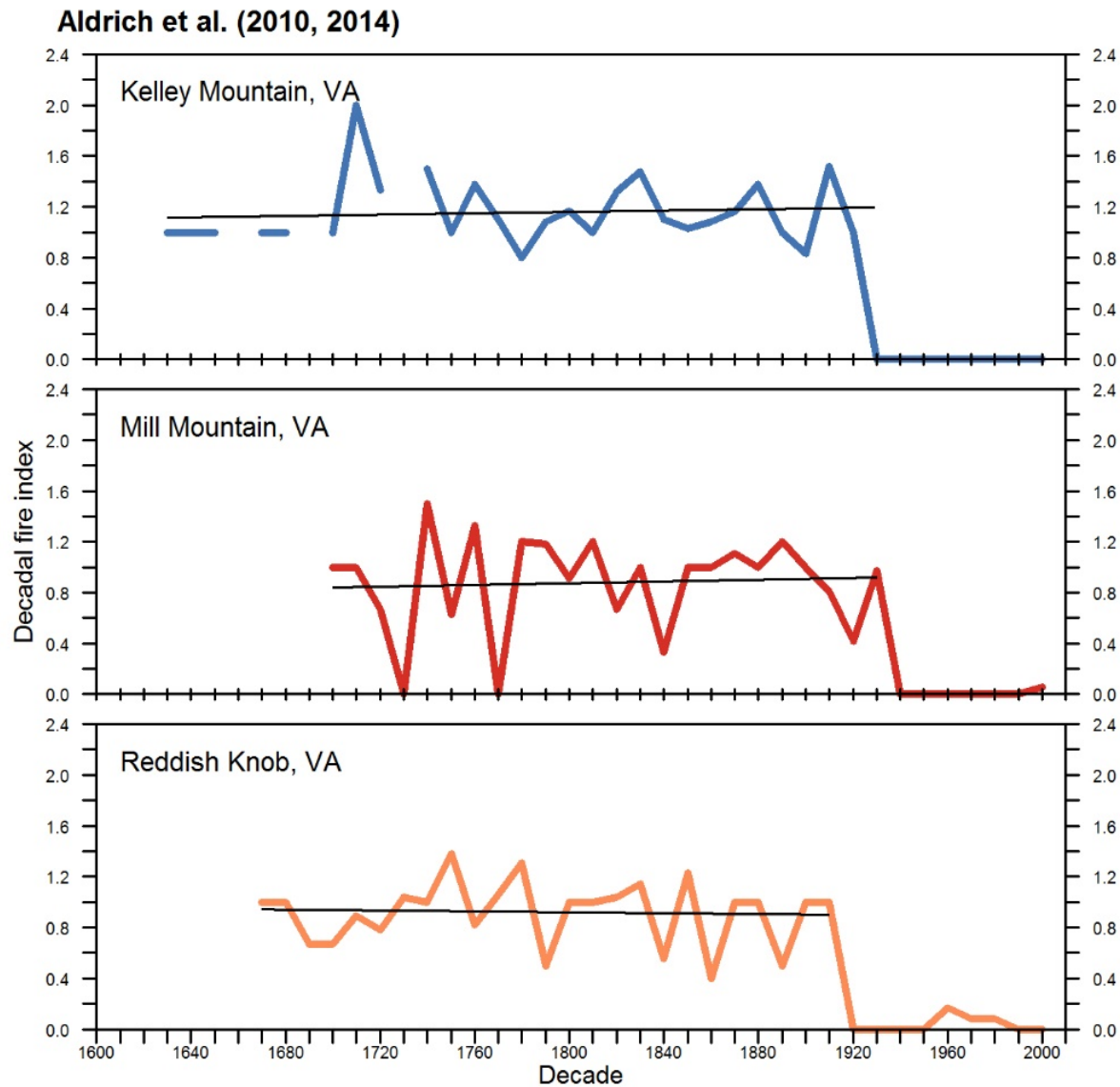
Average MFI = 7 years

Range in sample size: 9-116 trees

Variability in Fire Intervals at a Site

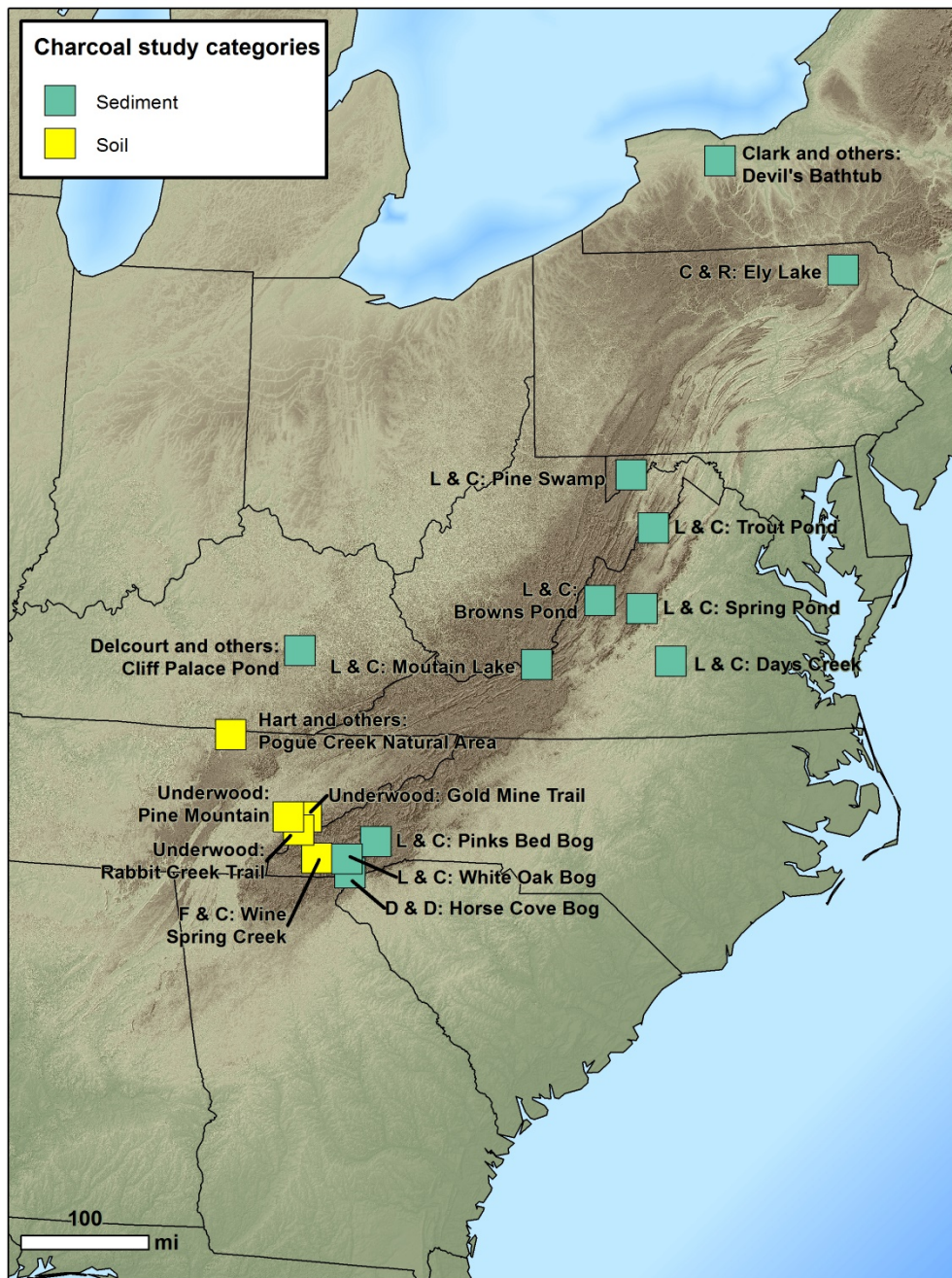


Temporal Trend in Fire Frequency through the Fire-Scar Record







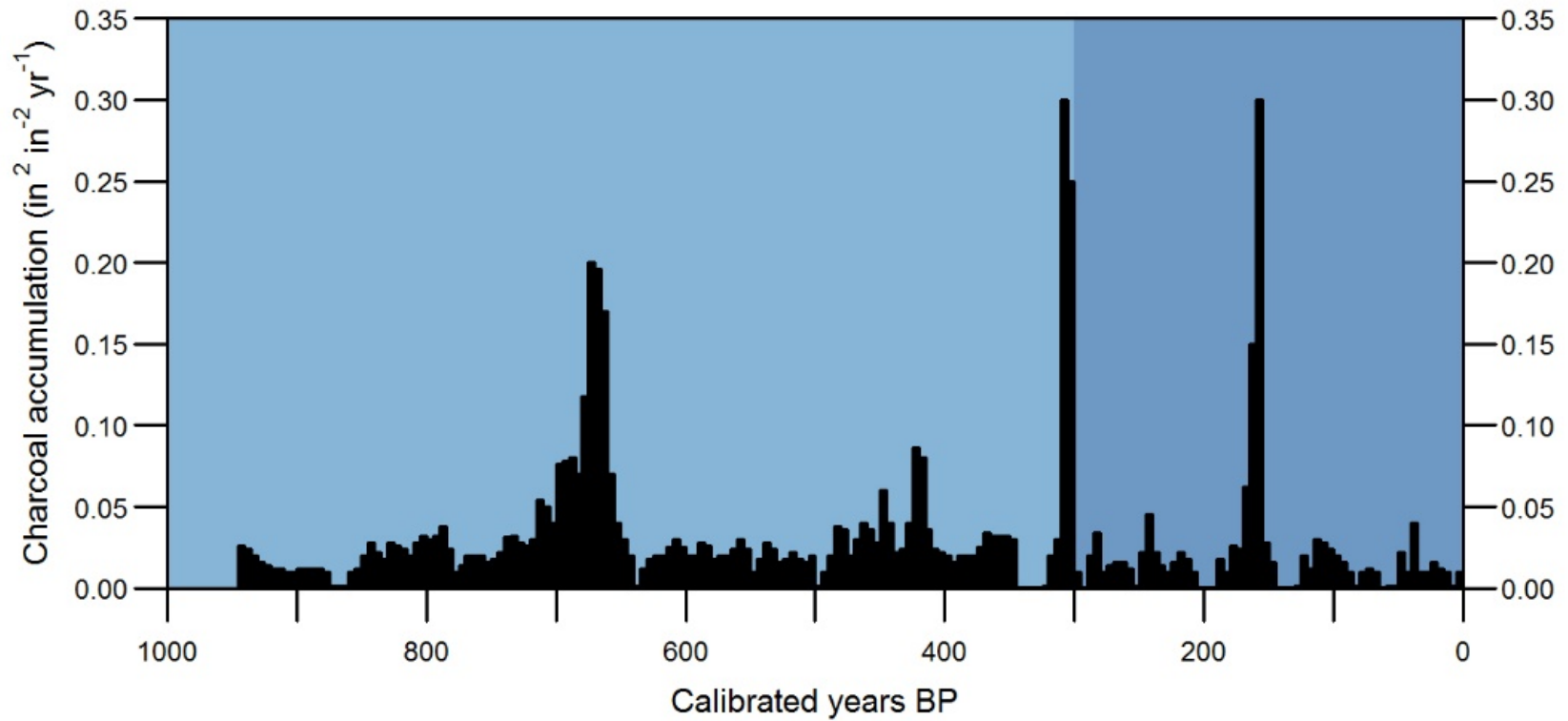


Lynch & Clark (2002)
Trout Pond, WV

■ Sediment Charcoal

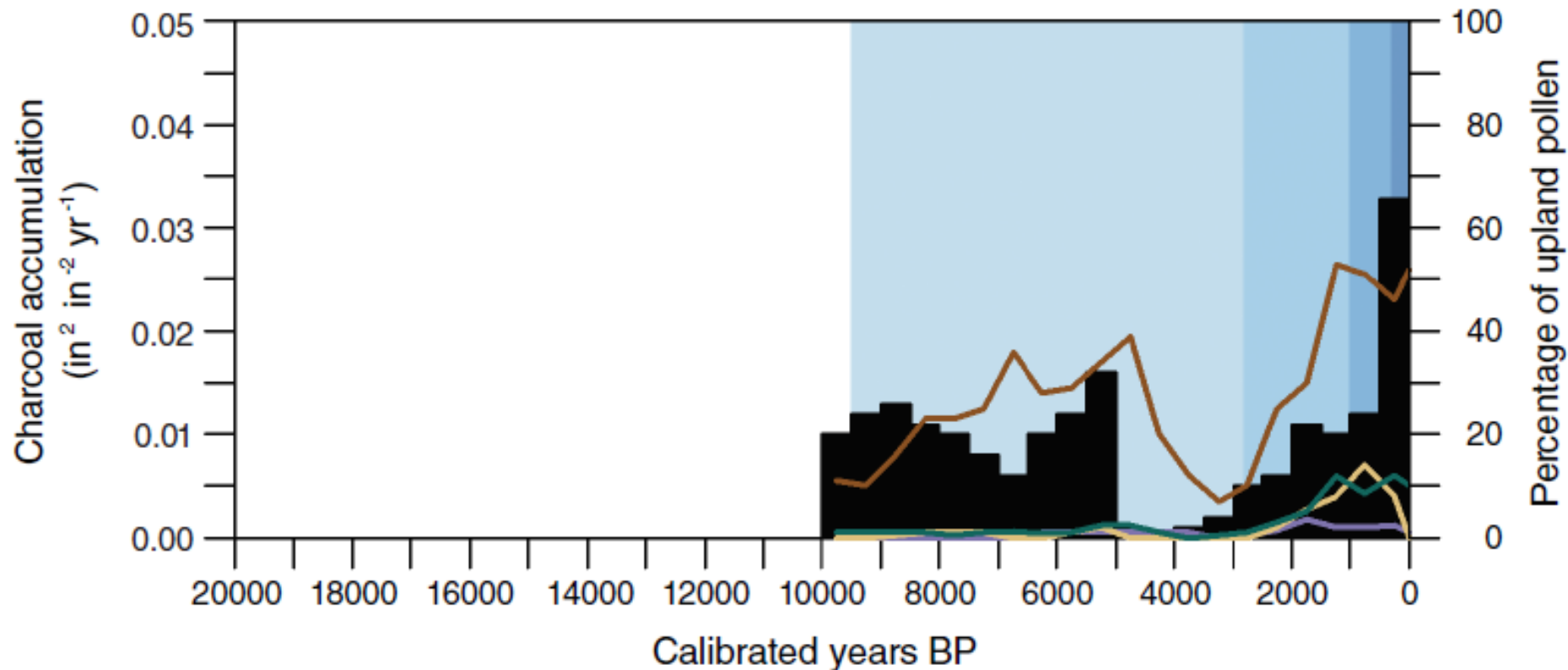
■ MISS

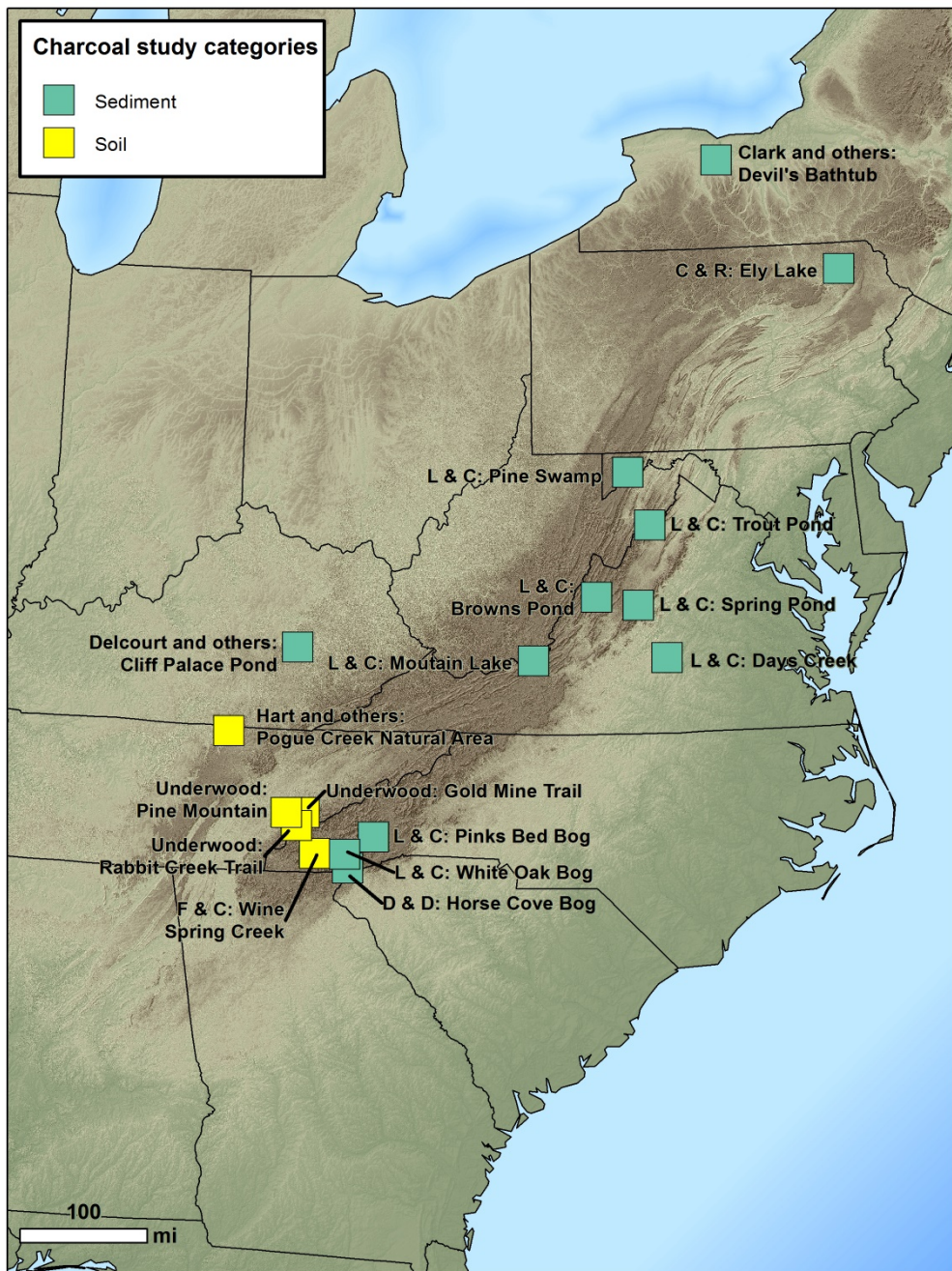
■ HIST



Delcourt and others (1998)
Cliff Palace Pond, KY

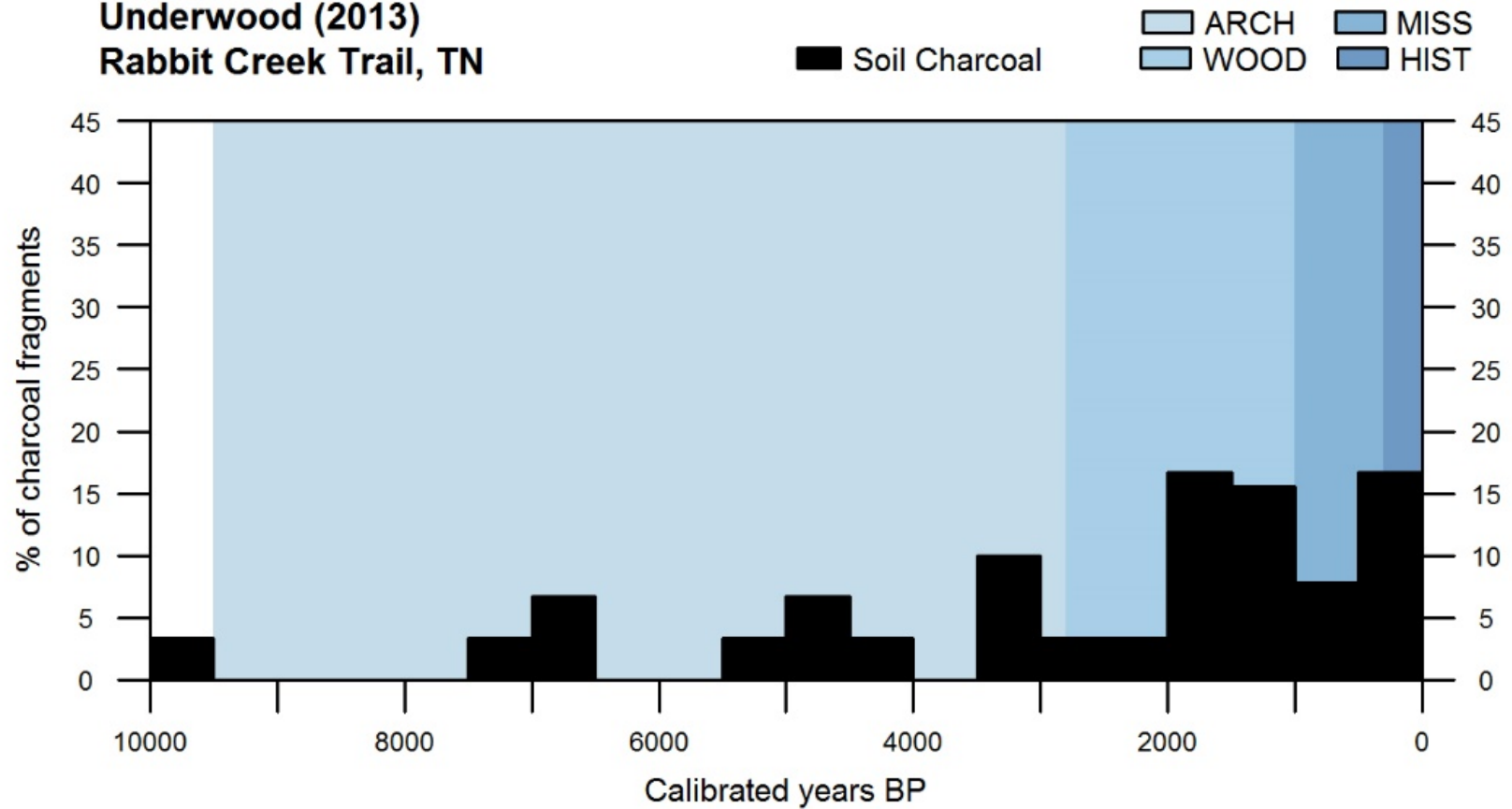
Pine Oak Chestnut Hickory
 Sediment ARCH WOOD MISS HIST
 Charcoal







Underwood (2013)
Rabbit Creek Trail, TN



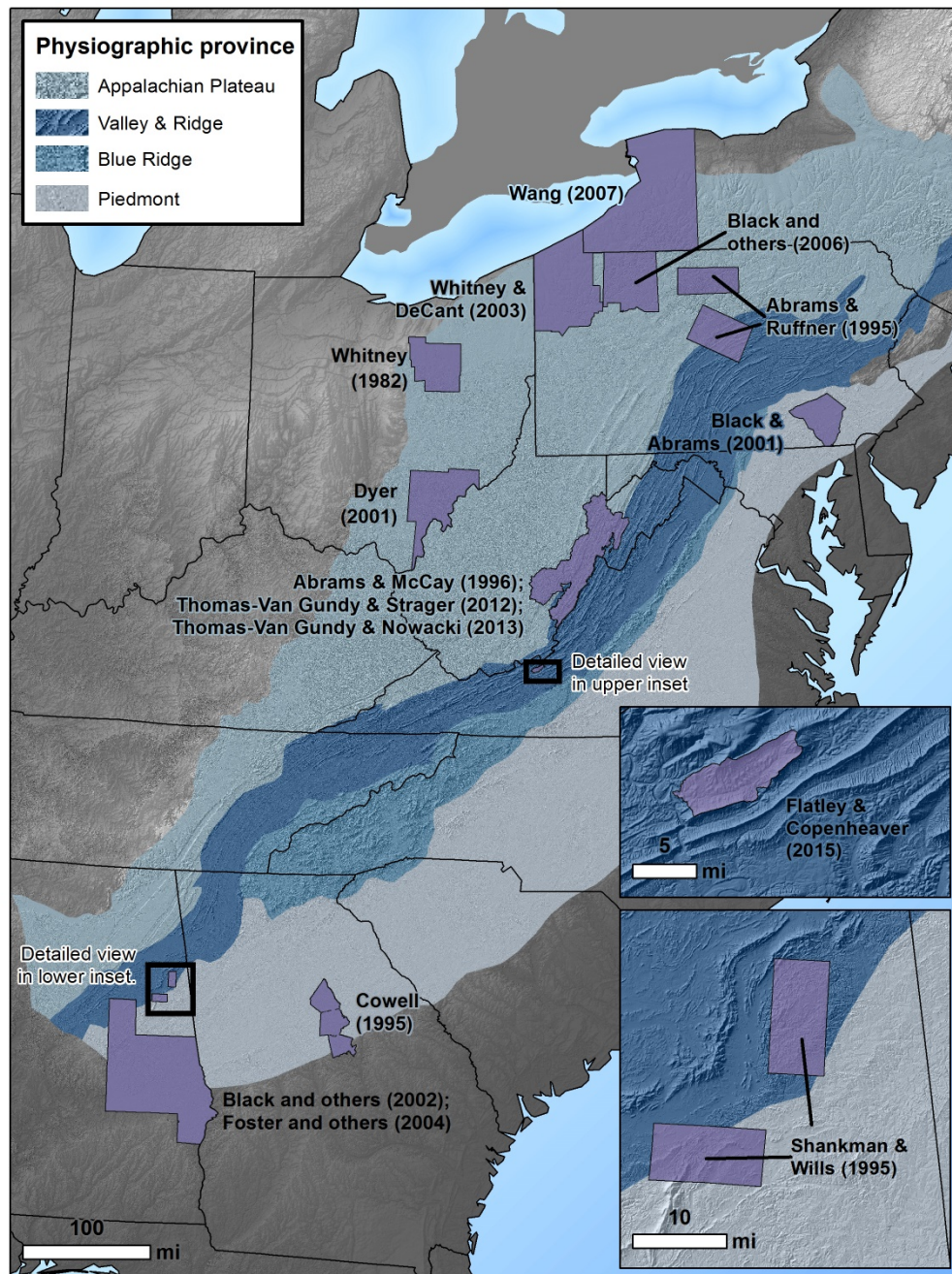


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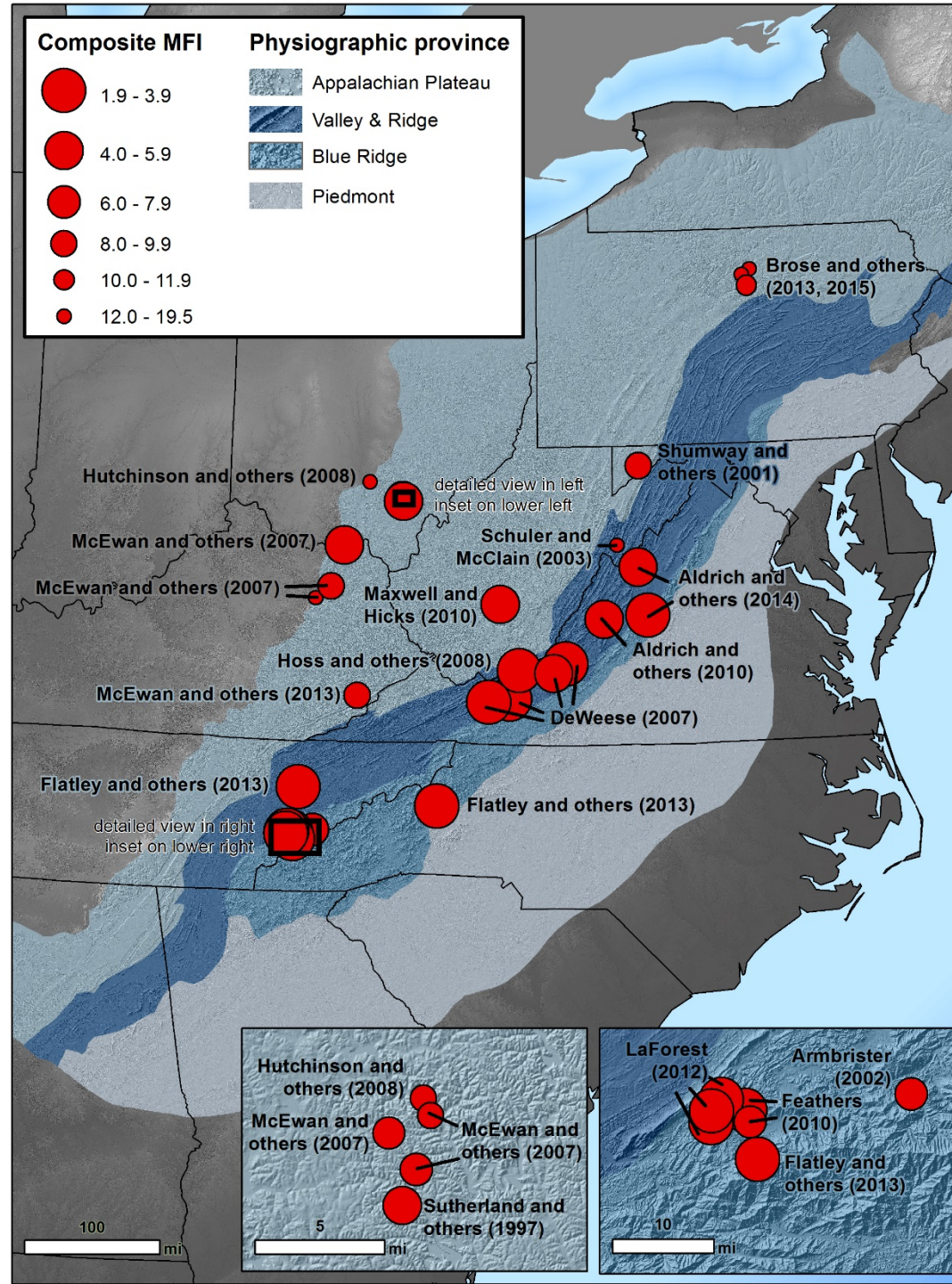






Table Mountain pine-pitch pine stands with fire-scarred trees



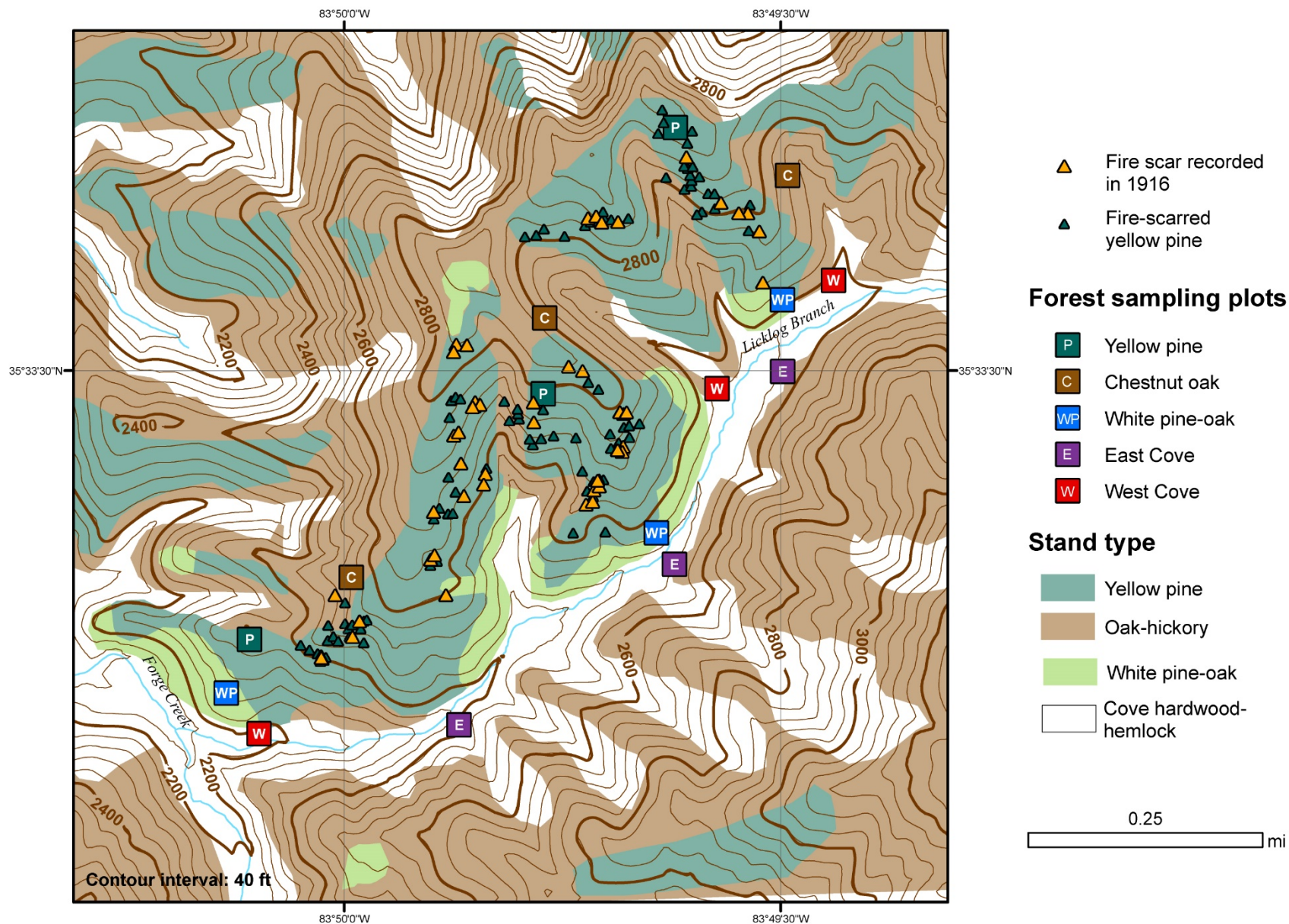


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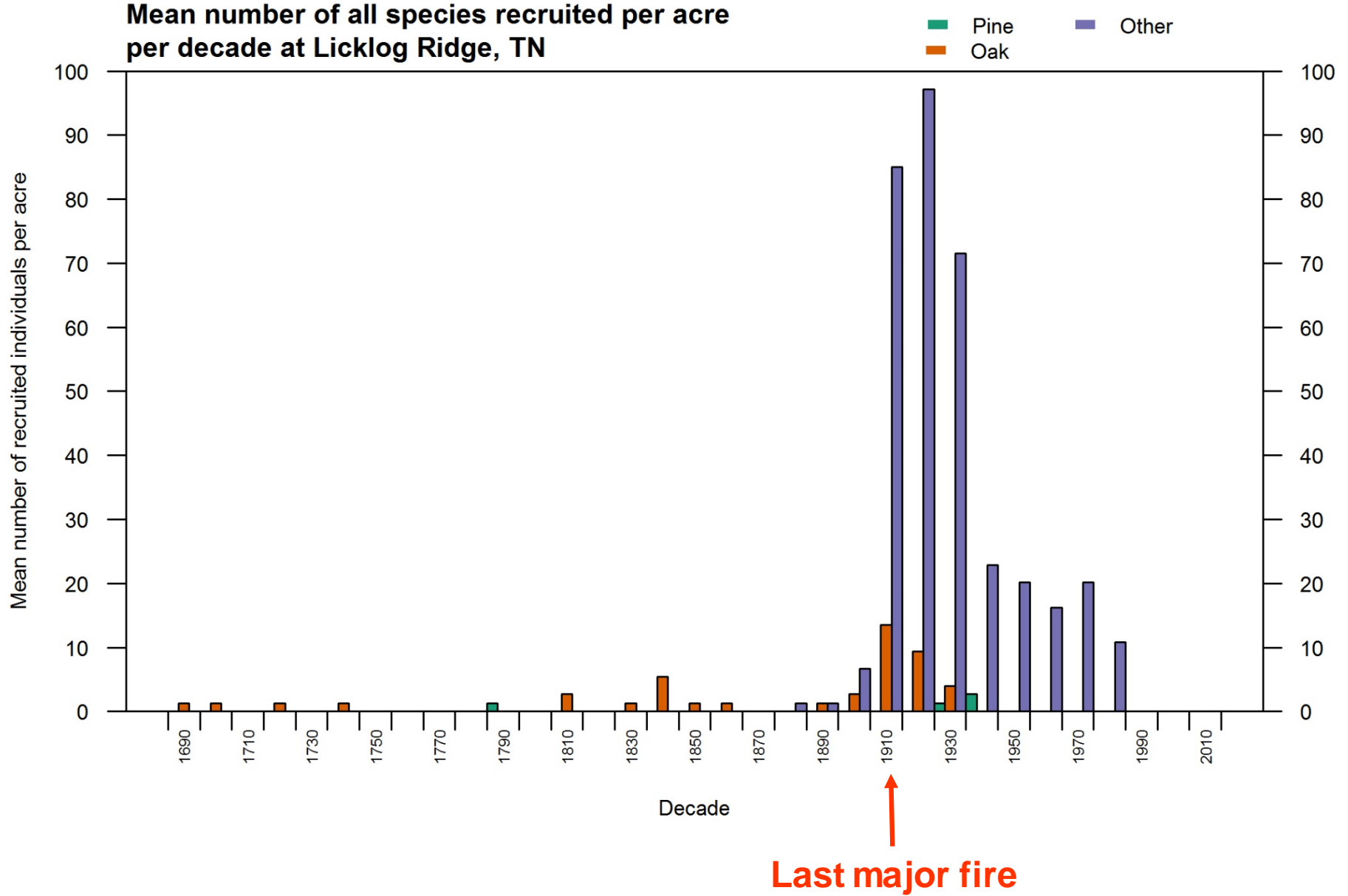


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- Fires were especially common and extensive on oak- and pine-dominated landscapes of the Ridge and Valley and the Blue Ridge.
- Under fire exclusion, mesophytic tree species have expanded into pyrogenic vegetation.

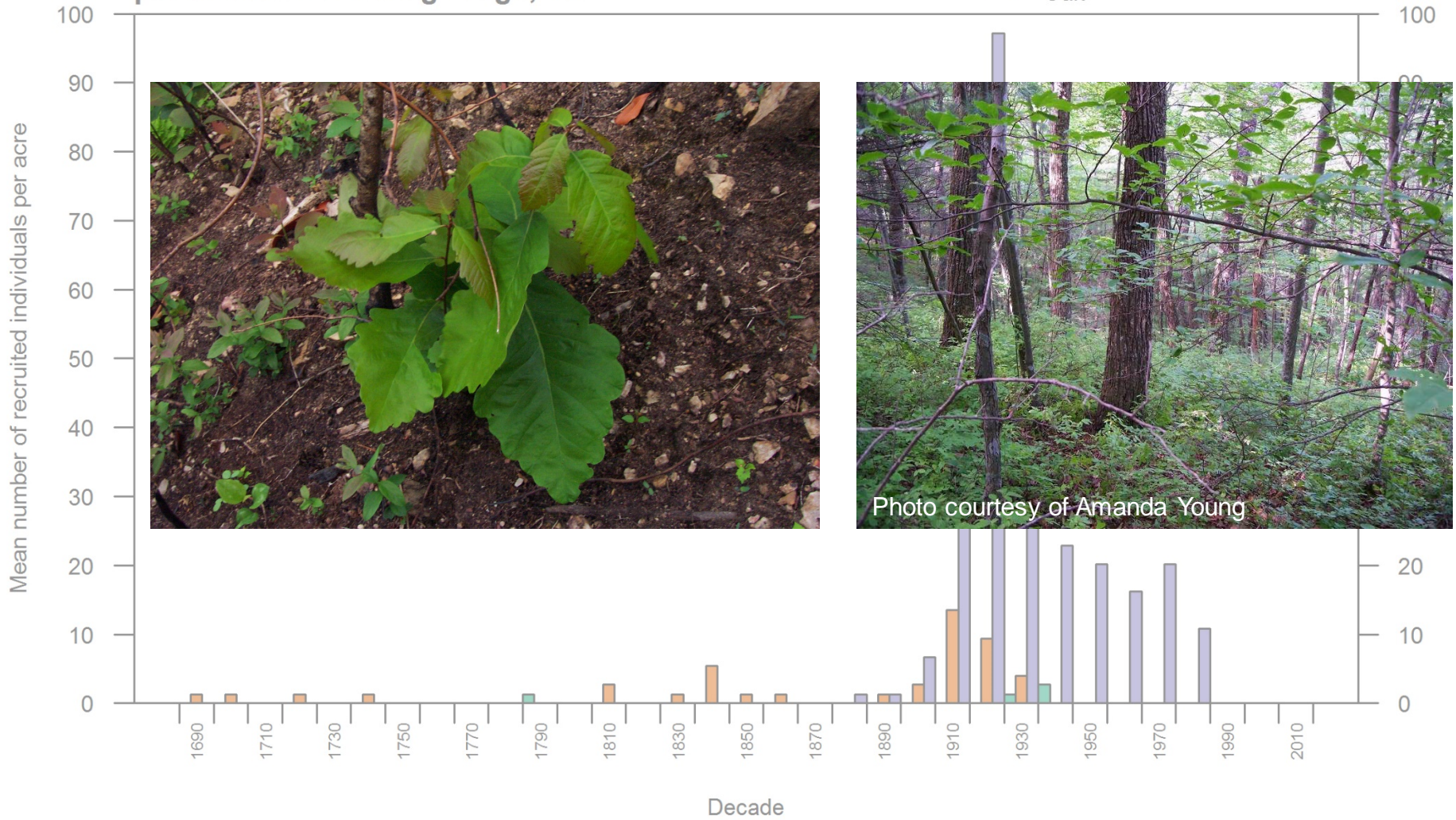




Mean number of all species recruited per acre per decade at Licklog Ridge, TN



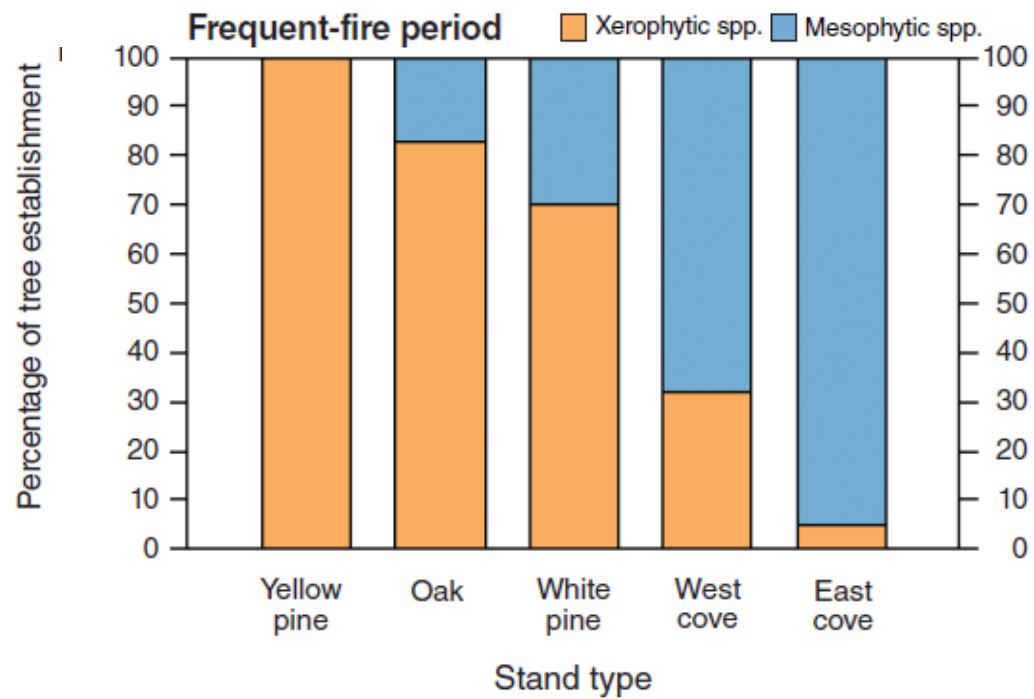
Mean number of all species recruited per acre per decade at Licklog Ridge, TN

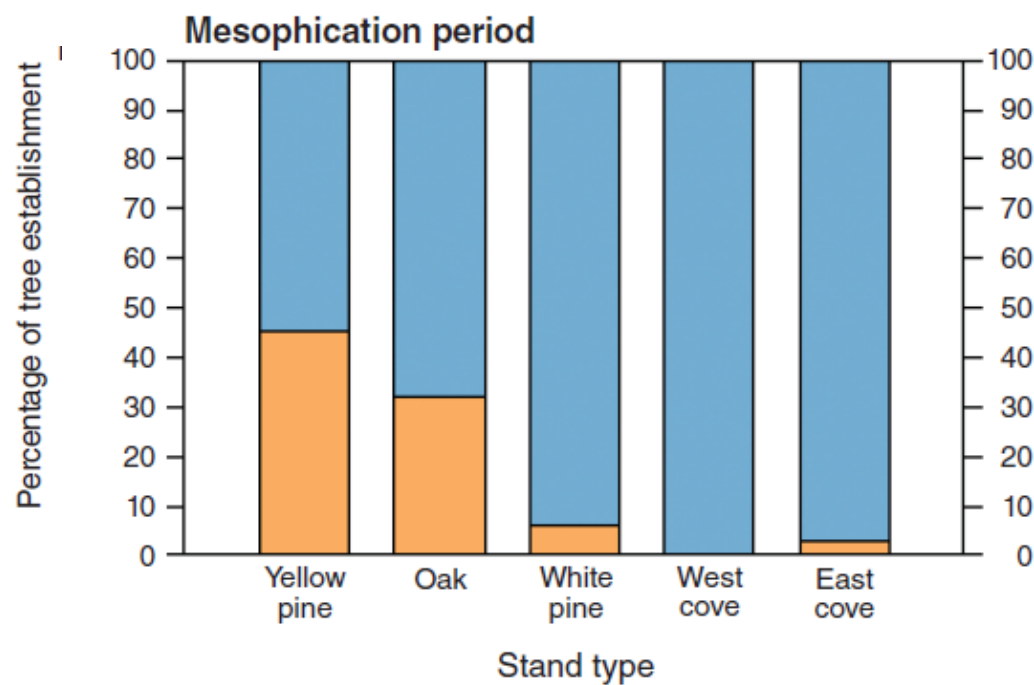
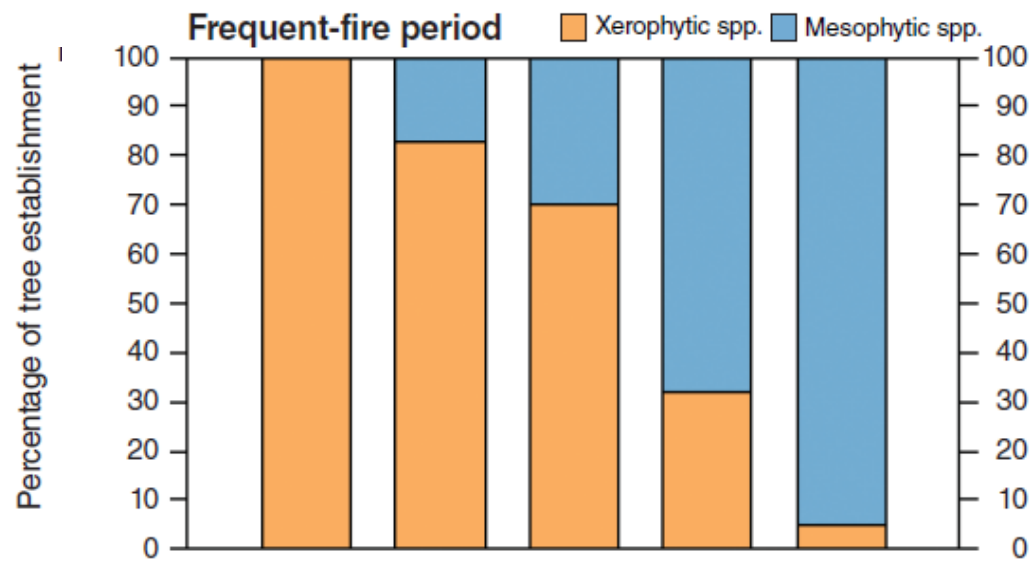


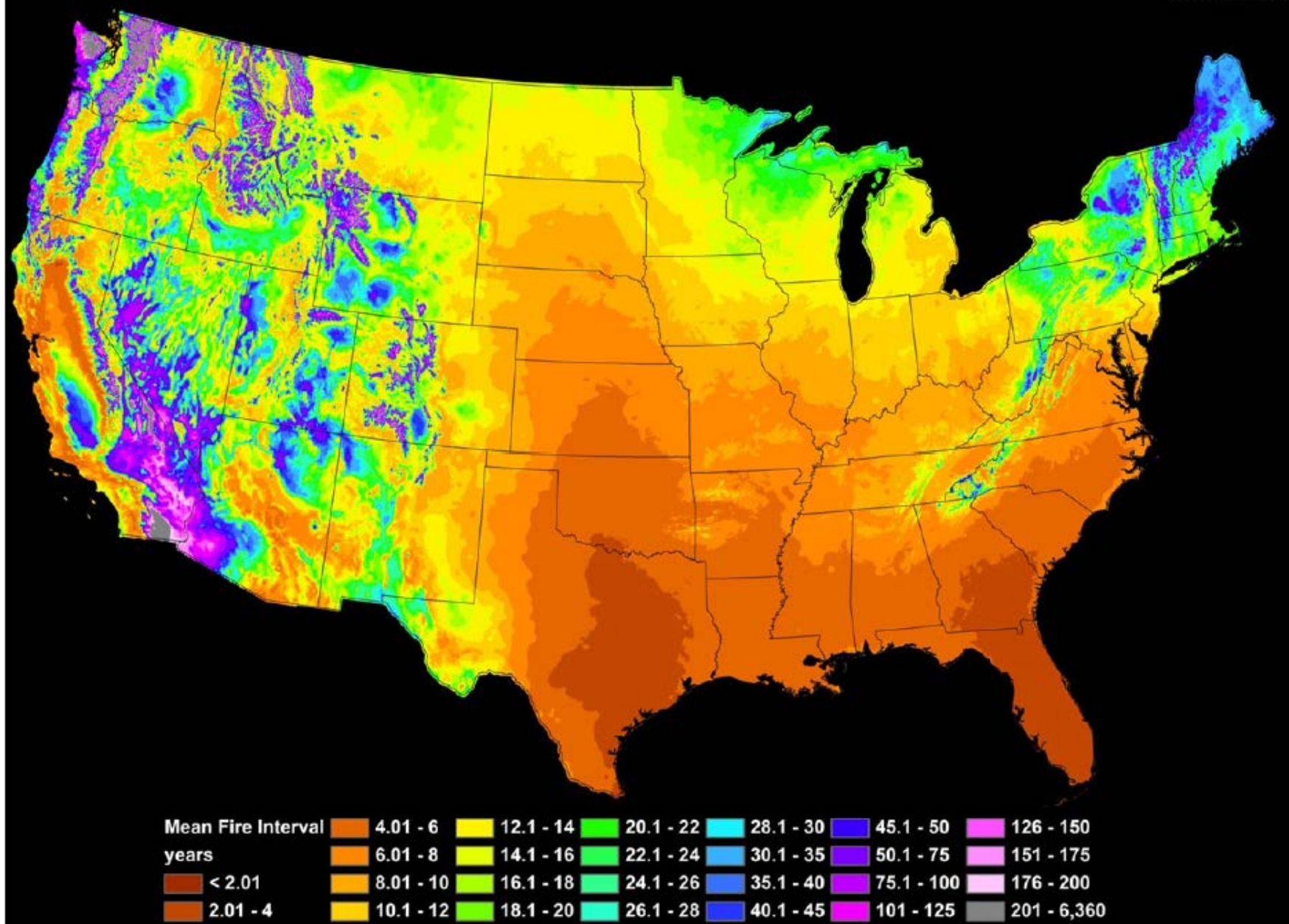


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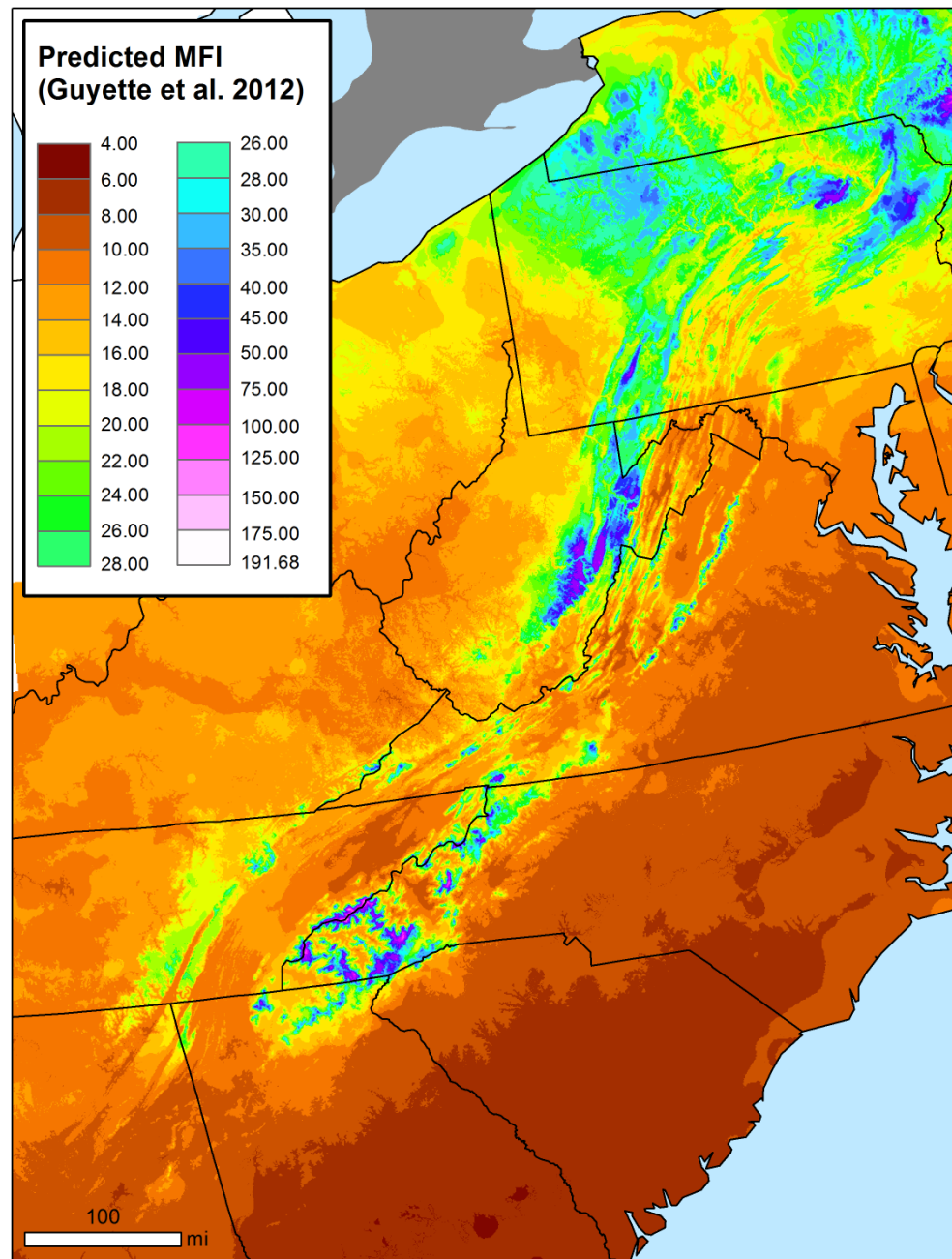


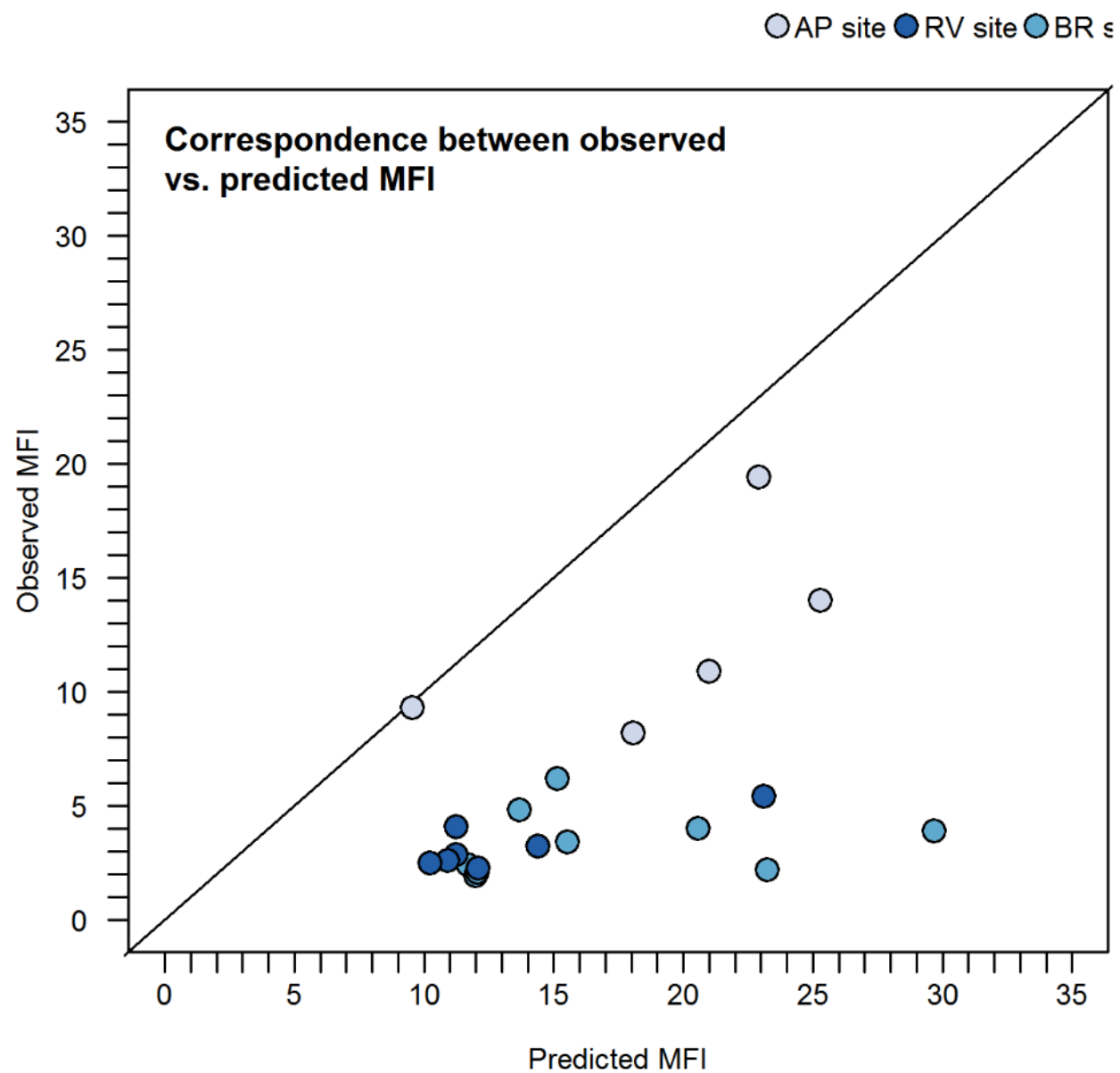


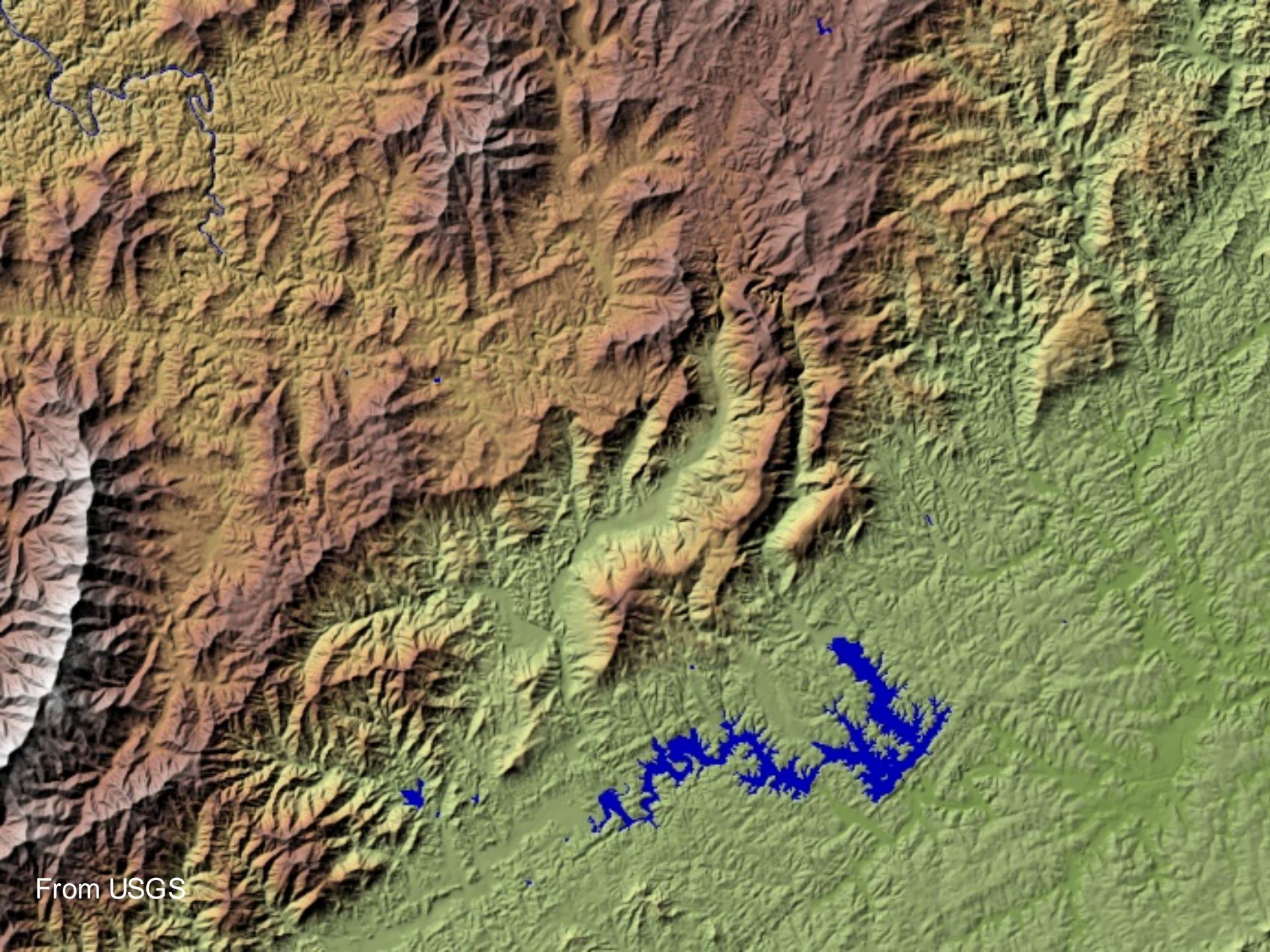




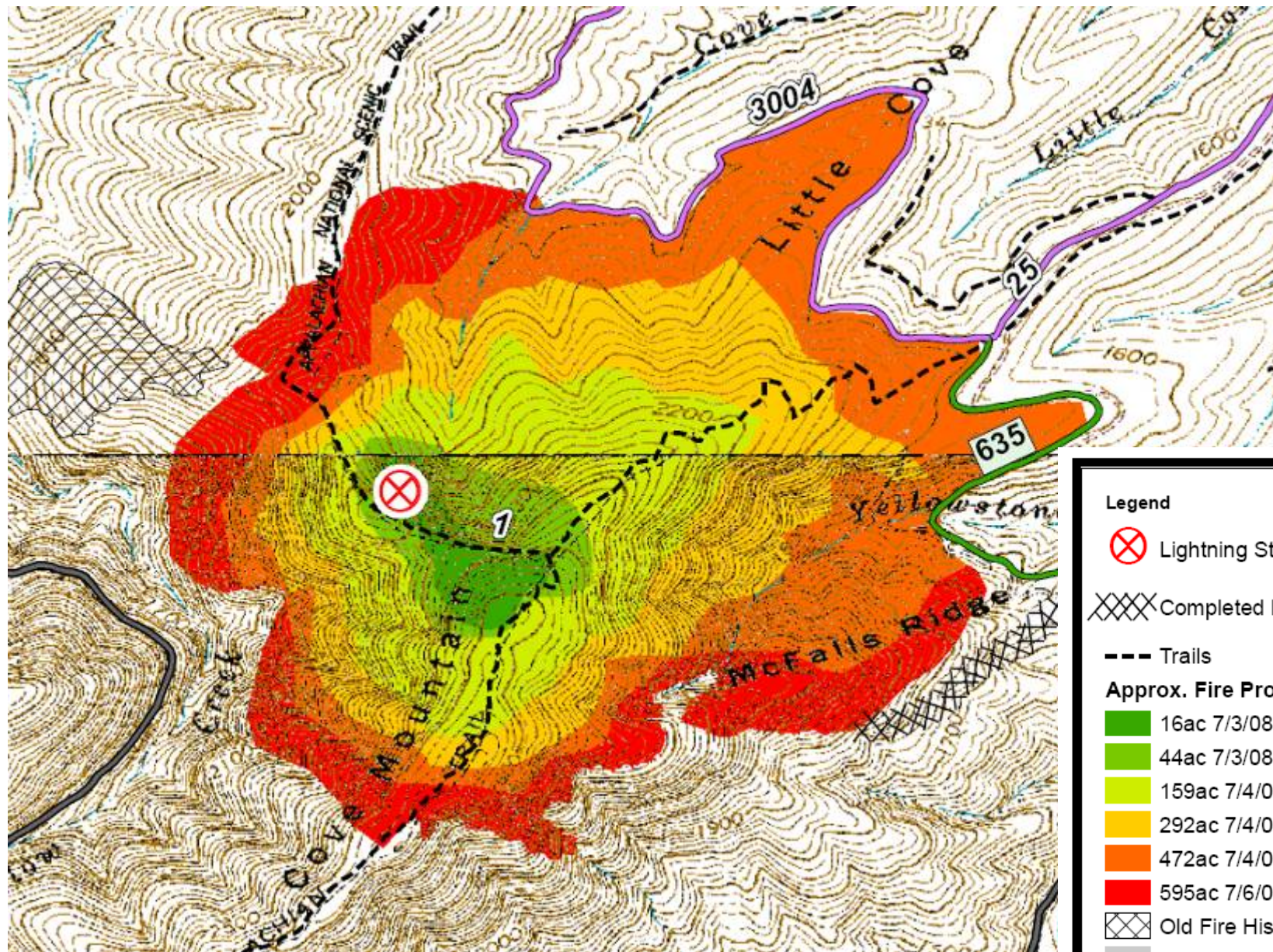
From Guyette et al. 2012. *Ecosystems* 15:322-335.








From USGS









Legend

 Lightning Strike 6/22/08


 Completed Dozer Line


 Trails

Approx. Fire Progression

-  16ac 7/3/08 1900hrs
-  44ac 7/3/08 2030hrs
-  159ac 7/4/08 1200hrs
-  292ac 7/4/08 1600hrs
-  472ac 7/4/08 2030hrs
-  595ac 7/6/08 1930hrs

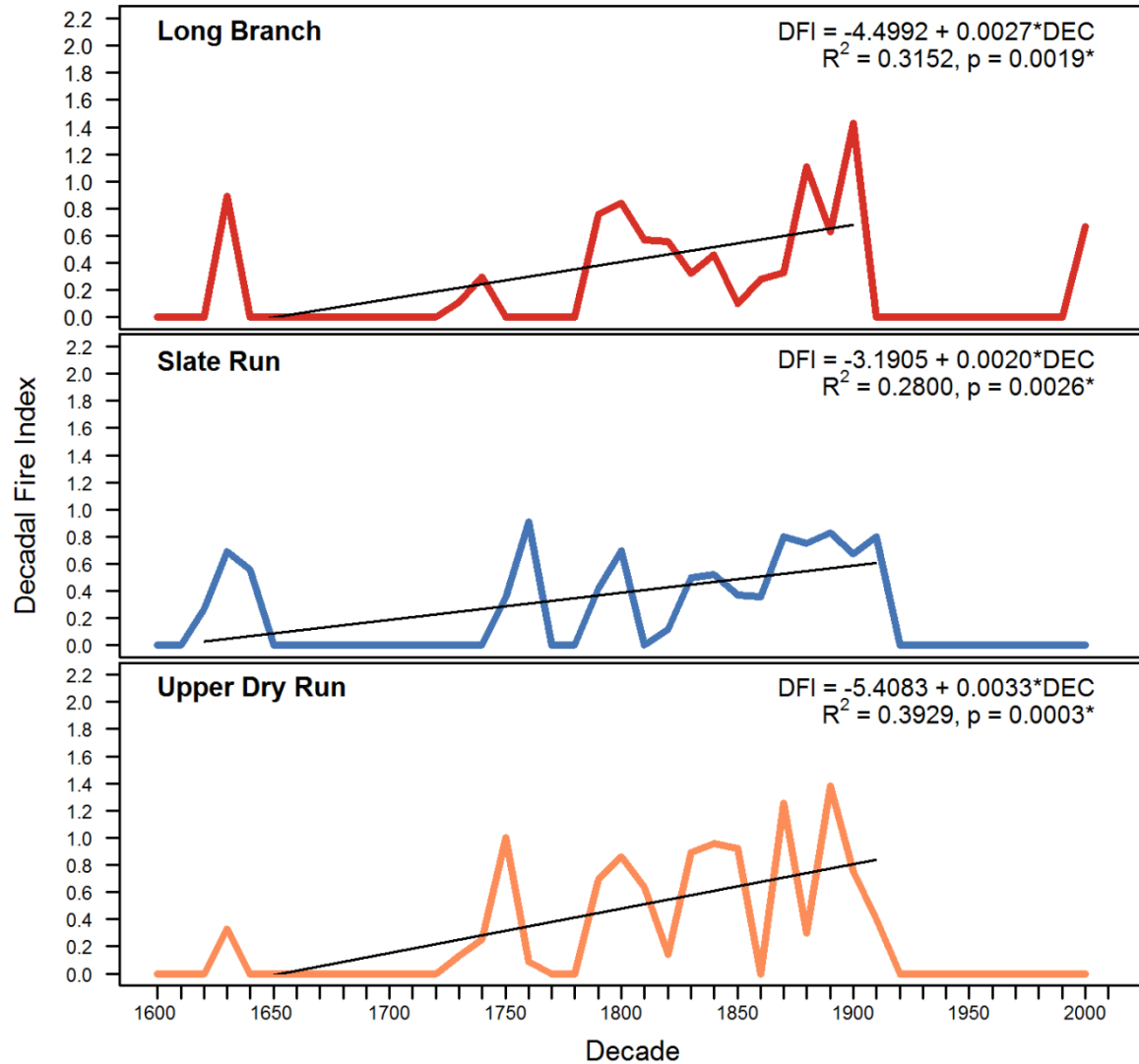
 Old Fire History

 Non-N.F. Land

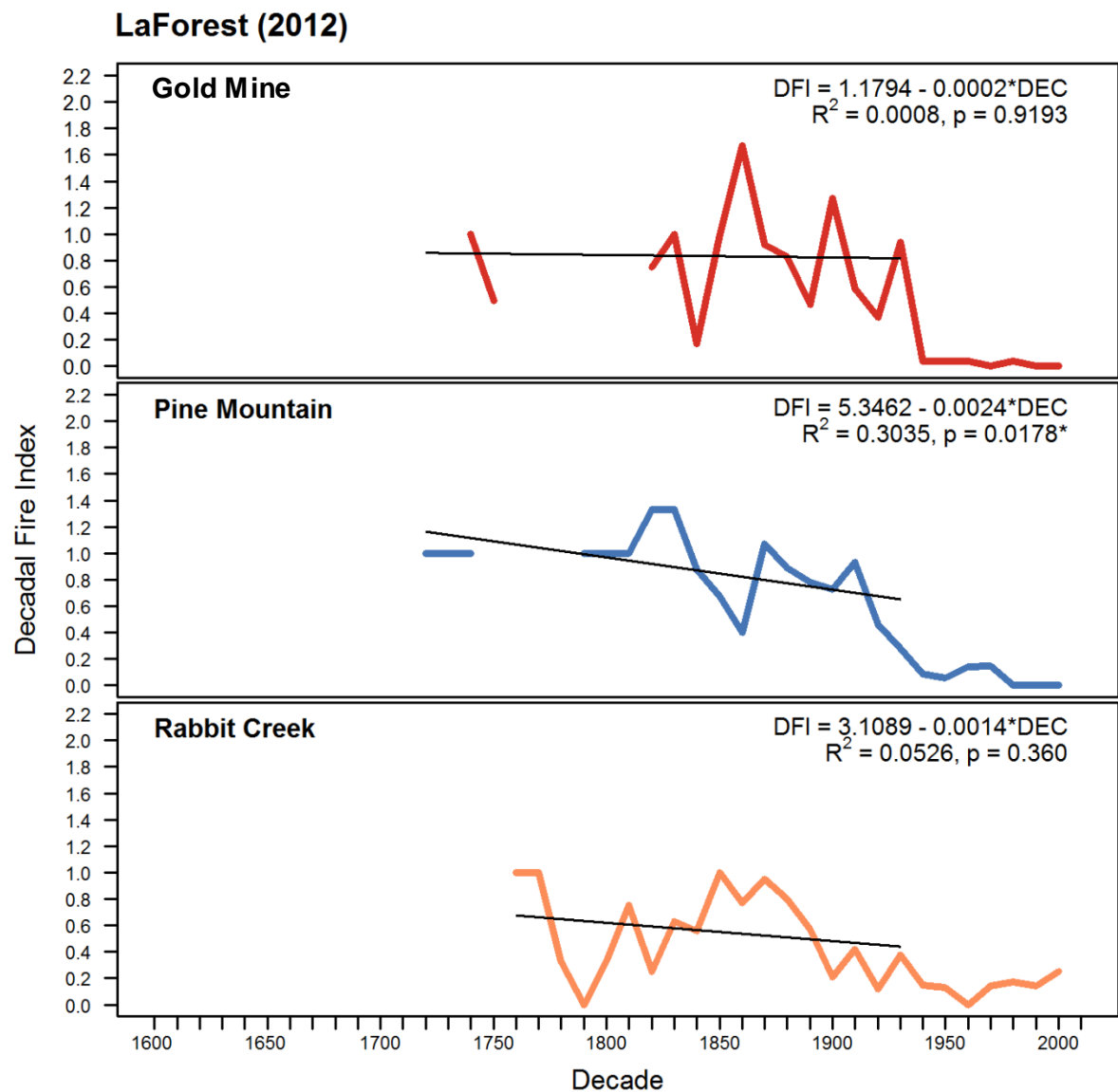
 National Forest Land

Decadal Fire Index for Study Sites in Pine Creek Gorge, PA

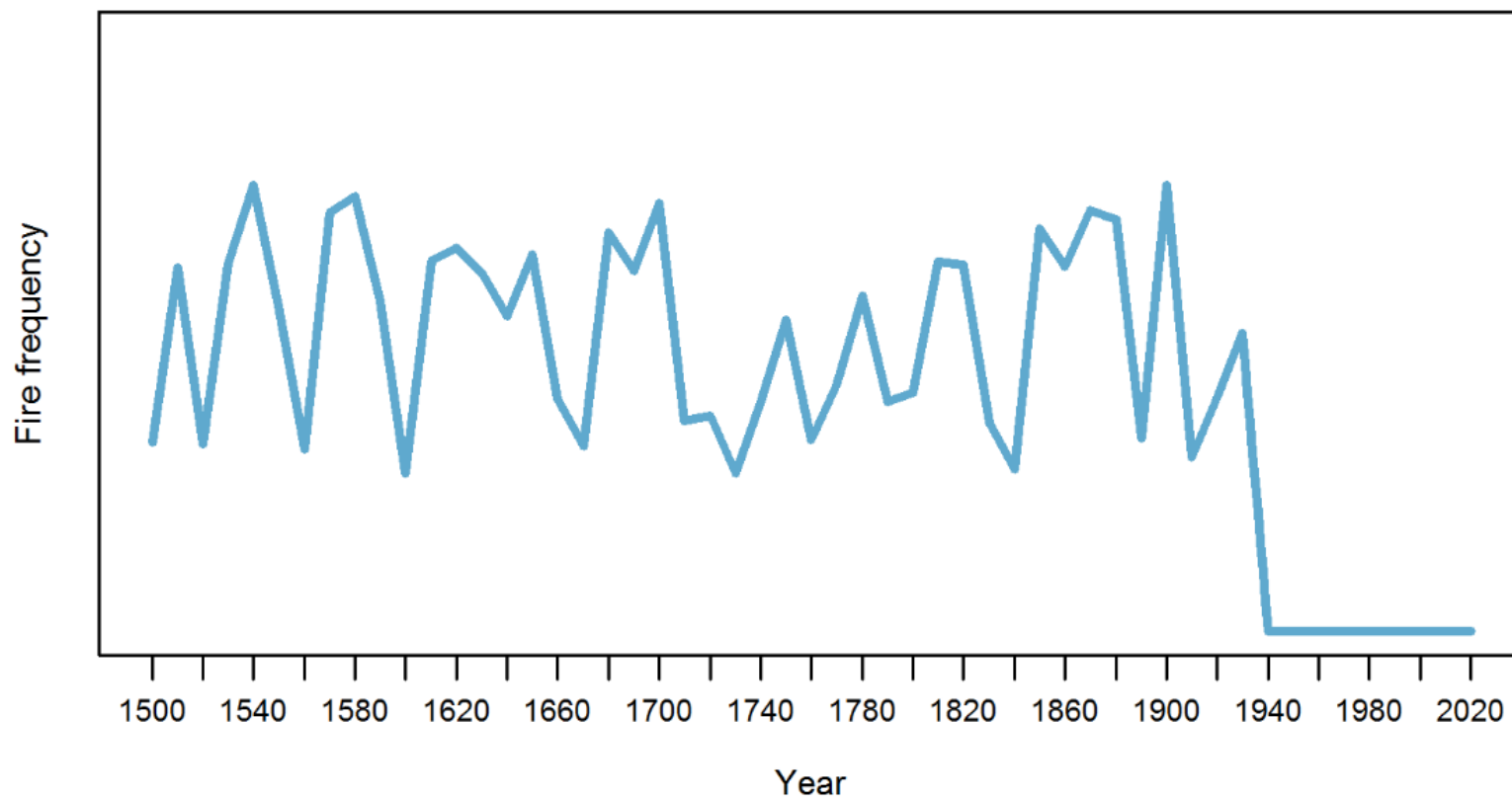
Brose et al. (2013, 2015)

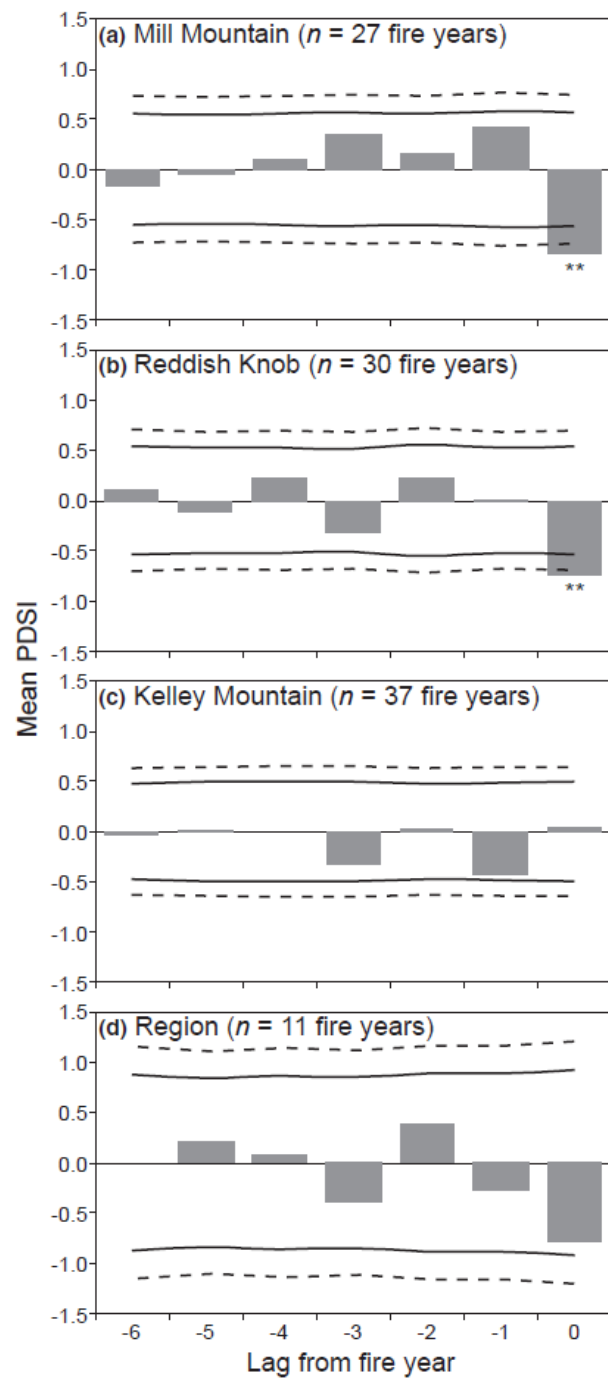


Decadal Fire Index for Low-Elevation Study Sites in GSMNP, TN



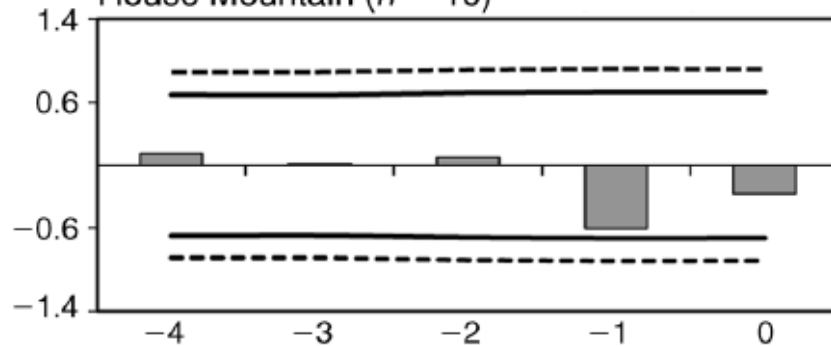
An Alternate Conceptual Model of Appalachian Fire History over the Last Few Centuries



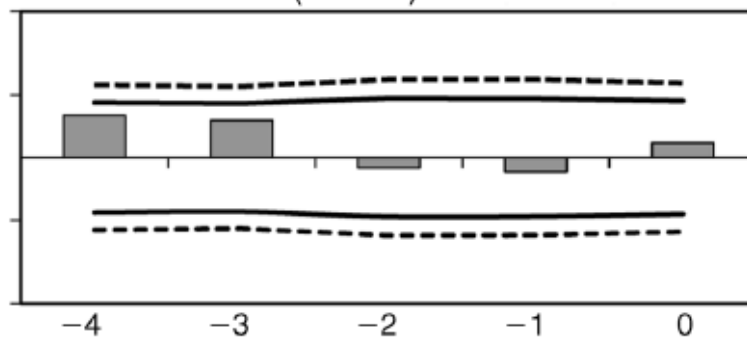


Departure from average PDSI

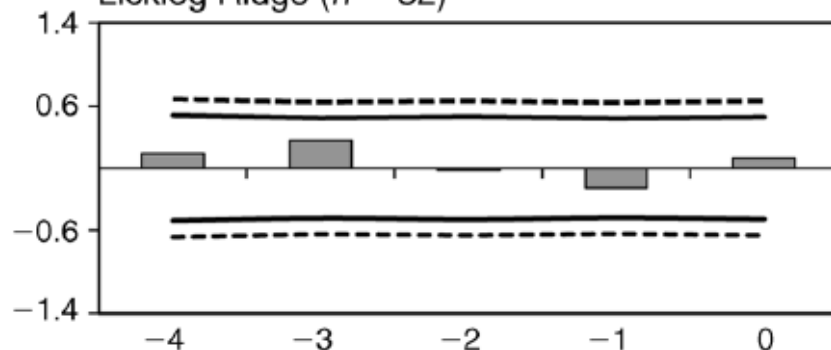
House Mountain ($n = 16$)



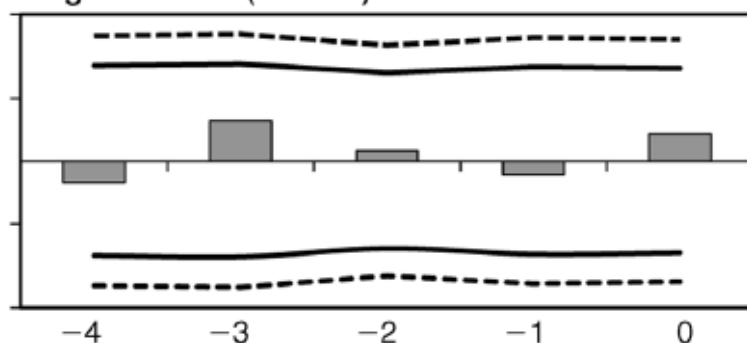
Linville Mountain ($n = 25$)



Licklog Ridge ($n = 32$)



Regional fires ($n = 10$)



Lag from fire years

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