



Prioritizing Burn Units with “Ecological Math”

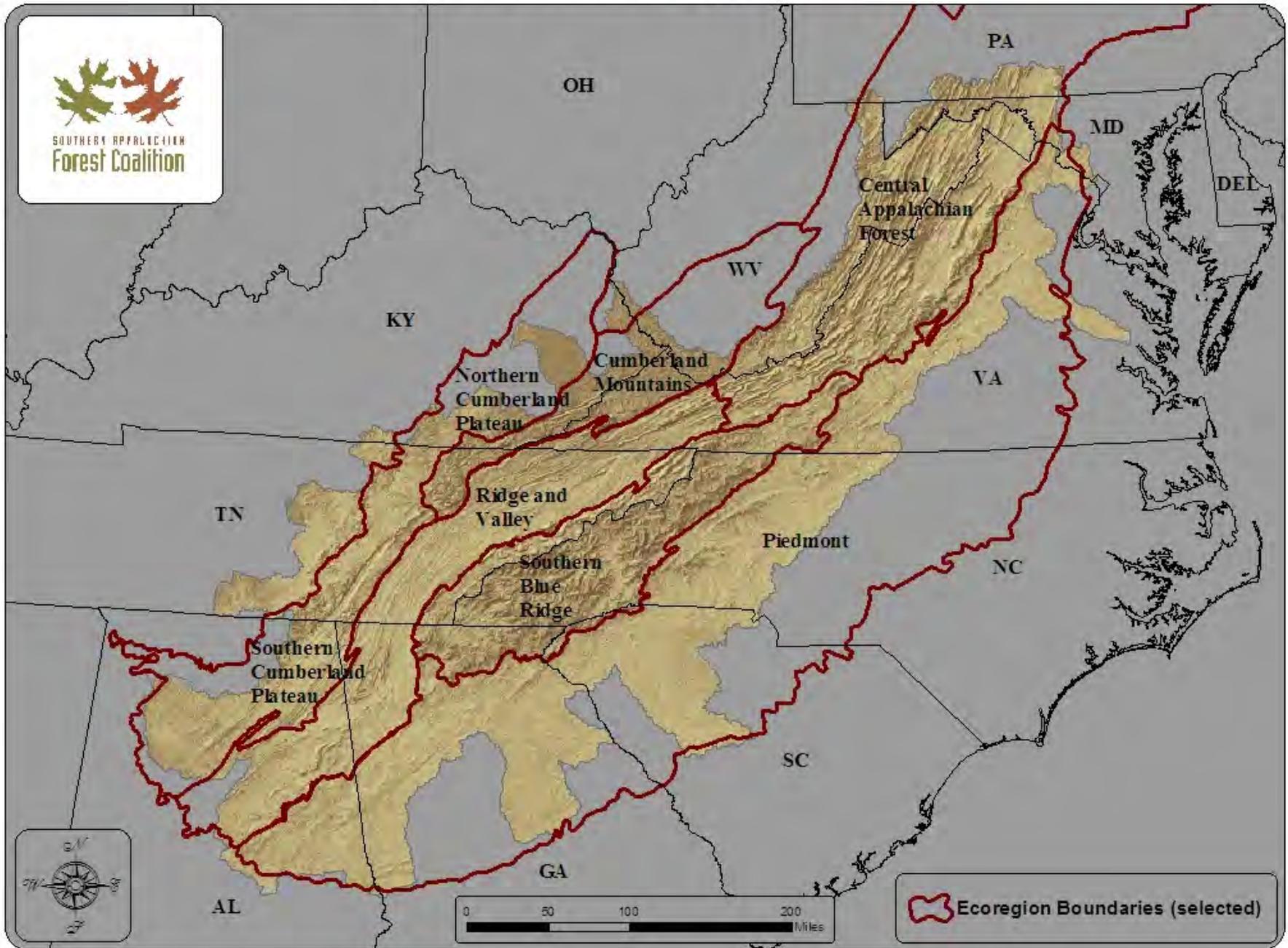
Central Escarpment Team:

David Ray & Margit Bucher (TNC); John Crockett, Gary
Kauffman, Bart Kicklighter, Leigh Marston, Greg
Philipp, & Chris Williams (USFS); Ryan Jacobs (NC
WRC); Josh Kelly (WildLaw)

Ecoregions in the Southern Appalachian Region

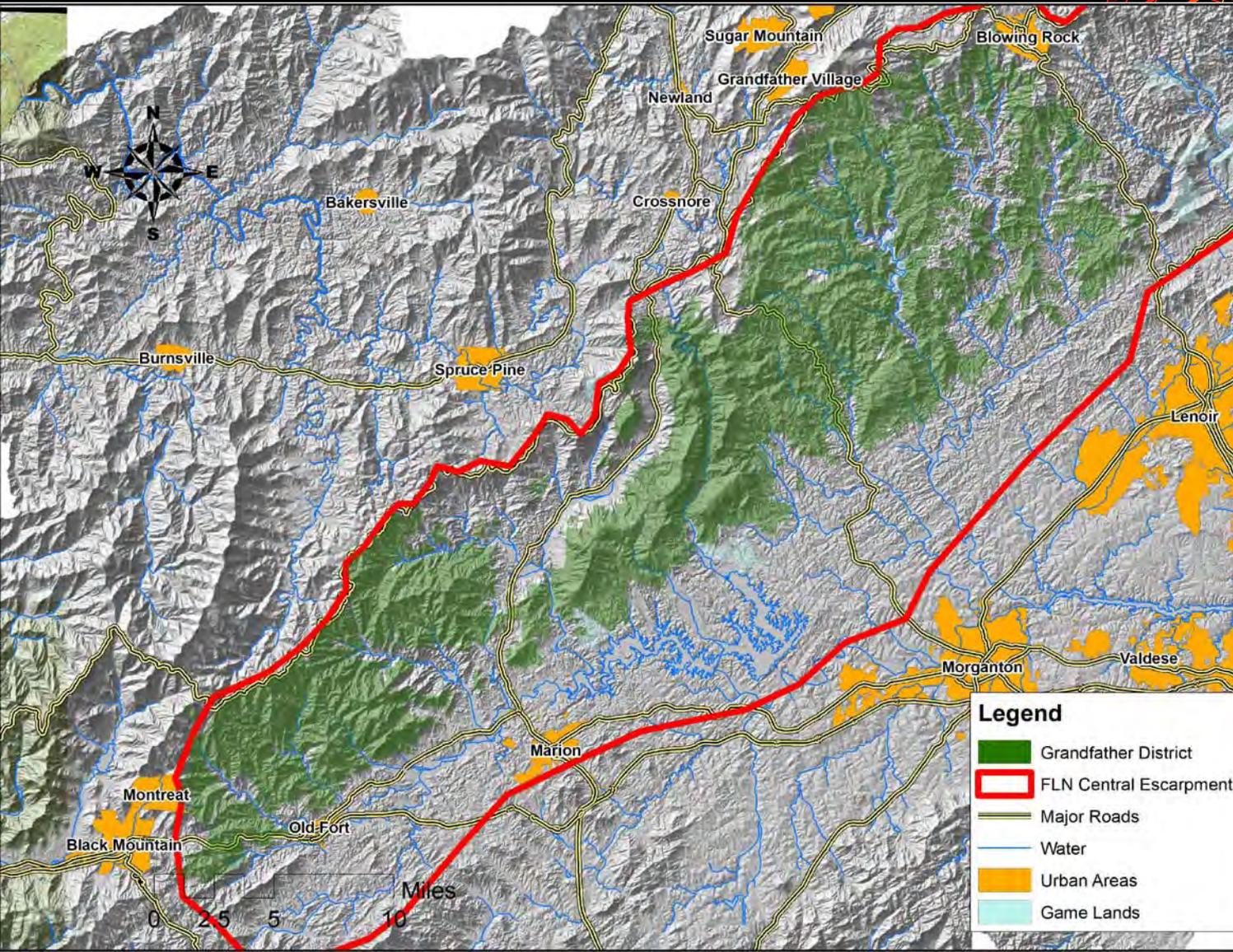


SOUTHERN APPALACHIAN
Forest Coalition

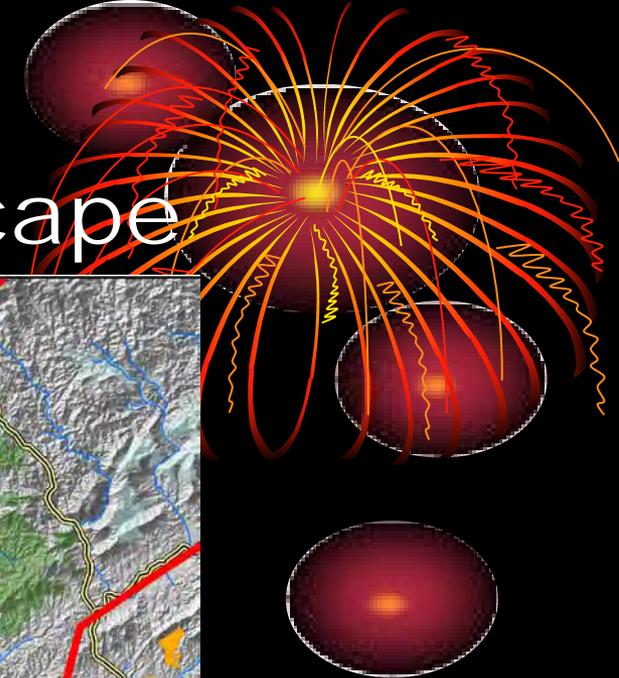


 Ecoregion Boundaries (selected)

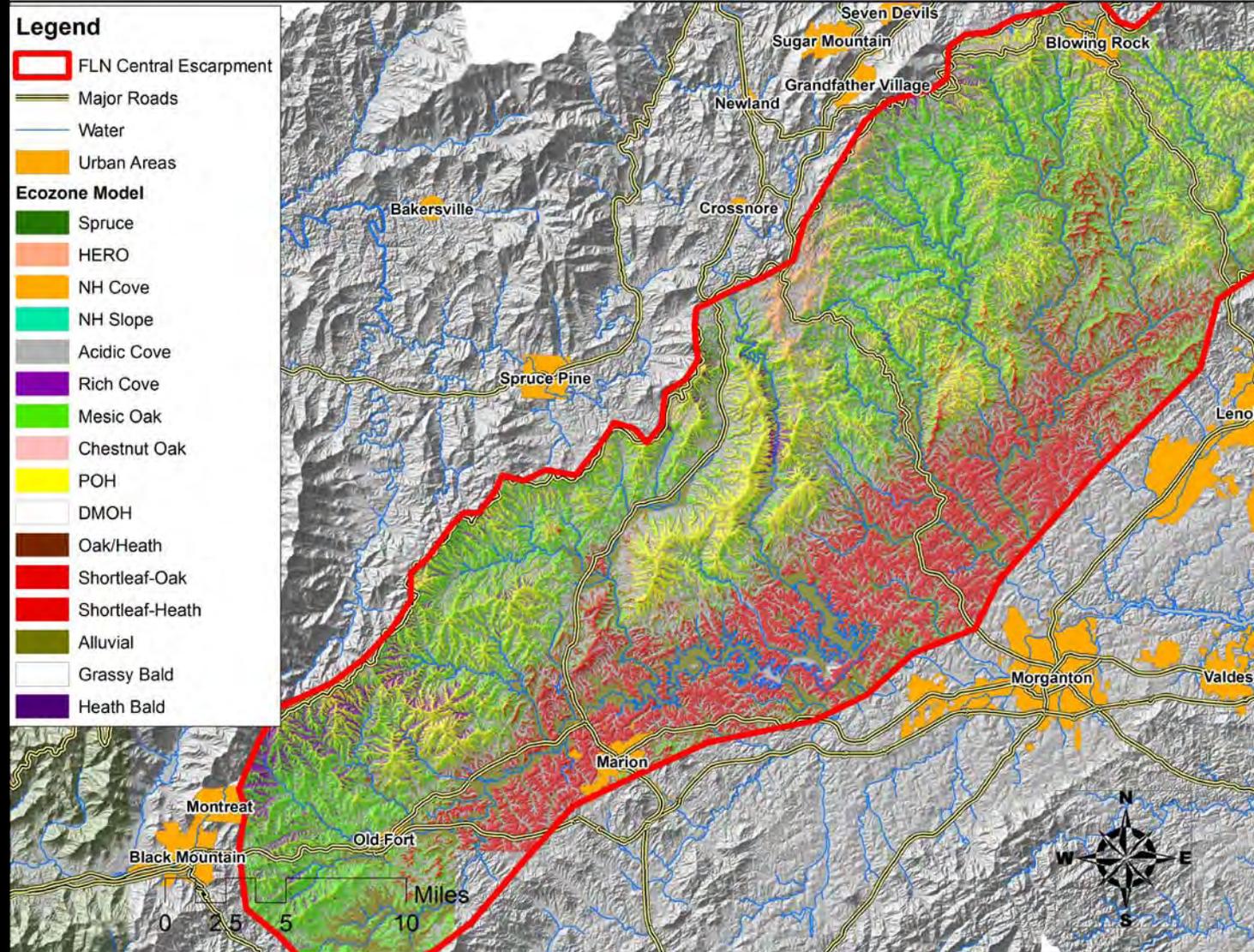
Central Escarpment Landscape

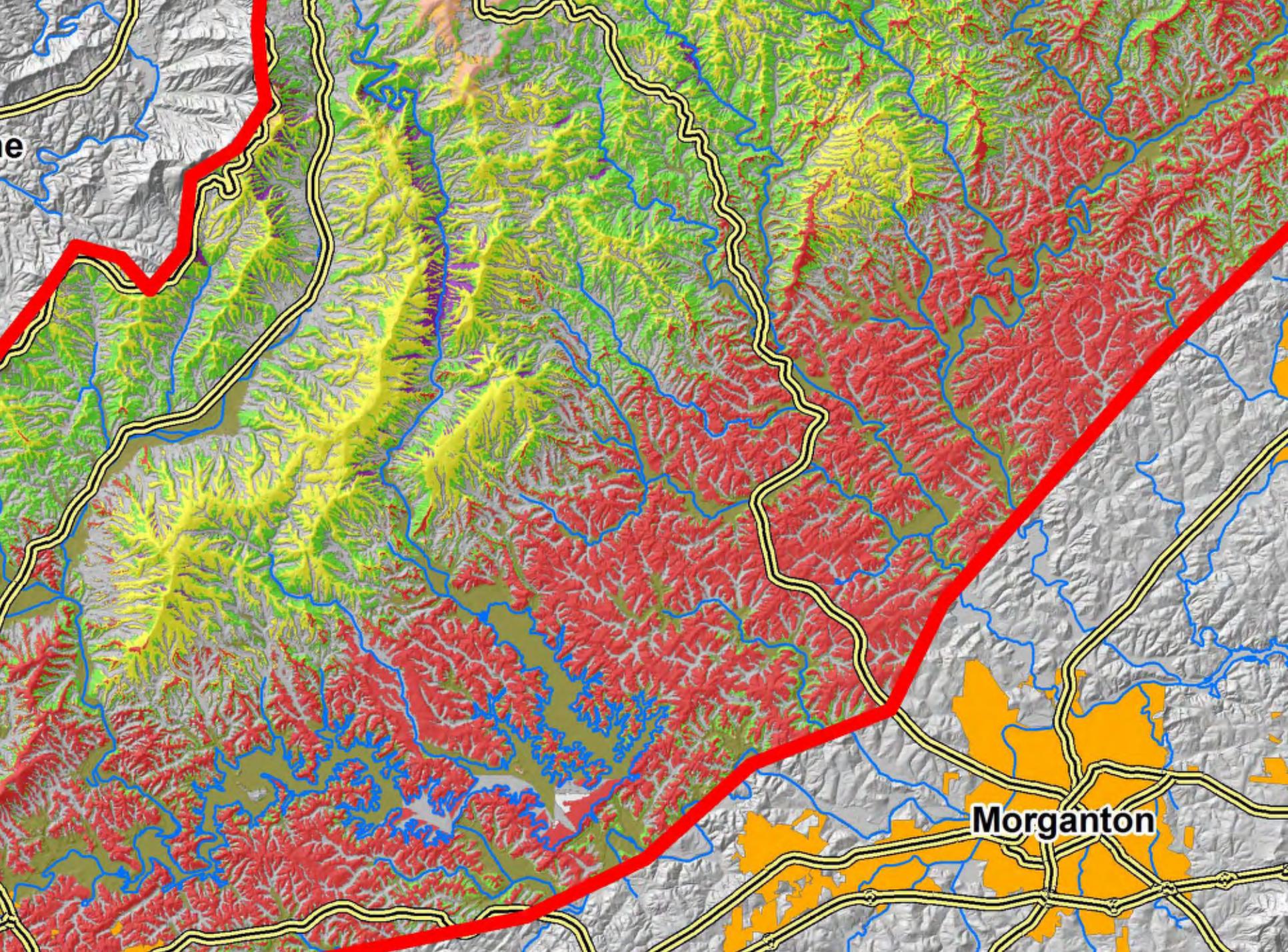


Legend	
	Grandfather District
	FLN Central Escarpment
	Major Roads
	Water
	Urban Areas
	Game Lands



FLN Target communities are based on Ecological Zones



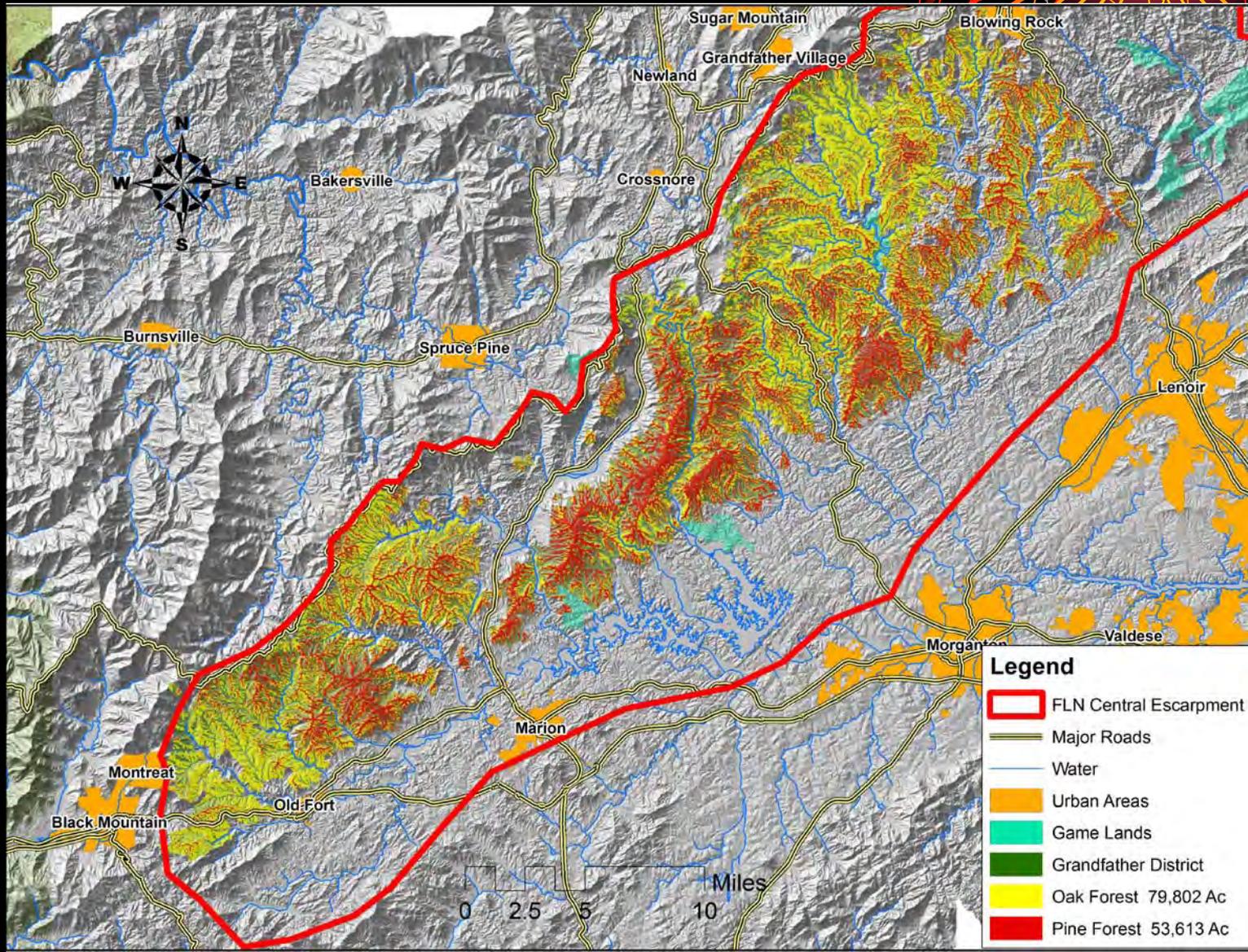


Morganton

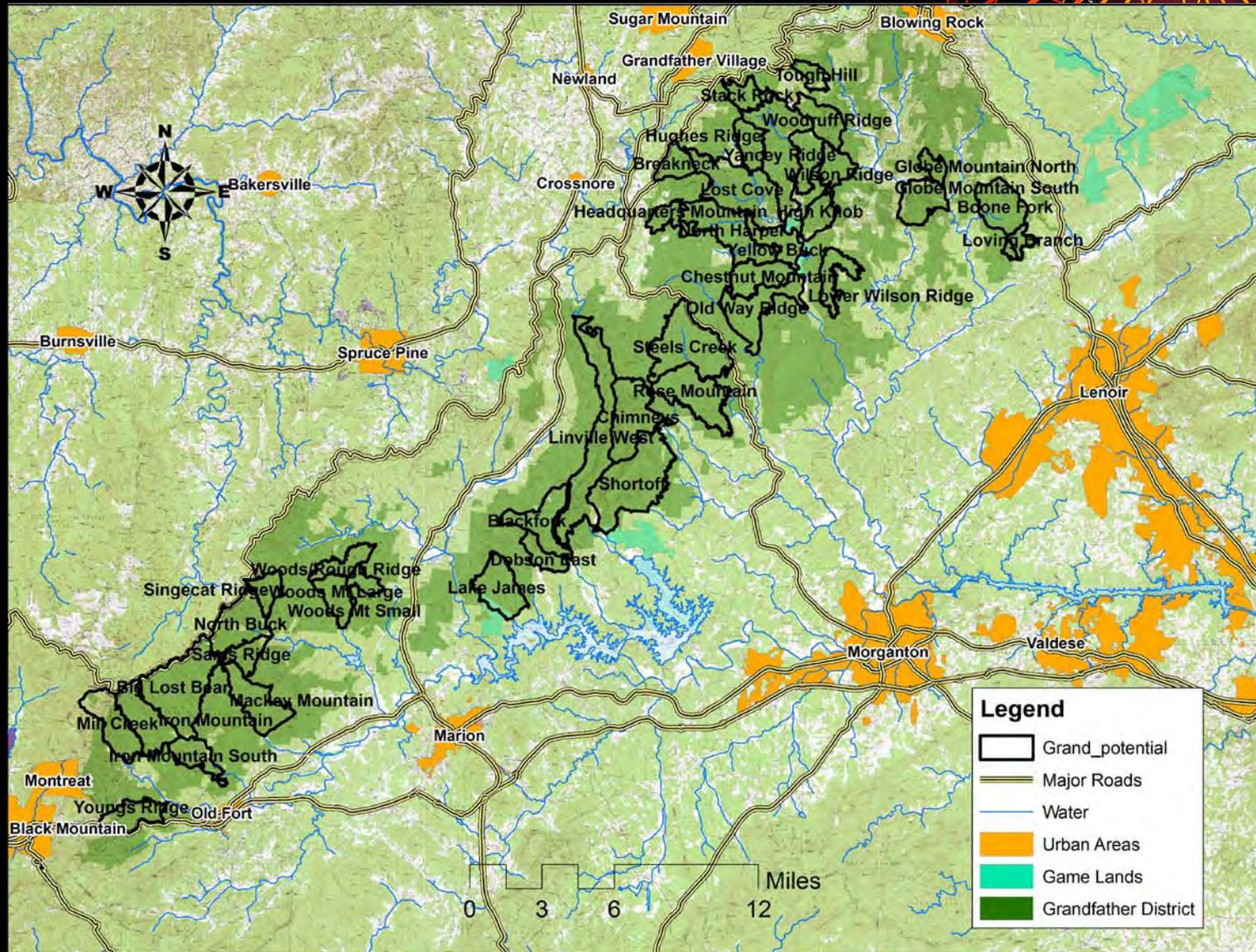
Our Goal? Burning in the right places



First Step: Identify Fire Adapted Communities ~ 69% of District

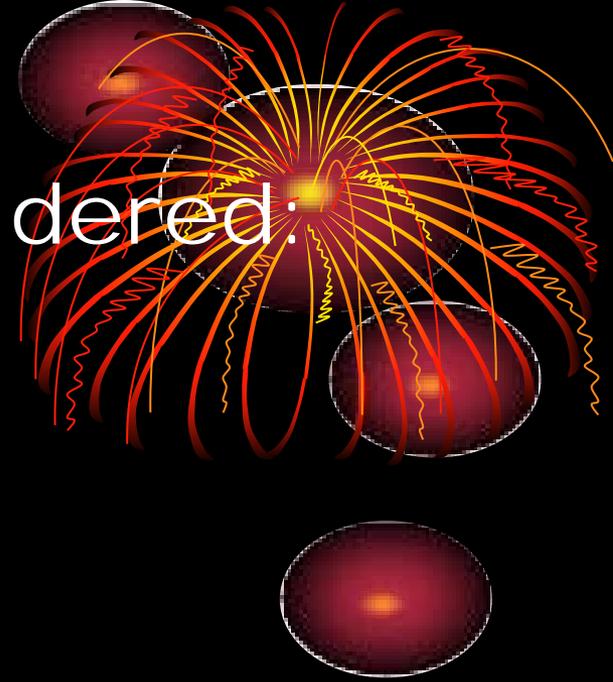


Next Step: Identify Potential Units



Ecological Criteria Considered:

- Distribution on Landscape
- Current Condition (Good, Fair, Poor)
- Burn History
- Return Interval
- Presence of fire adapted rare species
- Presence of fire sensitive species
- Invasive species threats
- Percentage of site that is fire prone
- Acreage of Fire Adapted Vegetation
- Number of Wildlife Openings
- Presence of Fire Adapted SNHAs





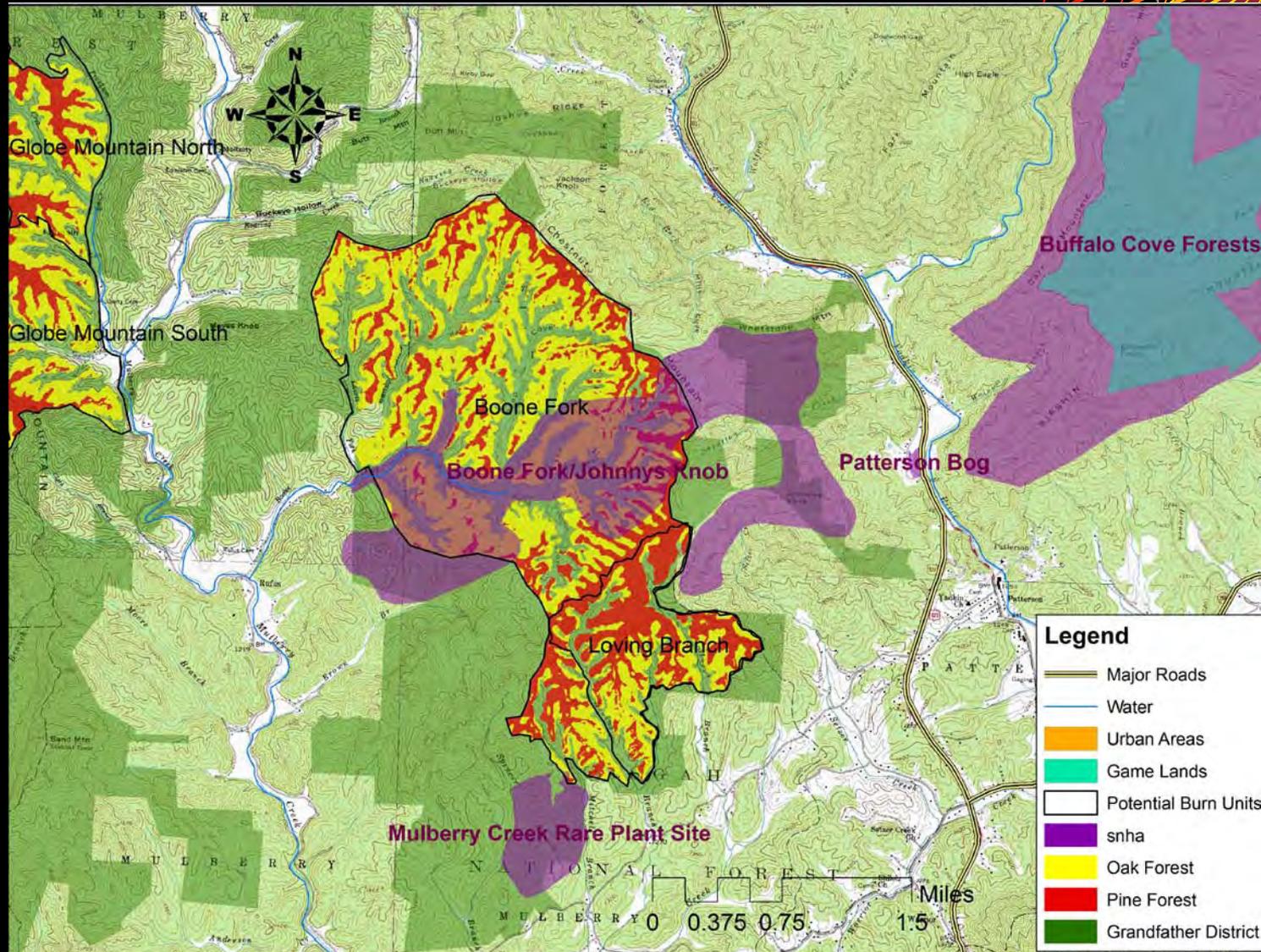
Criteria Used in First Draft of Eco-Math



- Pine acres (acres x 3/100)
- Oak acres (acres/100)
- Globally Rare Fire Dependent Species (x10 for each species)
- State Rare Fire Dependent Species (x5 for each species)
- State Natural Heritage Areas with fire dependent elements (15 for National, 10 for State and 5 for Regional significance)
- # of Wildlife Openings (x.25)

$3PA/100 + OA/100 + 10Gr + 5 Sr + SNHA + 1/4WO =$
Draft Ecological Score

Testing the Concept: Boone Fork

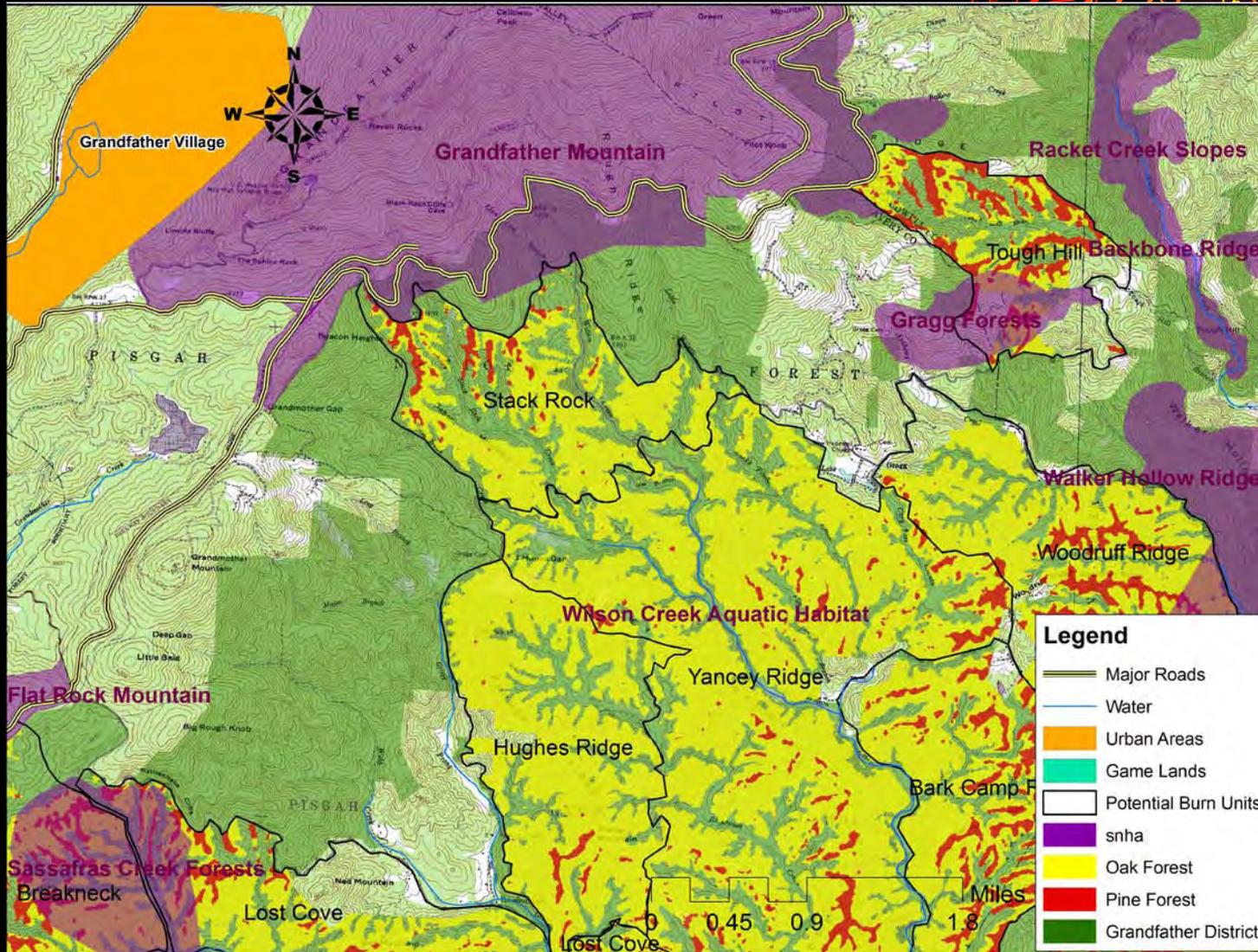


Testing The Concept: Boone Fork



Site Name	Boone Fork	Adjusted Score
Total Acres	2883	21.69
Pine Acres	723	12.74
Oak Acres	1274	0
# of Globally Rare Fire Dependent Species	0	0
# of State Rare Fire Dependent Species	0	0
# Nationally Significant SNHA	0	10
# State Significant SNHA	1	0
# Regionally Significant SNHA	0	1.25
# of Wildlife Openings	5	
	Total Score=	45.68

Testing The Concept: Stack Rock

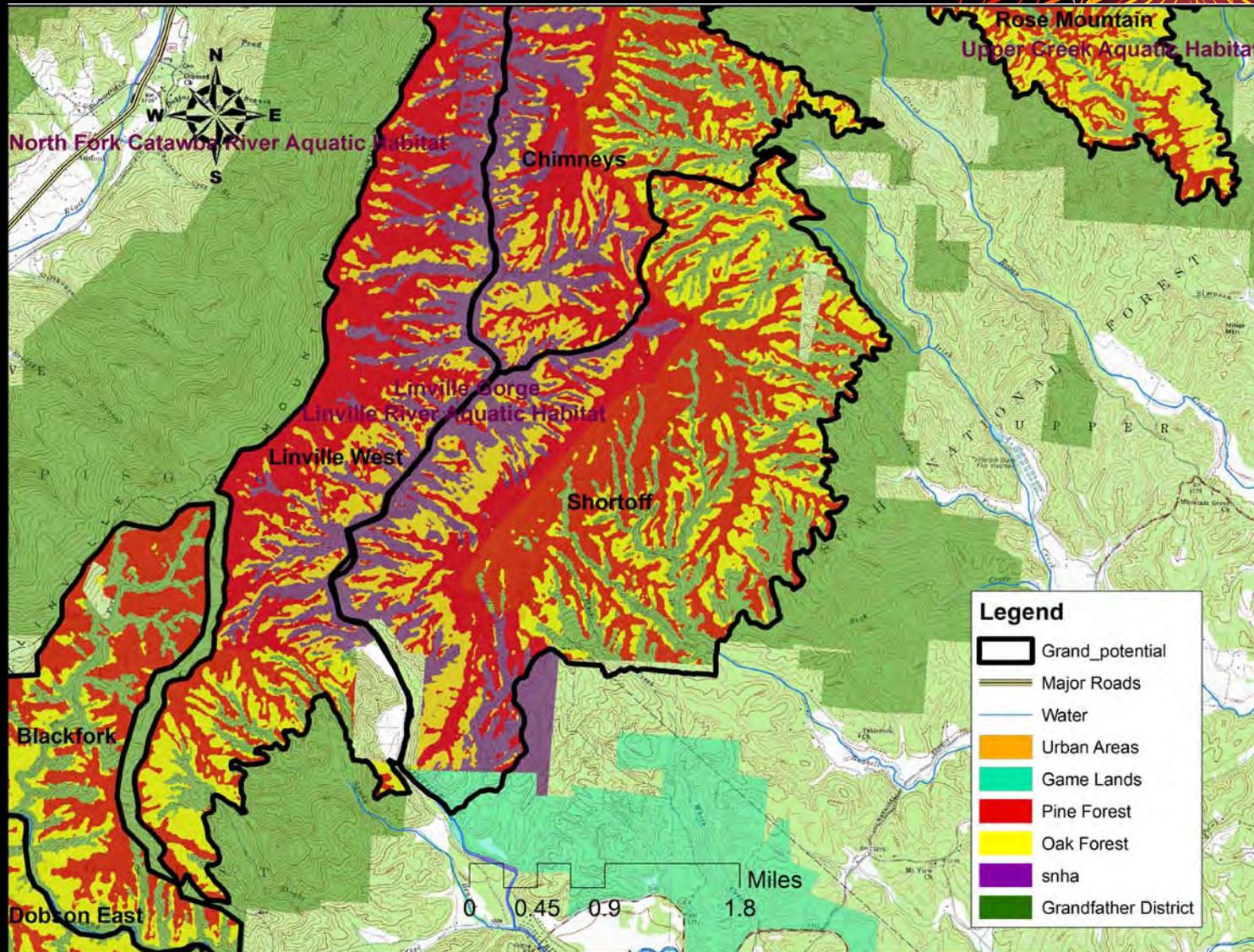


Testing The Concept: Stack Rock



Site Name	Stackrock	Adjusted Score
Total Acres	1049	
Pine Acres	58	1.74
Oak Acres	528	5.28
# of Globally Rare Fire Dependent Species	0	0
# of State Rare Fire Dependent Species	0	0
# Nationally Significant SNHA	0	0
# State Significant SNHA	0	0
# Regionally Significant SNHA	0	0
# of Wildlife Openings	4	1
	Total Score=	8.02

Testing the Concept: Shortoff



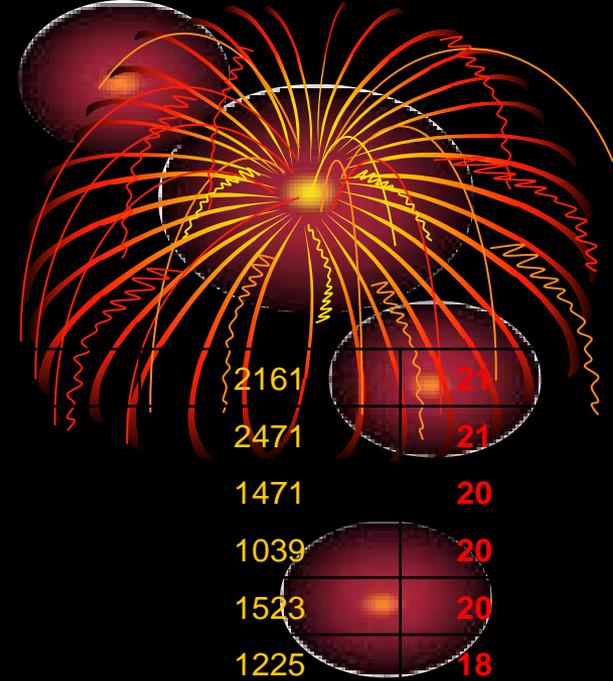
Testing The Concept: Shortoff



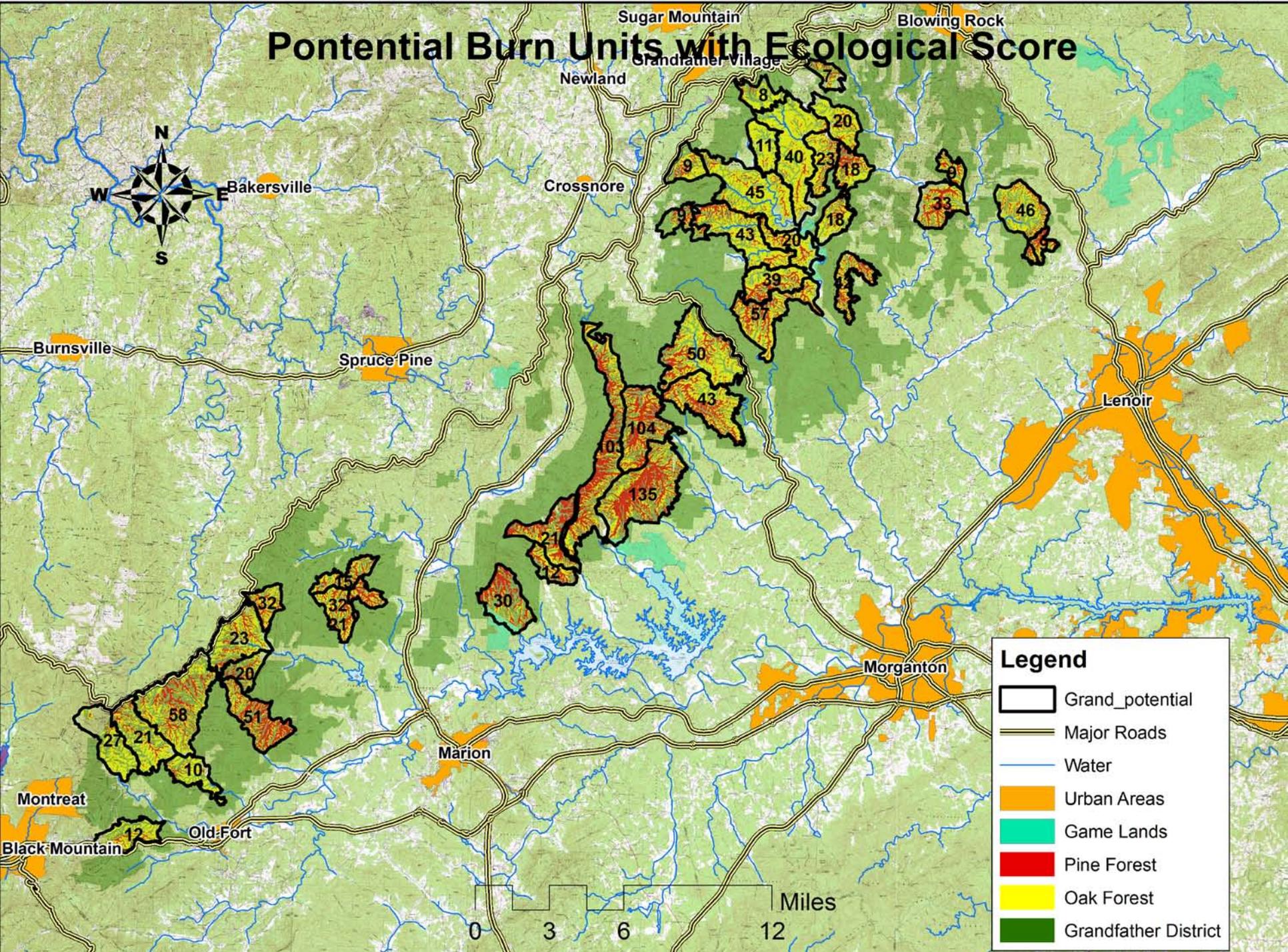
Site Name	Shortoff	Adjusted Score
Total Acres	5092	62.13
Pine Acres	2071	12.66
Oak Acres	1266	20
# of Globally Rare Fire Dependent Species	2	25
# of State Rare Fire Dependent Species	5	15
# Nationally Significant SNHA	1	0
# State Significant SNHA	0	0
# Regionally Significant SNHA	0	0
# of Wildlife Openings	0	0
	Total Score=	134.79

Site	Total Acres	Score
Shortoff	5092	135
Chimneys	3152	104
Linville West	5163	103
Big Lost Bear	4717	58
Old Way Ridge	2176	57
Mackey Mountain	2387	51
Steels Creek	4130	50
Boone Fork	2883	46
Lost Cove	4156	45
Rose Mt	3071	43
North Harper	3148	43
Lower Wilson Ridge	1346	42
Yancey Ridge	4201	40
Chestnut Mountain	1801	39
Globe Mountain South	1825	33
Singecat Ridge	974	32
Woods Mt Large	2016	32
Lake James	2254	30
Mill Creek	2319	27
North Buck	2629	23
Bark Camp Ridge	1437	23
Woods Mt Small	1403	21

Backfork	2161	21
Iron Mountain	2471	21
Yellow Buck	1471	20
Sams Ridge	1039	20
Woodruff Ridge	1523	20
Wilson Ridge	1225	18
High Knob	1132	18
Woods Mt Rough Ridge	1137	15
Youngs Ridge	1531	12
Dobson Knob East	957	12
Hughes Ridge	1266	11
Iron Mountain South	1344	10
Loving Branch	491	9
Headquarters Mountain	968	9
Globe Mountain North	610	9
Stack Rock	1049	8
Tough Hill	705	7
Total	83360	



Pontential Burn Units with Ecological Score



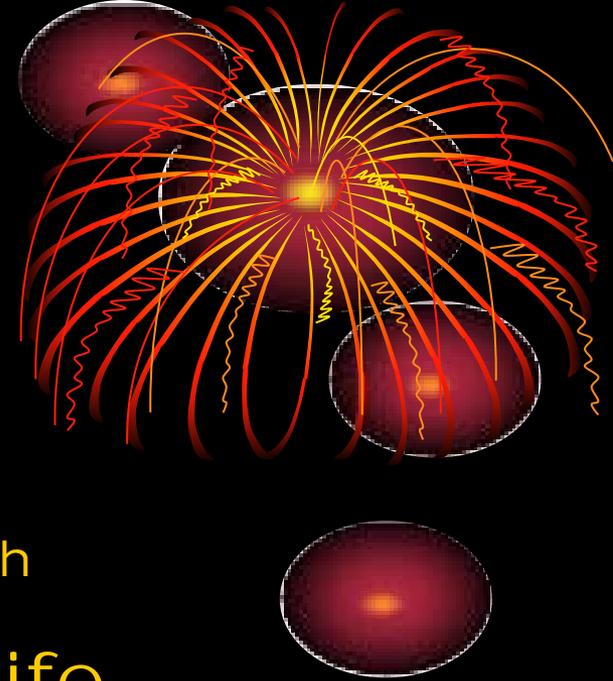
Legend

- Grand_potential
- Major Roads
- Water
- Urban Areas
- Game Lands
- Pine Forest
- Oak Forest
- Grandfather District

Critique of First Run

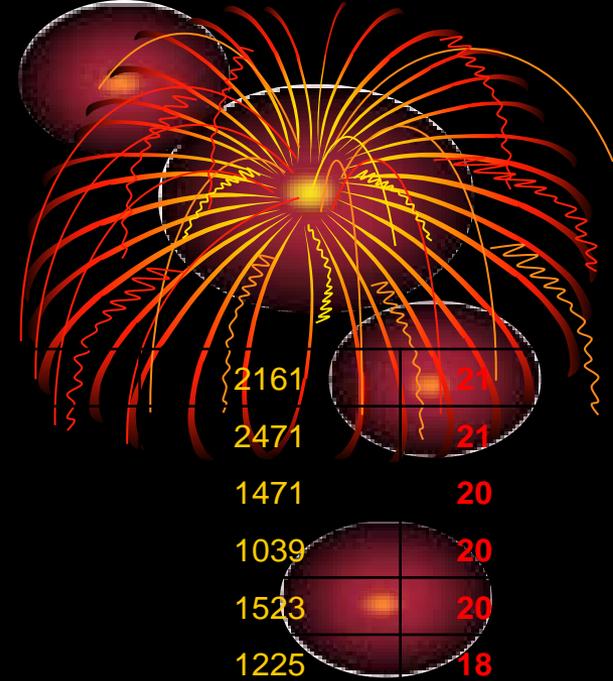
- Emphasizes acreage
- Singecat Ridge Scored 17th
- Score the acreage of Wildlife Openings, not the number
- We missed a couple of areas

$$3PA/100 + OA/100 + 50 Hm + 10Gr + 5 Sr + SNHA + WO = Eco\ score$$

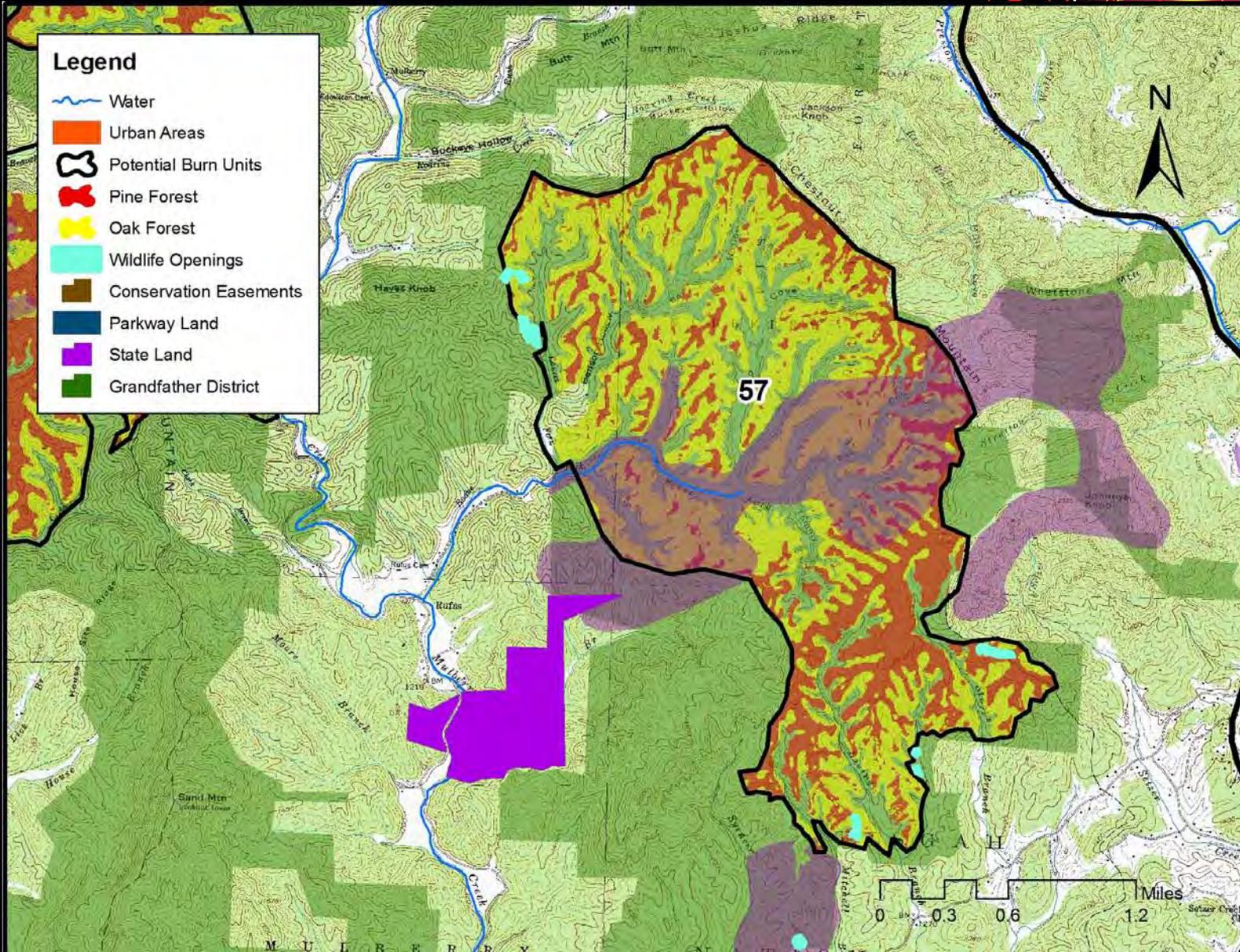


Site	Total Acres	Score
Shortoff	5092	135
Chimneys	3152	104
Linville West	5163	103
Big Lost Bear	4717	58
Old Way Ridge	2176	57
Mackey Mountain	2387	51
Steels Creek	4130	50
Boone Fork	2883	46
Lost Cove	4156	45
Rose Mt	3071	43
North Harper	3148	43
Lower Wilson Ridge	1346	42
Yancey Ridge	4201	40
Chestnut Mountain	1801	39
Globe Mountain South	1825	33
Singecat Ridge	974	32
Woods Mt Large	2016	32
Lake James	2254	30
Mill Creek	2319	27
North Buck	2629	23
Bark Camp Ridge	1437	23
Woods Mt Small	1403	21

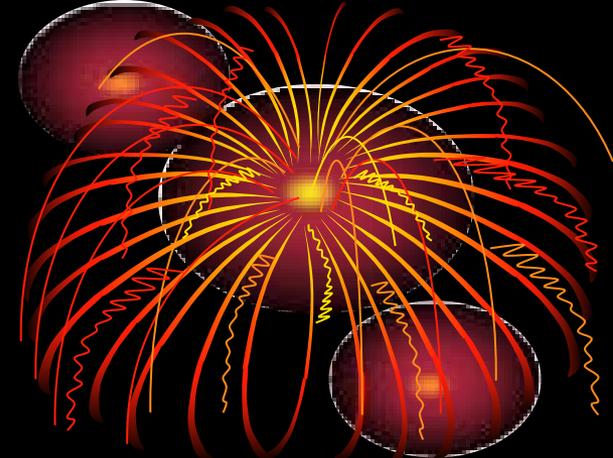
Backfork	2161	21
Iron Mountain	2471	21
Yellow Buck	1471	20
Sams Ridge	1039	20
Woodruff Ridge	1523	20
Wilson Ridge	1225	18
High Knob	1132	18
Woods Mt Rough Ridge	1137	15
Youngs Ridge	1531	12
Dobson Knob East	957	12
Hughes Ridge	1266	11
Iron Mountain South	1344	10
Loving Branch	491	9
Headquarters Mountain	968	9
Globe Mountain North	610	9
Stack Rock	1049	8
Tough Hill	705	7
Total	83360	



Boone Fork – 2nd Run

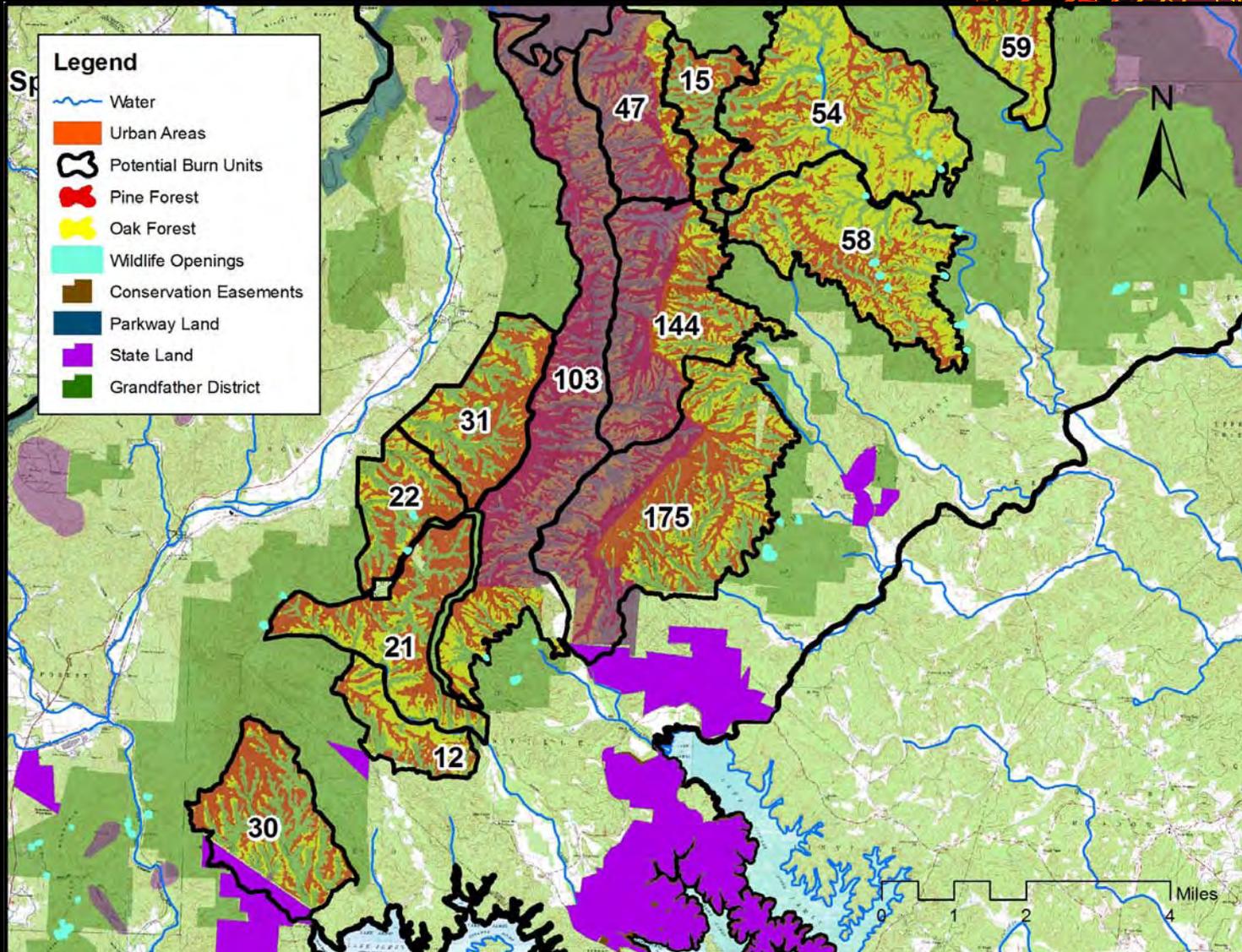
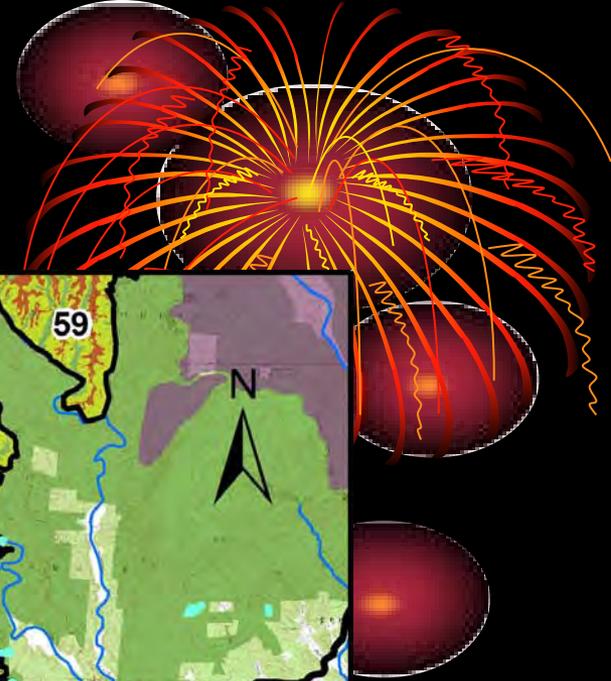


Boone Fork – 2nd Run

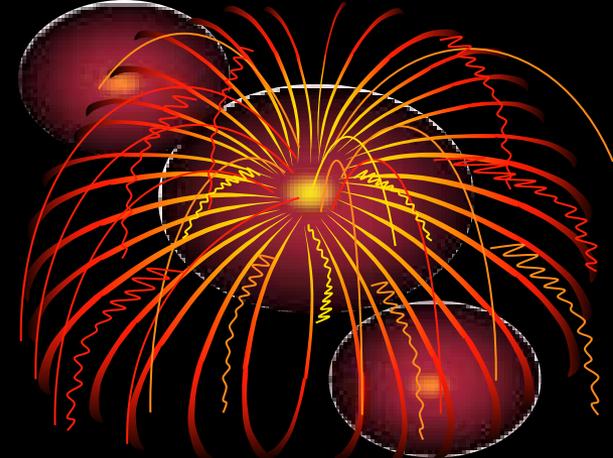


Site Name	Boone Fork	Adjusted Score
Total Acres	2883	
Pine Acres	723	21.69
Oak Acres	1274	12.74
<i>Hudsonia montana</i>	0	0
# of Globally Rare Fire Dependent Species	0	0
# of State Rare Fire Dependent Species	0	0
# Nationally Significant SNHA	0	0
# State Significant SNHA	1	10
# Regionally Significant SNHA	0	0
Acres of Wildlife Openings	12.8	12.8
	Total Score=	57.23

Linville Area – 2nd Run

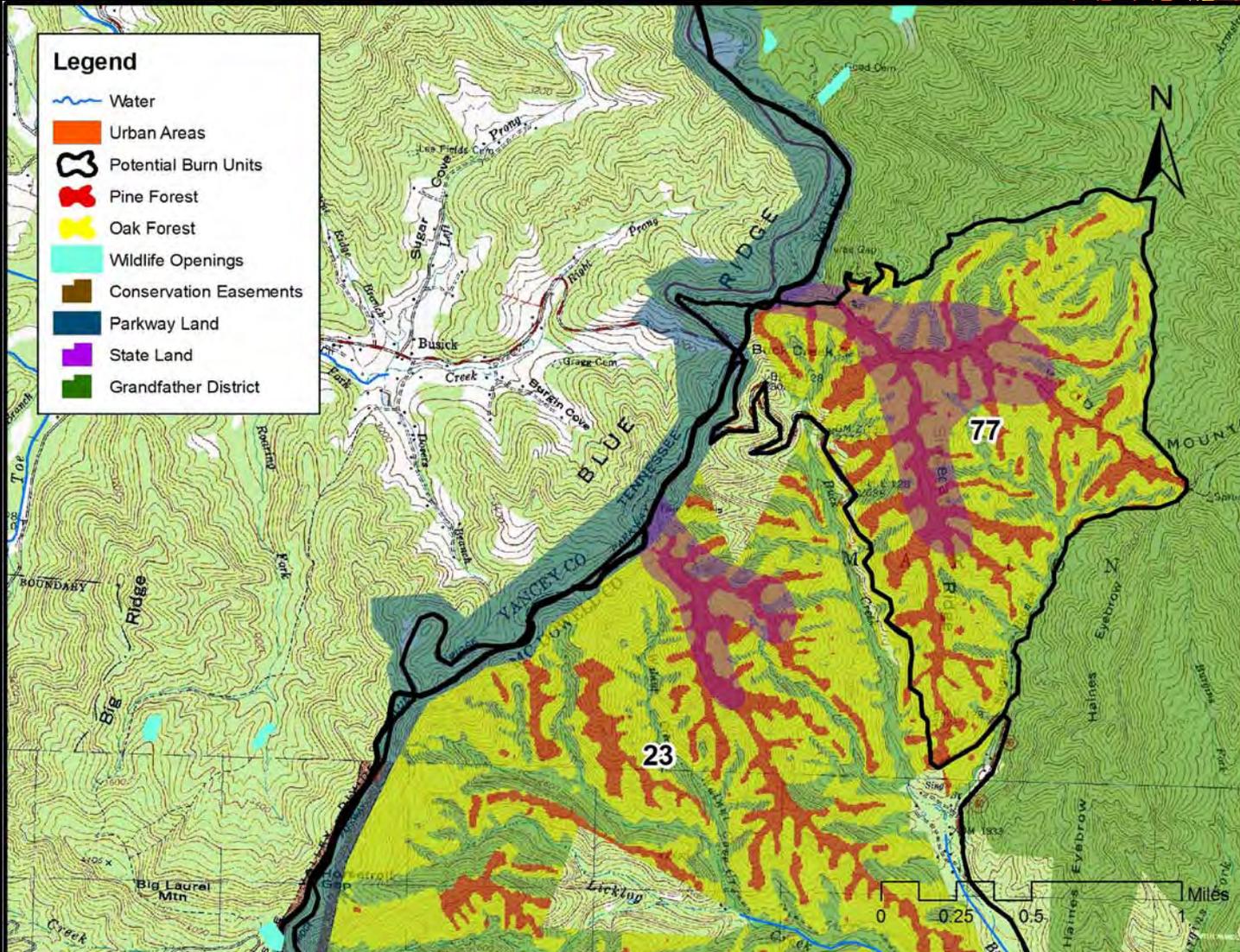
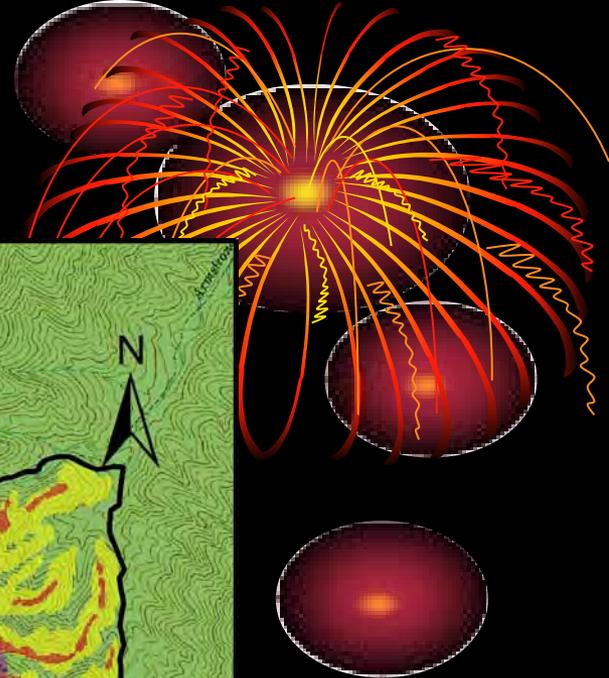


Shortoff – 2nd Run



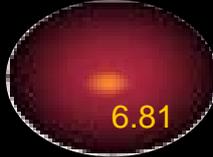
Site Name	Shortoff	Adjusted Score
Total Acres	5092	
Pine Acres	2071	62.13
Oak Acres	1266	12.66
<i>Hudsonia montana</i>	1	50
# of Globally Rare Fire Dependent Species	1	10
# of State Rare Fire Dependent Species	5	25
# Nationally Significant SNHA	1	15
# State Significant SNHA	0	0
# Regionally Significant SNHA	0	0
Acres of Wildlife Openings	0	0
	Total Score=	174.79

Singecat Ridge – 2nd Run



Singecat Ridge – 2nd Run

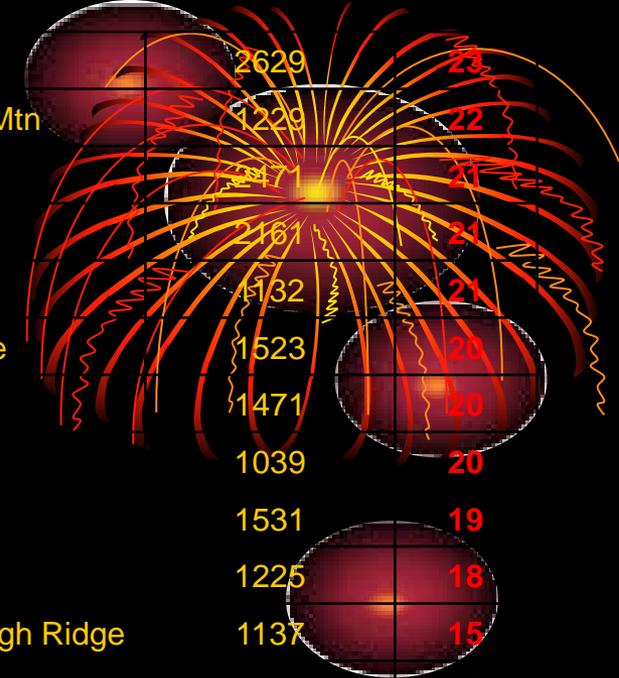


Site Name	Singecat Ridge	Adjusted Score
Total Acres	974	 6.81
Pine Acres	227	4.72
Oak Acres	472	50
<i>Hudsonia montana</i>	1	0
# of Globally Rare Fire Dependent Species	0	0
# of State Rare Fire Dependent Species	0	0
# Nationally Significant SNHA	1	15
# State Significant SNHA	0	0
# Regionally Significant SNHA	0	0
Acres of Wildlife Openings	0	0
Total Score=		76.53

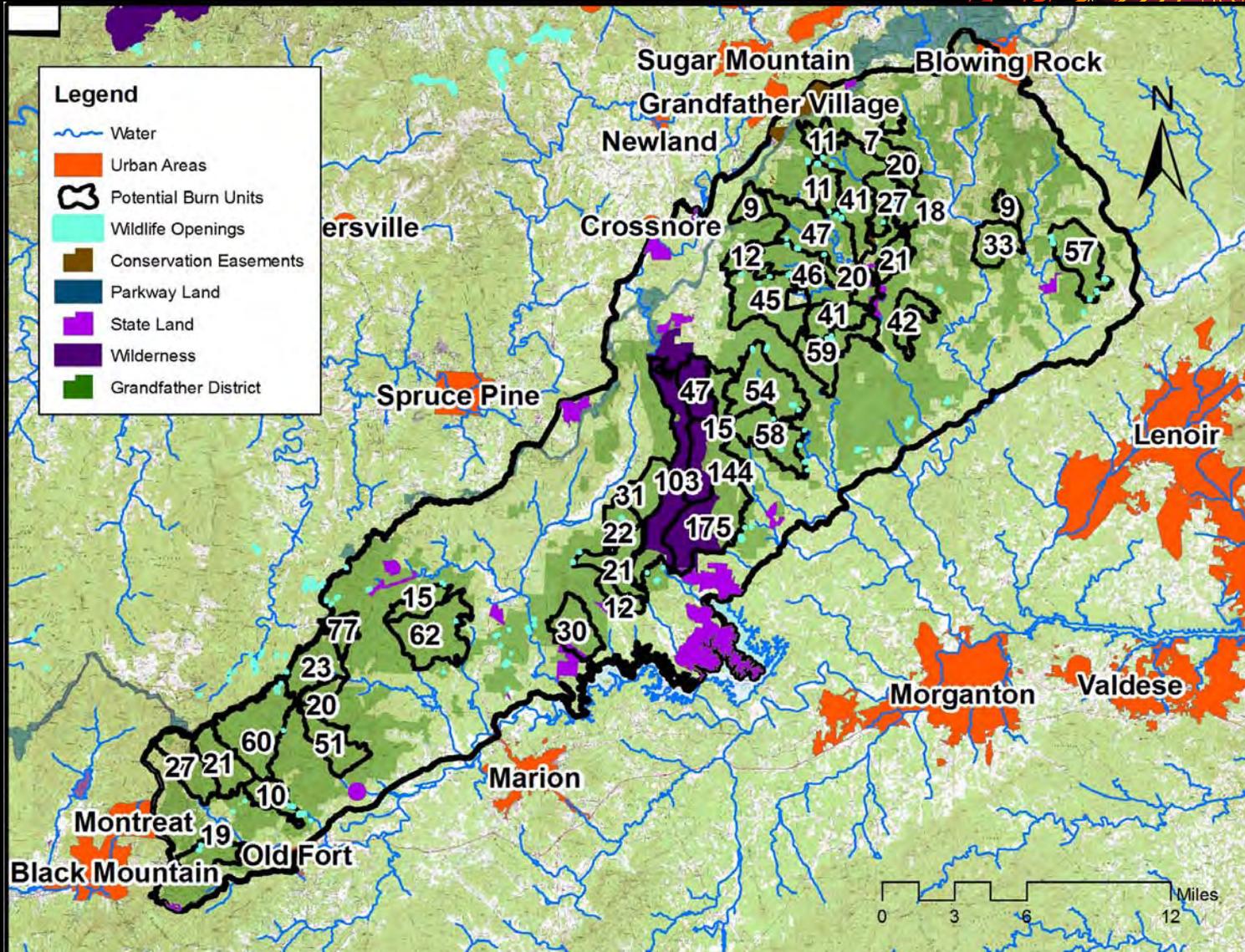
Site	Acres	Score
Shortoff	5092	175
Chimneys	3152	144
Linville West	5163	103
Singecat Ridge	974	77
Woods Mountain	4025	62
Big Lost Bear	4717	60
Old Way Ridge	2765	59
Rose Mt	3071	58
Boone Fork	2883	57
Steels Creek	4130	54
Mackey Mountain	2387	51
Lost Cove	4156	47
Sitting Bear	1906	47
North Harper	3148	46
Sugar Knob	4025	45
Lower Wilson Ridge	1346	42
Yancey Ridge	4201	41
Chestnut Mountain	1801	41
Globe Mountain South	1825	33
Middle Linville Mtn	1871	31
Lake James	2254	30
Mill Creek	2319	27
Bark Camp Ridge	1437	27

North Buck	2629	23
Lower Linville Mtn	1229	22
Iron Mountain	2317	21
Blackfork	2161	21
High Knob	1732	21
Woodruff Ridge	1523	20
Yellow Buck	1471	20
Sams Ridge	1039	20
Youngs Ridge	1531	19
Wilson Ridge	1225	18
Woods Mt Rough Ridge	1137	15
Gingercake	1008	15
Hughes Ridge	1266	13
Dobson Knob East	957	12
Headquarters Mountain	968	12
Stack Rock	1049	11
Iron Mountain South	1344	10
Breakneck	1030	9
Globe Mountain North	610	9
Tough Hill	705	7

Total 95133



Revised Ecological Score



Results:

- 42 potential burn units totalling 95,133 acres
- Ecological Scores from 7 to 175
- Our model is acreage driven but responsive to rare species and fire adapted natural areas
- Linville Gorge Wilderness has the top three scoring sites



Conclusions:

- We need to burn in Linville Gorge!
- We think we can restore 18,000 acres of the highest priority sites with fire in the next 10 years
- Our model works for Pisgah NF
- Other land managers may want to emphasize other values

