# Comparison of the Maps



## Lee Elliott & Dyanna Pursell, MoRAP 13 June 2014







### **Comparison of Products**

- Acquired Data Input data may be older
  - TNC 2012
  - EVT 2008v1.1
  - NatureServe v29 (post Mid-West updates)
  - SEGAP 2008
- Clipped data to project area extent
- Registered rasters to each other
  - Edited headers to align pixels of each product to EVT
  - Problems with NatureServe map (shifts not consistent across extent)
- Standard or at least common legend across efforts (NatureServe lead)
- Reclass products to standard numeric code reflecting name in common legend
- Crosstab pairwise comparisons of each product to each other product, producing confusion matrix for each pair
- Compressed confusion matrix by eliminating large areas of these sparse matrices

## **Overlap Area – Virginia & Part of West Virginia**

- Tabulate area by USFS Subsection
- Organized tabulations and summarized into manageable and interpretable scenarios

#### Issue with Map Registration - NatureServe

- Worse in some areas than others (worst area shown)
- Makes pixel by pixel comparison erroneous
- Summary by subsection used to overcome



#### **General Reasons for Differences**

- Differences in Targets Actual
- Differences in Targets Conceptual
- Different Reliance on Geophysical Setting, Remote Sensing Data, & Plots
- Different Use of Range Restrictions
- Different Treatment of Non-natural and Semi-natural Types
- Deliberate Changes to Improve Product
- Different Methods Obviously

# Target Differences - Actual Se se TNC Appalachian (Hemlock)-Northern Hardwood Forest: drier EVT Appalachian (Hemlock)-Northern Hardwood Forest: moist-cool Appalachian (Hemlock)-Northern Hardwood Forest Appalachian (Hemlock)-Northern Hardwood Forest: typic Central Appalachian Dry Oak-Pine Forest Central Appalachian Dry Oak-Pine Forest Northeastern Coastal and Interior Pine-Oak Forest Northeastern Coastal and Interior Pine-Oak Forest

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## **Pixel by Pixel Comparison**

- Registered rasters to each other
- Common legend across efforts (NatureServe lead)
- Reclass products to standard numeric code reflecting name in common legend
- Crosstab pairwise comparisons of each product to each other product, producing confusion matrix for each pair
- Compressed confusion matrix by eliminating large areas of these sparse matrices

### Initial Confusion Matrix – Definitely

#### Six Large Sparse Matrices Largest 193 x 182 Smallest 178 x 101

A	В	С	D	E	F	G	Н	1	J	K	L	М	N	0	Р	Q	R	S	Т		- 158		
name evt	Acadian Coastal Salt Marsh	Acadian Estuary Marsh	Acadian Low-Elevation spruce-Fir-Hardwood Forest	Acadian-Appalachian Alpine Lundra	Acadian-Appalachian Montane Spruce-Fir Forest	Acadian-Appalachian Subalpine Woodland and Heath-Krummholz	Agriculture - Cultivated Crops and Irrigated Agriculture	Agriculture - General	Agriculture - Pasture/Hay	Allegheny-Cumberland Dry Dak Forest and Woodland	Appalachian (Hemlock)- Vorthern Hardwood Forest	Appalachian Shale Barrens	Atlantic Coastal Plain Slackwater Stream :loodplain Forest	Atlantic Coastal Plain Dry and Dry-Mesic Oak Forest	Atlantic Coastal Plain Fall- ine Sandhills Longleaf Pine NoodlT	Atlantic Coastal Plain Mesic Hardwood Forest	Atlantic Coastal Plain Peatland Pocosin and Canebrake	Atlantic Coastal Plain Small Slackwater River Floodplain Forest	Atlantic Coastal Plain Upland .ongleaf Pine Woodland	1			
Acadian Low-Elevation Spruce-Fir-			~ 01		~~	2012		-		~ ~	~~		~ = =	~ 1	~ - 2	~ +	120						
Hardwood Forest	1923	746	23244192	41	45440	0	58465	0	52192	0	15353	0	0	0	0	0	0	0		1 1 3			
Acadian Salt Marsh and Estuary																				- <b>1</b> 55			
Systems	4547	2864	405	0	0	0	77	0	228	0	114	0	0	0	0	0	0	0		18.11			
Acadian-Appalachian Alpine																				1000		State of Lot 1	
Tundra	0	0	0	11491	587	39	0	0	0	0	0	0	0	0	0	0	0	0					
Acadian-Appalachian Montane																							
Spruce-Fir Forest	0	0	43700	3785	9899188	6568	3046	0	3200	0	458	0	0	0	0	0	0	0					
Acadian-Appalachian Subalpine																							
Woodland and Heath-Krummholz	0	0	0	321	4507	23976	0	0	0	0	0	0	0	0	0	0	0	0					
Agriculture - Cultivated Crops and	-																-						
Irrigated Agriculture	59	132	21060	0	1799	24	102778716	9925	6088715	34124	339897	324	32443	82095	32	162893	3230	12856	130				
Agriculture - Pasture/Hay	261	496	17715	0	1940	0	6149633	2007	164054490	381574	861874	1048	24251	113974	272	125206	3310	8787	87				
Alabama Ketona Glade and						-													-	the second	_		_
Woodland	0	0	0	0	0	0	926	0	3235	1429	0	0	0	0	0	0	0	0					
Allegheny-Cumberland Dry Oak																							
Forest and Woodland	0	0	0	0	0	0	61595	0	455974	10976679	4947268	54	0	0	120	0	0	0	0	0	0	0	
Appalachian (Hemlock)-Northern																				-			
Hardwood Forest	333	858	14745	0	387	0	417861	0	806847	152708	52577065	679	3845	24873	0	12722	0	1337		0	0	21459	19
Annalachian Shale Barrens	0	0000	0	0	0	0	366	0	1345	17	844	529034	0	24070	0	0	0	1007	0	0	0	0	
Atlantic Coastal Plain Dry and Dry-							500		1040			020001											
Mesic Oak Forest	0	0	0	0	0	0	15152	0	1955	0	1	0	/3716	96462	0	178344	252	29220	0	0	0	0	
Atlantic Coastal Plain Mesic							10102		1555		-		10710	50102		1/00/11		LULLO					
Hardwood Forest	0	0	0	0	0	0	126744	0	21911	0	1845	0	441437	1/28/35	0	2166115	18272	172518	1176	0	0	0	
Atlantic Coastal Plain Peatland							120711		01011		2010			2120100		2100110	10272	172010	11/0		, v		
Pocosin and Canebrake	0	0	0	0	0	0	544	0	55	0	0	0	463	2683	0	165	14642	415	0	0	0	0	
					, in the second se	, in the second se								2000		200	21012	110			, i	, v	
Atlantic Coastal Plain Streamhead																							
Seenage Swamp-Pocosin-Baygall	0	0	0	0	0	0	315	0	26	0	0	0	3302	559	0	1302	2	5173	0	0	0	0	
Atlantic Coastal Plain Unland							515		20				3302	555		1502		51/5		Ū			
Longleaf Pine Woodland	0	0	0	0	0	0	2567	0	759	0	14	0	11541	/1977	0	54549	22	2766	1902	0	0	0	
Barron	3820	671	/9269	22919	16212	844	21/191/	1	169962	21029	40221	621	22983	29257	21	25245	959	7915	722	2073	0	13607	
Bluograss Savanna and Woodland	5620	0/1	49309	23919	10515	0444	2000	1	5706	01	40221	021	22505	23637	21	23243	555	7813	122	2073	0	13007	-
Boreal Acidic Deatland Systems	05	60	197372	0	60161	0	58150	10	27556		12	0	0	0	0	0	0	0	0	500507	0	18960922	pr
Poreal Action Perch Forest	95	69	12/2/3	0	00101	0	56101	19	37330	0	42/0	0	0	0	0	0	0	0	0	5251570	0	005740	64
Poreal Jack Dino, Plack Spruce	0	0	U	U	U	U	20101	9	451/0	U	U	U	U	U	U	0	U	U	U	0551579	2	003742	
Forest		_	_				2072		7005							~				405 41	~	174634	
Poreal White Conuce Fin	0	U	U	U	U	U	5672	U	7905	U	U	U	U	U	U	0	U	U	U	46041	0	1/4034	
Borear White Spruce-Fir-			_				20424		22247											1014510	-	2201510	
Control and Southorn App-lashier	0	0	0	U	U	0	29434	U	32347	0	0	0	0	0	0	0	0	0	0	1814518	2	2381510	



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1	TNC	Col sum	%	EVT			1	EVT	Row Sum	%	TNC
	Acadian Coastal Salt			Herbaceous Wetlands (73.98%);							Acadian Low-Elevation Spruce-Fir-
2	Marsh	51414	1.24%	Acadian Salt Marsh and Estuary Systems							Hardwood Forest (41.24%);
				Herbaceous Wetlands (78.50%);				Acadian Low-			Laurentian-Acadian Pine-Hemlock-
3	Acadian Estuary Marsh	53412	0.92%	Acadian Salt Marsh and Estuary Systems	•	Pairwise		Elevation Spruce-Fir-			Hardwood Forest: typic (16.73%);
				Acadian Low-Elevation Spruce-Fir-			2	Hardwood Forest	30668104	41.24%	Acadian Sub-boreal Spruce Flat (14.23%)
	Acadian Low-Elevation			Hardwood Forest (50.93%);							Open Water (27.41%)
	Spruce-Fir-Hardwood			Laurentian-Acadian Northern Hardwoods	•	Not		Acadian Salt Marsh			Acadian Coastal Salt Marsh
4	Forest	24834054	50.93%	Forest (26.96%)		Symmetric	3	and Estuary Systems	15916	7.11%	Acadian Estuary Marsh
						-,					Acadian-Appalachian Montane Spruce-Fi
				Boreal Acidic Peatland Systems (33.38%);							Forest (41.74%);
				Herbaceous Wetlands (21.33%);	•	<190 Rows					Acadian-Appalachian Alpine Tundra
				Laurentian-Acadian Pine-Hemlock-							(36.92%);
5	Acadian Maritime Bog	23540	33.38%	Hardwood Forest (18.85%)	•	1 Columns		Acadian-Appalachian			Laurentian-Acadian Acidic Cliff and Talus
				Acadian Low-Elevation Spruce-Fir-	-	- Columns	4	Alpine Tundra	12653	36.92%	(15.97%)
				Hardwood Forest (64.13%);							Acadian-Appalachian Montane Spruce-Fi
	Acadian Sub-boreal			Laurentian-Acadian Swamp Systems	•	Explicitly					Forest (32.91%);
6	Spruce Flat	6803653	0.00%	(14.74%)							Laurentian-Acadian Northern Hardwood
				Barren (47.96%);		Confusion					Forest: typic (22.51%);
				Acadian-Appalachian Montane Spruce-Fir		Confusion					Acadian Low-Elevation Spruce-Fir-
				Forest (19.63%);				Acadian-Appalachian			Hardwood Forest (13.56%);
				Laurentian-Acadian Northern Hardwoods	•	Immune to		Montane Spruce-Fir			Laurentian-Acadian Northern Hardwood
				Forest (13.43%);		Difforent	5	Forest	11828327	32.91%	Forest_high conifer (10.90%)
	Acadian-Appalachian			Acadian-Appalachian Alpine Tundra		Different					
7	Alpine Tundra	36805	12.69%	(12.69%)		Extents		Acadian-Appalachian			Acadian-Appalachian Montane Spruce-Fi
				Acadian-Appalachian Montane Spruce-Fir				Subalpine Woodland			Forest (63.12%);
	Acadian-Appalachian			Forest (79.84%);		Sonsitivo to		and Heath-			Laurentian-Acadian Calcareous Rocky
	Montane Spruce-Fir			Laurentian-Acadian Northern Hardwoods			6	Krummholz	28931	0.00%	Outcrop (14.42%)
8	Forest	4875555	79.84%	Forest (18.77%)		Pixel					
	Acadian-North Atlantic			Herbaceous Wetlands (22.39%);		Registration		Agriculture -			
9	Rocky Coast	34653	0.00%	Barren (20.76%)		0		Cultivated Crops and			
				NASS-Close Grown Crop (33.99%);			7	Irrigated Agriculture	13556391	91.50%	Agriculture - General (91.50%)
				Agriculture - Pasture/Hay (23.17%);				Agriculture -			
				NASS-Row Crop (19.61%)			8	Pasture/Hay	30890112	94.00%	Agriculture - General (94.00%)
				Agriculture - Cultivated Crops and							Allegheny-Cumberland Dry Oak Forest
				Irrigated Agriculture;							and Woodland (26.69%);
				Agriculture - Pasture/Hay;							Northeastern Interior Dry-Mesic Oak
				NASS-Bush Fruit and Berries;							Forest: typic (23.73%);
				NASS-Fallow/Idle Cropland;				Allegheny-			Southern Appalachian Oak Forest: typic
				NASS-Orchard;				Cumberland Dry Oak			(21.94%);
				NASS-Row Crop-Close Grown Crop;				Forest and			South-Central Interior Mesophytic Fores
10	Agriculture - General	125337924	97.82%	NASS-Vineyard			9	Woodland	7616587	26.69%	(13.57%)
											Appalachian (Hemlock)-Northern
				South-Central Interior Mesophytic Forest							Hardwood Forest: typic (38.61%);
				(38.68%);							Northeastern Interior Dry-Mesic Oak
				Allegheny-Cumberland Dry Oak Forest							Forest: typic (21.98%)
				and Woodland (19.89%);							Appalachian (Hemlock)-Northern
	Allegheny-Cumberland			Southern and Central Appalachian Cove				Appalachian			Hardwood Forest: drier
	Dry Oak Forest and			Forest (13.98%);				(Hemlock)-Northern			Appalachian (Hemlock)-Northern





EVT	SEGAP	TNC
Allegheny-Cumberland Dry Oak Forest and Woodland	Allegheny-Cumberland Dry Oak Forest and Woodland - Hardwood (41.92%); Southern Ridge and Valley Dry Calcareous Forest - Hardwood (25.44%); South-Central Interior Mesophytic Forest (10.07%) Allegheny-Cumberland Dry Oak Forest and Woodland - Pine Modifier	Allegheny-Cumberland Dry Oak Forest and Woodland (26.69%); Northeastern Interior Dry-Mesic Oak Forest: typic (23.73%); Southern Appalachian Oak Forest: typic (21.94%); South-Central Interior Mesophytic Forest (13.57%)
Appalachian (Hemlock)- Northern Hardwood Forest	Northeastern Interior Dry Oak Forest-Hardwood Modifier (42.89%); Southern and Central Appalachian Cove Forest (12.52%) Appalachian (Hemlock)-Northern Hardwood Forest	Appalachian (Hemlock)-Northern Hardwood Forest: typic (38.61%); Northeastern Interior Dry-Mesic Oak Forest: typic (21.98%) Appalachian (Hemlock)-Northern Hardwood Forest: drier Appalachian (Hemlock)-Northern Hardwood Forest: moist-cool
Northeastern Interior Dry-Mesic Oak Forest	Northeastern Interior Dry Oak Forest-Hardwood Modifier (45.31%); Southern Ridge and Valley Dry Calcareous Forest - Hardwood (14.78%); Southern and Central Appalachian Cove Forest (11.35%) Northeastern Interior Dry Oak Forest - Mixed Modifier Northeastern Interior Dry Oak Forest - Virginia/Pitch Modifier	Northeastern Interior Dry-Mesic Oak Forest: typic (44.90%); Appalachian (Hemlock)-Northern Hardwood Forest: typic (16.89%); Central Appalachian Dry Oak-Pine Forest (11.85%) Northeastern Interior Dry-Mesic Oak Forest: moist-cool
South-Central Interior Mesophytic Forest	Allegheny-Cumberland Dry Oak Forest and Woodland - Hardwood (31.67%); South-Central Interior Mesophytic Forest (27.57%); Southern Interior Low Plateau Dry-Mesic Oak Forest (19.38%)	South-Central Interior Mesophytic Forest (32.41%); Northeastern Interior Dry-Mesic Oak Forest: typic (22.60%); Allegheny-Cumberland Dry Oak Forest and Woodland (17.02%); Southern Appalachian Oak Forest: typic (16.79%)
Southern and Central Appalachian Cove Forest	Southern Appalachian Oak Forest (28.52%); Southern and Central Appalachian Oak Forest - Xeric (15.57%); <u>Southern and Central Appalachian Cove Forest (13.77%);</u> Northeastern Interior Dry Oak Forest-Hardwood Modifier (10.13%)	Northeastern Interior Dry-Mesic Oak Forest: typic (22.24%); Southern Appalachian Oak Forest: typic (18.54%); South-Central Interior Mesophytic Forest (12.25%) Southern and Central Appalachian Cove Forest acidic Southern and Central Appalachian Cove Forest calcareous Southern and Central Appalachian Cove Forest circumneutral
Southern Appalachian Oak Forest	Southern Appalachian Oak Forest (26.83%); Southern and Central Appalachian Oak Forest - Xeric (24.45%); Allegheny-Cumberland Dry Oak Forest and Woodland - Hardwood (15.26%); Southern and Central Appalachian Cove Forest (10.77%)	Southern Appalachian Oak Forest: typic (44.80%): Allegheny-Cumberland Dry Oak Forest and Woodland (25.80%) Southern Appalachian Oak Forest: moist-cool



#### Northern Mesic Hardwood & Conifer Forest Macrogroup

Acadian Low-Elevation Spruce-Fir-Hardwood Forest; Acadian-Appalachian Montane Spruce-Fir Forest; Appalachian (Hemlock)-Northern Hardwood Forest; Central & Southern Appalachian Spruce-Fir Forest; Laurentian-Acadian Northern Hardwoods Forest; Laurentian-Acadian Pine-Hemlock-Hardwood Forest; Southern Appalachian Northern Hardwood Forest



#### Appalachian\_Northeastern Oak-Hardwood & Pine Forest Macrogroup

Allegheny-Cumberland Dry Oak Forest and Woodland; Central and Southern Appalachian Montane Oak Forest; Central Appalachian Dry Oak-Pine Forest; Central Appalachian Pine-Oak Rocky Woodland; Northeastern Coastal and Interior Pine-Oak Forest; Northeastern Interior Dry-Mesic Oak Forest; North Atlantic Coastal Plain Hardwood Forest; Southern Appalachian Oak Forest





Average Match for Systems= 21% Match for Macrogroup = 66%

TNC
<ul> <li>Allegheny-Cumberland Dry Oak Forest and Woodland (26.69%); Northeastern Interior Dry-Mesic Oak Forest: typic (23.73%); Southern Appalachian Oak Forest: typic (21.94%);</li> <li>26.69% South-Central Interior Mesophytic Forest (13.57%)</li> </ul>
EVT
South-Central Interior Mesophytic Forest (38.68%); Allegheny-Cumberland Dry Oak Forest and Woodland (19.89%); Southern and Central Appalachian Cove Forest (13.98%); 1777 19.89% Southern Appalachian Oak Forest (10.07%)
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### **Comparison by Subsection in Overlap Zone**

- Common legend across efforts (NatureServe lead)
- Reclass products to standard numeric code reflecting name in common legend
- Clipped to region of overlap among all four products
- Tabulate area by USFS Subsection
- Organized tabulations and summarized into manageable and interpretable scenarios

# Area of Overlap



		Percent of Area Mapped in Subsection						
Subsection	Туре	evt	nat	segap	tnc			
221Db	Appalachian (Hemlock)-Northern Hardwood Forest	3.60	0.00	0.00	10.11			
221Db	Central Appalachian Dry Oak-Pine Forest	1.30	23.11	23.11	0.32			
221Db	Ruderal Forest	14.61						
221Dd	Central Appalachian Dry Oak-Pine Forest	2.53	23.03	22.60	0.50			
221Dd	Northeastern Interior Dry-Mesic Oak Forest	10.29	0.98	2.99	11.93			
221Dd	Ruderal Forest	14.18						
221Dd	Southern Piedmont Mesic Forest	6.46	1.04	0.00	12.74			
221De	Northeastern Interior Dry-Mesic Oak Forest	8.85	18.37	34.02	21.66			
221De	Ruderal Forest	14.64						
221De	Southern Piedmont Mesic Forest	7.00	4.94	0.54	17.10			
221Ea	Allegheny-Cumberland Dry Oak Forest and Woodland	40.23	0.96	58.61	12.34			
221Ea	Appalachian (Hemlock)-Northern Hardwood Forest	0.01	28.34	0.74				
221Ea	Northeastern Interior Dry-Mesic Oak Forest	0.00			30.88			
221Ea	South-Central Interior Mesophytic Forest	15.72	38.87	8.82	20.92			
221Eb	Allegheny-Cumberland Dry Oak Forest and Woodland	45.74	3.04	73.07	22.28			
221Eb	Appalachian (Hemlock)-Northern Hardwood Forest		36.09	0.88				
221Eb	South-Central Interior Mesophytic Forest	30.66	43.41	8.59	12.74			
221Eb	Southern Appalachian Oak Forest	0.01			34.75			
221Ec	Allegheny-Cumberland Dry Oak Forest and Woodland	47.89	0.80	67.42	13.56			
221Ec	Appalachian (Hemlock)-Northern Hardwood Forest	0.00	34.95	1.58	0.03			
221Ec	Northeastern Interior Dry-Mesic Oak Forest	0.00	0.00		36.10			
221Ec	South-Central Interior Mesophytic Forest	16.14	41.81	8.56	23.86			
221Ed	Allegheny-Cumberland Dry Oak Forest and Woodland	8.21	0.85	17.55	4.29			
221Ja	Allegheny-Cumberland Dry Oak Forest and Woodland	4.16	17.79	17.79	3.12			
221Ja	South-Central Interior Mesophytic Forest	41.61	8.30	8.30	13.79			
221Ja	Southern Appalachian Oak Forest	7.20	0.00	0.00	10.95			
221Ja	Southern Ridge and Valley / Cumberland Dry Calcareous Forest	1.40	20.38	20.38	30.55			
221Ja	Successional Grassland & Shrubland	4.91	16.94	17.27	15.88			
221Jc	Southern and Central Appalachian Cove Forest	18.89	0.68	0.66				
221Jc	Southern Ridge and Valley / Cumberland Dry Calcareous Forest	2.54	49.01	49.01	29.70			
231la	Northeastern Interior Dry-Mesic Oak Forest				11.39			
231 la	Southern Piedmont Dry Oak-(Pine) Forest	33.28	51.87	52.05	21.79			

# Subsection Analysis in Overlap Area

		lowest value		highest value			
			sq				
"Systems"	Count of Subsections where System had > 10% difference in area among protocols.	evt	nat	segap	tnc	Largest Difference in Area Among Protocols (Brown minus yellow)	Rank of Systems Relative to Difference in Area
Allegheny-Cumberland Dry Oak Forest and Woodland	13	388,044,351	1,040,016,753	1,320,777,819	413,881,812	906,896,007	1
Northeastern Interior Dry-Mesic Oak Forest	12	457,819,857	819,422,973	1,151,604,864	1,007,966,835	693,785,007	5
Southern Appalachian Oak Forest	12	323,167,563	237,821,427	276,323,400	929,618,127	691,796,700	6
South-Central Interior Mesophytic Forest	g	867,254,850	229,076,181	88,983,522	400,951,620	778,271,328	2
Southern Piedmont Mesic Forest	g	514,265,679	166,057,128	113,698,080	886,423,824	400,567,599	10
Appalachian (Hemlock)-Northern Hardwood Forest	8	310,758,120	480,270,951	191,871,585	50,815,188	429,455,763	9
Central Appalachian Dry Oak-Pine Forest	8	293,868,567	376,697,628	91,566,045	387,850,599	296,284,554	
Southern and Central Appalachian Cove Forest	8	516,913,731	310,182,210	350,091,315	199,160,046	317,753,685	
Southern Piedmont Dry Oak-(Pine) Forest	7	712,052,370	1,310,533,911	1,386,994,266	654,503,247	732,491,019	3
Managed Forest	5	824,143,167	815,070,762	843,752,052	412,036,146	431,715,906	8
Ruderal Forest	5	706,041,522				706,041,522	4
Southern Ridge and Valley / Cumberland Dry Calcareous Forest	5	13,531,212	195,285,006	379,425,141	325,964,736	365,893,929	
Successional Grassland & Shrubland	3	93,864,339	340,033,059	373,453,092	374,250,699	280,386,360	
Agriculture	2	#######################################	2,089,780,560	2,094,099,075	2,156,185,494	434,608,416	7
Herbaceous Wetland	2	89,317,161	468,180			89,317,161	
Southern and Central Appalachian Oak Forest	2	2		94,549,680		94,549,680	
Southern Atlantic Coastal Plain Dry and Dry-Mesic Oak Forest	2	40,762,926	248,569,641	248,569,641		248,569,641	
Atlantic Coastal Plain Blackwater Stream Floodplain Forest	1	L	129,683,430			129,683,430	
Atlantic Coastal Plain Small Brownwater River Floodplain Forest	1		3,564	3,564	26,685,855	26,685,855	
Northern Atlantic Coastal Plain Basin Swamp and Wet Hardwood Forest	1	-	52,780,005	52,780,005	83,112,480	83,112,480	
Northern Atlantic Coastal Plain Hardwood Forest	1	77,014,314			233,433,576	233,433,576	
Southern Appalachian Northern Hardwood Forest	1	110,604,609	1,923,912	3,352,104	4,673,943	108,680,697	
Southern Atlantic Coastal Plain Mesic Hardwood Forest	1	356,871,906	253,640,484	253,640,484	407,770,848	154,130,364	





#### Southern Appalachian Oak Forest







# Subsection Analysis in Overlap Area

		lowest value		highest value			
			sq	. km			
"Systems"	Count of Subsections where System had > 10% difference in area among protocols.	evt	nat	segap	tnc	LARGEST DIFF in area AMONG PROTOCOLS (Brown minus yellow)	RANK OF SYSTEMS WITH LARGEST DIFF
Allegheny-Cumberland Dry Oak Forest and Woodland	13	388,044,351	1,040,016,753	1,320,777,819	413,881,812	906,896,007	1
Northeastern Interior Dry-Mesic Oak Forest	12	457,819,857	819,422,973	1,151,604,864	1,007,966,835	693,785,007	5
Southern Appalachian Oak Forest	12	323,167,563	237,821,427	276,323,400	929,618,127	691,796,700	6
South-Central Interior Mesophytic Forest	g	867,254,850	229,076,181	88,983,522	400,951,620	778,271,328	2
Southern Piedmont Mesic Forest	g	514,265,679	166,057,128	113,698,080	886,423,824	400,567,599	10
Appalachian (Hemlock)-Northern Hardwood Forest	3	310,758,120	480,270,951	191,871,585	50,815,188	429,455,763	9
Central Appalachian Dry Oak-Pine Forest	3	293,868,567	376,697,628	91,566,045	387,850,599	296,284,554	
Southern and Central Appalachian Cove Forest	3	516,913,731	310,182,210	350,091,315	199,160,046	317,753,685	
Southern Piedmont Dry Oak-(Pine) Forest	7	712,052,370	1,310,533,911	1,386,994,266	654,503,247	732,491,019	3
Managed Forest	5	824,143,167	815,070,762	843,752,052	412,036,146	431,715,906	8
Ruderal Forest	5	706,041,522				706,041,522	4
Southern Ridge and Valley / Cumberland Dry Calcareous Forest	5	13,531,212	195,285,006	379,425,141	325,964,736	365,893,929	
Successional Grassland & Shrubland	3	93,864,339	340,033,059	373,453,092	374,250,699	280,386,360	
Agriculture	2	############	2,089,780,560	2,094,099,075	2,156,185,494	434,608,416	7
Herbaceous Wetland	2	89,317,161	468,180			89,317,161	
Southern and Central Appalachian Oak Forest	2			94,549,680		94,549,680	
Southern Atlantic Coastal Plain Dry and Dry-Mesic Oak Forest	2	40,762,926	248,569,641	248,569,641		248,569,641	
Atlantic Coastal Plain Blackwater Stream Floodplain Forest	1	_	129,683,430			129,683,430	
Atlantic Coastal Plain Small Brownwater River Floodplain Forest	1		3,564	3,564	26,685,855	26,685,855	
Northern Atlantic Coastal Plain Basin Swamp and Wet Hardwood Forest	1		52,780,005	52,780,005	83,112,480	83,112,480	
Northern Atlantic Coastal Plain Hardwood Forest	1	77,014,314			233,433,576	233,433,576	
Southern Appalachian Northern Hardwood Forest	1	110,604,609	1,923,912	3,352,104	4,673,943	108,680,697	
Southern Atlantic Coastal Plain Mesic Hardwood Forest	1	356,871,906	253,640,484	253,640,484	407,770,848	154,130,364	

