Appendix A: Proposed Treatments

Table A-1. Lower Cowpasture Proposed Harvest Units by Alternative Actions

Proposed Harvest Units							
Proposed Harvest Area	Compartment/Stand Number	Approximate Acres		Forest Type*	Stand Age – Base Year 2014	Site Index	Treatment**
		Alt 2	Alt 3				
Beards Mountain							
BM-01*	958/14	14	14	85	95	65	SW
BM-01*	958/14	9	9	85	95	65	SWR
BM-02*	958/1	22	22	84	96	60	SW
BM-02	958/1	13	13	84	96	60	SWR
BM-03	982/16	39	39	59	98	60	SWR
BM-04	958/3	21	21	60	96	45	SWR
BM-05	958/12	13	13	53	90	70	FT
BM-05*	958/12	13	13	53	90	70	SWR
BM-06	932/18	22	22	53	105	80	SWR
BM-07	932/5	25	25	84	115	75	SWR
BM-08	917/32	25	25	15	105	65	SWR
BM-09	917/35	14	14	53	105	70	SWR
BM-10	917/36	16	12	53	105	45	SWR
BM-11	917/19	16	16	84	105	69	SWR
BM-12	932/21	32	32	10	26	60	HR
SUBTOTAL		**294**	**290**				
Cliftondale							
CD-01	1369/4	10	10	53	100	70	SWR
CD-02*	1369/26	6	6	53	100	70	SWR
CD-03	1369/20	18	18	45	105	50	SWR
CD-04*	1369/29	6	6	53	100	70	SWR
CD-05	1369/22	20	20	59	30	60	CTSI
CD-06	1369/21	10	10	59	30	60	CTSI
CD-07	1369/25	18	0	3	9	70	HR
CD-08	1369/5	5	5	53	100	70	FT
SUBTOTAL		**93**	**75**				
Craft Road							
CR-01	1359/1	34	34	53	112	70	SWR
CR-03	1359/18	22	22	53	114	60	SWR
CR-04	1359/16	27	27	53	31	60	CTSI
SUBTOTAL		**83**	**83**				
Limekiln							
LK-01	981/28	14	14	53	109	80	SWR
LK-03	982/45	24	24	60	109	65	SWR
LK-04	982/51	27	27	60	106	80	SW
LK-05	981/55	23	0	60	111	55	SWR
LK-06	981/30	22	22	60	44	80	CTSI
LK-07	981/5	33	33	10	44	85	CTSI
LK-08	954/1	39	39	45	98	55	SWR

Proposed Harvest Units							
Proposed Harvest Area	Compartment/Stand Number	Approximate Acres		Forest Type*	Stand Age – Base Year 2014	Site Index	Treatment**
		Alt 2	Alt 3				
LK-09	954/43	18	18	59	44	75	CTSI
LK-10	954/48	26	26	59	100	60	SWR
LK-11	954/12	39	39	54	80	70	SWR
LK-12	954/11	13	13	84	44	75	CTSI
LK-13	954/49	11	15	84	94	70	SWR
LK-14	954/50	49	49	42	42	80	CTSI
LK-15	957/7	51	51	56	48	70	CTSI
LK-16	957/17	17	0	10	48	70	CTSI
LK-17	957/15	14	0	85	95	80	SWR
LK-18	957/16	26	26	85	96	90	SWR
LK-19	957/19	34	34	84	83	65	SWR
LK-20	954/52	38	38	60	96	60	SWR
LK-21	955/26	12	12	84	84	75	SW
LK-25	956/13	18	18	84	103	80	SWR
LK-27	956/23	32	32	60	109	75	SWR
LK-28	934/16	32	30	60	76	65	SWR
LK-29	934/26	4	4	85	111	70	SWR
LK-30	933/10	17	17	84	85	80	SW
LK-30	933/10	15	15	84	85	80	SWR
LK-31	916/37	35	18	84	84	70	SWR
LK-32	933/11	25	25	53	97	75	SW
LK-33	933/9	25	25	85	98	75	SWR
LK-34	917/1, 933/1,12	83	83	85	87	70	TH
LK-35	916/38	12	12	84	84	85	SW
LK-36	891/8	14	14	85	95	65	SW
LK-37	891/9	23	23	85	85	85	SW
LK-38	934/23	7	7	50	43	100	CTSI
LK-39	934/23	12	12	50	43	100	CTSI
LK-40	956/14	27	27	3	26	60	HR
LK-41	954/39	21	0	3	25	60	HR
LK-42	982/3	29	12	53	31	70	CTSI
LK-43	916/1	23	23	3	31	70	HR
LK-44	957/11	19	19	53	33	70	CTSI
LK-45	916/15	17	17	3	25	60	HR
LK-46	916/31	25	25	3	29	70	HR
LK-47	957/8	40	40	53	33	60	CTSI
SUBTOTAL		**1085**	**978**				
McGraw Hollow							
MH-01	1349/28	22	22	45	101	45	SWR
MH-03	1349/39	19	19	84	91	85	FT
MH-04	1349/21	4	4	84	38	85	CTSI
MH-06	1326,1349/11,21	26	26	84	122	60	SWR
MH-07	1326/9	29	29	10	33	70	HR
MH-08	1326/34	33	33	84	122	65	SWR

Proposed Harvest Units							
Proposed Harvest Area	Compartment/Stand Number	Approximate Acres		Forest Type*	Stand Age – Base Year 2014	Site Index	Treatment**
		Alt 2	Alt 3				
MH-09	1326/14	31	31	84	114	80	FT
SUBTOTAL		**164**	**164**				
Pads Creek							
PC-01	925/15	9	9	56	95	80	FT
PC-02	925/8	41	41	56	95	80	FT
PC-04	925/1	25	25	53	90	60	FT
PC-05	925/19	20	20	53	90	60	FT
PC-06	925/3	3	3	3	30	60	HR
PC-07	925/6	17	17	3	54	90	HR
PC-08	966/9	4	4	3	37	60	HR
PC-09	926/17	29	29	3	45	70	HR
PC-10	926/15	12	12	3	40	60	HR
PC-11	965/2	2	2	3	43	70	HR
SUBTOTAL		**162**	**162**				
Sandy Springs							
SS-01	953/36	137	137	56	47	95	CTSI
SS-03	984/33	26	0	60	98	65	SWR
SS-04	984/9	17	17	59	97	60	SWR
SS-05*	983/1	12	12	84	91	70	SWR
SS-06	1005/9	30	0	60	111	70	SWR
SS-07	1006/17	13	13	59	79	70	SWR
SS-08*	1004/12	9	9	50	42	90	CTSI
SS-09	1004/9	17	17	50	42	80	CTSI
SS-10	1328/4	12	12	56	116	70	SWR
SUBTOTAL		**273**	**217**				
Total		**2,154**	**1,969**				

*Acres incorrectly identified in scoping notice
Treatment-**CTSI*-Commercial Timber Stand Improvement; ***FT-Free Thinning; ***HR***-Hardwood Restoration; ***SW***-Shelterwood; ***SWR***-Shelterwood with Reserves (aka Modified Shelterwood); ***TH***-Thinning

Table A-2. Lower Cowpasture Proposed Temporary Roads by Action Alternatives

Proposed Temporary Roads by Area		
Area	Approximate Miles	
	Alt 2	Alt 3
Beards Mountain	0.1	0.1
Cliftondale	0.5	0.8
Craft Road	0.1	0.1
Limekiln	8.3*	7.3
McGraw Hollow	1	0.9
Pads Creek	0.4	0.4
Sandy Springs	0.6	0.5
TOTAL	**11**	**10.1**

Table A-3. Lower Cowpasture Proposed TSI Units by Action Alternatives

Proposed Timber Stand Improvement Areas					
Compartment/Stand Number	Approximate Acres		Forest Type*	Stand Age – Base Year 2014	Site Index
	Alt 2	Alt 3			
Beards Mountain					
917/21	19	19	53	24	50
917/23	25	25	3	23	60
917/28	25	25	53	24	50
917/31	26	26	53	24	50
917/33	26	26	53	24	50
932/8	9	9	53	26	60
932/10	20	20	53	26	60
932/14	44	44	53	26	60
932/23	15	15	53	26	60
958/8	17	17	53	25	60
958/9	18	18	53	25	60
958/11	23	23	53	23	60
958/13	13	13	53	26	60
958/59	24	24	53	26	60
958/60	18	18	53	26	60
982/15	47	47	10	33	50
982/21	30	30	60	34	60
SUBTOTAL	**399**	**399**			
Limekiln					
916/23	13	13	52	29	60
916/24	9	9	56	29	70
916/25	30	30	50	30	70
916/27	16	16	3	30	70
916/28	20	20	53	29	70
916/32	15	15	56	28	70
916/33	28	28	53	28	70
934/15	23	23	53	21	70
934/23	19	19	50	42	100
954/8	18	18	3	26	60
954/8	10	10	3	26	60
954/34	23	23	52	25	70
954/36	16	16	53	26	70
954/37	25	25	52	24	60
955/7	22	22	3	24	60
955/9	22	22	3	23	60
955/12	15	15	60	24	60
955/14	28	28	52	26	60
955/29	11	11	50	43	95
956/2	19	19	3	25	70
956/5	24	24	60	24	60

Proposed Timber Stand Improvement Areas					
Compartment/Stand Number	Approximate Acres		Forest Type*	Stand Age – Base Year 2014	Site Index
	Alt 2	Alt 3			
956/6	11	11	3	24	60
956/22	35	35	60	24	50
957/17	0	17	56	48	70
981/9	15	15	53	30	60
981/16	9	9	53	21	50
981/18	23	23	52	20	50
982/6	35	35	53	20	80
982/44	33	33	59	21	60
SUBTOTAL	**567**	**584**			
McGraw Hollow					
1326/10	40	40	53	32	60
1326/22	19	19	53	33	60
1349/18	19	19	53	18	70
1349/31	24	24	59	18	50
1350/19	24	24	53	17	70
SUBTOTAL	**126**	**126**			
Pads Creek					
926/12	35	35	53	17	70
926/16	16	16	53	18	70
926/61	21	21	53	18	80
SUBTOTAL	**72**	**72**			
Sandy Springs					
953/9	6	6	53	17	70
953/17	15	15	53	17	70
983/3	22	22	60	24	60
984/8	16	16	60	29	50
984/10	7	7	53	17	70
984/14	22	22	53	17	70
984/15	16	16	53	45	80
984/18	25	25	56	29	80
984/20	23	23	56	31	70
984/30	10	10	53	17	70
1005/1	20	20	53	31	70
1005/3	23	23	53	86	70
1006/2	36	36	53	44	80
1006/18	17	17	53	31	80
1006/20	19	19	52	30	60
1328/11	9	9	53	31	60
SUBTOTAL	**286**	**286**			
TOTAL	**1,450**	**1,467**			

Table A-4. Lower Cowpasture Proposed Wildlife Clearings by Action Alternatives

Proposed Wildlife Clearings						
Proposed Clearing	Compartment/Stand Number	Approximate Acres		Forest Type*	Stand Age – Base Year 2014	Treatment**
		Alt 2	Alt 3			
Beards Mountain						
BMW-1	917/19,37	2.5	2.5	53, 84	105	Construct
BMW-2	917/36	1.9	1.9	53	105	Construct
BMW-3	917/30,33,35,39	2.2	2.2	53	105, 24, 105	Construct
BMW-4	917/30, 932/4	3.1	3.1	38, 53	115	Construct
BMW-5	917/32, 931/11	3.4	3.4	15, 53	105	Construct
BMW-6	981/27, 958/14	1.9	1.9	85	95	Construct
BMW-7	981/27, 958/14	5.5	5.5	85	95	Construct
BMW-8	958/3,16	1.1	1.1	48	96	Construct
BMW-9	958/1, 981/26, 982/48	3.9	3.9	84	95	Construct
BMW-10	982/16	3.9	3.9	59	98	Construct
BMW-11	917/32	3	3	15	105	Construct
SUBTOTAL		**32.4**	**32.4**			
Cliftondale						
CDW-1	1369/5	1.9	1.9	15	115	Construct
CDW-2	1369/25	0.5	0.5	3	9	Construct
CDW-3	1369/4	0.2	0.2	53	100	Construct
CDW-4	1369/5,6	1.1	1.1	3, 15	27, 115	Construct
CDW-5	1369/4	0.3	0.3	53	100	Construct
CDW-6	1369/20	4.7	4.7	45	105	Construct
CDW-7	1369/12,22	1.1	1.1	53, 59	100	Construct
CDW-8	1369/101	0.9	0.9	59, 60	30	Construct
CDW-9	1369/22,101	0.7	0.7	59	30	Construct
CDW-10	1369/21	3.4	3.4	59	30	Construct
CDW-11	1369/12	0.5	0.5	53	100	Construct
SUBTOTAL		**15.3**	**15.3**			
Craft Road						
CRW-1	1359/18	6.2	6.2	53	114	Construct
CRW-2	1359/16	4.3	4.3	53	31	Construct
SUBTOTAL		**10.5**	**10.5**			
Limekiln						
LKW-1	891/4,6,9	7.9	7.9	53, 85	85	Construct
LKW-2	892/1,28	3.1	3.1	59, 53	41, 1	Construct
LKW-3	891/8	1.5	1.5	85	0	Construct
LKW-4	916/ 9,38	13.8	13.8	53, 84	84	Construct
LKW-5	916/29,37	3.5	3.5	84, 60	84	Construct
LKW-6	916/3,8	5.1	5.1	15, 53	84, 118	Construct
LKW-7	933/9,12	11.2	11.2	53, 85	87, 98	Construct
LKW-8	933/11	2.4	2.4	53	0	Construct
LKW-9	933/12	1.7	1.7	53	87	Construct
LKW-10	916/13,16	7.1	7.1	53, 56	86, 114	Construct
LKW-11	916/12,30	5.1	5.1	47	79, 87	Construct
LKW-12	933/08	2.8	2.8	47	87	Construct
LKW-13	933/3,4,8	6.8	6.8	47, 53	44, 85, 87	Construct
LKW-14	933/3,10	6.6	6.6	47, 53,	85, 87	Construct

Proposed Wildlife Clearings						
Proposed Clearing	Compartment/Stand Number	Approximate Acres		Forest Type*	Stand Age – Base Year 2014	Treatment**
		Alt 2	Alt 3			
				84		
LKW-15	933/7,8,10, 934/1	2.3	2.3	15, 47	82, 85, 87, 107	Construct
LKW-16	924/16	3	3	60	76	Construct
LKW-17	933/2, 934/2	2.3	2.3	47, 53	44, 49	Construct
LKW-18	956/22	1.6	1.6	60	25	Construct
LKW-20	957/10,19	2.6	2.6	15, 84	83,98	Construct
LKW-21	957/19	3.8	3.8	84	83	Construct
LKW-22	954/52	2.1	2.1	60	96	Construct
LKW-23	954/5,43	1	1	10, 45	44, 103	Construct
LKW-24	954/35, 981/5	1.6	1.6	53, 59	44	Construct
LKW-25	981/30	1.4	1.4	60	44	Construct
SUBTOTAL		**100.3**	**100.3**			
McGraw Hollow						
MHW-1	1326/10	8.3	8.3	53	32	Construct
MHW-2	1326/34	2.1	2.1	84	122	Construct
MHW-3	1326/9	2.7	2.7	10	33	Construct
MHW-4	1326/11	0.6	0.6	84	122	Construct
MHW-5	1326/11	1.8	1.8	84	122	Construct
MHW-6	1326/11 1349/20	1.1	1.1	84	122 123	Construct
MHW-7	1349/21,39	2.3	2.3	84	38, 91	Construct
MHW-8	1326/11 1349/20	1.2	1.2	84	122 123	Construct
MHW-9	1349/39	5	5	84	91	Construct
MHW-10	1349/23	2	2	84	38	Construct
MHW-11	1349/26	4.3	4.3	56	38	Construct
MHW-12	1349/28	4.1	4.1	45	101	Construct
MHW-13	1336/14	2.6	2.6	84	114	Construct
MHW-14	1336/14	3.9	3.9	84	114	Construct
SUBTOTAL		**42**	**42**			
Pads Creek						
PCW-1	926/17	7.8	7.8	3	45	Construct
PCW-2	925/4,6,8	10.4	10.4	3, 56	44, 54, 95	Expand
PCW-3	925/1,3, 1309/5	7	7	3, 53	30, 87, 90	Expand
PCW-4	926/23, 965/1	1.6	1.6	53	18, 86	Expand
PCW-5	925/1, 1309/5	1.1	1.1	53	87, 90	Expand
PCW-6	966/1,4,5,6,51	3.5	3.5	48, 52, 60	37, 82, 87, 97	Expand
PCW-7	966/1	2.2	2.2	60	37	Expand
PCW-8	926/17	5	5	3	45	Construct
PCW-9	926/17	1.2	1.2	3	45	Construct
SUBTOTAL		**39.8**	**39.8**			
Sandy Springs						
SSW-1	959/36	4	4	56	47	Construct
SSW-2	984/8,21,33	5.9	0	53, 60	29, 98, 98	Construct
SSW-3	984/9	3.1	3.1	59	97	Construct
SSW-4	1005/1	5.8	5.8	53	31	Construct

Proposed Wildlife Clearings						
Proposed Clearing	Compartment/Stand Number	Approximate Acres		Forest Type*	Stand Age – Base Year 2014	Treatment**
		Alt 2	Alt 3			
SSW-5	983/1,2	2.4	2.4	84, 41	91	Expand
SSW-6	983/1	0.8	0.8	84	91	Construct
SSW-7	1005/3,6	18.3	4.6	52, 53	43, 86	Construct
SSW-8	1005/6	1.8	1.8	53	43	Expand
SSW-9	1005/9	1.7	0	60	111	Construct
SSW-10	1005/9	2.1	0	60	111	Construct
SSW-11	1005/12,14	8.2	8.2	53	86, 111	Expand
SSW-12	1006/16	1.5	1.5	59	89	Expand
SSW-13	1006/17	2	2	53, 59	64, 79	Construct
SSW-14	1004/12	3.3	3.3	50, 53	42	Construct
SSW-15	1006/2	1.4	1.4	53	44	Construct
SSW-16	1004/8,9	1.6	1.6	50, 53	42, 99	Construct
SSW-17	1328/38	2.2	2.2	53	39	Construct
SSW-18	1328/4,6	2.1	2.1	53, 56	39, 116	Expand
SSW-19	1328/4	0.9	0.9	56	116	Expand
SSW-20	1328/5	1.8	1.8	60	116	Expand
SSW-21	1328/5,6	1.2	1.2	53, 60	39, 116	Expand
SSW-22	1328/5,6	2.9	2.9	53, 60	39, 116	Expand
SSW-23	1328/5,6	4.7	4.7	60, 53	39, 116	Expand
SUBTOTAL		**79.7**	**56.3**			
Total		**320**	**296.6**			

*-*Forest Type:* ***3***=White Pine; ***10***=White Pine-Upland Hardwoods; ***15***=Pitch Pine-Oak; ***41***=Cove Hardwood -White Pine-Hemlock; ***45***=Chestnut Oak-Scarlet Oak-Yellow Pine; ***47***=White Oak-Black Oak-Yellow Pine; ***48***=Northern Red Oak-Hickory-Yellow Pine; ***50***=Yellow Poplar; ***52***=Chestnut Oak; ***53***=Scarlet Oak; ***60***=Chestnut Oak-Scarlet Oak; ***84***=Chestnut Oak-White Oak-Scarlet Oak; ***85***=White Oak-Black Oak-Hickory.

Table A-5. Lower Cowpasture Proposed Other Vegetation and Wildlife Habitat Improvements

Other Vegetation Wildlife Habitat Improvements		
Proposed Activity	Compartment/Stand Number	Approximate Units
Beards Mountain		
Waterhole Development	932/2	1
Waterhole Development	932/5	1
SUBTOTAL		***2***
Limekiln		
Waterhole Development	916/37	1
Waterhole Development	937/11	3
Waterhole Development	933/12	1
Waterhole Development	954/1	1
Waterhole Development	954/12	1
Waterhole Development	954/50	2
Waterhole Development	954/52	2
Waterhole Development	956/13	1
Waterhole Development	981/7	1
Waterhole Development	981/19	2
Waterhole Development	982//1	2
SUBTOTAL		***17***

Other Vegetation Wildlife Habitat Improvements		
Proposed Activity	**Compartment/Stand Number**	**Approximate Units**
Sandy Springs		
Waterhole Development	1004/9	3
SUBTOTAL		***3***
TOTAL		***22***

Table A-6. Lower Cowpasture Proposed Burn Units by Action Alternatives

Alt 2 Lower Cowpasture Proposed Burn Units				
	Proposed Burn Units	**Approximate Acres**		
		NFS Acres	**Douthat Acres**	**Total**
1	Pine Spur Ridge	2142	0	2142
2	White Rocks Tower	1223	0	1223
3	Slicky Slide	472	0	472
4	Coffee Pot	361	0	361
5	Cigar Ridge	568	0	568
6	Brown Hollow	629	0	629
7	Mill Mountain	546	0	546
8	Big Hollow	443	0	443
9	McGraw	599	0	599
10	Orebank	1969	0	1969
11	North Short Mountain	2259	0	2259
12	Short Mountain	1576	0	1576
13	Walton Tract Fields	121	0	121
		12908	**0**	**12908**

Alt 3 Lower Cowpasture Proposed Burn Units				
	Proposed Burn Units	**Approximate Acres**		
		NFS Acres	**Douthat Acres**	**Total**
1	Pine Spur Ridge	2142	471	2613
2	White Rocks Tower	1223	0	1223
3	Slicky Slide	0	0	0
4	Coffee Pot	361	0	361
5	Cigar Ridge	568	0	568
6	Brown Hollow	607	7	614
7	Mill Mountain	546	0	546
8	Big Hollow	0	0	0
9	McGraw	599	0	599
10	Orebank	1969	0	1969
11	North Short Mountain	2259	0	2259
12	Short Mountain	1576	0	1576
13	Walton Tract Fields	121	0	121
		11971	**478**	**12449**

Appendix B: Projected Temporal Schedule

Table B-1. Lower Cowpasture Proposed Harvest Schedule

Proposed Harvest Summary			
Sale Year	**Sale Name**	**Units**	**Acres**
2015	Limekiln 3	LK 25, LK 27-29, LK 38-40	347
	Sandy Springs	SS 1, SS 4-5, SS 7-10	
2016	Limekiln 2	LK 1, LK 3-4, LK 6-14, LK 42	621
	Beards Mt.	BM 1-12	
2017	Pads Creek	PC 1-2, PC 4-11	326
	McGraw Hollow	MH 1, MH 3-4, MH 6-9	
2018	Limekiln 1	LK 30-37, LK 43, LK 45-46	372
	Cliftondale	CD 1-6, CD 8	
2019	Limekiln 4	LK 15, LK 18-21, LK 44, LK 47	303
	Craft Road	CR 1, CR 3-4	
Total			**1969**

Table B-2. Lower Cowpasture Proposed Temporary Roads Schedule

Proposed Temporary Roads Schedule	
Year	**Area**
2015	Sandy Springs
	Limekiln 3
2016	Limekiln 2
	Beards Mountain
2017	McGraw Hollow
	Pads Creek
2018	Cliftondale
	Limekiln 1
2019	Craft Road
	Limekiln 4

Table B-3. Lower Cowpasture Proposed Timber Stand Improvement Schedule

Proposed TSI Schedule	
Year	**Area**
2015	Limekiln 3
	Sandy Springs
2016	Limekiln 2
	Beards Mt.
2017	McGraw Hollow
	Pads Creek
2018	Cliftondale
	Limekiln 1
2019	Craft Road
	Limekiln 4

Table B-4. Lower Cowpasture Proposed Wildlife Clearings Schedule

Proposed Wildlife Clearings Summary		
Projected Year of Construction *	**Area**	**Unit**
2017	Limekiln	LKW 16
	Sandy Springs	SSW 4-12
2018	Limekiln	LKW 18
	Sandy Springs	SSW 1, SSW 13-17
	Beards Mt.	BMW 5-11
2019	Limekiln	LKW 23-25
	Pads Creek	PCW 4
	Sandy Springs	SSW 18-23
	Beards Mt.	BMW 1-4
	McGraw Hollow	MHW 1-8
2020	Limekiln	LKW 7-8, LKW 12-15, LKW 17
	McGraw Hollow	MHW 9-14
	Pads Creek	PCW 5-9
	Sandy Springs	SSW 2-3
	Cliftondale	CDW 6-7, CDW 11
	Craft Road	CRW 2
2021	Limekiln	LKW 1-4, LKW 9, LKW 22
	Pads Creek	PCW 1-3
	Cliftondale	CDW 8-10
2022	Craft Road	CRW 1
	Limekiln	LKW 5-6, LKW 10-11, LKW 20-21
	Cliftondale	CDW 1-5

* Year of construction is contingent on harvest completion within the unit and available funding

Table B-5. Lower Cowpasture Proposed Other Vegetation/Wildlife Habitat Improvement Schedule

Other Vegetation Wildlife Habitat Improvements			
Year	**Proposed Activity**	**Compartment/Stand Number**	**Approximate Units**
2019	Waterhole Development	956/13	1
	Waterhole Development	1004/9	3
2020	Waterhole Development	932/2	1
	Waterhole Development	932/5	1
	Waterhole Development	954/1	1
	Waterhole Development	954/12	1
	Waterhole Development	954/50	2
	Waterhole Development	981/7	1
	Waterhole Development	981/19	2
	Waterhole Development	982//1	2
2021	Waterhole Development	916/37	1
	Waterhole Development	937/11	3
	Waterhole Development	933/12	1
	Waterhole Development	954/52	2

Table B-6. Lower Cowpasture Proposed Prescribed Burn Unit Schedule

Proposed Prescribed Burn Schedule		
Year	**Prescribed Burn Area**	**Acres**
2016	Short Mountain	1,590
	North Short Mountain	2,259
	Mill Mountain	546
	Walton Tract	121
2017	Middle Mountain (WSMR)	921
	Coffee Pot	361
2018	Orebank	1,969
2019	North Smith Creek (WSMR)	1,284
2020	Blue Grass (WSMR)	3,211
	Brown Hollow	614
	South Smith Creek (WSMR)	1,862
2021	Cigar Ridge	569
	Orebank	1,969
2022	McGraw Hollow	599
	North Short Mountain	2,259
2023	Pine Spur Ridge	2,613
	Mill Mountain	546
2024	White Rocks Tower	1,223

Appendix C: Monitoring

Monitoring of the project actions will occur to ensure that various aspects of the project adhere to the standards of the Forest Plan, the applicable State Best Management Practices, and conform to project specific mitigation measures set forth in the Lower Cowpasture EA. Monitoring will also occur to verify the accuracy of the predicted effects the EA discloses.

Due to the collaborative nature of the project development, we envision conducting monitoring trips with the public prior to, and throughout implementation of the activities within the Lower Cowpasture project

Specific monitoring responsibilities and activities are listed below in Table C-1.

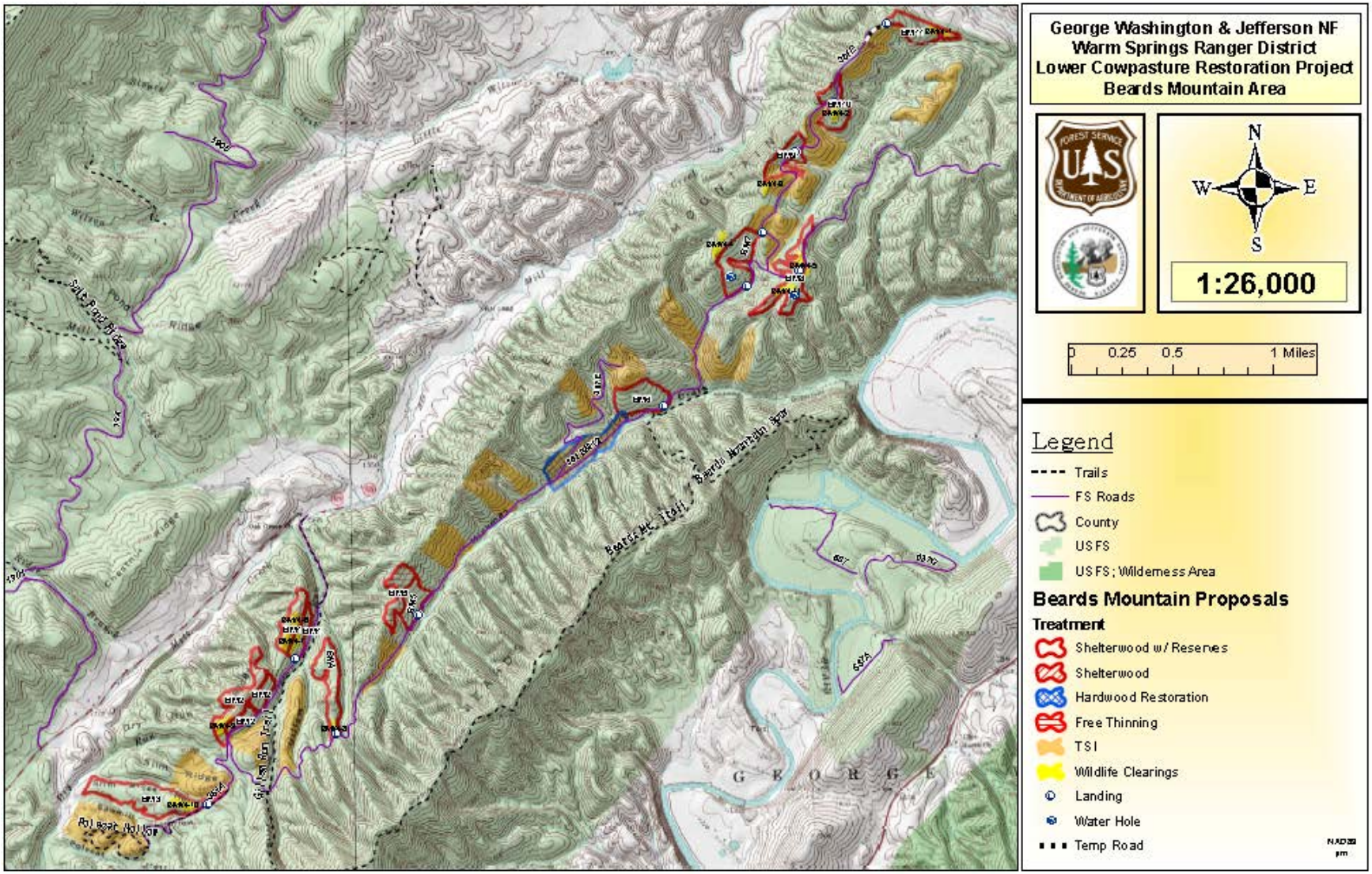
Table C-1. Lower Cowpasture Proposed Monitoring Guide

Monitoring Activity	Responsible Party
Review the project prior to implementation to ensure that the locations of any access routes, sale boundaries, and the silvicultural prescriptions are carried out as described by the EA	District Timber Mgmt. Assistant/District Wildlife Biologist
Ensure actual operation of the timber sales follow measures described in this EA.	District Timber Mgmt. Assistant
Field inspection of timber sale activities during implementation to ensure State BMPs, Forest Standards and project specific mitigations are being met.	District Timber Mgmt. Assistant/Timber Sale Contract Team/Timber Sale Administrator
Survey stands 3 years post-harvest to determine harvest areas have regenerated adequately and monitor control needs for non-native invasive plants.	Timber Mgmt. Assistant
Monitor temporary road locations, landings, and bladed skid roads following sale closure to ensure sites are stable and adequately re-vegetated.	Timber Mgmt. Assistant
Review the project prior to implementation to ensure that the construction and location of National Forest System trails are carried out as described in this EA	District Recreation Mgmt. Assistant
Review the project prior to implementation to ensure that the locations of any dozer lines, hand lines, and prescribed burn unit boundaries are carried out as described in the EA	Fire Mgmt. Assistant/Wildlife Biologist
Ensure actual operation of prescribed burns follows measures described in this EA	District Fire Mgmt. Assistant
Conduct prescribed burn monitoring in accordance with forest-wide monitoring protocols for prescribed burns.	Fire Mgmt. Assistant
Continue conducting aquatic macro invertebrate sampling within the Lower Cowpasture Project area.	District Wildlife Biologist
Continue conducting water quality sampling within the Lower Cowpasture Project area	District Wildlife Biologist
Continue conducting breeding bird surveys within the Lower Cowpasture Project area.	District Wildlife Biologist
Monitor wildlife clearings after construction to ensure sites are adequately vegetated and monitor control needs for non-native invasive plants species	District Wildlife Biologist

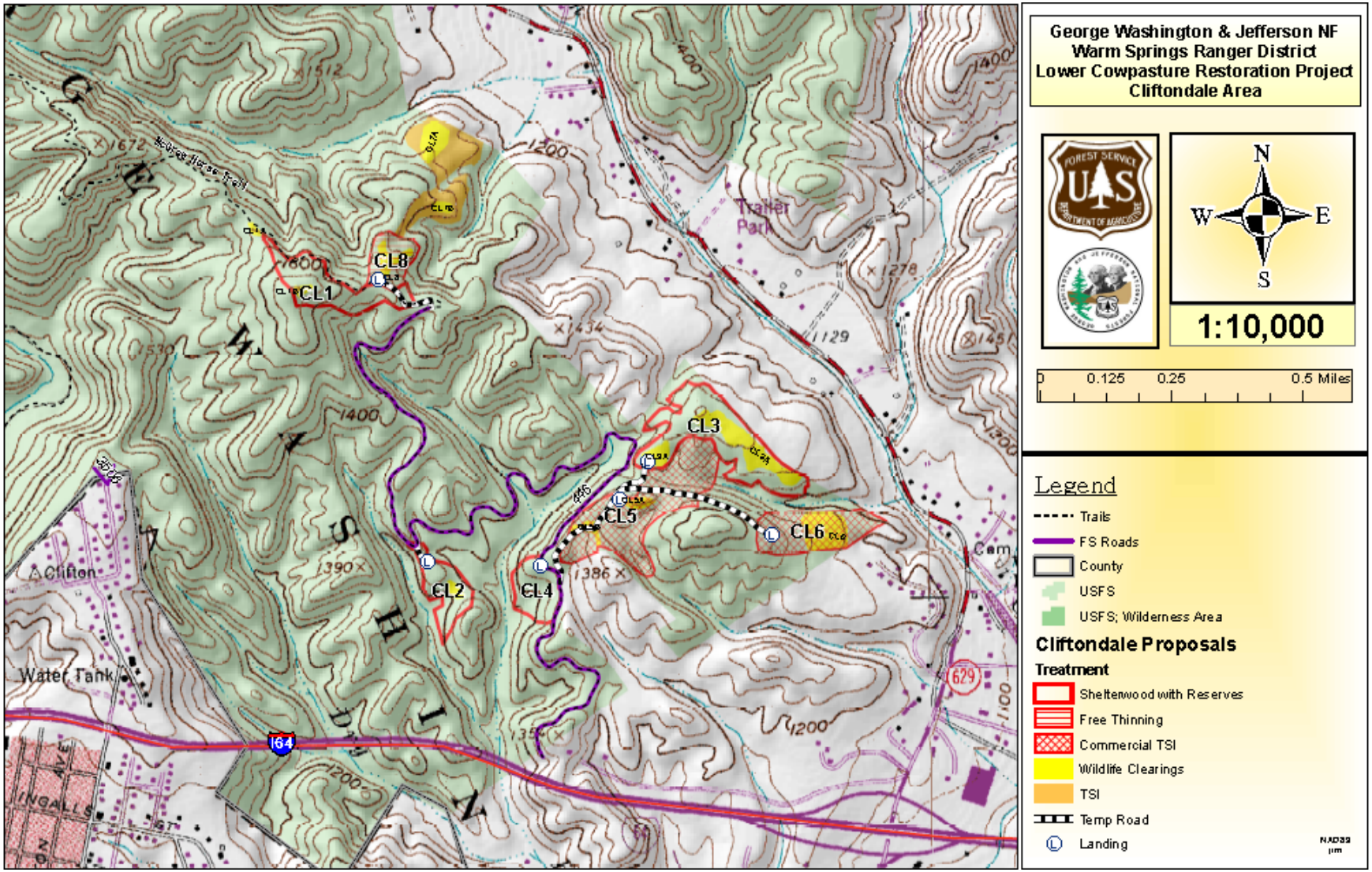
Appendix D: Alternative 2 – Proposed Action Maps

The Proposed Action is the activities that were identified in the Scoping Letter that was available for public comment on July 14, 2014

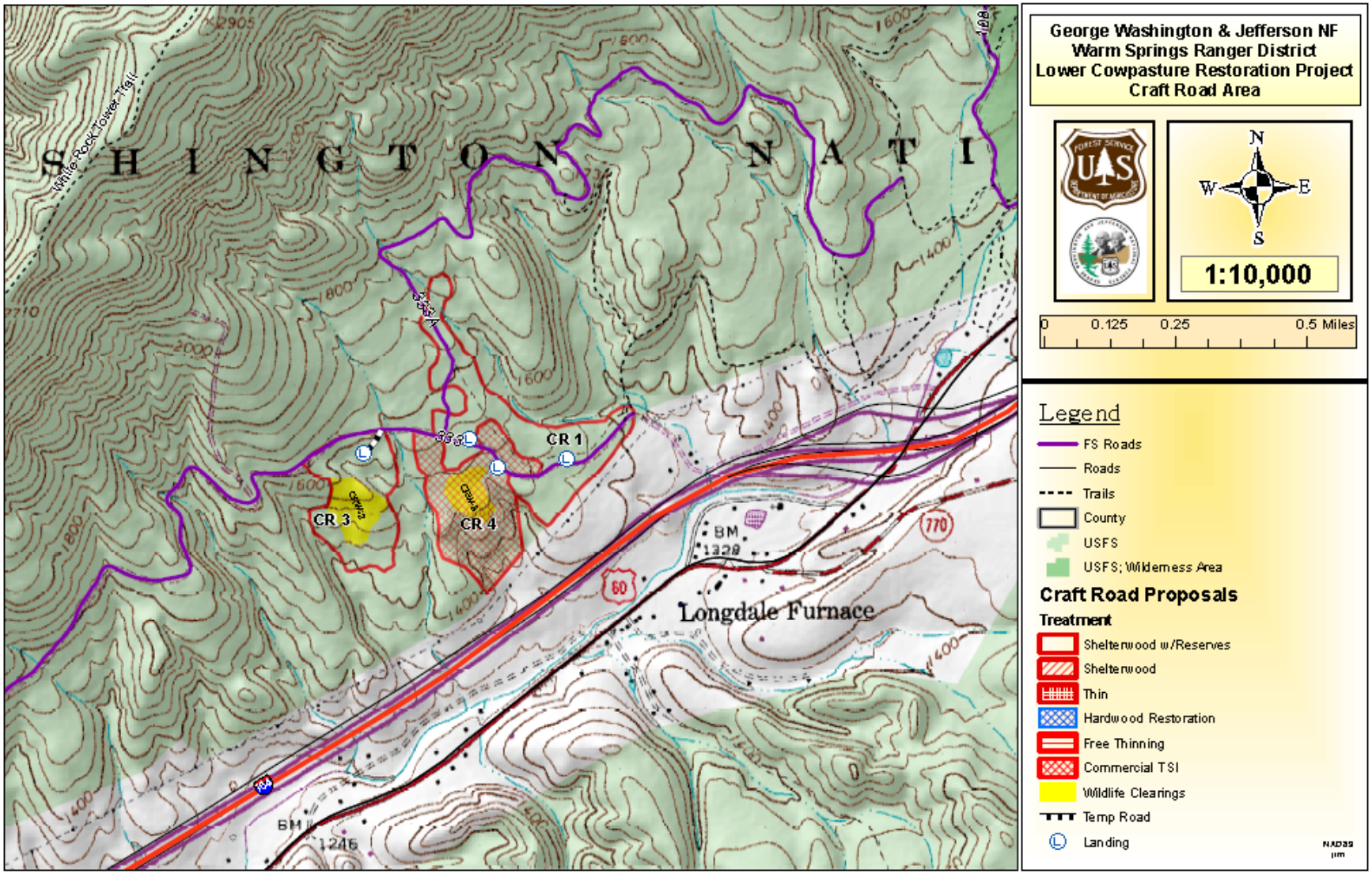
Map D-1. Beards Mountain Area



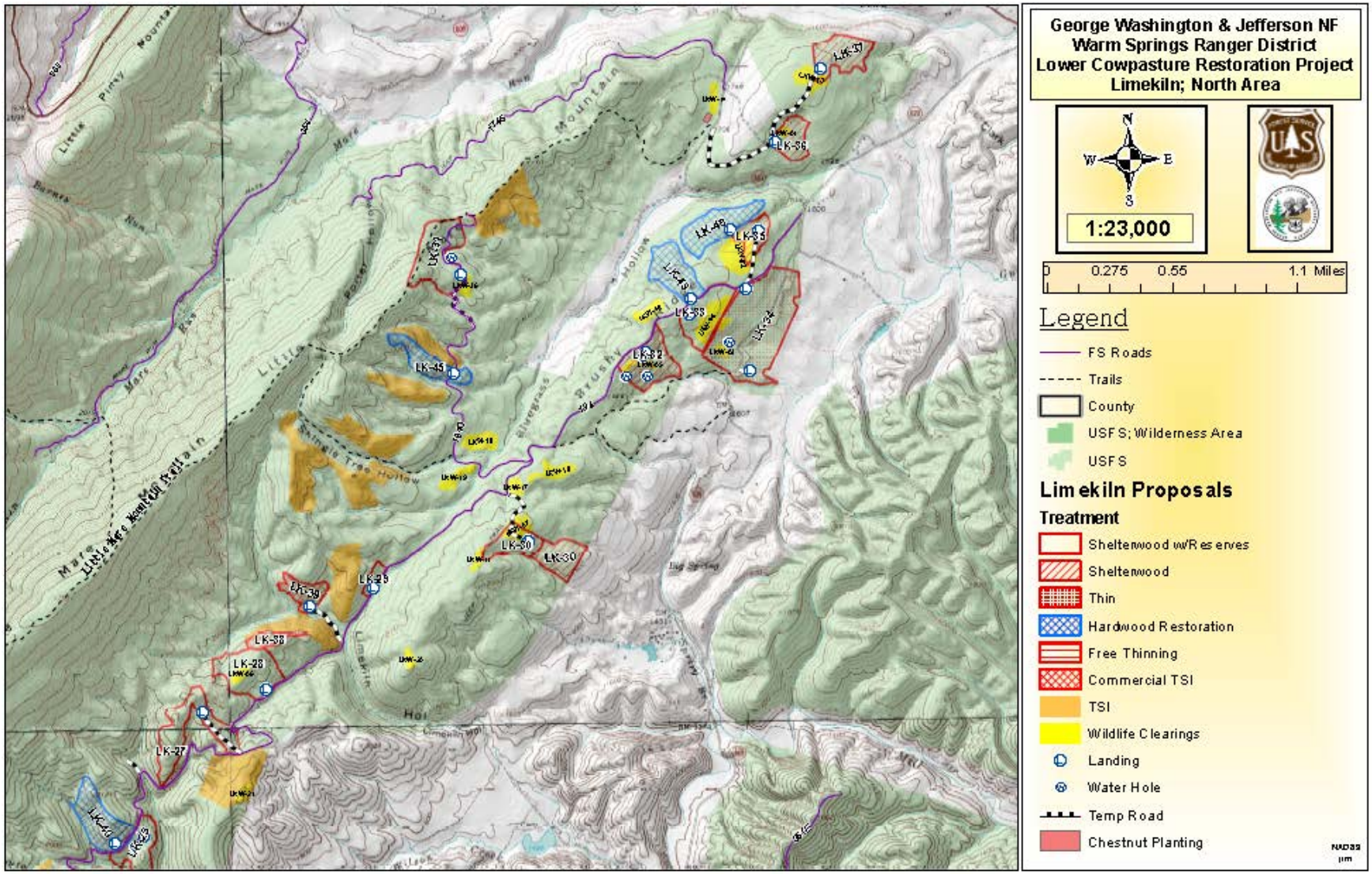
Map D-2. Cliftondale Area



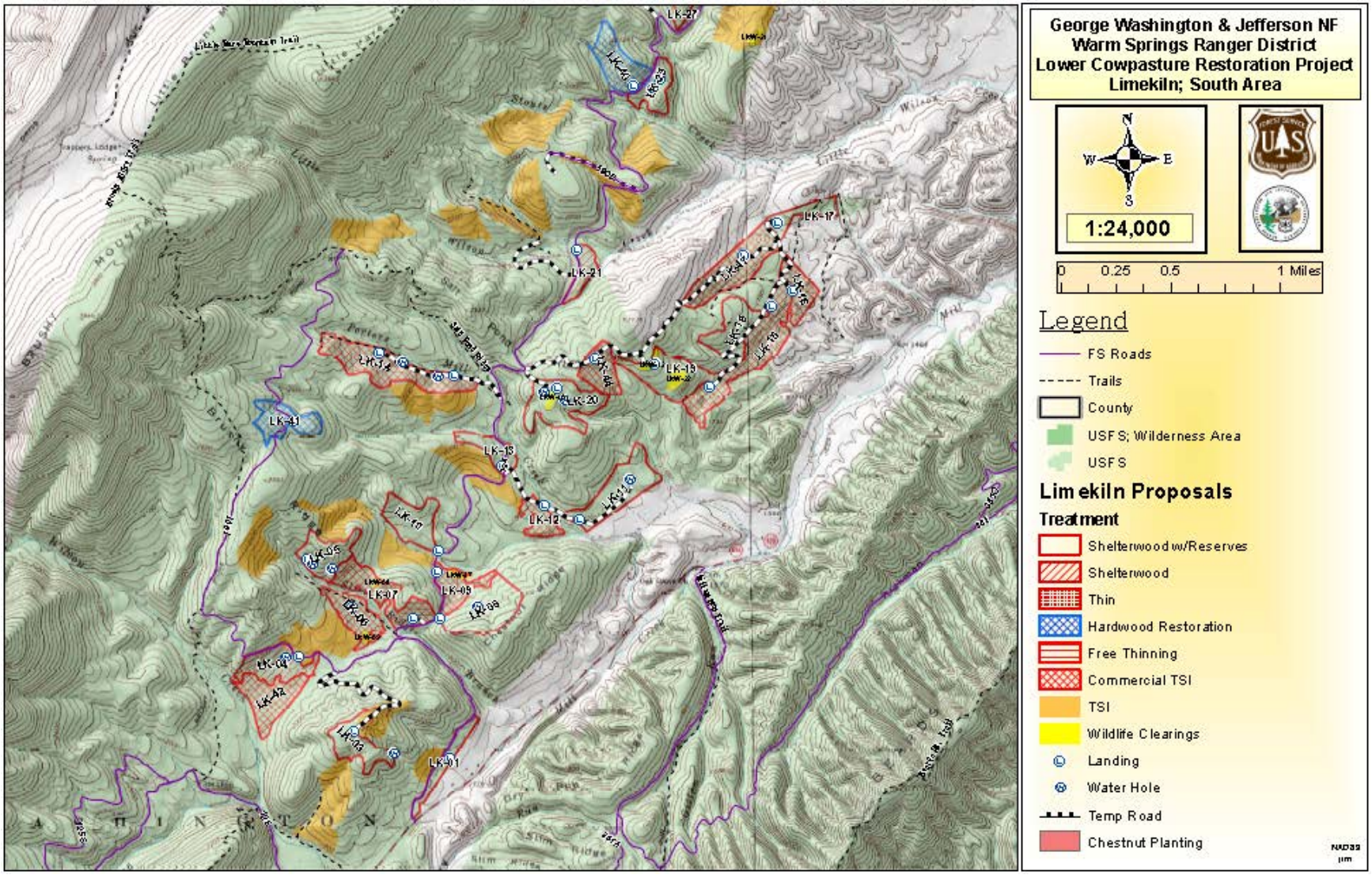
Map D-3. Craft Road Area



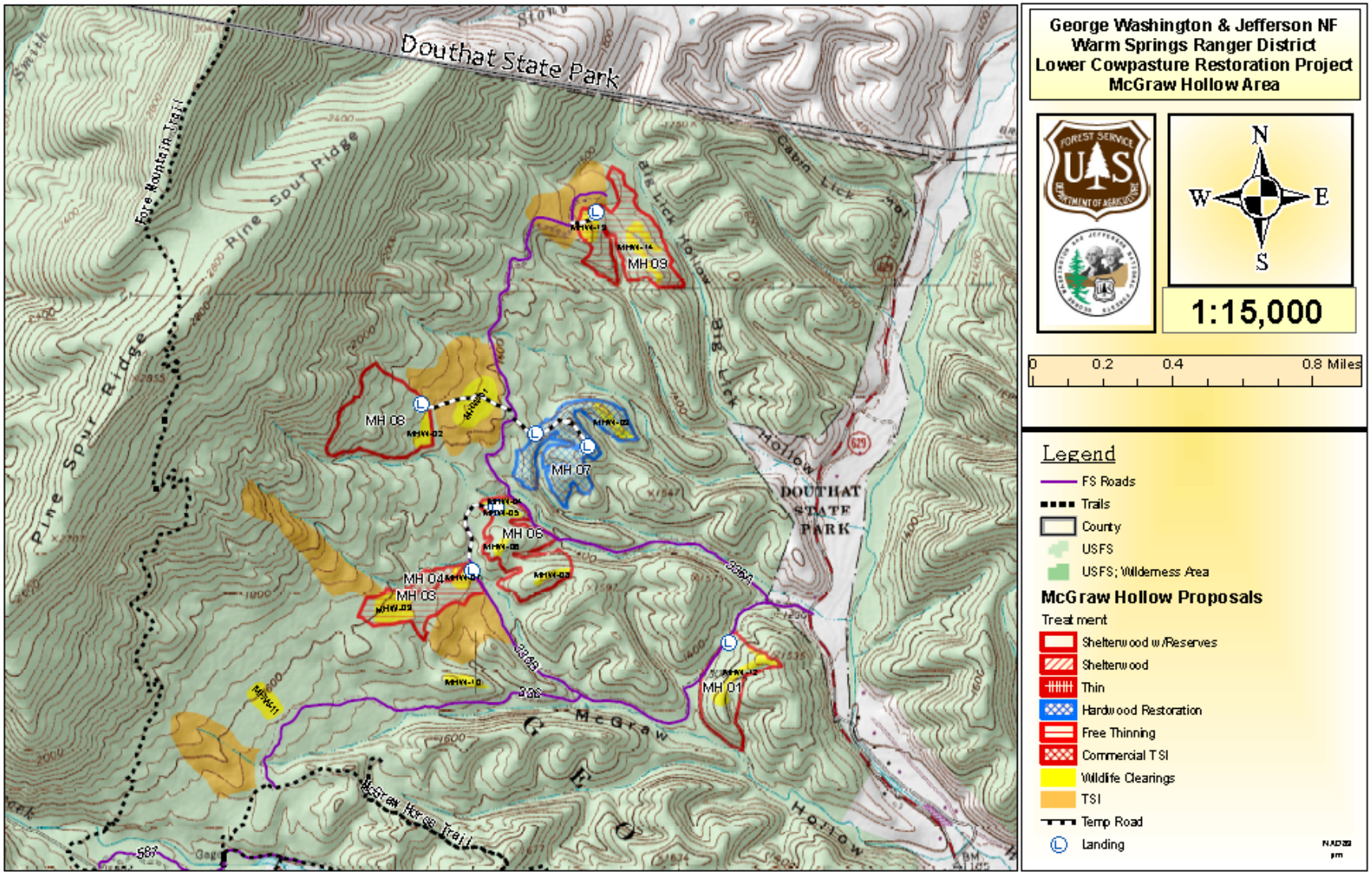
Map D-4. Limekiln North Area



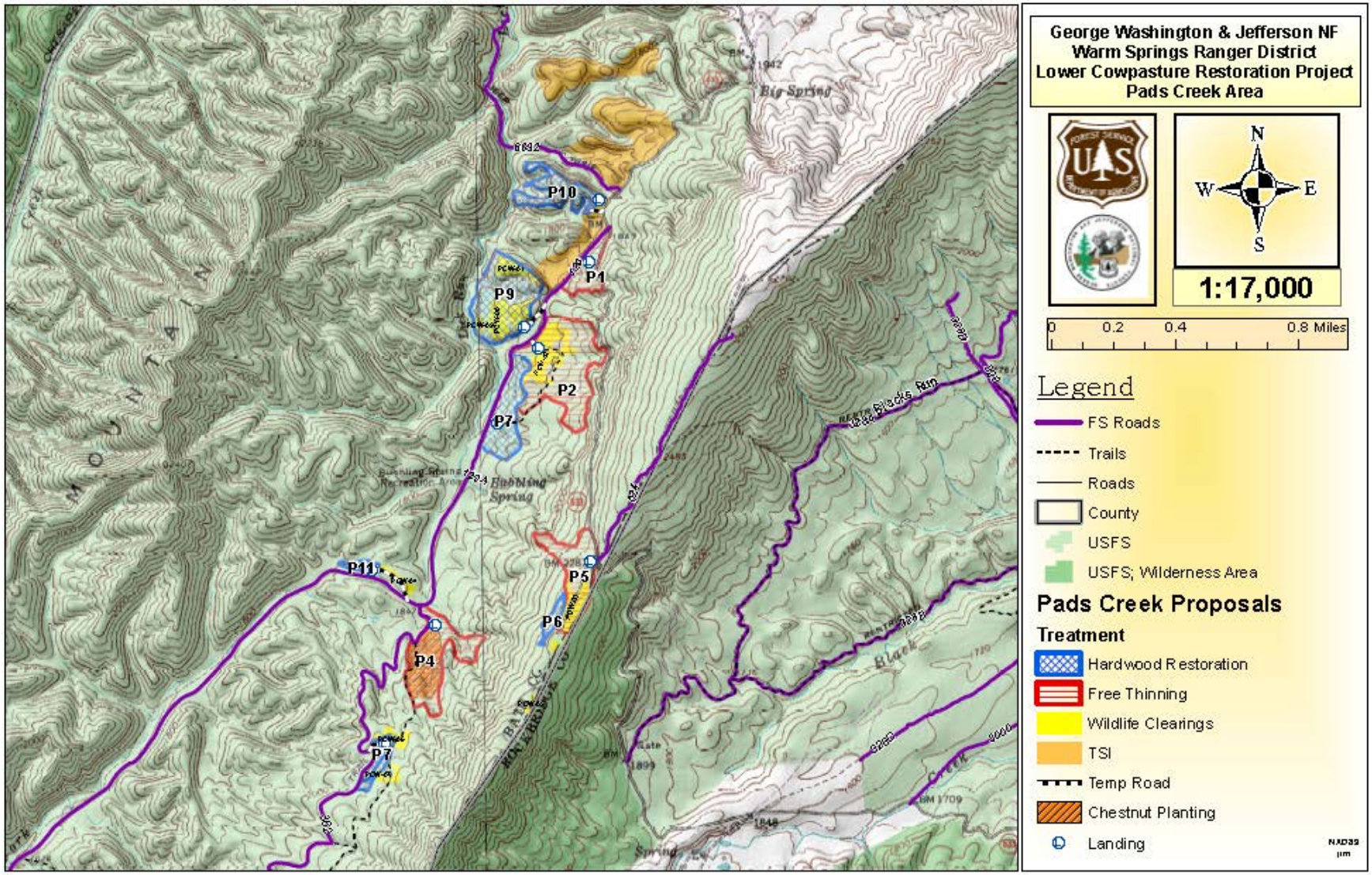
Map D-5. Limekiln South Area



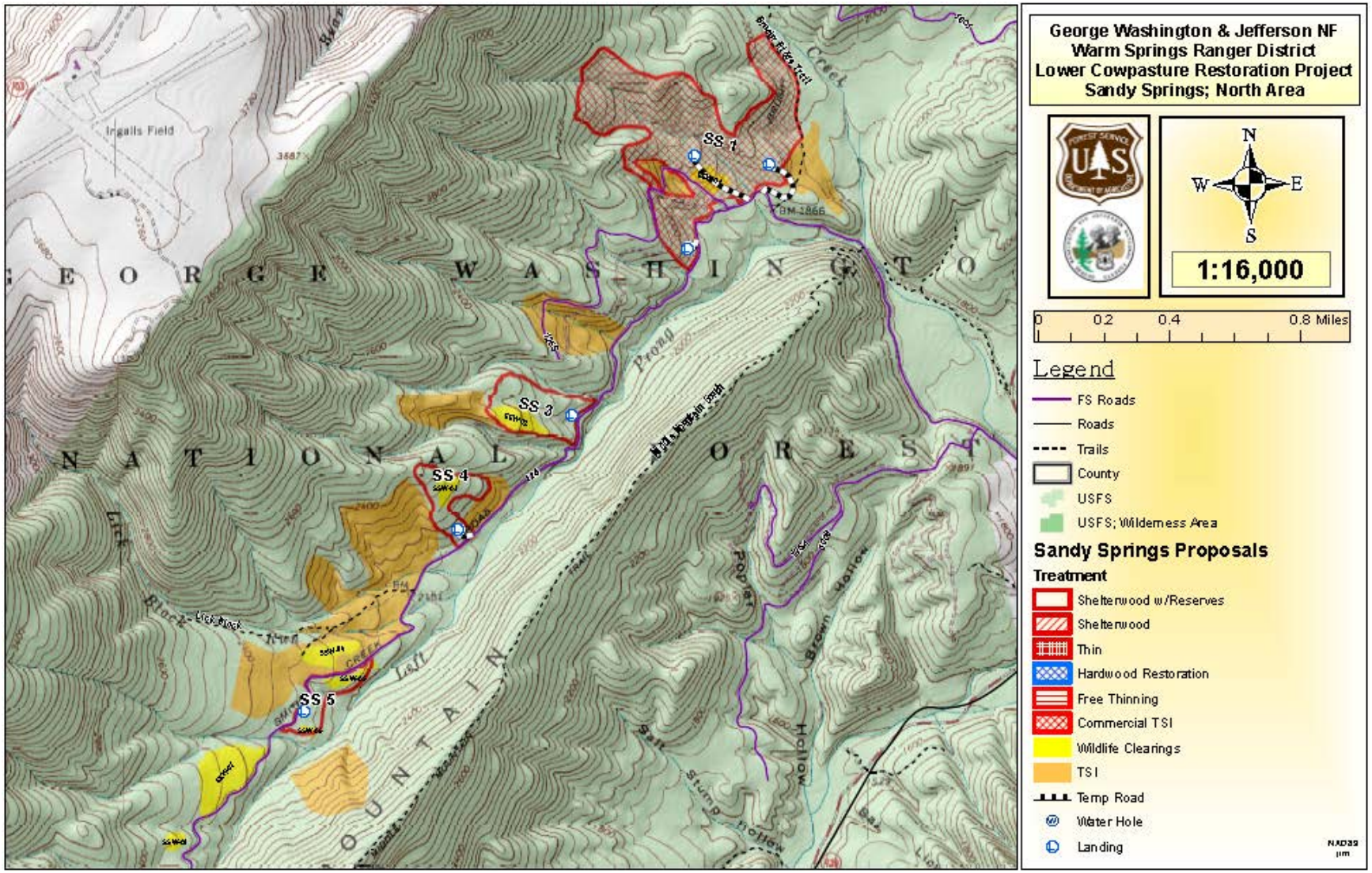
Map D-6. McGraw Hollow Area



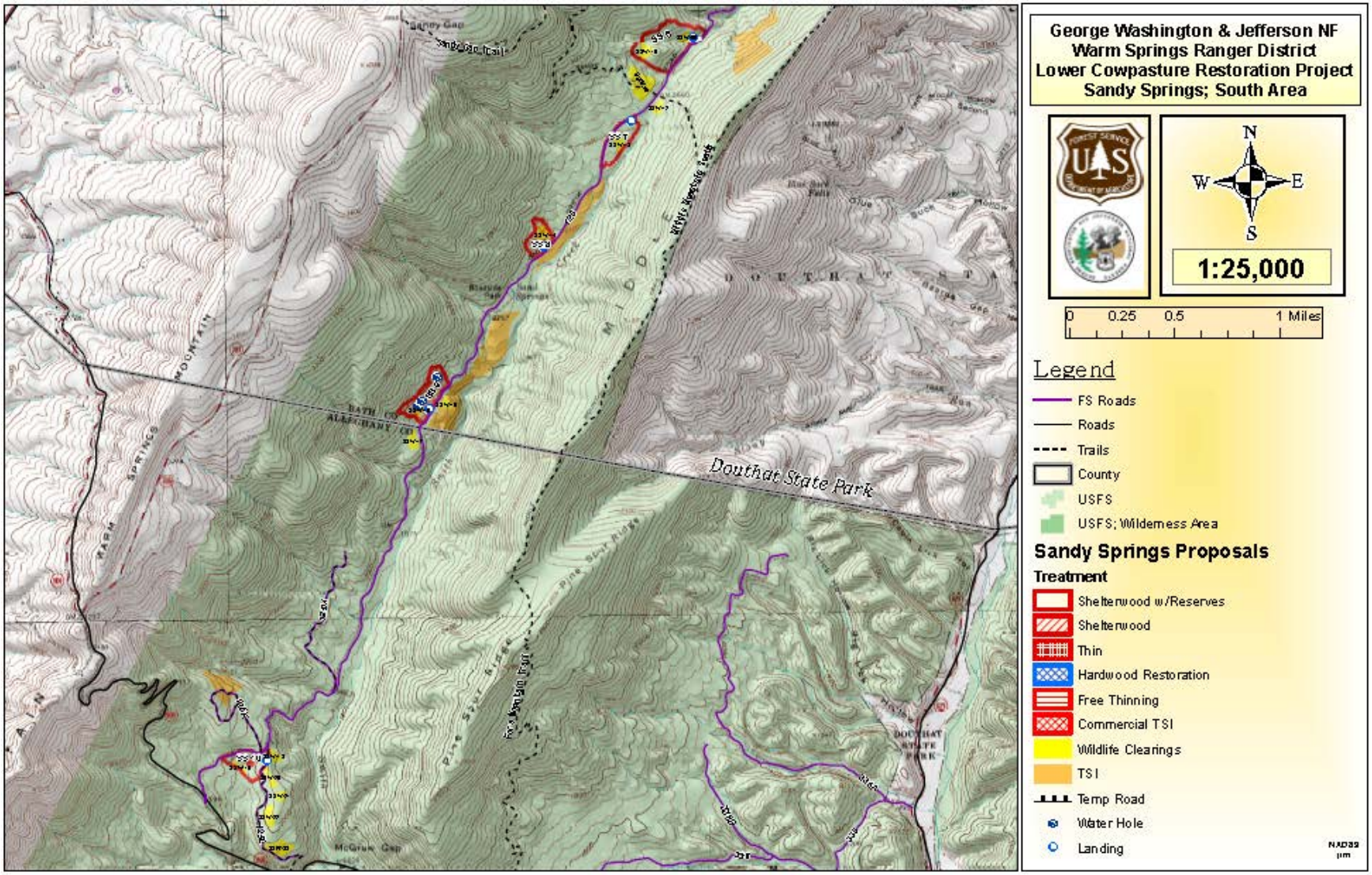
Map D-7. Pads Creek Area



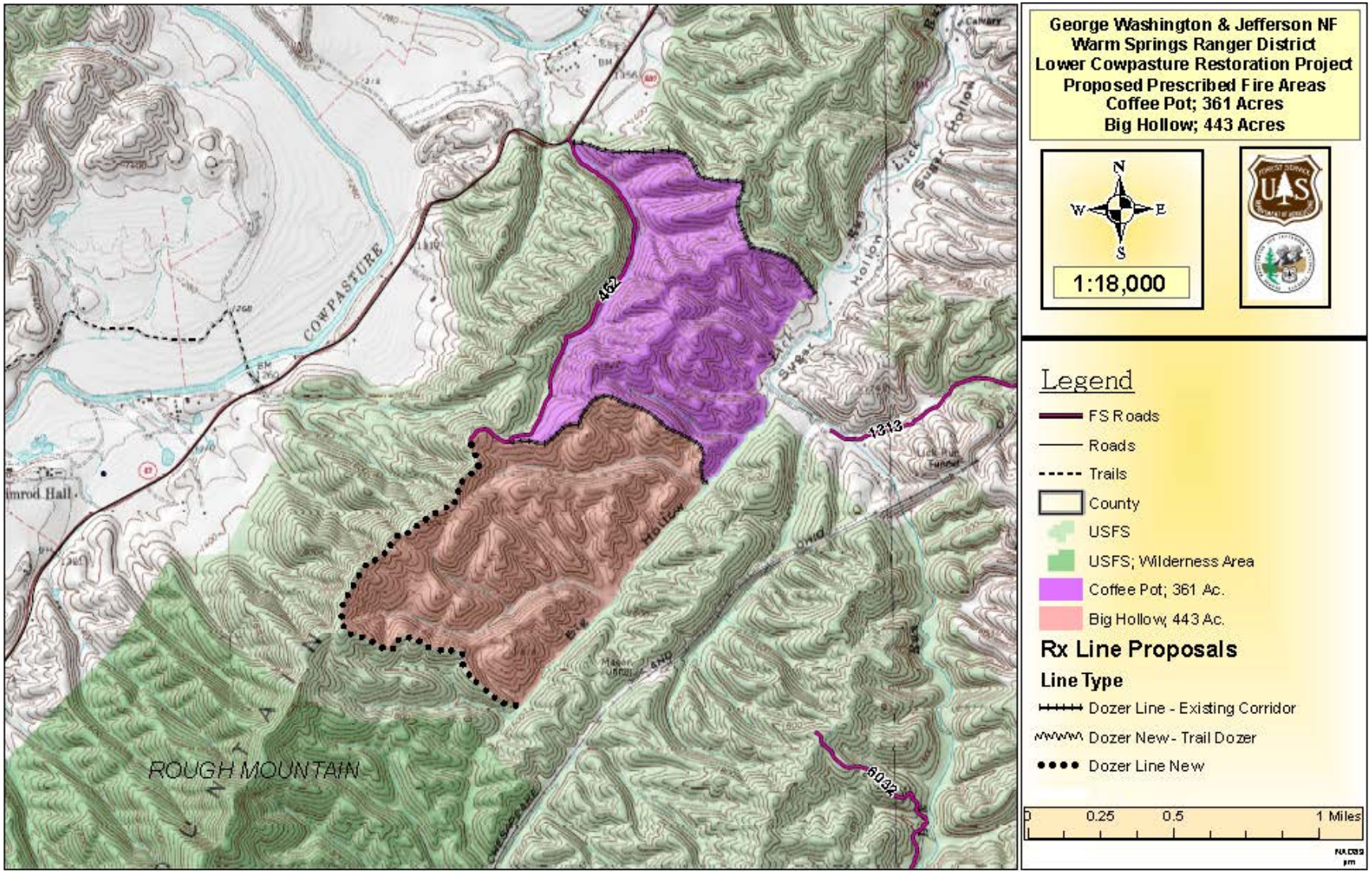
Map D-8. Sandy Springs North Area



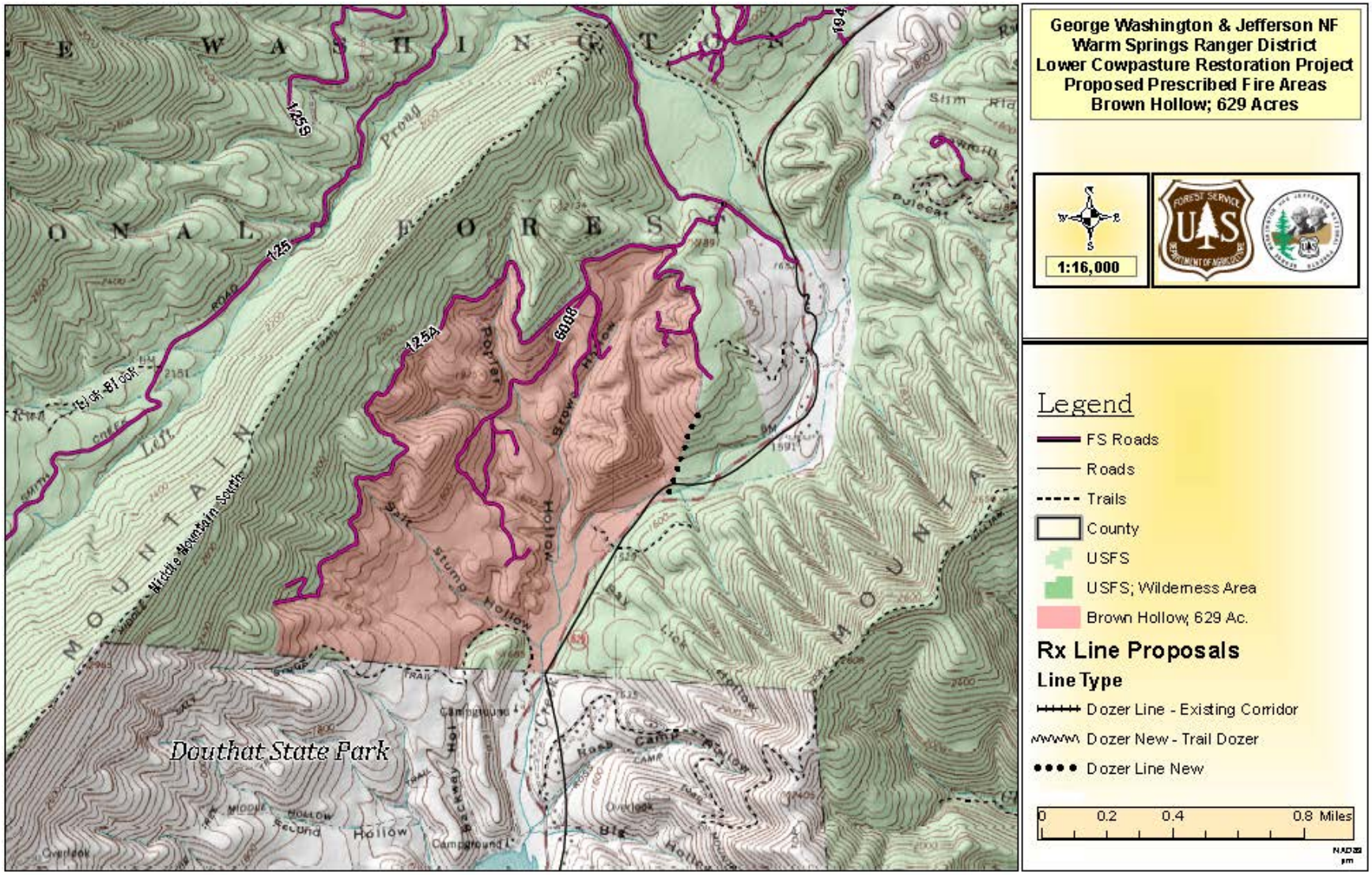
Map D-9. Sandy Springs South Area



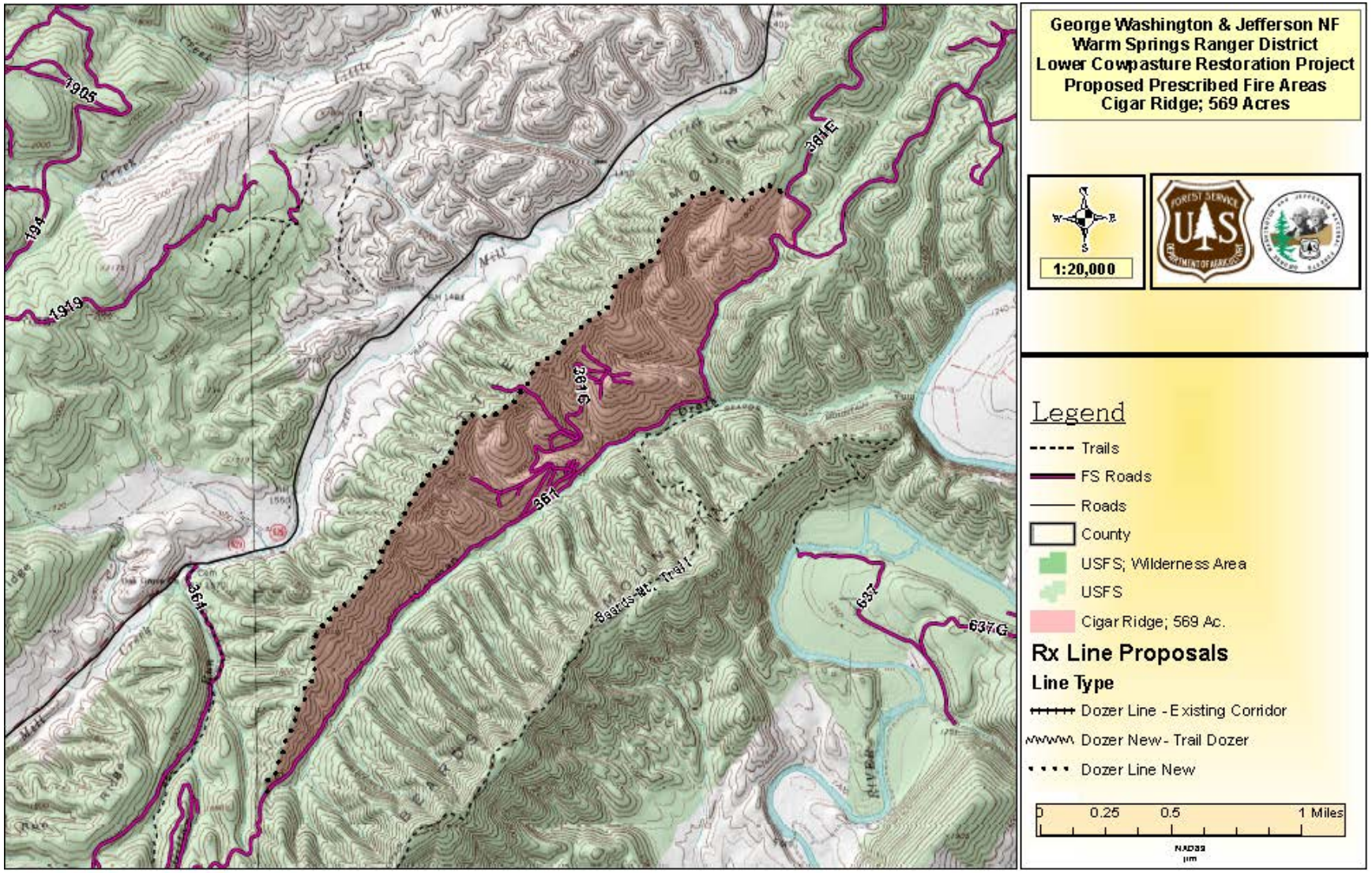
Map D-10. Proposed Prescribed Burns for Coffee Pot and Big Hollow Areas



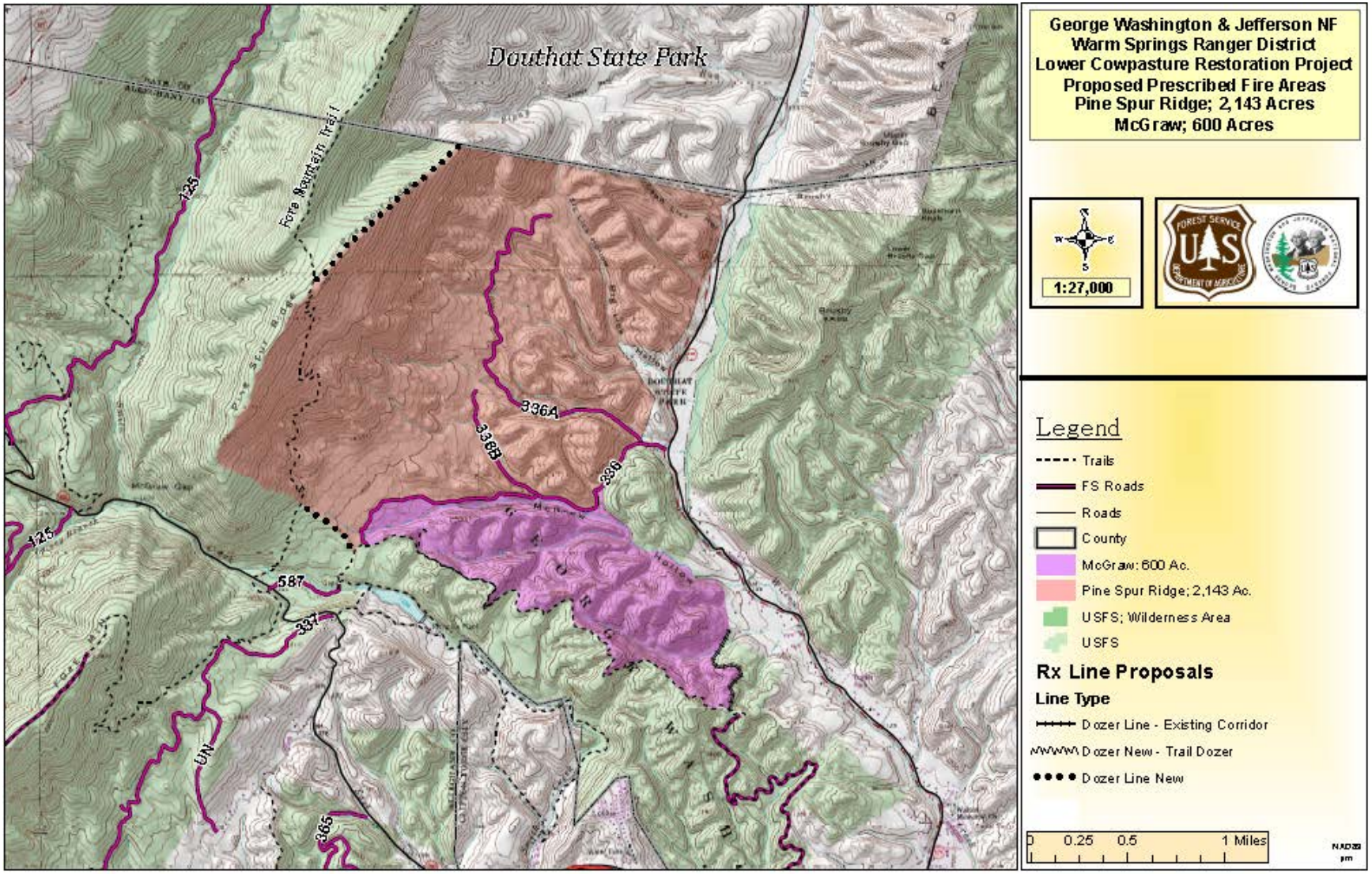
Map D-11. Proposed Prescribed Burn for Brown Hollow Area



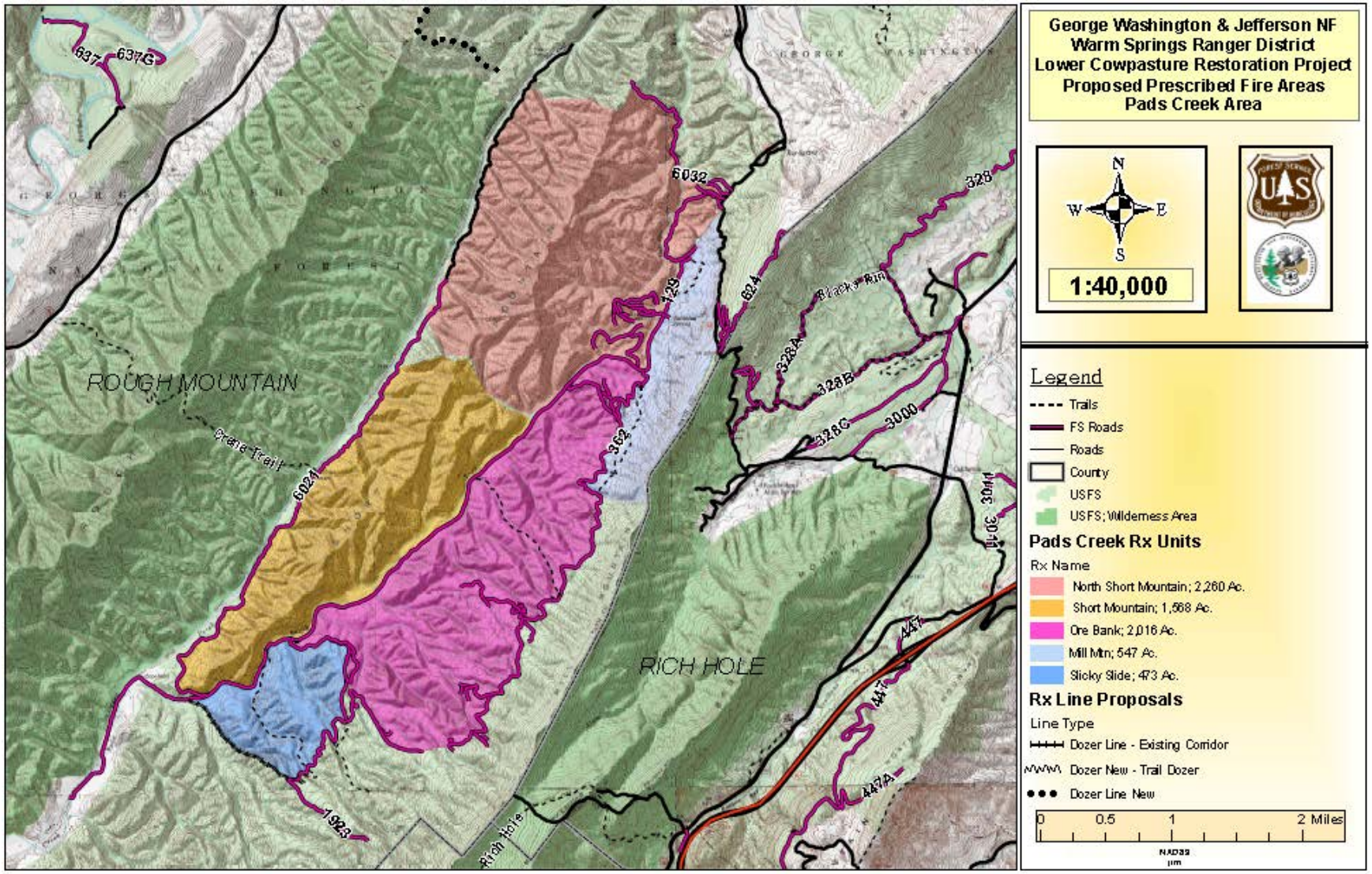
Map D-12. Proposed Prescribed Burn for Cigar Ridge Area



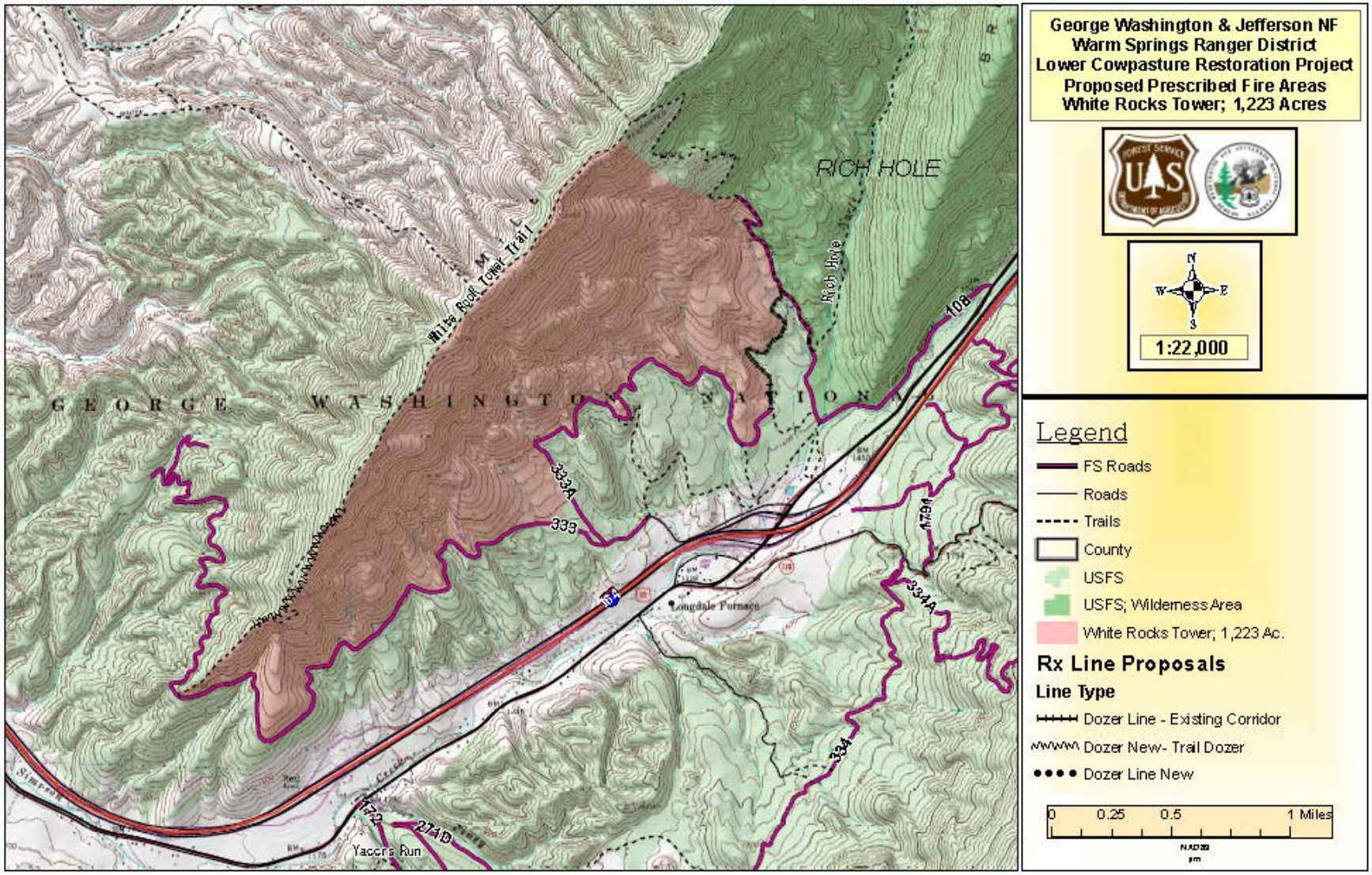
Map D-13. Proposed Prescribed Burns for Pine Spur Ridge and McGraw Hollow Areas



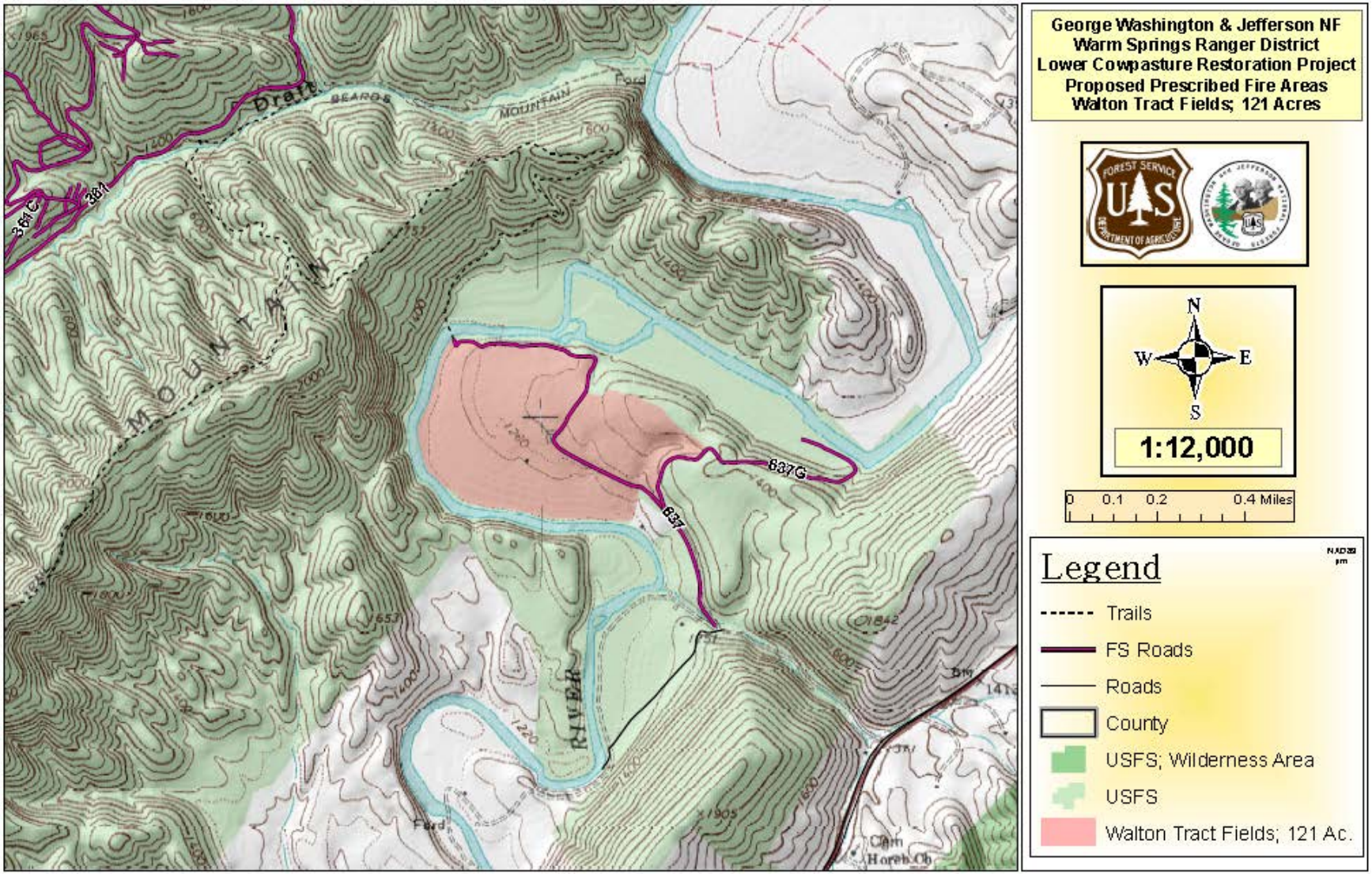
Map D-14. Proposed Prescribed Burns for Pads Creek Area



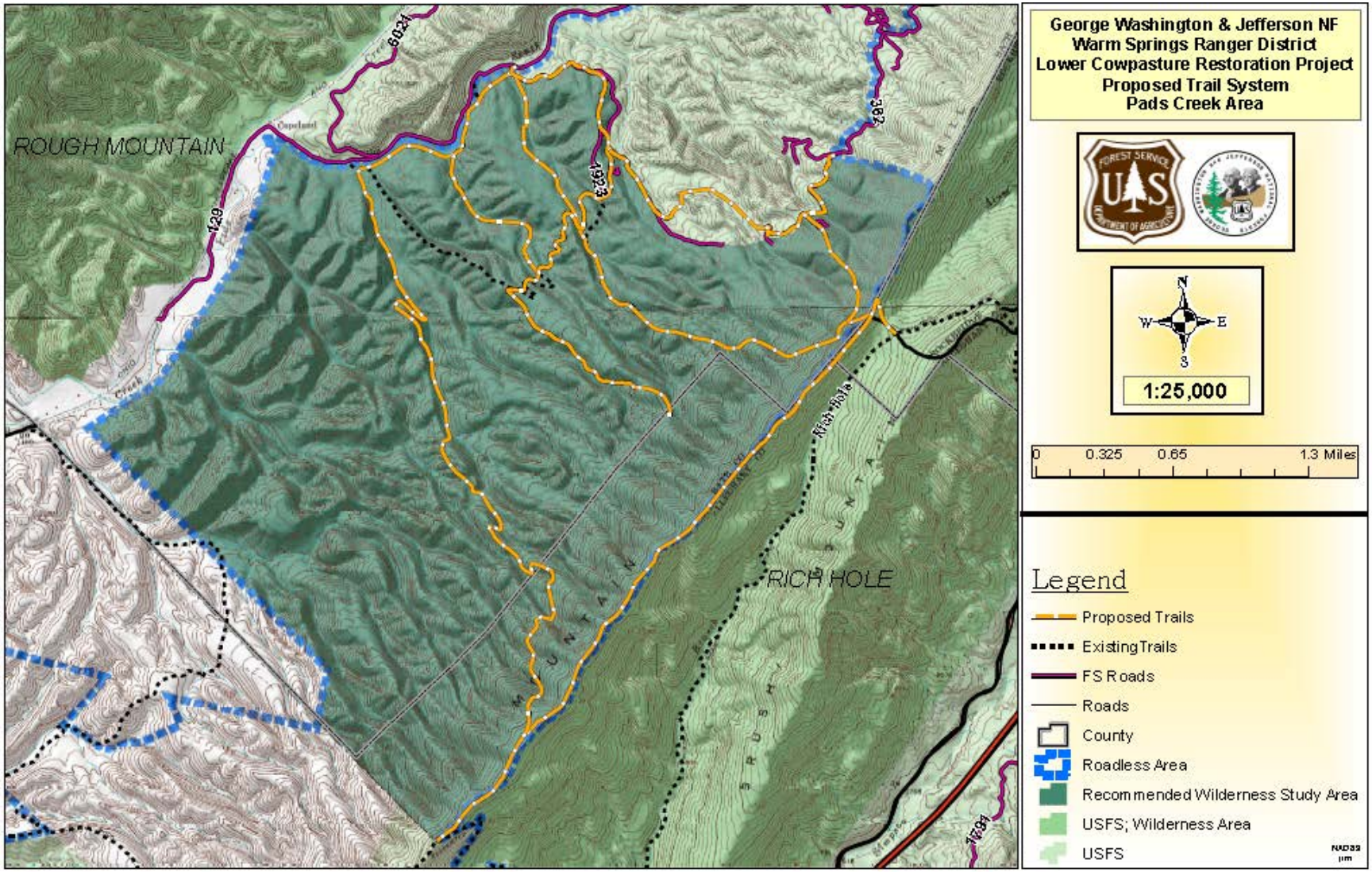
Map D-15. Proposed Prescribed Burn for White Rocks Tower Area



Map D-16. Proposed Prescribed Burn for Walton Tract Fields



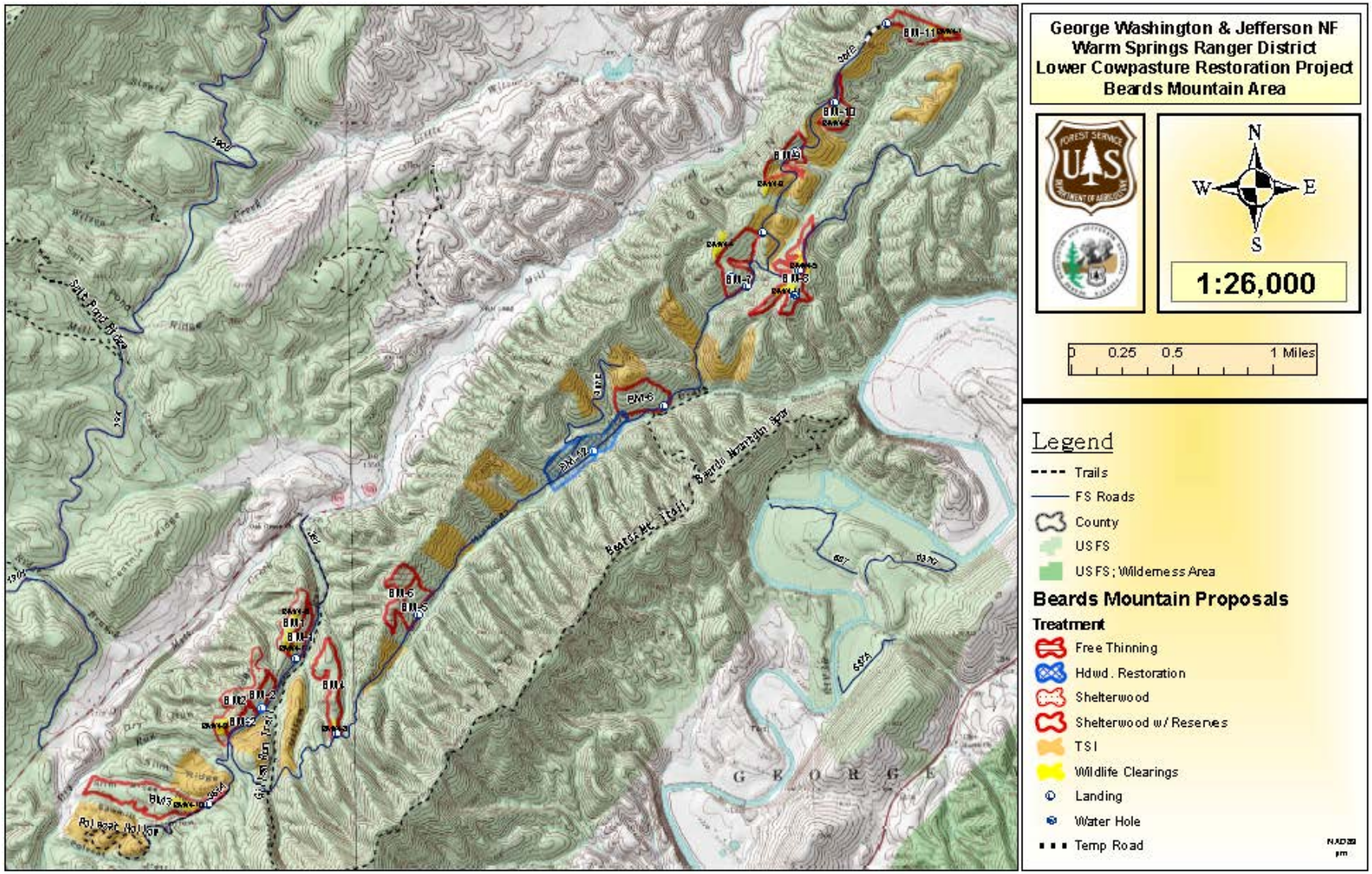
Map D-17. Proposed Trail System in Pads Creek Area



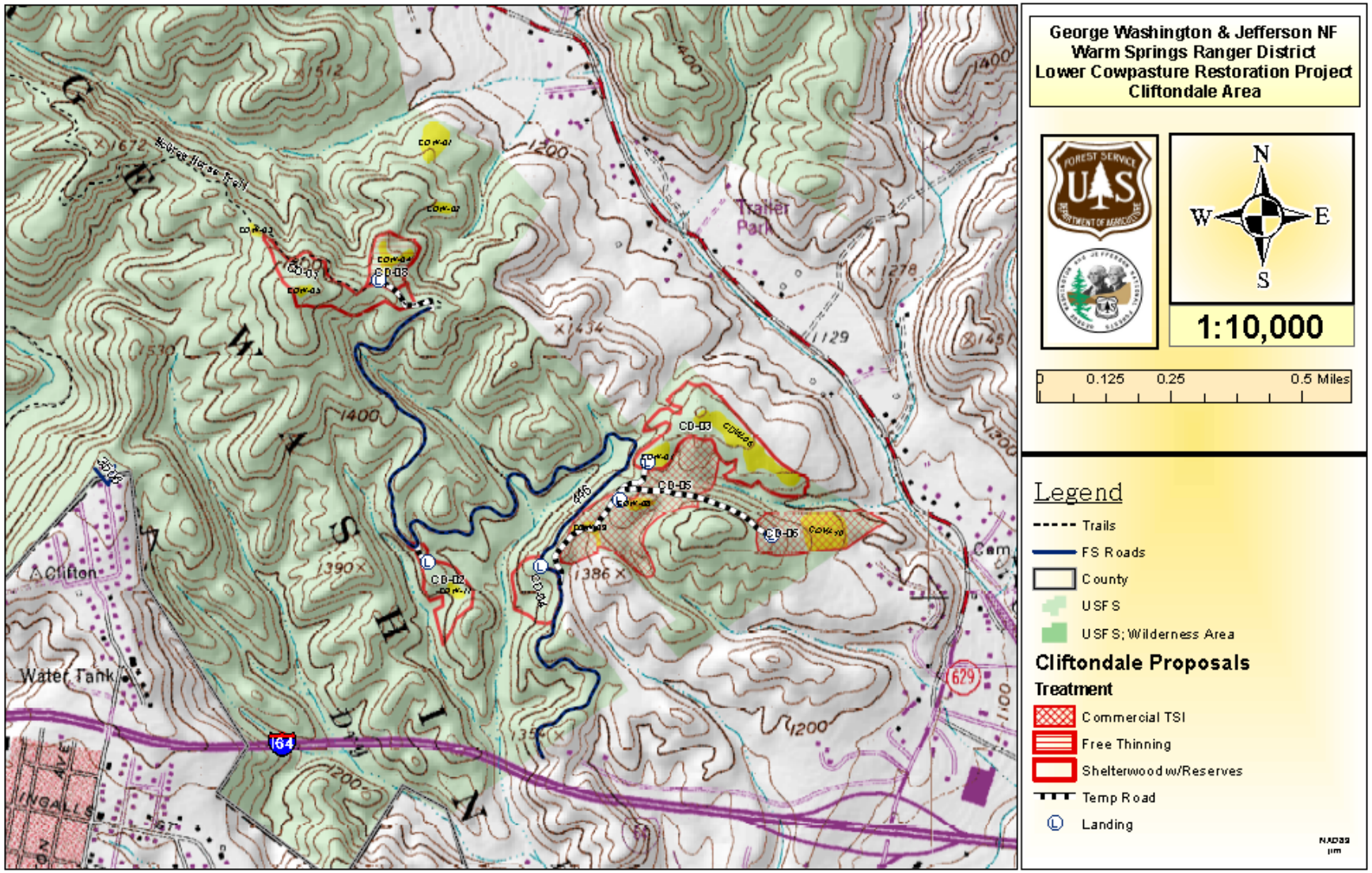
Appendix E: Alternative 3 – The Preferred Alternative Maps

This Alternative was developed based on public input, further field study, and evaluation of potential effects.

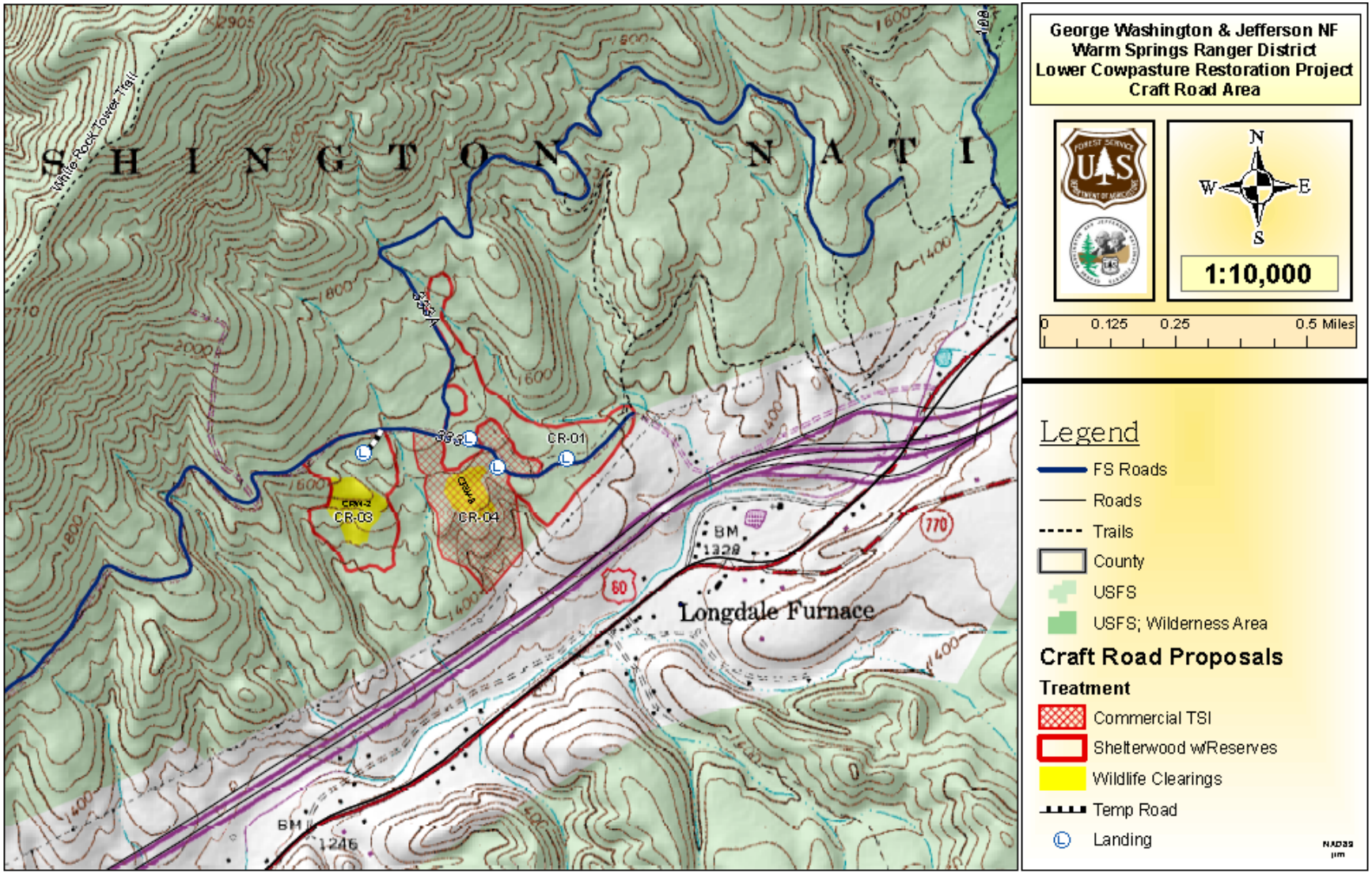
Map E-1. Beards Mountain Area



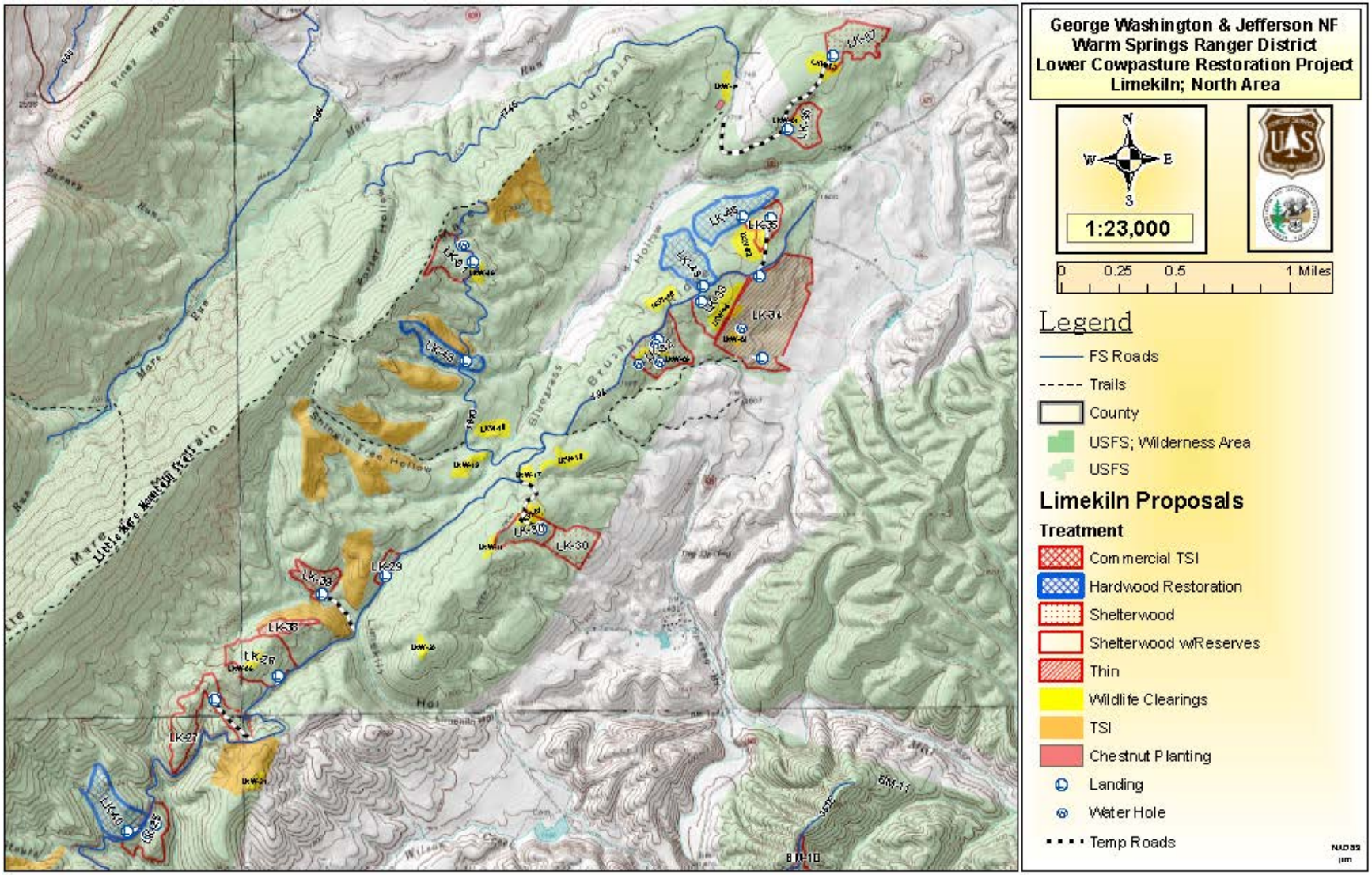
Map E-2. Cliftondale Area



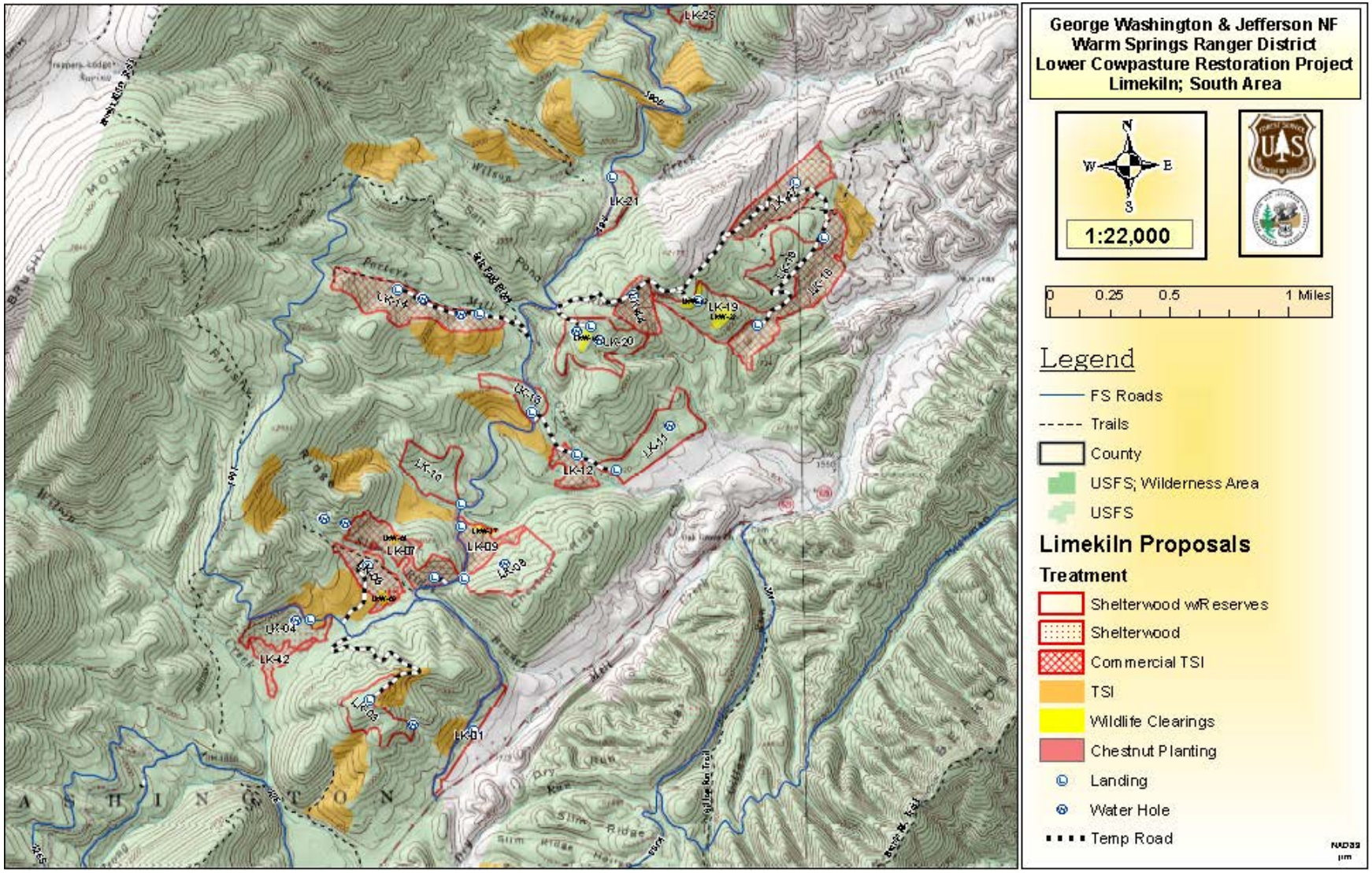
Map E-3. Craft Road Area



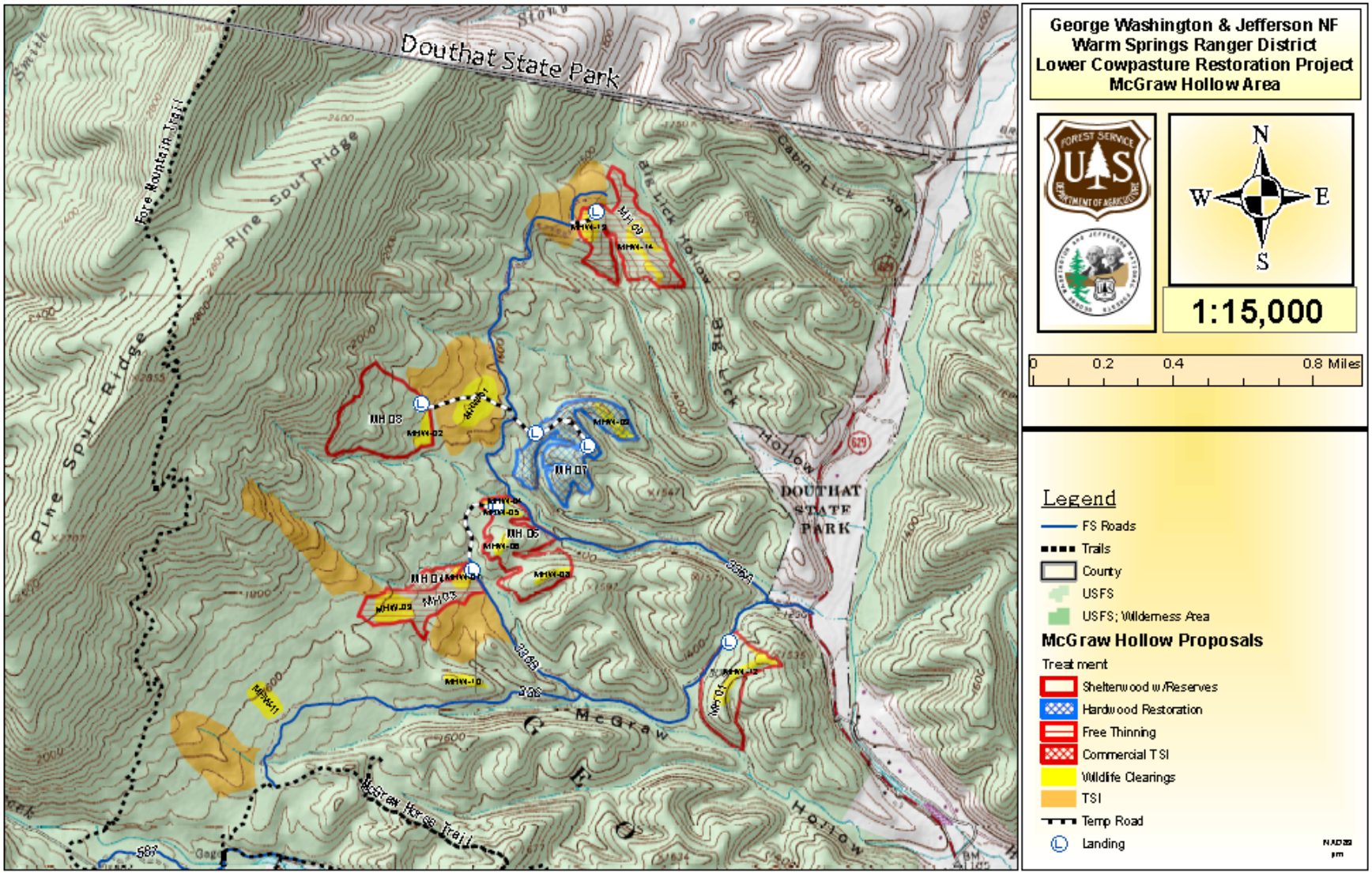
Map E-4. Limekiln North Area



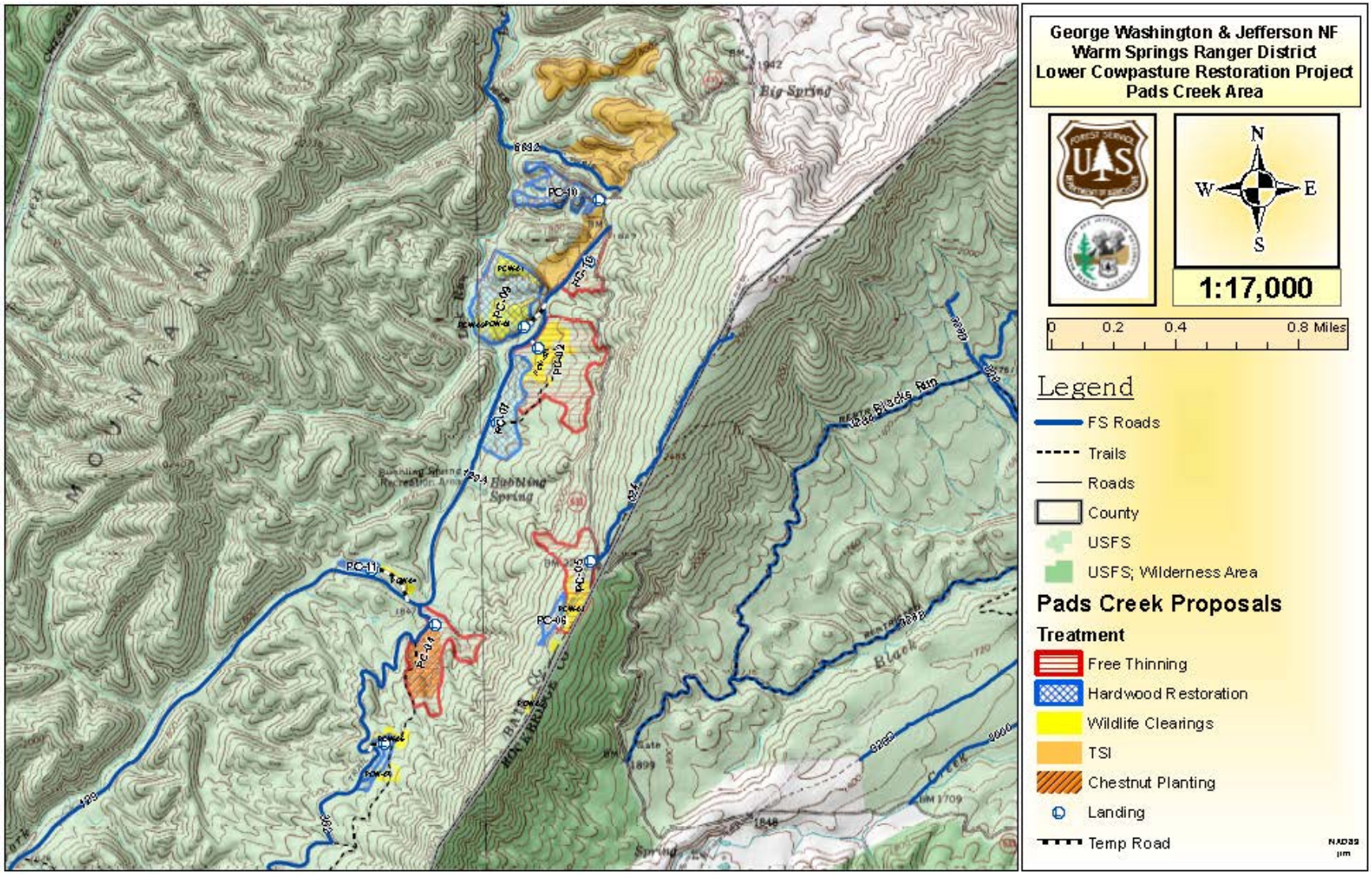
Map E-5. Limekiln South Area



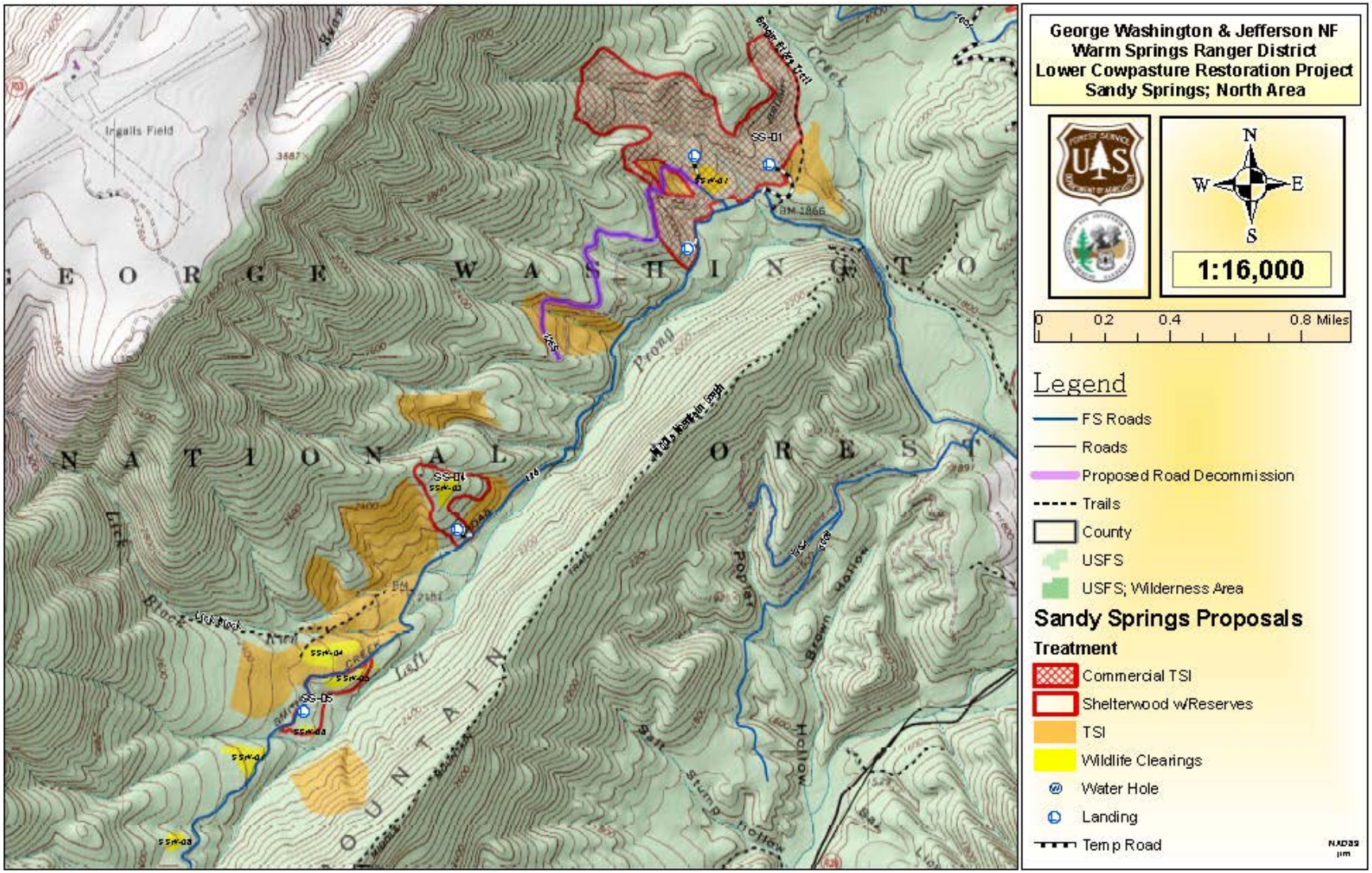
Map E-6. McGraw Hollow Area



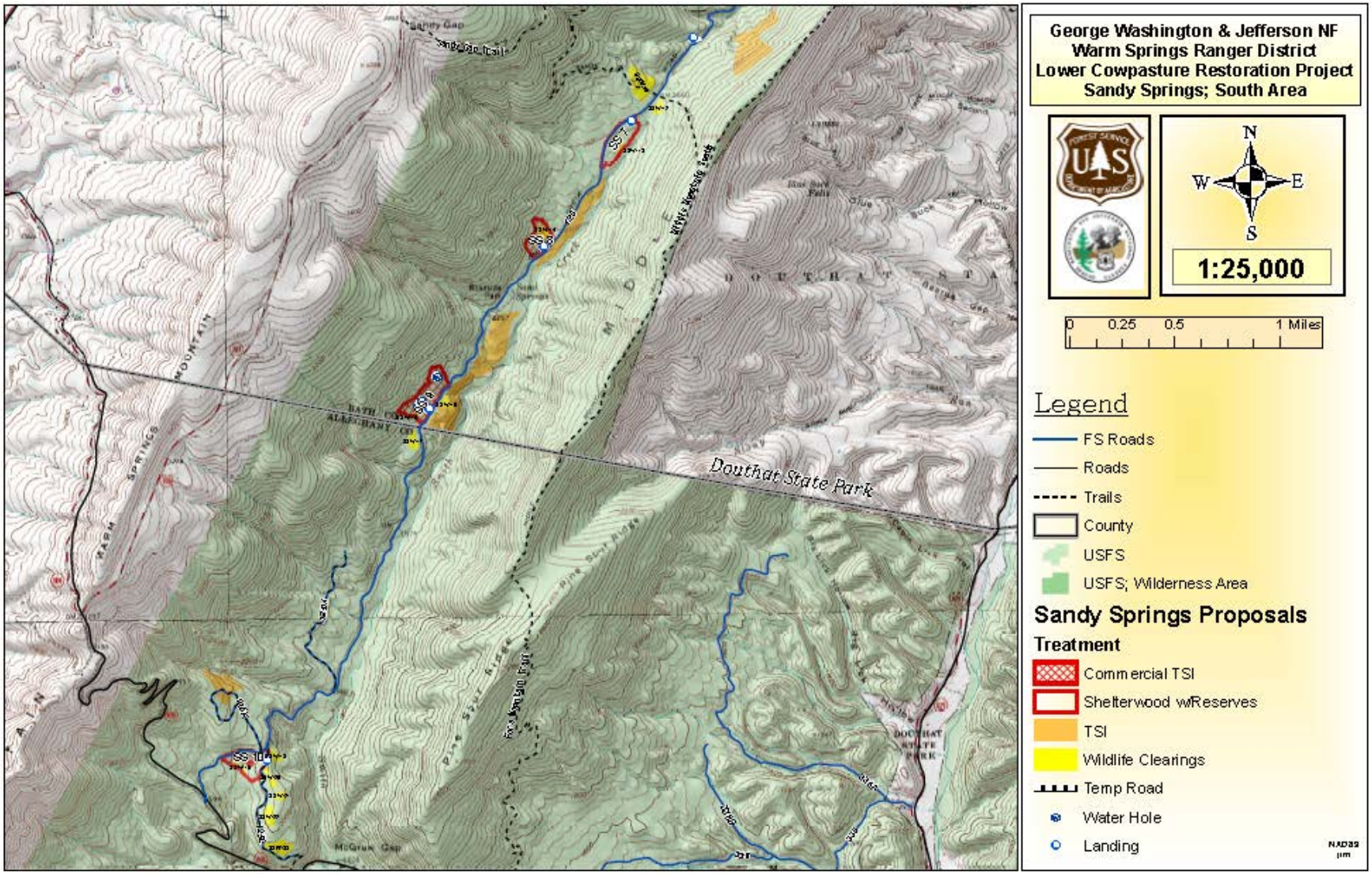
Map E-7. Pads Creek Area



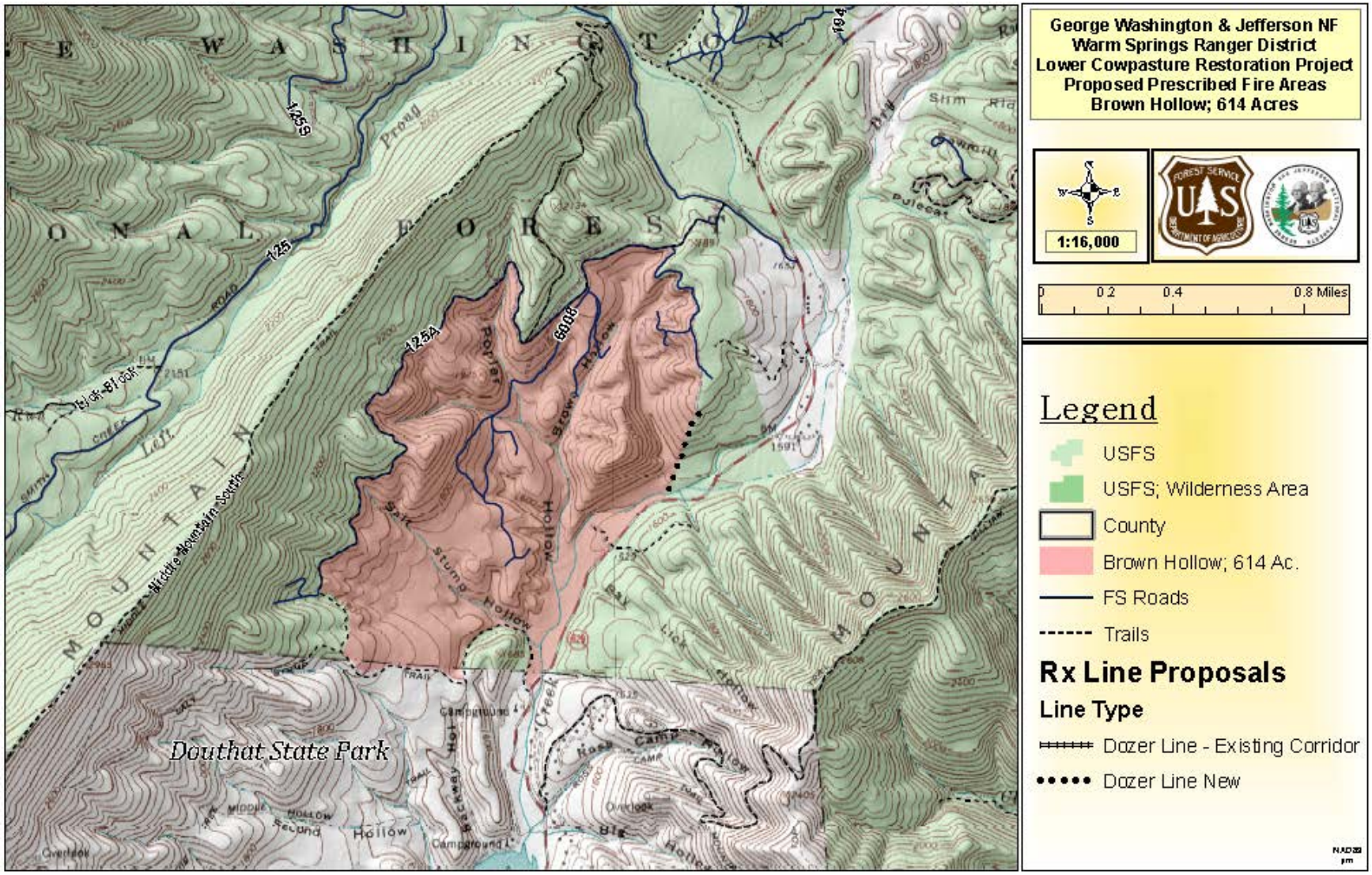
Map E-8. Sandy Springs North Area



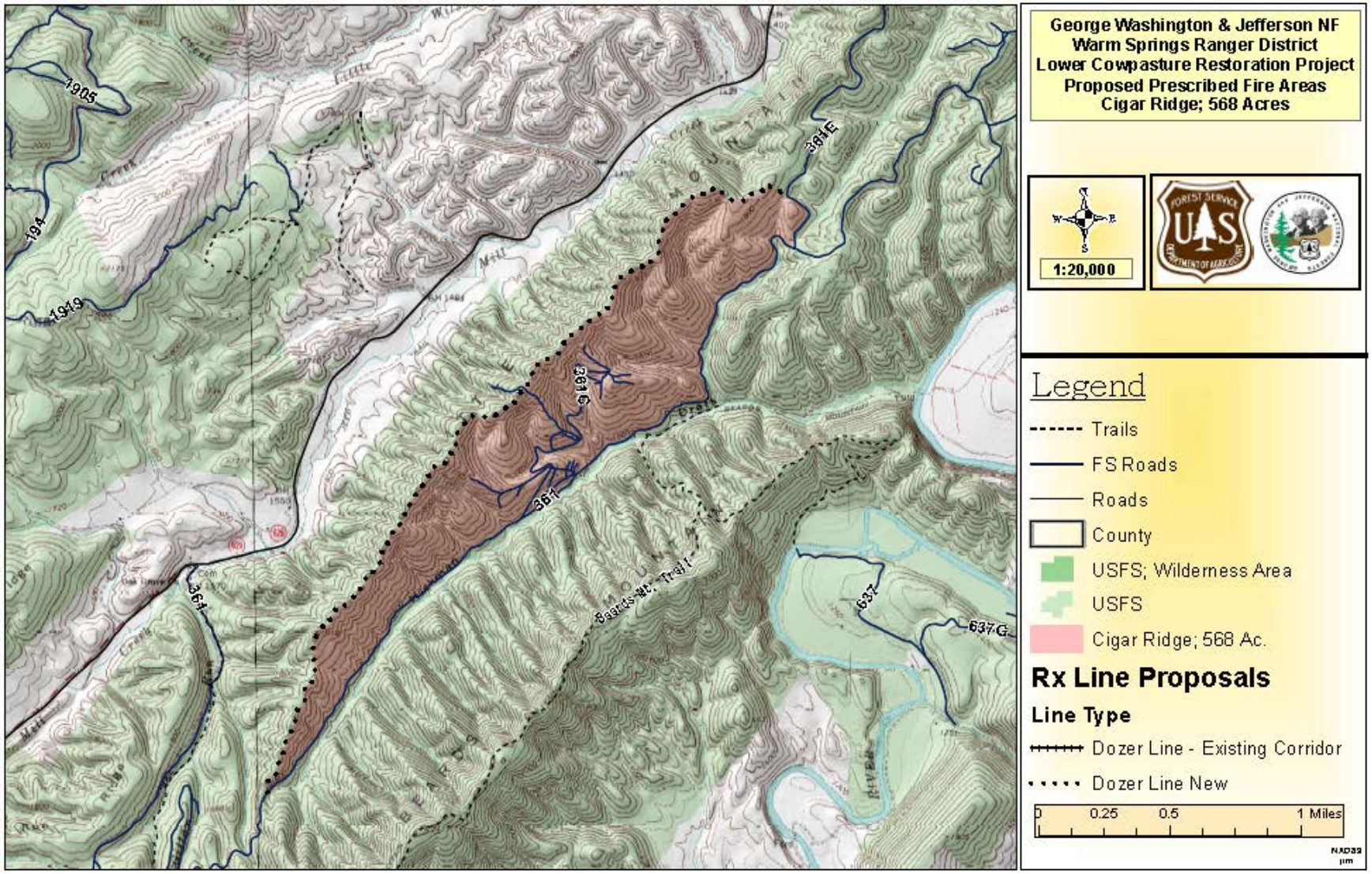
Map E-9. Sandy Springs South Area



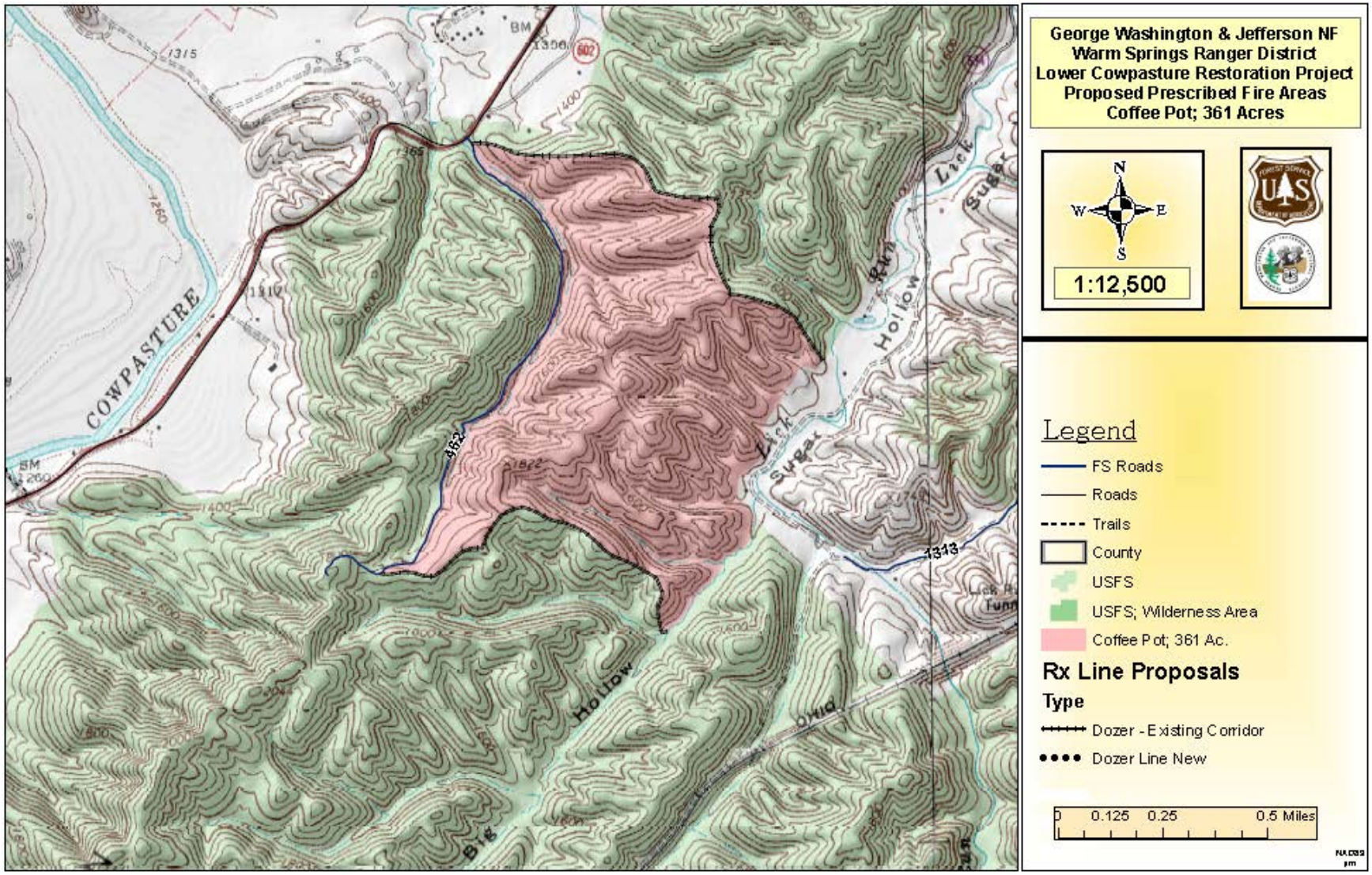
Map E-10. Proposed Prescribed Burn for Brown Hollow Area



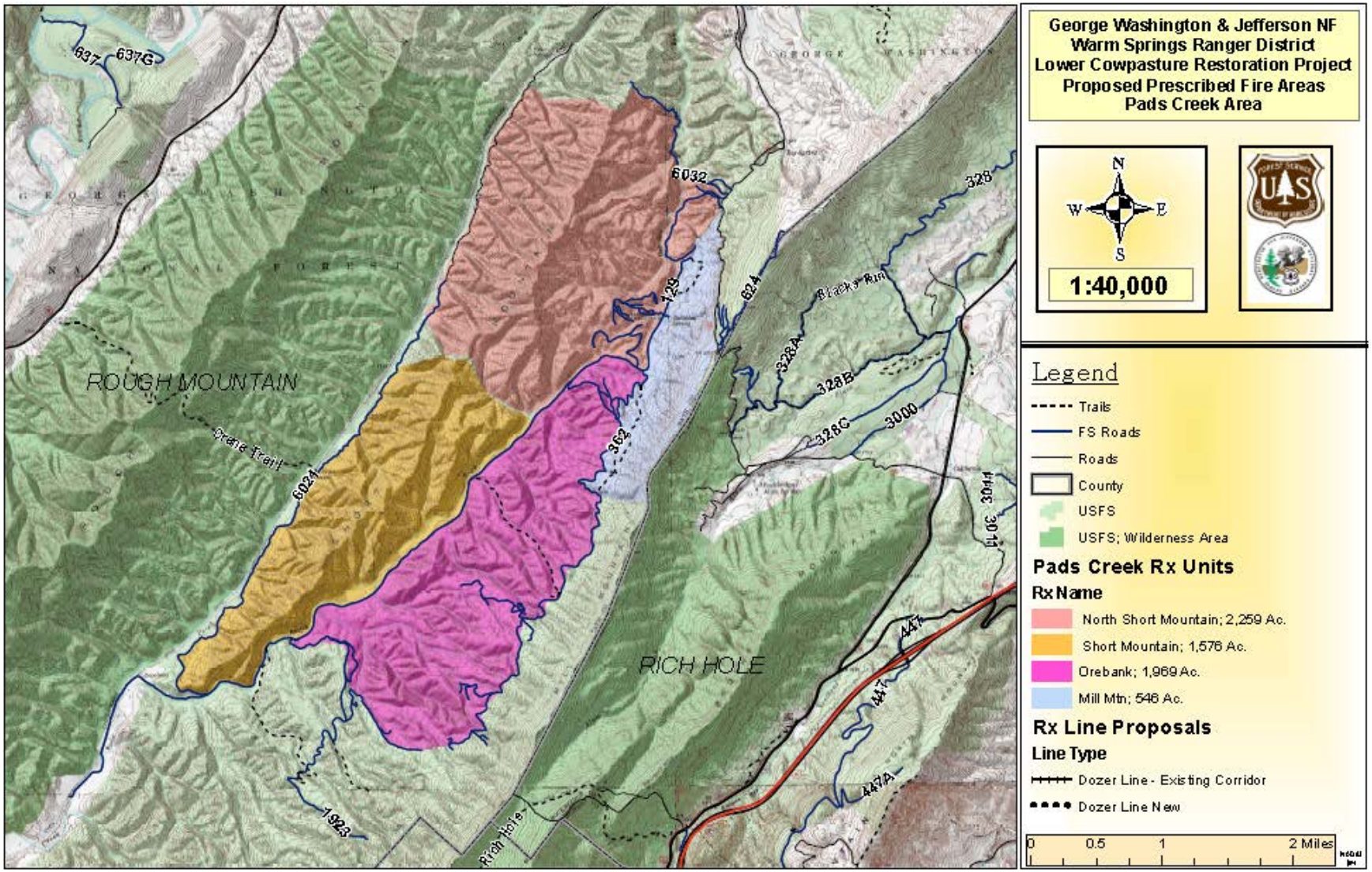
Map E-11. Proposed Prescribed Burn for Cigar Ridge Area



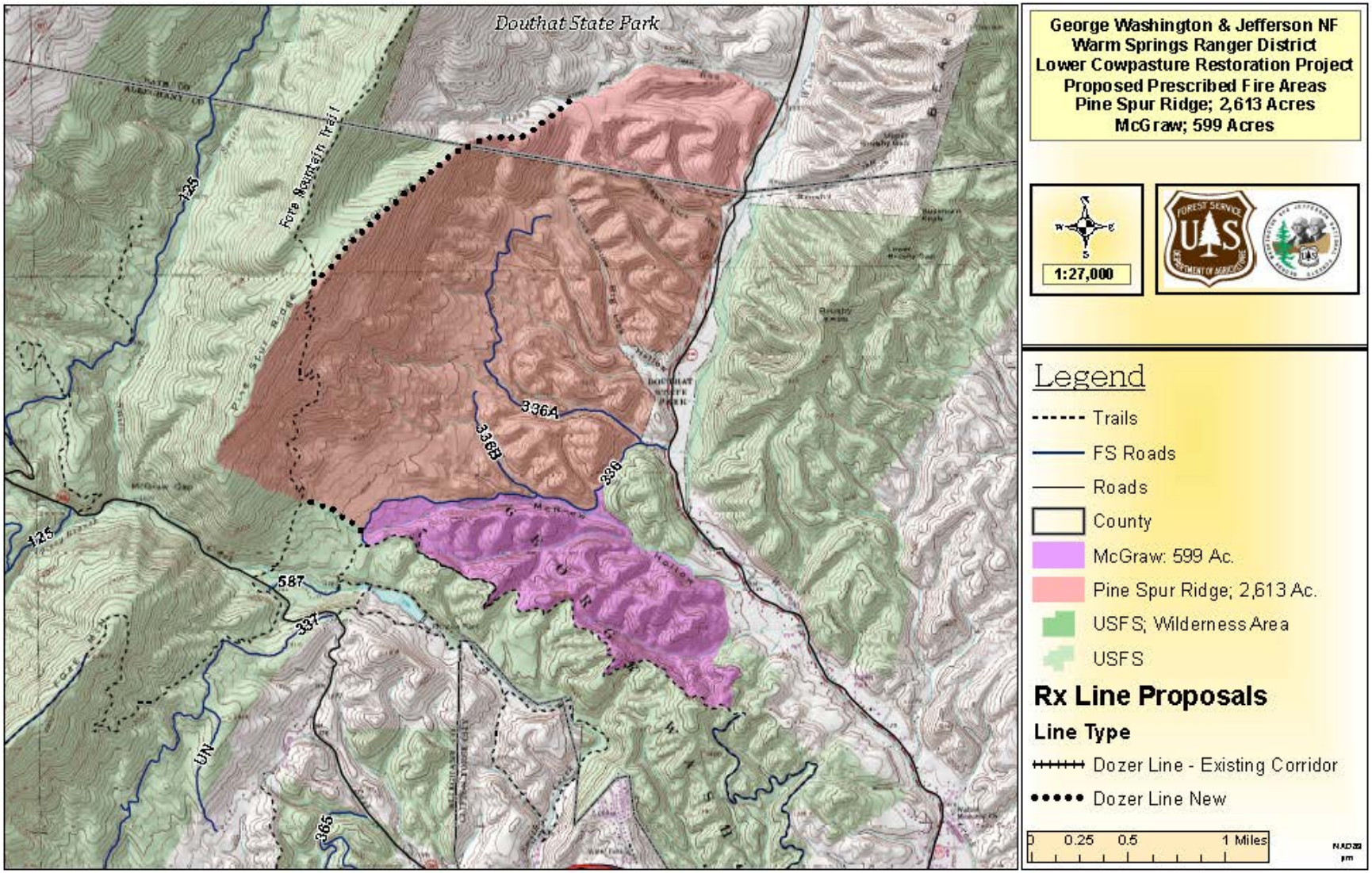
Map E-12. Proposed Prescribed Burn for Coffee Pot Area



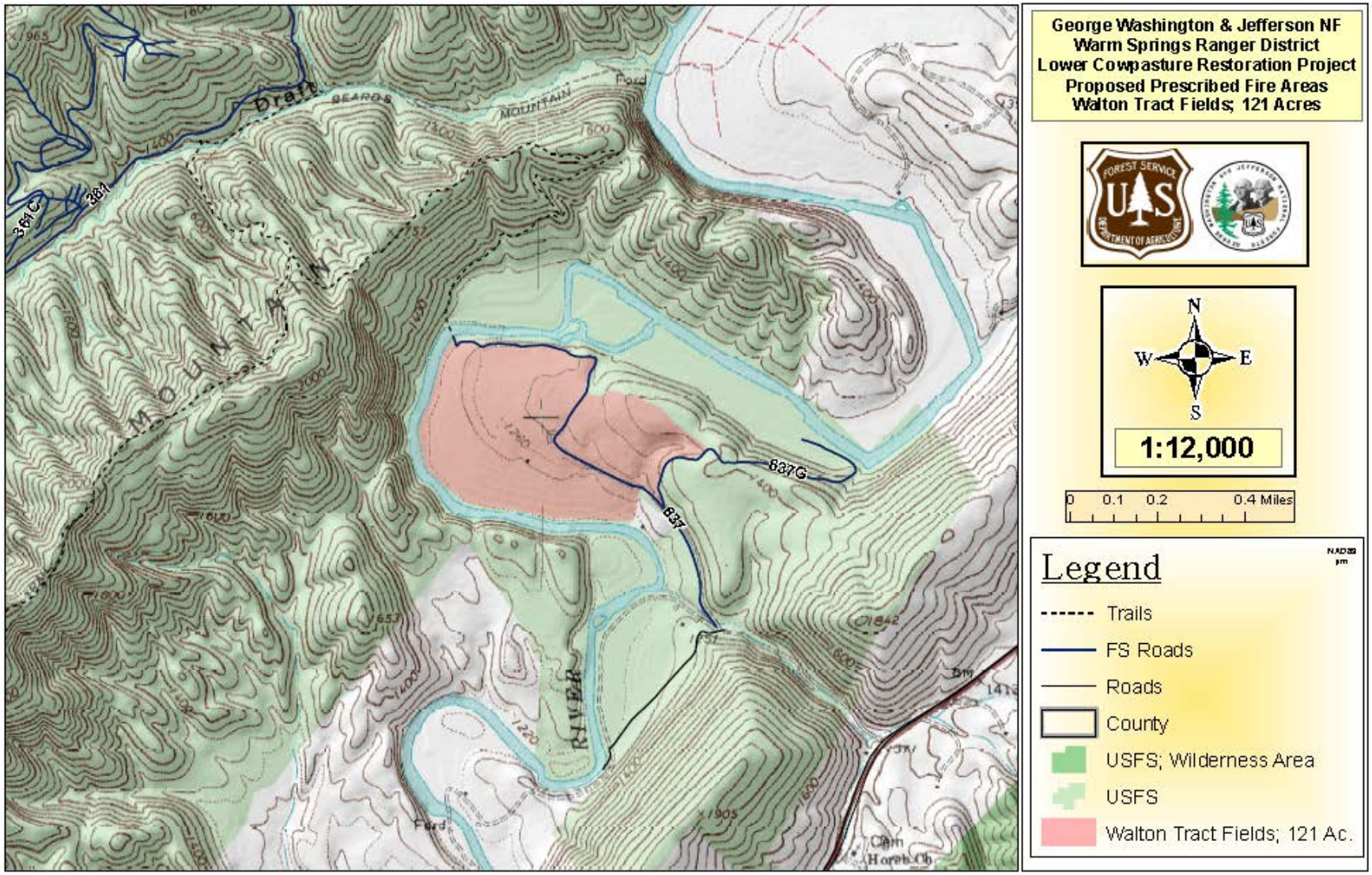
Map E-13. Proposed Prescribed Burns for Pads Creek Area



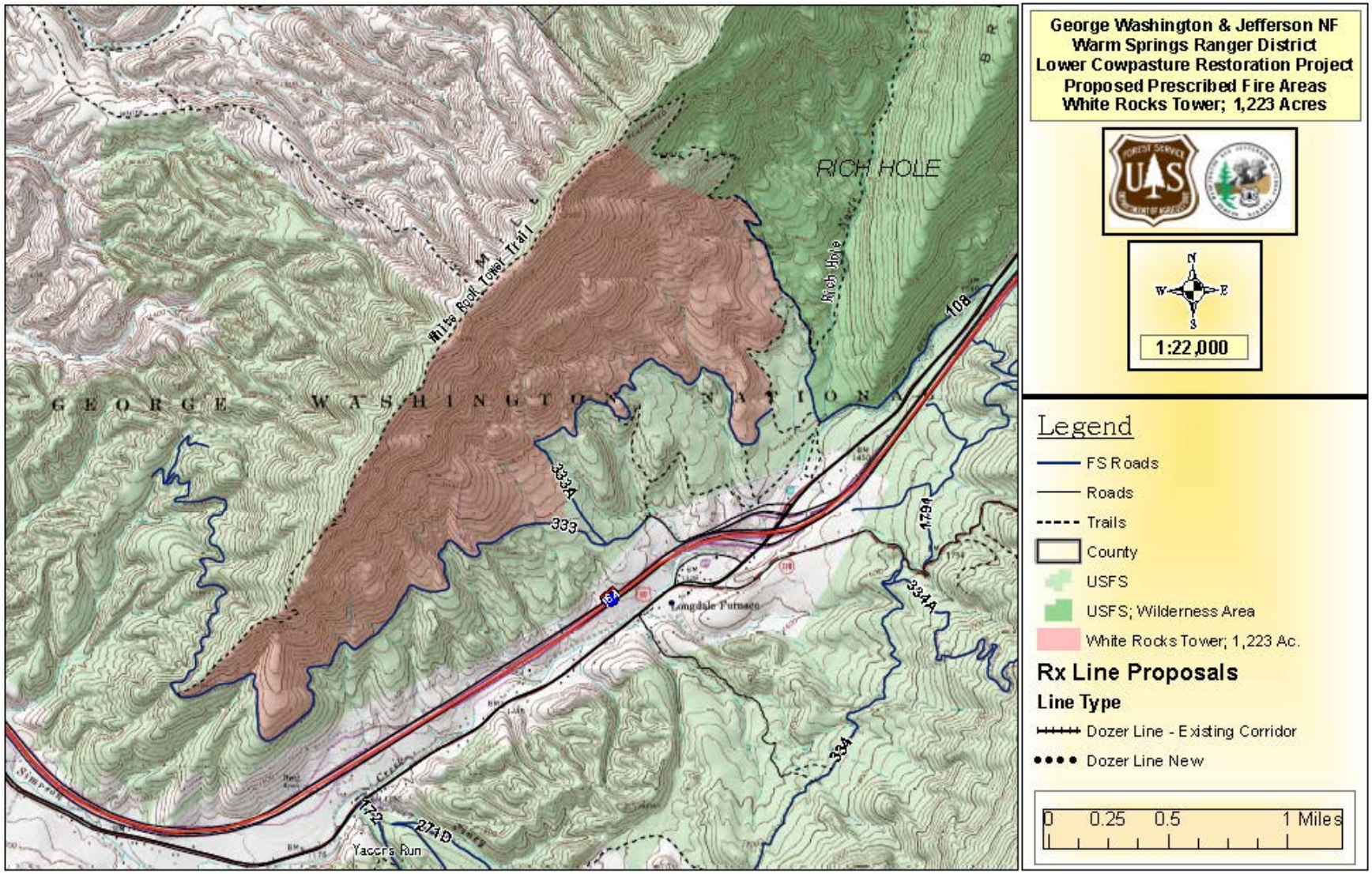
Map E-14. Proposed Prescribed Burns for Pine Spur Ridge and McGraw Hollow Areas



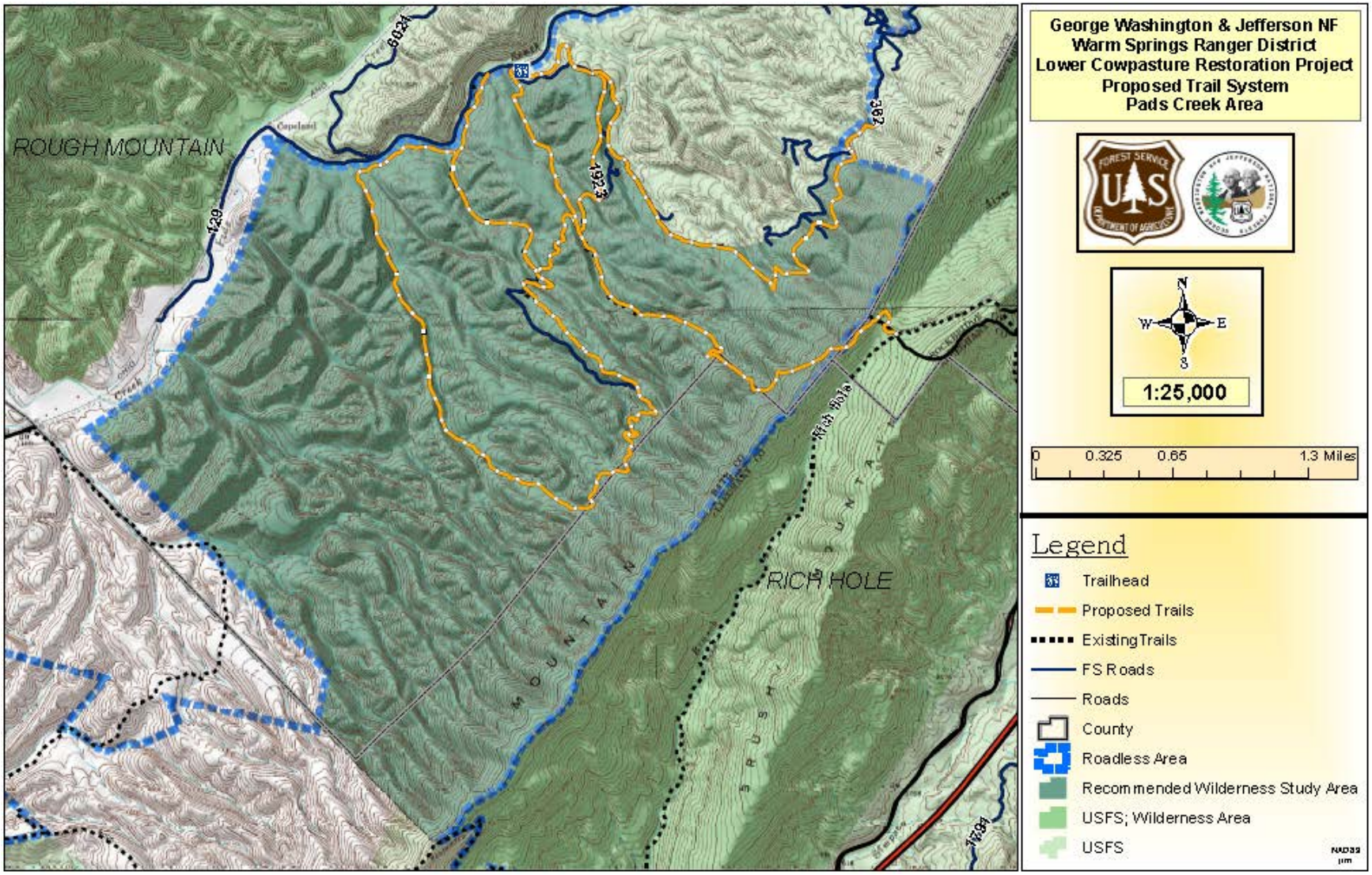
Map E-15. Proposed Prescribed Burns for Walton Tract Fields



Map E-16. Proposed Prescribed Burn for White Rocks Tower Area



Map E-17. Proposed Trails for Pads Creek Area



Appendix F: Soil Map Unit Legend

Map F-1. Allegheny County Soil Map Unit Legend

Map Unit Name - Summary by Map Unit - Allegheny County, Virginia (VA005)	
Map Unit Symbol	**Map Unit Name**
1A	Alonzville loam, 0 to 3 percent slopes, rarely flooded
2A	Alonzville loam, 0 to 3 percent slopes, protected
3C	Alticrest-Dekalb complex, 8 to 15 percent slopes, very stony
4D	Berks channery silt loam, 15 to 35 percent slopes
4E	Berks channery silt loam, 35 to 65 percent slopes
5C	Berks-Weikert complex, 8 to 15 percent slopes
6F	Berks-Weikert complex, 55 to 80 percent slopes
7D	Berks-Weikert complex, 15 to 35 percent slopes, very stony
7E	Berks-Weikert complex, 35 to 55 percent slopes, very stony
8E	Caneyville silt loam, 35 to 55 percent slopes, very rocky
8F	Caneyville silt loam, 55 to 80 percent slopes, very rocky
9D	Caneyville silt loam, karst, 15 to 35 percent slopes, very rocky
10C	Caneyville-Frederick complex, karst, 8 to 15 percent slopes
10D	Caneyville-Frederick complex, karst, 15 to 35 percent slopes
10E	Caneyville-Frederick complex, karst, 35 to 55 percent slopes
11B	Cottonbend silt loam, 3 to 8 percent slopes
11C	Cottonbend silt loam, 8 to 15 percent slopes
12B	Cottonbend-Urban land complex, 3 to 8 percent slopes
12C	Cottonbend-Urban land complex, 8 to 15 percent slopes
13A	Coursey silt loam, 0 to 3 percent slopes, rarely flooded
14B	Coursey-Ogles-Shelocta complex
15F	Dekalb channery sandy loam, 55 to 80 percent slopes, extremely stony
16D	Dekalb-Alticrest complex, 15 to 35 percent slopes, very stony
16E	Dekalb-Alticrest complex, 35 to 55 percent slopes, very stony
17D	Dekalb-Lily-McClung complex, 15 to 35 percent slopes
18E	Dekalb-Lily complex, 35 to 55 percent slopes, very stony
19E	Dekalb-Rock outcrop complex, 35 to 80 percent slopes, extremely stony
20E	Dekalb-Watahala-McClung complex, 35 to 55 percent slopes
21A	Dunning silt loam, 0 to 3 percent slopes, occasionally flooded
22B	Escatawba loam, 3 to 8 percent slopes, very stony
22C	Escatawba loam, 8 to 15 percent slopes, very stony
22D	Escatawba loam, 15 to 35 percent slopes, very stony
23C	Faywood-Poplimento complex, 8 to 15 percent slopes
23D	Faywood-Poplimento complex, 15 to 35 percent slopes
23E	Faywood-Poplimento complex, 35 to 55 percent slopes
24C	Frederick silt loam, 8 to 15 percent slopes
24D	Frederick silt loam, 15 to 25 percent slopes
25C	Frederick-Watahala complex, 8 to 15 percent slopes
25D	Frederick-Watahala complex, 15 to 35 percent slopes
26C	Gilpin silt loam, 8 to 15 percent slopes
26D	Gilpin silt loam, 15 to 25 percent slopes
27A	Gladehill loam, 0 to 3 percent slopes, occasionally flooded
28A	Gladehill loam, 0 to 3 percent slopes, protected
29	Landfills
30C	Lehew-Berks complex, 8 to 15 percent slopes, very stony
30D	Lehew-Berks complex, 15 to 35 percent slopes, very stony

Map Unit Name - Summary by Map Unit - Allegheny County, Virginia (VA005)	
Map Unit Symbol	**Map Unit Name**
30E	Lehew-Berks complex, 35 to 55 percent slopes, very stony
31F	Lehew-Berks-Rock outcrop complex, 55 to 80 percent slopes, extremely stony
32C	Lily sandy loam, 8 to 15 percent slopes
33D	Lily sandy loam, 15 to 35 percent slopes, very stony
34C	Lily-McClung-Dekalb complex, 8 to 15 percent slopes
35C	Macove channery silt loam, 3 to 15 percent slopes, very stony
36A	Massanetta silt loam, 0 to 3 percent slopes, occasionally flooded
37D	McClung-Watahala-Dekalb complex, 15 to 35 percent slopes
38B	Murrill loam, 3 to 8 percent slopes
38C	Murrill loam, 8 to 15 percent slopes
38D	Murrill loam, 15 to 25 percent slopes
39C	Murrill cobbly loam, 8 to 15 percent slopes, very stony
39D	Murrill cobbly loam, 15 to 35 percent slopes, very stony
40B	Nicelytown silt loam, 3 to 8 percent slopes
40C	Nicelytown silt loam, 8 to 15 percent slopes
41A	Ogles very cobbly loam, 0 to 3 percent slopes, occasionally flooded
42B	Oriskany cobbly sandy loam, 3 to 8 percent slopes, very stony
43C	Oriskany cobbly sandy loam, 8 to 15 percent slopes, extremely stony
43D	Oriskany cobbly sandy loam, 15 to 35 percent slopes, extremely stony
43E	Oriskany cobbly sandy loam, 35 to 55 percent slopes, extremely stony
44E	Oriskany extremely bouldery sandy loam, 25 to 55 percent slopes, very rubbly
45C	Oriskany-Murrill complex, 8 to 15 percent slopes, very stony
45D	Oriskany-Murrill complex, 15 to 35 percent slopes, very stony
45E	Oriskany-Murrill complex, 35 to 55 percent slopes, extremely stony
46A	Purdy silty clay loam, 0 to 3 percent slopes
47C	Shelocta-Berks complex, 8 to 15 percent slopes
47D	Shelocta-Berks complex, 15 to 35 percent slopes
47E	Shelocta-Berks complex, 35 to 55 percent slopes
48B	Sugarhol silt loam, 3 to 8 percent slopes
48C	Sugarhol silt loam, 8 to 15 percent slopes
49	Udorthents, smoothed-Rock outcrop complex, 1 to 65 percent slopes
50	Urban land-Udorthents, smoothed complex, 3 to 15 percent slopes
51E	Watahala-Frederick complex, 35 to 55 percent slopes, very rocky
52D	Weikert-Berks-Rough complex, 15 to 35 percent slopes
52E	Weikert-Berks-Rough complex, 35 to 55 percent slopes
52F	Weikert-Berks-Rough complex, 55 to 80 percent slopes, very stony
53F	Weikert-Rough complex, 55 to 80 percent slopes
54F	Weikert-Rock outcrop-Rough complex
55C	Wharton-Blairton complex, 8 to 15 percent slopes
55D	Wharton-Blairton complex, 15 to 35 percent slopes
56A	Wolfgap loam, 0 to 3 percent slopes, occasionally flooded
57A	Wolfgap loam, 0 to 3 percent slopes, protected
58B	Zoar silt loam, 3 to 8 percent slopes
59B	Zoar-Urban land complex, 3 to 8 percent slopes
W	Water

Map F-2. Bath County Soil Map Unit Legend

Map Unit Name - Summary by Map Unit - Bath County, Virginia (VA017)	
Map Unit Symbol	**Map Unit Name**
1A	Alonzville loam, 0 to 3 percent slopes, rarely flooded
2B	Alonzville cobbly loam, 3 to 8 percent slopes
3C	Alticrest-Dekalb complex, 8 to 15 percent slopes, very stony
4A	Atkins silt loam, 0 to 3 percent slopes, occasionally flooded
5D	Berks channery silt loam, 15 to 35 percent slopes
5E	Berks channery silt loam, 35 to 65 percent slopes
6B	Berks-Weikert complex, 3 to 8 percent slopes
6C	Berks-Weikert complex, 8 to 15 percent slopes
7C	Berks-Weikert complex, 8 to 15 percent slopes, very stony
7D	Berks-Weikert complex, 15 to 35 percent slopes, very stony
8B	Blairton-Wharton complex, 3 to 8 percent slopes
9C	Caneyville silt loam, 8 to 15 percent slopes, very rocky
9D	Caneyville silt loam, 15 to 35 percent slopes, very rocky
9E	Caneyville silt loam, 35 to 55 percent slopes, very rocky
10B	Cottonbend silt loam, 3 to 8 percent slopes
11A	Coursey silt loam, 0 to 3 percent slopes, rarely flooded
12D	Dekalb-Alticrest complex, 15 to 35 percent slopes, very stony
12E	Dekalb-Alticrest complex, 35 to 55 percent slopes, very stony
13D	Dekalb-Lily-McClung complex, 15 to 35 percent slopes
14E	Dekalb-Lily complex, 35 to 55 percent slopes, very stony
15D	Dekalb-Rock outcrop complex, 15 to 35 percent slopes, extremely stony
15E	Dekalb-Rock outcrop complex, 35 to 80 percent slopes, extremely stony
16E	Dekalb-Watahala-McClung complex, 35 to 55 percent slopes
17A	Derroc very cobbly loam, 0 to 3 percent slopes, occasionally flooded
18B	Escatawba loam, 3 to 8 percent slopes, very stony
18C	Escatawba loam, 8 to 15 percent slopes, very stony
18D	Escatawba loam, 15 to 35 percent slopes, very stony
19B	Escatawba silt loam, 3 to 8 percent slopes
19C	Escatawba silt loam, 8 to 15 percent slopes
20C	Faywood-Poplimento complex, 8 to 15 percent slopes
20D	Faywood-Poplimento complex, 15 to 35 percent slopes
20E	Faywood-Poplimento complex, 35 to 55 percent slopes
21A	Feedstone silt loam, 0 to 3 percent slopes, rarely flooded
22C	Frederick silt loam, 8 to 15 percent slopes
22D	Frederick silt loam, 15 to 25 percent slopes
23C	Frederick-Watahala complex, 8 to 15 percent slopes
23D	Frederick-Watahala complex, 15 to 35 percent slopes
24B	Gilpin silt loam, 3 to 8 percent slopes
24C	Gilpin silt loam, 8 to 15 percent slopes
24D	Gilpin silt loam, 15 to 25 percent slopes
25A	Gladehill loam, 0 to 3 percent slopes, frequently flooded
26A	Irongate fine sandy loam, 0 to 3 percent slopes, occasionally flooded
27C	Lehew-Berks complex, 8 to 15 percent slopes, very stony
27D	Lehew-Berks complex, 15 to 35 percent slopes, very stony
27E	Lehew-Berks complex, 35 to 55 percent slopes, very stony
28F	Lehew-Berks-Rock outcrop complex, 55 to 80 percent slopes, extremely stony
29C	Lily sandy loam, 8 to 15 percent slopes
30D	Lily sandy loam, 15 to 35 percent slopes, very stony

Map Unit Name - Summary by Map Unit - Bath County, Virginia (VA017)	
Map Unit Symbol	**Map Unit Name**
31C	Lily-McClung-Dekalb complex, 8 to 15 percent slopes
32C	Macove channery silt loam, 3 to 15 percent slopes, very stony
32D	Macove channery silt loam, 15 to 35 percent slopes, very stony
33E	Macove extremely stony loam, 35 to 60 percent slopes, very rubbly
34D	Macove-Berks complex, 15 to 35 percent slopes, very stony
34E	Macove-Berks complex, 35 to 60 percent slopes, very stony
35C	Mandy channery silt loam, 8 to 15 percent slopes, very stony
35D	Mandy channery silt loam, 15 to 35 percent slopes, very stony
35E	Mandy channery silt loam, 35 to 55 percent slopes, very stony
36A	Maurertown silty clay loam, 0 to 3 percent slopes, rarely flooded
37B	McClung-Lily complex, 3 to 8 percent slopes
38C	McClung-Watahala-Dekalb complex, 8 to 15 percent slopes
38D	McClung-Watahala-Dekalb complex, 15 to 35 percent slopes
39B	Murrill loam, 3 to 8 percent slopes
39C	Murrill loam, 8 to 15 percent slopes
39D	Murrill loam, 15 to 25 percent slopes
40C	Murrill cobbly loam, 8 to 15 percent slopes, very stony
40D	Murrill cobbly loam, 15 to 35 percent slopes, very stony
40E	Murrill cobbly loam, 35 to 55 percent slopes, very stony
41B	Nicelytown silt loam, 3 to 8 percent slopes
42A	Ogles very cobbly loam, 0 to 3 percent slopes, occasionally flooded
43B	Oriskany cobbly sandy loam, 3 to 8 percent slopes, very stony
44C	Oriskany cobbly sandy loam, 8 to 15 percent slopes, extremely stony
44D	Oriskany cobbly sandy loam, 15 to 35 percent slopes, extremely stony
44E	Oriskany cobbly sandy loam, 35 to 55 percent slopes, extremely stony
45E	Oriskany extremely bouldery sandy loam, 25 to 55 percent slopes, very rubbly
46C	Oriskany-Murrill complex, 8 to 15 percent slopes, very stony
46D	Oriskany-Murrill complex, 15 to 35 percent slopes, very stony
47E	Oriskany-Murrill complex, 35 to 55 percent slopes, extremely stony
48C	Paddyknob-Madsheep complex, 8 to 15 percent slopes, very stony
48D	Paddyknob-Madsheep complex, 15 to 35 percent slopes, very stony
48E	Paddyknob-Madsheep complex, 35 to 55 percent slopes, very stony
49A	Purdy silty clay loam, 0 to 3 percent slopes
50C	Shelocta-Berks complex, 8 to 15 percent slopes
50D	Shelocta-Berks complex, 15 to 35 percent slopes
50E	Shelocta-Berks complex, 35 to 55 percent slopes
51B	Sugarhol silt loam, 3 to 8 percent slopes
51C	Sugarhol silt loam, 8 to 15 percent slopes
52	Udorthents, dams
53	Udorthents, smoothed, 3 to 35 percent slopes
54	Udorthents-Rock outcrop complex, 15 to 100 percent slopes
55E	Watahala-Frederick complex, 35 to 55 percent slopes, very rocky
56E	Weikert-Berks complex, 35 to 55 percent slopes, very stony
57D	Weikert-Berks-Rough complex, 15 to 35 percent slopes
57E	Weikert-Berks-Rough complex, 35 to 55 percent slopes
58F	Weikert-Berks-Rough complex, 55 to 80 percent slopes, very stony
59F	Weikert-Rock outcrop-Rough complex, 55 to 100 percent slopes
60F	Weikert-Rough complex, 55 to 80 percent slopes
61C	Wharton-Blairton complex, 8 to 15 percent slopes

Map Unit Name - Summary by Map Unit - Bath County, Virginia (VA017)	
Map Unit Symbol	**Map Unit Name**
61D	Wharton-Blairton complex, 15 to 35 percent slopes
62A	Wolfgap loam, 0 to 3 percent slopes, occasionally flooded
63A	Wolfgap loam, 0 to 3 percent slopes, rarely flooded
64B	Zoar silt loam, 3 to 8 percent slopes
W	Water

Map F-3. Rockbridge County Soil Map Unit Legend

Map Unit Name - Summary by Map Unit - Rockbridge County, Virginia (VA163)	
Map Unit Symbol	**Map Unit Name**
1A	Alonzville loam, 0 to 3 percent slopes, rarely flooded
2B	Alonzville loam, 3 to 8 percent slopes
3B	Alonzville-Urban land complex, 3 to 8 percent slopes
4C	Berks-Weikert complex, 3 to 15 percent slopes
5A	Botetourt loam, 0 to 3 percent slopes, rarely flooded
6A	Botetourt-Urban land complex, 0 to 3 percent slopes, rarely flooded
7A	Buckton-Weaver complex, 0 to 3 percent slopes, occasionally flooded
8F	Caneyville-Frederick-Rock outcrop complex, 35 to 55 percent slopes
9C	Carbo-Opequon complex, 3 to 15 percent slopes, very rocky
9E	Carbo-Opequon complex, 15 to 35 percent slopes, very rocky
10F	Carbo-Opequon-Rock outcrop complex, 35 to 70 percent slopes
11B	Cottonbend loam, 3 to 8 percent slopes
11C	Cottonbend loam, 8 to 15 percent slopes
12A	Coursey loam, 0 to 3 percent slopes, rarely flooded
13B	Coursey loam, 3 to 8 percent slopes
14C	Dekalb, Lehew, and Berks soils, 3 to 15 percent slopes, very stony
14E	Dekalb, Lehew, and Berks soils, 15 to 35 percent slopes, very stony
14F	Dekalb, Lehew, and Berks soils, 35 to 70 percent slopes, very stony
15E	Dekalb-Lehew-Rock outcrop complex, 15 to 35 percent slopes, extremely stony
15F	Dekalb-Lehew-Rock outcrop complex, 35 to 80 percent slopes, extremely stony
16C	Dekalb-Lily complex, 3 to 15 percent slopes, very stony
16E	Dekalb-Lily complex, 15 to 35 percent slopes, very stony
17F	Dekalb-Lily complex, 35 to 55 percent slopes, very stony
18A	Derroc very cobbly sandy loam, 0 to 3 percent slopes, frequently flooded
19C	Edneytown loam, 8 to 15 percent slopes
19D	Edneytown loam, 15 to 25 percent slopes
20C	Edneytown-Peaks complex, 3 to 15 percent slopes, very stony
20E	Edneytown-Peaks complex, 15 to 35 percent slopes, very stony
20F	Edneytown-Peaks complex, 35 to 70 percent slopes, very stony
21B	Escatawba loam, 3 to 8 percent slopes
21C	Escatawba loam, 8 to 15 percent slopes
22B	Frederick silt loam, 3 to 8 percent slopes
22C	Frederick silt loam, 8 to 15 percent slopes
22D	Frederick silt loam, 15 to 25 percent slopes
23E	Frederick-Caneyville complex, 25 to 35 percent slopes
24C	Frederick-Caneyville complex, 3 to 15 percent slopes, very rocky
24E	Frederick-Caneyville complex, 15 to 35 percent slopes, very rocky
25C	Frederick-Watahala complex, 8 to 15 percent slopes
25D	Frederick-Watahala complex, 15 to 25 percent slopes

Map Unit Name - Summary by Map Unit - Rockbridge County, Virginia (VA163)	
Map Unit Symbol	**Map Unit Name**
25E	Frederick-Watahala complex, 25 to 35 percent slopes
26A	Gladehill fine sandy loam, 0 to 3 percent slopes, occasionally flooded
27B	Groseclose silt loam, 3 to 8 percent slopes
27C	Groseclose silt loam, 8 to 15 percent slopes
27D	Groseclose silt loam, 15 to 25 percent slopes
28E	Groseclose-Needmore complex, 25 to 35 percent slopes
29C	Groseclose-Needmore-Urban land complex, 0 to 15 percent slopes
30A	Holly-Orrville complex, 0 to 3 percent slopes, occasionally flooded
31A	Ingledove loam, 0 to 3 percent slopes, rarely flooded
32A	Irongate fine sandy loam, 0 to 3 percent slopes, occasionally flooded
33C	Litz-Chiswell-Groseclose complex, 8 to 15 percent slopes
33E	Litz-Chiswell-Groseclose complex, 15 to 35 percent slopes
33F	Litz-Chiswell-Groseclose complex, 35 to 55 percent slopes
34C	Litz-Needmore complex, 3 to 15 percent slopes, very stony
34E	Litz-Needmore complex, 15 to 35 percent slopes, very stony
34F	Litz-Needmore complex, 35 to 70 percent slopes, very stony
35C	Lodi-McClung-Lily complex, 8 to 15 percent slopes
35E	Lodi-McClung-Lily complex, 15 to 35 percent slopes
36C	Lostcove very cobbly sandy loam, 3 to 15 percent slopes, extremely stony
37E	Lostcove very cobbly sandy loam, 15 to 35 percent slopes, very stony
37F	Lostcove very cobbly sandy loam, 35 to 55 percent slopes, very stony
38E	Marbleyard-Rock outcrop complex, 15 to 35 percent slopes, extremely stony
39F	Marbleyard-Sherando-Rock outcrop complex, 35 to 55 percent slopes, extremely stony
39G	Marbleyard-Sherando-Rock outcrop complex, 55 to 80 percent slopes, extremely stony
40A	Maurertown-Toms complex, 0 to 3 percent slopes, rarely flooded
41C	McCamy loam, 3 to 15 percent slopes, very stony
42F	McClung-Caneyville-Dekalb complex, 35 to 55 percent slopes, very stony
43C	Needmore-Opequon complex, 3 to 15 percent slopes
43E	Needmore-Opequon complex, 15 to 35 percent slopes
43F	Needmore-Opequon complex, 35 to 70 percent slopes
44E	Needmore-Urban land complex, 15 to 35 percent slopes
45B	Nicelytown loam, 3 to 8 percent slopes
46B	Nicelytown-Urban land complex, 3 to 8 percent slopes
47C	Oriskany-Laidig complex, 3 to 15 percent slopes, extremely stony
47E	Oriskany-Laidig complex, 15 to 35 percent slopes, extremely stony
48F	Oriskany cobbly sandy loam, 35 to 55 percent slopes, extremely stony
49C	Oriskany-Murrill complex, 3 to 15 percent slopes, extremely stony
49E	Oriskany-Murrill complex, 15 to 35 percent slopes, extremely stony
49F	Oriskany-Murrill complex, 35 to 55 percent slopes, extremely stony
50E	Peaks-Edneytown complex, 15 to 35 percent slopes, very rocky
50F	Peaks-Edneytown complex, 35 to 70 percent slopes, very rocky
51A	Philo fine sandy loam, 0 to 3 percent slopes, occasionally flooded
52C	Pignut-Myersville complex, 3 to 15 percent slopes, very stony
53E	Pignut silt loam, 15 to 35 percent slopes, very stony
53F	Pignut silt loam, 35 to 70 percent slopes, very stony
54	Pits and Dumps
55A	Pope fine sandy loam, 0 to 3 percent slopes, occasionally flooded
56G	Rock outcrop-Opequon complex, 55 to 100 percent slopes
57A	Sensabaugh-Lobdell-Derroc complex, 0 to 3 percent slopes, occasionally flooded

Map Unit Name - Summary by Map Unit - Rockbridge County, Virginia (VA163)	
Map Unit Symbol	**Map Unit Name**
58B	Shottower fine sandy loam, 3 to 8 percent slopes
58C	Shottower fine sandy loam, 8 to 15 percent slopes
58D	Shottower fine sandy loam, 15 to 25 percent slopes
59E	Shottower cobbly fine sandy loam, 25 to 35 percent slopes
60C	Shottower-Urban land complex, 3 to 15 percent slopes
61B	Slabtown silt loam, 0 to 8 percent slopes
61C	Slabtown silt loam, 8 to 15 percent slopes
62	Slickens
63E	Stumptown-Marbleyard-Rock outcrop complex, 15 to 35 percent slopes, extremely stony
63F	Stumptown-Marbleyard-Rock outcrop complex, 35 to 55 percent slopes, extremely stony
63G	Stumptown-Marbleyard-Rock outcrop complex, 55 to 80 percent slopes, extremely stony
64E	Stumptown-Sylco complex, 15 to 35 percent slopes, very stony
64F	Stumptown-Sylco complex, 35 to 55 percent slopes, very stony
65E	Sylco-Marbleyard complex, 15 to 35 percent slopes, very rocky
65F	Sylco-Marbleyard complex, 35 to 55 percent slopes, very rocky
65G	Sylco-Marbleyard complex, 55 to 80 percent slopes, very rocky
66C	Thunder-Saunook complex, 3 to 15 percent slopes, very bouldery
66E	Thunder-Saunook complex, 15 to 35 percent slopes, very bouldery
66F	Thunder-Saunook complex, 35 to 55 percent slopes, very bouldery
67C	Tumbling-Vanella complex, 8 to 15 percent slopes
67D	Tumbling-Vanella complex, 15 to 25 percent slopes
67E	Tumbling-Vanella complex, 25 to 35 percent slopes
68D	Tumbling-Vanella-Urban land complex, 8 to 25 percent slopes
69A	Tygart-Purdy complex, 0 to 3 percent slopes
70	Udorthents, refuse substratum
71	Udorthents, smoothed-Urban land complex
72C	Unaka-Plott complex, 3 to 15 percent slopes, very stony
72E	Unaka-Plott complex, 15 to 35 percent slopes, very stony
73C	Vanella-Tumbling complex, 3 to 15 percent slopes, very stony
73E	Vanella-Tumbling complex, 15 to 35 percent slopes, very stony
74C	Watahala-Frederick complex, 8 to 15 percent slopes, very stony
74E	Watahala-Frederick complex, 15 to 35 percent slopes, very stony
74F	Watahala-Frederick complex, 35 to 55 percent slopes, very stony
75E	Weikert-Berks-Rough complex, 15 to 35 percent slopes
75F	Weikert-Berks-Rough complex, 35 to 70 percent slopes
76G	Weikert-Rough-Rock outcrop complex, 70 to 100 percent slopes
77C	Wintergreen loam, 8 to 15 percent slopes
77D	Wintergreen loam, 15 to 25 percent slopes
77E	Wintergreen loam, 25 to 35 percent slopes
78E	Wintergreen loam, 15 to 35 percent slopes, very stony
79A	Wolfgap loam, 0 to 3 percent slopes, rarely flooded
80A	Wolfgap-Derroc-Urban land complex, 0 to 3 percent slopes, rarely flooded
W	Water

USDA Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey
11/13/2014

Appendix G - Scenery Treatments - Mitigation Measures

General Design Treatments to be Applied for Meeting SIOs

Factors contributing to treatment units appearing more natural include the amorphous and fluid shapes of treatment units. Straight lines and sudden significant changes in the density of the trees along the perimeter will not appear natural to the casual observer. Unit designs should never include geometric shapes with straight lines and angles.

A noticeable pattern or grid to the leave trees should be avoided; instead the leave trees should include a mix of individual trees and various sized clumps of trees situated in a seemingly random manner. The design may appear random when, in fact, the design is deliberate in making the unit appear smaller or to hide a constructed feature such as a landing.

Constructed features associated with treatment operations such as temporary roads, skid trails and landings have a higher likelihood of being noticeable to the casual observer and these elements do not appear natural. Careful placement of these elements out of view from roads and trails is the first preference for mitigation. If it is not possible or practical to place these elements out of view from open roads and trails, then efforts to reduce their visibility after the project will be needed for areas in a High SIO and strongly encouraged in areas with a Moderate SIO. This includes ripping and seeding with native grasses, pulling slash across them, and/or reshaping to try to remove visible evidence of the element's profile. When feasible, locate landings adjacent to existing roads to mimic a parking pullout so that the casual observer associates the feature with the road rather than with the opening.

Another important design to employ almost universally is to drop the upper unit boundary by one tree height when it falls just at or below a ridge. Also, increase leave-tree density to feather along upper boundary of units that may be visible in the foreground or middleground.

Specific Design Treatments to be Applied for Meeting SIOs

To mitigate the impacts of timber harvesting on the scenery resource, the implementation of an action alternative should utilize the appropriate measures described in the Scenery Treatment Guide in Chapter 3, Table 3-3, of the Revised Forest Plan.

The following scenery design features have been identified for each proposed activity where indicated in the following table, and are required for action alternatives to meet assigned Visual Quality Objectives:

Scenery Treatments

Activity	Units	Scenic Integrity Objectives	
		High	Moderate
Hardwood Restoration	P7, P9, P10		B,C,D,F,G,H,M,V
	LK43, LK46		H, V
Shelterwood and Shelterwood with Reserves	Concern Level 1 Travelways: CR-01, CR-03, CD-03	H,K,V	
	Trails Foreground View: CD-01, LK-31, SS-06, BM-03, BM-04, BM-06		B,C,D,F,H,M,N(2),P,U,V,Y

Activity	Units	Scenic Integrity Objectives	
		High	Moderate
	Trails Middleground View: SS-03, SS-04, BM7?, BM8?		H,S,V
	FS Roads Foreground View: LK-01, LK-13, LK-25, LK-27, LK-28, LK-29, SS-03, SS-05,		B,F,H,U
Free Thinning	CL8, P1, P2, P5		B,C,D,F,G,H
SPN, Thinning	LK34		B,C,D,F,G
Temporary Road Construction			C,H,S,T,W
Wildlife Clearings			B, C, D, F, G, H, V, Z
Prescribed Fires (all) –		G, AA, AB, AC, AD	G, AA, AB, AC, AD

A. Trees should be selectively removed to improve scenery within high use areas, vista points, and along interpretive trails – Not Applicable
B. Flowering and other visually attractive trees and understory shrubs should be favored when leaving vegetation.
C. During temporary or permanent road construction, eliminate or remove from view slash and root wads as viewed from the immediate foreground of CL 1 and 2 viewing platforms to the extent possible. Some slash may be aligned parallel to roads at the base of fill slopes to collect silt.
D. Slash should be removed, burned, chipped or lopped to within an average of 2 feet of ground, when visible within 100-foot zone of concern level 1 and 2 travelways and use areas.
E. Stems should be cut to within 6 inches of the ground when doing roadside maintenance or at utility crossings.
F. Leave tree or unit marking should be applied so as to not be visible within 100 feet of concern level 1 and 2 viewing platforms.
G. Scheduling work outside of major recreation seasons should be considered on roads leading to recreation facilities.
H. Special road and landing design should be used. When possible, log landings, roads and bladed skid trails should be located out of view from Concern Level 1 and 2 viewing platforms to avoid bare mineral soil observation.
I. An opening size should generally not exceed 1.5 acres.
J. An actual opening size up to 10 acres could occur in the foreground zone and 25 acres in middleground and background zone visible from concern level 1 & 2 viewing platforms.
K. An actual opening size up to 25 acres with inclusions could occur.
L. An actual opening size up to 40 acres with inclusions could occur.
M. Along concern level 1 and 2 travel routes, openings should be spaced at a minimum of 1000 feet apart next to the travel route.
N. (1) Along concern level 1 and 2 roads, openings of up to 200 feet could occur.
(2) Along concern level 2 trails, openings of up to 100 feet could occur. Less is preferred.
O. Along concern level 2 travel routes with a moderate SIO, openings of up to 400 feet could occur.
P. Removal of overstory should be delayed until understory is 10 feet in height.
Q. Utility rights-of-ways should be located to conform to natural patterns of vegetation.
R. Overhead utility lines and support towers should be screened where possible.
S. The visual impression of roads should be blended so that they remain subordinate to the existing landscape character in size, form, line, color, and texture.
T. Gravel pits and borrow areas should be excluded from seen area of visually sensitive travelways and viewing points.

U. No adjacent regeneration cutting should occur until dominant and codominant species reach 20 percent of height of tallest adjacent stands for even-aged timber harvest cutting methods.
V. Openings should be shaped and oriented to contours and existing vegetation patterns to blend with existing landscape characteristics. Edges should be shaped and/or feathered where appropriate. No geometric shapes should be used.
W. Cut and fill slopes should be revegetated.
X. An actual opening size up to 10 acres could occur in the near foreground zone (within approximately 1,000' of viewing platform), 25 acres in remainder of foreground zone (approximately 1,000' to ½ mile), and 40 acres in middleground and background zone as viewed from concern level 1 & 2 viewing platforms.
Y. An actual opening size up to 40 acres could occur.
Z. For units visible in the Foreground and Middleground Zones from Concern Level 1 and 2 viewing platform(s), leave islands of undisturbed vegetation within the area for visual diversity and visual links to surrounding forested landscape. Islands should vary in size, shape and distribution.
AA. For areas visible in the Foreground Zone (up to ½ mile) from Sensitivity Level 1 viewing platforms, and the immediate Foreground (300 feet) from Concern Level 2 viewing platforms, the perimeter of the burned area should appear random and natural, not controlled. In these areas, avoid solely using constructed features such as roads and trails as fire lines and points of ignition as this would not result in the appearance of a natural occurring wildfire.
AB. For areas visible in the immediate Foreground Zone (300 feet) from Sensitivity Level 1 and 2 viewing platforms, minimize permanent scarring or damage to important scenic features like rock outcrops and large dbh "stately" trees.
AC. Protect recreation infrastructure including minor constructed features (like trail signs, information boards, etc.) from scarring and damage.
AD. Minimize the visual impact of linear corridors created by fire lines
AE. Respond to Sensitivity Level 1 and 2 viewing platforms by leaving islands of undisturbed vegetation within the area for visual diversity, links to the surrounding landscape and to help establish a more natural appearing burn pattern. Islands should vary in size, shape and distribution.

Appendix H: Key Regulated Pollutants and their Significance in Smoke

Fine Particulates ($PM_{2.5}$)

Particulate is a term used to describe dispersed airborne solid and liquid particles which will remain in atmospheric suspension from a few seconds to several months. Particulates that remain suspended in the atmosphere are efficient at light scattering and therefore contribute to visibility impairment. Very small particles can travel great distances and contribute to regional haze problems. Regional haze can result from prescribed burning over multiple days and/or multiple owners utilizing the air shed over too short a period of time. Cumulative particulate load may be the result of prescribed burning only, or urban and industrial sources only, or it may be a combination of the two. The causes of regional haze are often difficult to identify. Total suspended particulates (TSP) include all suspended particulates, no matter the size. Particulate matter less than 2.5 microns in diameter (PM2.5), or less than 10 microns in diameter (PM10) describes particles small enough to enter the human respiratory system. Fires emit large amounts of fine particulate matter that can affect human health and impair visibility.

Particulate matter, alone or in combination with other pollutants, can constitute a health hazard. Particulates enter the body mainly via the respiratory system. Particulate matter may exert a toxic effect in one or more of the following ways:

1. The particle may be intrinsically toxic because of its chemical and/or physical characteristics.

The particle may interfere with one or more of the mechanisms that normally clear the respiratory tract.

The particle may act as a carrier of an absorbed toxic substance.

Medical studies have shown a solid relationship between increases in particulate concentrations and rises in the number of clinic and hospital visits for upper respiratory infections, cardiac diseases, bronchitis, asthma, pneumonia, and emphysema. Deaths of elderly persons afflicted with respiratory diseases and cardiac conditions also show an increase during periods when the concentration of particulate matter is unusually high for several days.

Some recent studies have indicated that urban particulate matter may be more dangerous to human health than rural particulate. There is speculation that urban pollution sources, like auto exhaust and industrial sources may be more toxic than rural sources, such as dust or wood smoke. This theory has not yet been proven definitively.

There are few studies that evaluate the toxicity of forest fire smoke. Almost all investigations of the toxicity of smoke particulate matter in human populations have been conducted with particulates associated with burning coal or fossil fuels where sulfur oxides and sulfates are the important constituents. However, these chemicals are not generated in a significant quantity by vegetation fires.

Sulfur Dioxide

Sulfur dioxide (SO_2) is emitted primarily from combustion of fuel containing sulfur; generally either coal or oil. Sulfur compounds are also emitted naturally by marine sources, soils and vegetation, volcanoes, and geothermal activity. Humans respond to sulfur dioxide exposure with an increase in airway resistance. Most individuals show a response to SO_2 at concentrations of 5 ppm (parts per

million) and above and certain sensitive individuals show slight effects at 1 to 2 ppm. Excess SO_2 in the atmosphere also effects sensitive vegetation.

Sulfur dioxide can also contribute to reduction in visibility. Atmospheric haze is caused by the formation of various aerosols resulting from the photochemical reactions between SO_2, particulate matter, oxides of nitrogen, and hydrocarbons in the atmosphere. Sulfur dioxide transforms into an acid when absorbed in cloud water and raindrops and can fall as acid rain.

Most forest fuels contain less than 0.2 percent sulfur so sulfur oxides could be produced only in negligible quantities during prescribed fires and wildfires.

Carbon Monoxide

Carbon monoxide (CO) is produced by automobile exhaust and other incomplete combustion sources. Carbon monoxide is a poisonous inhalant that deprives the body tissues of necessary oxygen. Extreme exposure (>750 ppm) can cause death. Impaired time-interval discrimination can occur when humans are exposed to concentrations as low as 10 to 15 ppm for 8 hours. Carbon monoxide exposure can also result in central nervous system effects such as impairment of visual acuity, brightness discrimination, and psychomotor functions. Symptoms include headache, fatigue, and drowsiness.

Large quantities of carbon monoxide are emitted from wildfire and prescribed fires. Carbon monoxide exposure from these sources can be significant for fire line workers but CO dilutes very rapidly in the atmosphere and probably is not a concern to urban and rural areas even a short distance downwind. One study measured CO concentrations as high as 200 ppm close to flames but observed that the concentration was reduced to less than 10 ppm just 100 feet from the fire.

Ozone

Ozone is a secondary pollutant formed from the reaction of volatile organic compounds with oxides of nitrogen in the presence of sunlight. Volatile organic compounds originate from industrial processes, solvent use, and transportation. The origin of nitrogen oxides is discussed in another section. Ozone can cause eye, nose, and throat irritation, and chest constriction in humans at concentrations above 0.10 ppm.

On vegetation, ozone can cause visible injury, reduced photosynthetic capacity, increased respiration, premature leaf senescence, and reduced growth. Other effects include alteration of carbon allocation, greater susceptibility to environmental stress, changes in plant community composition, and loss of sensitive genotypes from a population.

Prescribed fires and wildfires emit volatile organic compounds (VOCs) which can react with urban sources of nitrogen to form ozone. Elevated ozone levels have been measured at the top of smoke plumes. Elevated ozone in cities far downwind from wildfires has been attributed in part to wildfire emissions.

Nitrogen Dioxide

Oxides of nitrogen are formed in a combustion process when nitrogen in the air or in fuel combines with oxygen at elevated temperatures. Nitrogen dioxide acts as an acute irritant. Some increase in bronchitis in children has been observed at concentrations below 0.01 ppm. In combination with hydrocarbons, oxides of nitrogen react in the presence of sunlight to form photochemical smog or

ozone. Nitrogen dioxide absorbs visible light and, at a concentration of 0.25 ppm, will cause appreciable reduction in visibility.

Formation of nitrogen oxides occur at temperatures not normally found in prescribed fires. Some oxides of nitrogen may be formed at lower temperatures in the presence of free radicals, and nitrogenous compounds in forest fuels are another possible source. Generally, wildland fire is considered an insignificant contributor of these emissions.

Lead

The principal source of lead emissions is the combustion of gasoline containing lead alkyl additives. Since use of leaded gasoline has decreased dramatically, lead air pollution is rarely a problem anymore.

Lead particles that have been deposited on vegetation over decades can become re-emitted if the vegetation is burned. This phenomenon was documented during chaparral burning which took place east of the Los Angeles basin.

Appendix I: Region 8 Smoke Management Guidelines

USDA FOREST SERVICE REGION 8
SMOKE MANAGEMENT GUIDELINES
September 1, 2010

SMOKE MANAGEMENT OBJECTIVES:

Ensure the burn plan is prepared and the burn is executed to meet all of the following:

- Minimize the amount and concentration of smoke entering populated areas
- Prevent / minimize public health and safety hazards, including
  - Impacts to sensitive sites (schools, hospitals, nursing homes, etc.)
  - Visual impairment on highways, airports, etc.; both day and night
- Avoid exceedances of National Ambient Air Quality Standards (NAAQS)
- Protect visibility in Class I areas

MEETING USDA FOREST SERVICE POLICY

The burn plan shall be prepared to ensure the smoke management objectives meet agency policy that prescribed fires will not contribute to or cause an exceedance of a National Ambient Air Quality Standard (NAAQS). Burn planning will include the appropriate analysis procedures to evaluate downwind smoke concentrations to ensure protection of public health and safety.

SMOKE DISPERSION EVALUATION

Step 1: For all prescribed burns, check the Current and Forecast AQI at the following site: http://www.airnow.gov/. Do not burn under a wind direction that would transport smoke into an area that is forecast to be at the AQI code orange, red, or purple on the day or evening of the burn.

Step 2: Fully comply with the mandatory or voluntary State Smoke Management Program (SMP) or guidelines.

A. The following states have written programs or guidelines that provide guidance for evaluating smoke dispersion. National Forests within the following states will complete the smoke management requirements listed in those state smoke management programs and guidelines. The agency administrator may determine that smoke dispersion assessment beyond what is required by the States is necessary to fulfill agency policy and may elect also to utilize **Steps 3 through 9**:

   a. Alabama
   b. Arkansas
   c. Georgia
   d. Florida
   e. Louisiana
   f. Mississippi
   g. South Carolina
   h. North Carolina
   i. Virginia

B. The states listed here do not have written programs or guidelines that specify detailed procedures for assessing downwind impacts to smoke sensitive areas. National Forests within these states will complete the smoke management requirements described in **Steps 3 through 9** below:

c. Kentucky b. Oklahoma c. Tennessee d. Texas

Step 3: Estimate downwind smoke concentrations and movement of residual smoke. Methodology shall be commensurate with the risk associated with potential downwind smoke impacts.

A. A simple smoke screening (**Figure 1**) can be used **if all** of the following criteria are met for the planned prescribed burn:
   a. Four tons of fuel (or less) are consumed per acre,
   b. 180 acres per hour (or less) are in the active fire phase,
   c. Opaque cloud cover is less than 60 percent,
   d. Background concentration of particulate matter unit is 20 micrograms per cubic meter (or less).
   e. Meets the minimum meteorological criteria in Table 1

B. If the prescribed burn does not meet all of the criteria in "a" – "e" above, then a dispersion model will need to be run for the burn to that modeled downwind smoke concentrations are within acceptable limits to achieve the smoke management objectives listed at the beginning of these guidelines. Available models for completing this analysis include VSMOKE, VSMOKE-GIS (used during burn planning), and HYSPLIT-PC (used within 48 hours of burning to assist go-no-go decision).

Table 1. Minimum combinations for transport winds speeds and mixing heights (above ground level). *(Use these minimums if the burn meets the criteria listed in "A" above).*

Transport Wind Speed		Mixing Height Minimum		Minimums Rounded to Nearest	
Meters per second	Miles per hour	Meters	Feet	Miles per hour	Feet
3.0	6.7	890	2920	7	2700
3.1	6.9	850	2789		
3.2	7.2	800	2625		
3.3	7.4	770	2526		
3.4	7.6	740	2428	8	2300
3.5	7.8	720	2362		
3.6	8.1	690	2264		
3.7	8.3	660	2165		
3.8	8.5	640	2100	9	1900
3.9	8.7	620	2034		
4.0	8.9	600	1968		

- Do not burn when the minimum combination of mixing heights (above ground level) and transport wind speeds are below the values shown in Table 1, unless atmospheric dispersion modeling results clearly demonstrate no smoke sensitive targets are likely to be adversely impacted.

- If the mixing height is typically reported by the National Weather Service (NWS) as above sea level (ASL), then use ArcGIS to calculate the weighted average elevation for the entire burn unit. This value is then subtracted from the mixing height value desired or reported by the NWS. The objective is to get mixing heights estimated at "above ground level."

- Variances on these regional minimum meteorological combinations will only be considered when dispersion modeling shows the smoke will be adequately dispersed so downwind sensitive areas will not be unacceptably impacted by smoke.

Figure 1. Simple Smoke Screening to estimate the direction and area of daytime smoke dispersal.

This screening can be completed by hand (refer to Figure 1) or on the computer at the internet site: http://shrmc.ggy.uga.edu/maps/screen.html.

A. Use maps on which the locations of smoke-sensitive areas can be identified. Plot the anticipated downwind smoke movement at a distance of *X* based on fuel consumption:

Consumption (tons per acre)	Distance
<= 0.5	330 feet
0.51 - 1.0	0.5 miles
1.1 - 2.0	4 miles
2.1 – 3.0	12 miles
3.1 – 4.0	25 miles

First locate the planned burn area on a map and draw a line representing the centerline of the path of the smoke plume (direction of transport wind) for the distance indicated. **If the burn will last 3 or more hours, draw another line showing predicted wind direction at completion of the burn**

B. To allow for horizontal dispersion of smoke as well as shifts in wind direction, draw two other lines from the fire at an angle of 30 degrees from the centerlines of forecasted wind direction will be used. If fire is represented as a spot, draw as in figure A and if larger, draw as in figure B. The result is your probable daytime smoke impact area.

Figure A

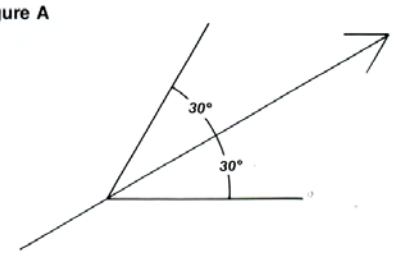
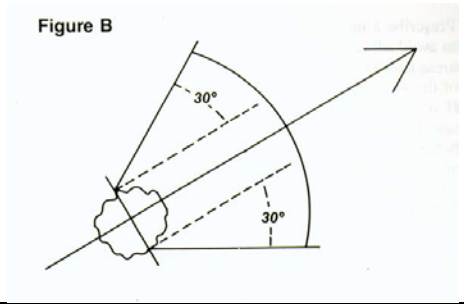


Figure B



Step 4: Locate all known smoke sensitive targets within or immediately adjacent to the area of potential downwind smoke impacts utilizing a geographic information system (GIS), or on a master map. Examples may include, but are not limited to, areas with existing air pollution or visibility problems, non-attainment areas, airports, communities, schools, highways, hospitals, any area monitored by the state air regulators, and metropolitan/urban areas. Smoke sensitive targets also include Class I areas, where visibility is protected by the Clean Air Act (Table 2.).

Table 2. Listing of Class I areas in Region 8.

STATE	CLASS I AREA	ACRES
ALABAMA	Sipsey Wilderness (USFS)	24,922
ARKANSAS	Caney Creek Wilderness (USFS)	14,460
	Upper Buffalo Wilderness (USFS)	12,035

FLORIDA	Everglades National Park (NPS) Chassahowitzka Wildlife Refuge (FWS) St. Marks Wildlife Refuge (FWS) Bradwell Bay Wilderness (USFS)	1,506,499 23,580 17,350 24,602
GEORGIA	Cohutta Wilderness (USFS) Okefenokee Wildlife Refuge (FWS) Wolf Island Wildlife Refuge (FWS)	36,977 353,981 5,126
KENTUCKY	Mammoth Cave National Park (NPS)	52,707
LOUISIANA	Breton Wildlife Refuge (FWS)	5,000
NORTH CAROLINA	Linville Gorge Wilderness (USFS) Shining Rock Wilderness (USFS) Swanquarter Wildlife Refuge (FWS)	21,002 16,133 8,785
SOUTH CAROLINA	Cape Romain Wildlife Refuge (FWS)	29,000
TENNESSEE/NORTH CAROLINA	Great Smokey Mountain National Park (NPS) Joyce Kilmer- Slickrock Wilderness (USFS)	520,269 17,394
TEXAS	Big Bend National Park (NPS) Guadalupe Mountains National Park (NPS)	801,163 46,850
VIRGINIA	Shenandoah National Park (NPS) James River Face Wilderness (USFS)	79,579 8,903
VIRGIN ISLANDS	Virgin Islands National Park (NPS)	14,689

Step 5: Determine what adjustments or mitigations are necessary to achieve the Smoke Management Objectives. Techniques for reducing emissions from burns can be reviewed in Smoke Management Guide for Prescribed and Wildland Fire – 2001 Edition (National Wildfire Coordination Group, NFES-1279/PMS 420-2). A few examples of mitigation are listed in Table 3 below.

Table 3. Examples/Techniques of Mitigation for Consideration

1. Contact people known to be sensitive to air pollution prior to the ignition of the prescribed fire if they could be impacted by smoke. This could include hospitals, nursing homes, isolated residences, etc. News releases in newspapers and by radio or TV may be appropriate.
2. Notify public safety agencies such as State Highway Patrol, County Sheriff, Local Law Enforcement, Highway Departments, and 911 Dispatch centers. State Forestry and Air Quality offices should also be included.
3. Post smoke-warning signs to warn the public of areas where smoke may create a hazard to driving. All warning signs used must meet standards as described in FSH 7109.11 Sign Handbook. Patrol potentially affected areas (especially at night and during early morning hours) to ensure residual smoke is not causing safety concerns.