

Cherokee NF Ecological Forecasts -- 20 Years

Revised Models - June 9, 2011

Ecological System	Acres (rounded to nearest 100)	Ecological Departure (using revised models)					Previous ROI Mgmt	New ROI Mgmt or Workshop Mgmt	ROI (includes new ROI or wkshp)	New Mgmt - Ave. Annual Cost
		No Mgmt w Fire Suppression	Maximum Ecological Mgmt	Fire Only Mgmt	Mechanical Only Mgmt					
Cove Forest	103,000	34	31	-	31	30	-	1.7	\$ 12,000	
Dry Oak Forest	65,900	60	29	38	36	40	39	1.2	\$ 96,500	
Dry-Mesic Oak Forest	40,800	49	28	31	31	37	37	3.2	\$ 22,000	
Low-Elevation Pine Forest	23,800	77	28	44	33	50	37	3.6	\$ 75,750	
Montane Pine Forest	21,800	80	30	35	25	43	36	5.0	\$ 53,750	
Montane Red-Chestnut Oak Forest	71,800	39	25	29	25	25	25	1.4	\$ 60,450	
Northern Hardwood Forest	11,600	14	-	-	-	-	-	n/a		
Riparian & Floodplain Systems	2,500	39	38	-	-	-	-	n/a	\$ -	
Spruce-Fir Forest	2,200	40	24	-	-	28	-	25.6	\$ 4,500	
Total Cost - 20 Years			\$ 27,968,000	\$ 7,450,000	\$ 24,903,000	\$ 5,123,000	\$ 6,499,000			
Average Annual Cost			\$ 1,398,000	\$ 373,000	\$ 1,245,000	\$ 256,000	\$ 325,000		\$ 325,000	
Average Annual Acres Prescribed Fire			6,200	9,900	-	4,200	4,900			
Ave. Annual Acres Commerical Harvest			3,200	-	4,800	800	1,500			

Strategy Worksheet

Cove Forest

102,977 acres

100000

Enter percentages from "Final Conditions" as a whole number

Vegetation Class (describe) <i>type x in left box if high-risk</i>	NRV	Current Condition	No mgmt 20 yrs high fire suppression	Max ecological mgmt	Fire only mgmt (n/a)	Mechanical only mgmt	ROI mgmt	-
A - Early	4%	1%	3%	5%		5%	4%	
B - Mid Closed	30%	75%	60%	60%		60%	59%	
C - Late Open	7%	1%	2%	4%		4%	5%	
D - Late Closed	21%	15%	23%	21%		21%	21%	
G - Old Growth Closed	38%	6%	10%	10%		10%	10%	
x U- White Pine		2%	2%	0%		0%	2%	

Ecological Departure

Uncharacteristic Classes

47	34	31	-	31	30	-
2	2	0	0	0	2	0

Total Cost

\$ - \$ 1,080,000 \$ - \$ 1,080,000 \$ 240,000 \$ -

ROI (vs. Min. Mgmt)

0.5 - 0.5 1.7 -

Scenarios (enter name below)	Enter Notes	Enter Management Strategies, Number of Acres/Year, Costs & Number of Years				
	Notes	Gap Harvest + Thinning (comm)	Regen Harvest (comm)	Harvest-Restore + Plant (comm)		
No mgmt 20 yrs high fire su						
Max ecological mgmt		200		200		
Fire only mgmt (n/a)						
Mechanical only mgmt		200		200		
ROI mgmt		200				
Cost of Strategy (per acre)		\$ 60	\$ 50	\$ 210		
Number of Years		20	20	20		

Strategy Worksheet

Dry Oak Forest

65,881 acres

100000

Enter percentages from "Final Conditions" as a whole number

Vegetation Class (describe) <i>type x in left box if high-risk</i>	NRV	Current Condition	No mgmt 20 yrs high fire suppression	Max ecological mgmt	Fire only mgmt	Mechanical only mgmt	Previous ROI mgmt	New ROI mgmt
A - Early	10%	3%	3%	15%	8%	15%	9%	9%
B - Mid Closed	15%	13%	11%	14%	8%	18%	10%	11%
C - Mid Open	31%	0%	1%	6%	5%	2%	3%	3%
D - Late Open	15%	1%	3%	22%	13%	17%	13%	14%
E - Late Closed	8%	61%	32%	11%	24%	15%	22%	22%
F- Old Growth Open	7%	0%	0%	4%	6%	0%	3%	2%
G- Old Growth Closed	14%	14%	40%	27%	28%	32%	31%	32%
x U- White Pine		3%	4%	0%	3%	0%	3%	2%
x U- Yellow Poplar		1%	2%	0%	2%	0%	2%	1%
x U- Pine-Dominated		3%	3%	0%	3%	0%	3%	3%

Ecological Departure

61	60	29	38	36	40	39
7	9	0	8	0	8	6

Uncharacteristic Classes

Total Cost	\$ -	\$ 4,620,000	\$ 2,400,000	\$ 3,320,000	\$ 1,850,000	\$ 1,930,000
ROI (vs. Min. Mgmt)		0.9	1.0	1.0	1.1	1.2

Scenarios (enter name below)	Enter Notes	Enter Management Strategies, Number of Acres/Year, Costs & Number of Years						
		RxFire	RxFire-Maintenance	Regen Harvest (non-comm)	Woodland Restoration (50-50 comm/non)	Rx-Fire-Oak	Harvest-Restore w oak ovrstry (comm)	Harvest-Restore + Plant (comm)
<i>No mgmt 20 yrs high fire su</i>								
<i>Max ecological mgmt</i>		1600		300	600		80	200
<i>Fire only mgmt</i>		2400						
<i>Mechanical only mgmt</i>				400	600		80	200
<i>Previous ROI mgmt</i>		800		150	300			
<i>New ROI mgmt</i>		800		150	300	40	40	
Cost of Strategy (per acre)		\$ 50	\$ 50	\$ 150	\$ 100	\$ 50	\$ 50	\$ 210
Number of Years		20	20	20	20	20	20	20

Strategy Worksheet

Dry-Mesic Oak Forest

40,766 acres

100000

Enter percentages from "Final Conditions" as a whole number

Vegetation Class (describe) <i>type x in left box if high-risk</i>	NRV	Current Condition	No mgmt 20 yrs high fire suppression	Max ecological Mgmt	Fire only mgmt	Mechanical only mgmt	ROI mgmt	Workshop III
A - Early	7%	3%	2%	9%	7%	11%	5%	7%
B - Mid Closed	15%	17%	14%	16%	11%	19%	14%	14%
C - Mid Open	25%	0%	3%	5%	6%	4%	4%	3%
D - Late Open	23%	9%	12%	28%	22%	37%	19%	18%
E - Late Closed	13%	59%	43%	25%	31%	16%	37%	36%
F- Old Growth Open	11%	1%	1%	3%	4%	1%	2%	2%
G- Old Growth Closed	6%	5%	18%	13%	12%	12%	15%	15%
x U- White Pine		3%	4%	0%	3%	0%	3%	3%
x U- Pine-Dominated		3%	3%	0%	3%	0%	2%	2%

**Ecological Departure
Uncharacteristic Classes**

54	49	28	31	31	37	37
6	7	0	6	0	5	5

Total Cost	\$	-	\$ 1,628,000	\$ 1,250,000	\$ 1,378,000	\$ 365,000	\$ 440,000
ROI (vs. Min. Mgmt)			1.7	1.5	1.8	3.8	3.2

Scenarios (enter name below)	Enter Notes	Enter Management Strategies, Number of Acres/Year, Costs & Number of Years						
		RxFire	RxFire-Maintenance	Thinning (comm)	Regen Harvest (comm)	Harvest-Restore - no oak ovrstry (comm)	Harvest-Restore w oak ovrstry (comm)	Harvest-Restore + Plant (comm)
No mgmt 20 yrs high fire su								
Max ecological Mgmt		650		250	100		40	140
Fire only mgmt		1250						
Mechanical only mgmt				550	200		40	140
ROI mgmt		200		100	25		40	
Workshop III		200		100	100		40	
Cost of Strategy (per acre)		\$ 50	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50	\$ 210
Number of Years		20	20	20	20	20	20	20

Strategy Worksheet

Low-Elevation Pine Forest

23,812 acres

100000

Enter percentages from "Final Conditions" as a whole number

Vegetation Class (describe) <i>type x in left box if high-risk</i>	NRV	Current Condition	No mgmt 20 yrs high fire suppression	Max ecological mgmt	Fire only mgmt	Mechanical only mgmt	ROI mgmt	Workshop
A - Early	32%	2%	12%	31%	33%	26%	25%	31%
B - Mid Closed	2%	5%	19%	30%	11%	27%	19%	15%
C - Mid Open	32%	0%	4%	14%	12%	11%	12%	14%
D - Late Open	33%	5%	4%	24%	9%	27%	10%	15%
E - Late Closed	1%	56%	28%	2%	3%	8%	15%	7%
x U- Oak Dominated		32%	33%	0%	33%	1%	19%	18%

Ecological Departure

Uncharacteristic Classes

90	77	28	44	33	50	37
32	33	0	33	1	19	18

Total Cost	\$ -	\$ 10,525,000	\$ 1,000,000	\$ 7,575,000	\$ 625,000	\$ 1,515,000
ROI (vs. Min. Mgmt)		0.8	3.3	1.0	6.6	3.6

Scenarios (enter name below)	Enter Notes	Enter Management Strategies, Number of Acres/Year, Costs & Number of Years							
		RxFire - Years 1-5 & 16-20	RxFire - Maintenance (off yrs)	Thinning	Woodland Restoration (50% seed source)	Restoration Treatmt w Seed Source (50% of OD)	Restoration Harvest + Pine Planting (no seed source)	Woodland Restoration (50% seed source)	Fire Breaks
<i>No mgmt 20 yrs high fire suppr</i>									
<i>Max ecological mgmt</i>		500		225			225	225	250
<i>Fire only mgmt</i>		2000							
<i>Mechanical only mgmt</i>				250			225	225	125
<i>ROI mgmt</i>		800						225	
<i>Workshop</i>	5 acres break for 1000	1500		25				225	10
Cost of Strategy (per acre)		\$ 50	\$ 50	\$ 600	\$ 50	\$ 200	\$ 300	\$ 50	\$ 1,200
Number of Years		10	10	20	10	20	20	20	20

Strategy Worksheet

Montane Pine Forest

21,837 acres

100000

Vegetation Class (describe) <i>type x in left box if high-risk</i>	NRV	Current Condition	No mgmt 20 yrs high fire suppression	Max ecological mgmt	Fire only mgmt	Mechanical only mgmt	ROI mgmt (revised)	Workshop
A - Early	12%	6%	3%	32%	25%	15%	14%	14%
B - Mid Closed	3%	13%	12%	12%	9%	15%	16%	13%
C - Mid Open	25%	1%	3%	8%	9%	4%	7%	13%
D - Late Open	55%	3%	6%	47%	36%	59%	30%	31%
E - Late Closed	5%	57%	53%	0%	8%	1%	18%	17%
x U- Oak Dominated		20%	23%	1%	14%	6%	14%	13%

Ecological Departure

Uncharacteristic Classes

82	80	30	35	25	43	36
20	23	1	14	6	14	13

Total Cost \$ - \$ 7,510,000 \$ 1,500,000 \$ 9,100,000 \$ 850,000 \$ 1,075,000

ROI (vs. Min. Mgmt) 1.0 3.6 0.8 5.4 5.0

Scenarios (enter name below)	Enter Notes	Enter Management Strategies, Number of Acres/Year, Costs & Number of Years							
	Notes	RxFire - Years 1-5 & 16-20	Thin B to C for first 10 yrs	Maintenance Fire (10 "off" years)	Thinning - 5 years	Restoration Treatment No Seed Source (70% of OD)	Restoration Treatmt w Seed Source (30% of OD)	Restoration Harvest + Pine Planting	RxFire-Oak (30% seed source)
No mgmt 20 yrs high fire suppr									
Max ecological mgmt	Burn & thin 1st & last 5 years	2200		220	1500			300	
Fire only mgmt	Burn 2500 1st & last 5 years; must limit Oak to 100 vs 350	2500		300					100
Mechanical only mgmt	Thin 2500 last 5 yrs				2500		100	200	
ROI mgmt (revised)	Burn 2500 1st & 500 last 5 yrs	1500							100
Workshop	Burn 2500 1st & 500 last 5 yrs; add thin B to C	1500	250						100
Cost of Strategy (per acre)		\$ 50	\$ 90	\$ 50	\$ 600	\$ 200	\$ 200	\$ 300	\$ 50
Number of Years		10	10	10	5	20	20	20	20

Strategy Worksheet

Montane Red-Chestnut Oak Forest

71,847 acres

100000

Enter percentages from "Final Conditions" as a whole number

Vegetation Class (describe) <i>type x in left box if high-risk</i>	NRV	Current Condition	No mgmt 20 yrs - fire suppression	Max ecological mgmt	Fire only mgmt	Mechanical only mgmt	ROI mgmt	Workshop
A - Early	7%	3%	3%	12%	7%	19%	7%	9%
B - Mid Closed	26%	21%	19%	16%	15%	14%	17%	16%
C - Mid Open	20%	0%	3%	6%	5%	9%	6%	6%
D - Late Open	12%	3%	4%	15%	10%	22%	13%	14%
E - Late Closed	18%	61%	44%	30%	35%	18%	33%	33%
F- Old Growth Open	2%	0%	0%	2%	2%	1%	1%	2%
G- Old Growth Closed	14%	8%	22%	19%	21%	18%	21%	18%
x U- White Pine		1%	2%	0%	2%	0%	1%	1%
x U- Yellow Poplar		2%	2%	0%	2%	0%	1%	1%
x U- Pine-Dominated		1%	1%	0%	1%	0%	0%	0%

Ecological Departure

Uncharacteristic Classes

47	39	25	29	25	25	25
4	5	0	5	0	2	2

Total Cost \$ - \$ 2,365,000 \$ 1,300,000 \$ 2,450,000 \$ 1,102,500 \$ 1,208,800

ROI (vs. Min. Mgmt) 0.8 0.8 0.8 1.5 1.4

Scenarios (enter name below)	Enter Notes	Enter Management Strategies, Number of Acres/Year, Costs & Number of Years							
	Notes	RxFire	Thinning - Late Closed (commercial)	Thinning- Mid Closed Older (commercial)	Gap Harvest + Thin (small commercial)	Regen Harvest (commercial)	Restoration Harvest w No Oak Overstory (75%) (comm)	Restoration Harvest w Oak Overstory (25%) (comm)	Restoration Harvest + Plant (comm)
No mgmt 20 yrs - fire suppressi									
Max ecological mgmt	Thin Mid Closed in last 5 yrs	1000	100	100	100	100		75	225
Fire only mgmt		1300							
Mechanical only mgmt	Thin Mid Closed in last 5 yrs		400	600	400	400		75	225
ROI mgmt	Thin Mid Closed in last 5 yrs	800	75	50	75	50		75	
Workshop		800	125	75	75	100		75	
Cost of Strategy (per acre)		\$ 50	\$ 50	\$ 50	\$ 60	\$ 50	\$ 50	\$ 50	\$ 210
Number of Years		20	20	5	20	20	20	20	20

Strategy Worksheet

Northern Hardwood Forest

11,639 acres

100000

Enter percentages from "Final Conditions" as a whole number

Vegetation Class (describe) <i>type x in left box if high-risk</i>	NRV	Current Condition	No Mgmt 20 Yrs - fire suppression	-	-	-	-	-
A - Early	9%	2%	6%					
B - Mid Closed	18%	13%	9%					
C - Late Closed	69%	81%	82%					
D - Late Open	4%	4%	2%					

Ecological Departure

12	14	-	-	-	-	-
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Total Cost

\$ -	\$ -	\$ -	\$ -	\$ -
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ROI (vs. Min. Mgmt)

-	-	-	-	-
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	Enter Notes	Enter Management Strategies, Number of Acres/Year, Costs & Number of Years					
Scenarios (enter name below)							
<i>No Mgmt 20 Yrs - fire suppr</i>							
Cost of Strategy (per acre)							
Number of Years							

Strategy Worksheet

Riparian & Floodplain Systems

2,548 acres

100000

Enter percentages from "Final Conditions" as a whole number

Vegetation Class (describe) <i>type x in left box if high-risk</i>	NRV	Current Condition	No mgmt 20 yrs high fire suppression	Max ecological mgmt	Fire only mgmt	Mechanical only mgmt	ROI mgmt	-
A - Early	15%	4%	14%	16%				
B - Mid Closed	23%	14%	9%	10%				
C - Mid Open	13%	2%	3%	3%				
D - Late Open	40%	17%	26%	25%				
E - Late Closed	9%	60%	45%	44%				
x U- White Pine		2%	2%	2%				

Ecological Departure

Uncharacteristic Classes

54	39	38	-	-	-	-
2	2	2	0	0	0	0

Total Cost

\$ - \$ - \$ - \$ - \$ - \$ -

ROI (vs. Min. Mgmt)

- - - - -

Scenarios (enter name below)	Enter Notes	Enter Management Strategies, Number of Acres/Year, Costs & Number of Years				
		RxFire				
No mgmt 20 yrs high fire su						
Max ecological mgmt	33 acres/yr carryover from other systems	33				
Fire only mgmt	50 acres/yr carryover from other systems	50				
Mechanical only mgmt						
ROI mgmt	25 acres/yr carryover from other systems	25				
Cost of Strategy (per acre)		\$ -				
Number of Years		20				

Strategy Worksheet

Spruce-Fir Forest

2,236 acres

100000

Enter percentages from "Final Conditions" as a whole number

Vegetation Class (describe) <i>type x in left box if high-risk</i>	NRV	Current Condition	No mgmt 20 yrs high fire suppression	Max ecological mgmt	Fire only mgmt	Mechanical only mgmt	ROI mgmt	-
A - Early	18%	1%	7%	8%			8%	
B - Mid Closed	13%	5%	2%	2%			2%	
C - Mid Open	11%	0%	6%	8%			7%	
D - Late Closed	58%	54%	45%	69%			55%	
x U- Brush-Shrub		12%	12%	12%			12%	
x U- NOT Spruce or Fir		27%	27%	0%			16%	

Ecological Departure

Uncharacteristic Classes

40	40	24	-	-	28	-
39	39	12	0	0	28	0

Total Cost

\$ - \$ 240,000 \$ - \$ - \$ 90,000 \$ -

ROI (vs. Min. Mgmt)

17.9 - - 25.6 -

Enter Notes

Enter Management Strategies, Number of Acres/Year, Costs & Number of Years

Scenarios (enter name below)	Spruce Restoration					
No mgmt 20 yrs high fire su						
Max ecological mgmt	40					
Fire only mgmt						
Mechanical only mgmt						
ROI mgmt	15					
Cost of Strategy (per acre)	\$ 300					
Number of Years	20					

Strategy Worksheet

Northern Hardwood (slope only)

acres

100000

Enter percentages from "Final Conditions" as a whole number

Vegetation Class (describe) <i>type x in left box if high-risk</i>	NRV	Current Condition	Minimum Mgmt - 20 yrs	Maximum Mgmt	Streamlined Mgmt	Scenario 4	Scenario 5	Scenario 6
A - Early	10%	1%	10%					
B - Mid Closed	20%	9%	6%					
C - Late Closed	69%	86%	81%					
D - Late Open	1%	4%	3%					

Ecological Departure

High-Risk Classes

Vegetation Conversion

Total Cost

ROI (vs. Min. Mgmt)

20	14	-	-	-	-	-
0	0	0	0	0	0	0

\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-	-	-	-	-	-

	Enter Notes	Enter Management Strategies, Number of Acres/Year, Costs & Number of Years					
Scenarios (enter name below)	Transitions & Multipliers						
<i>Minimum Mgmt - 20 yrs</i>							
<i>Maximum Mgmt</i>							
<i>Streamlined Mgmt</i>							
<i>Scenario 4</i>							
<i>Scenario 5</i>							
<i>Scenario 6</i>							
Cost of Strategy (per acre)							
Number of Years							