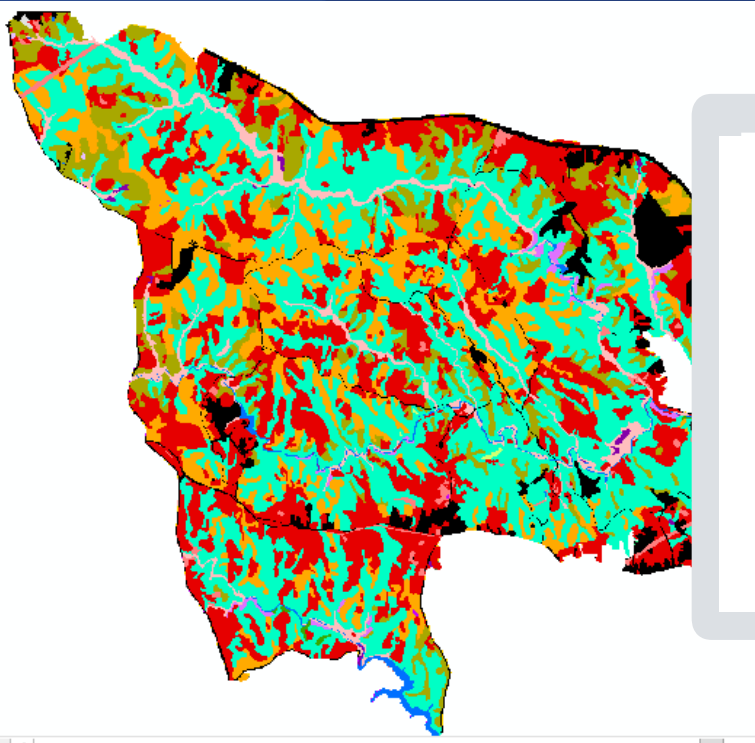


Prince William Forest Park Case Study

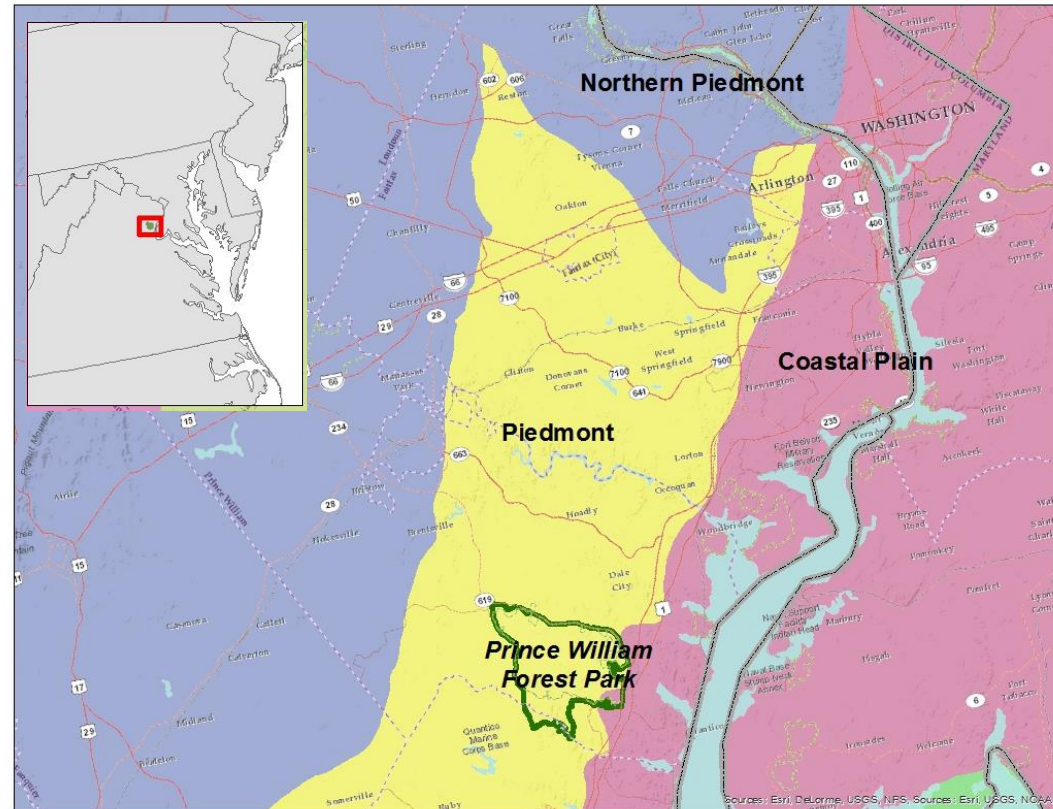


Regan Smyth and Don
Faber-Langendoen

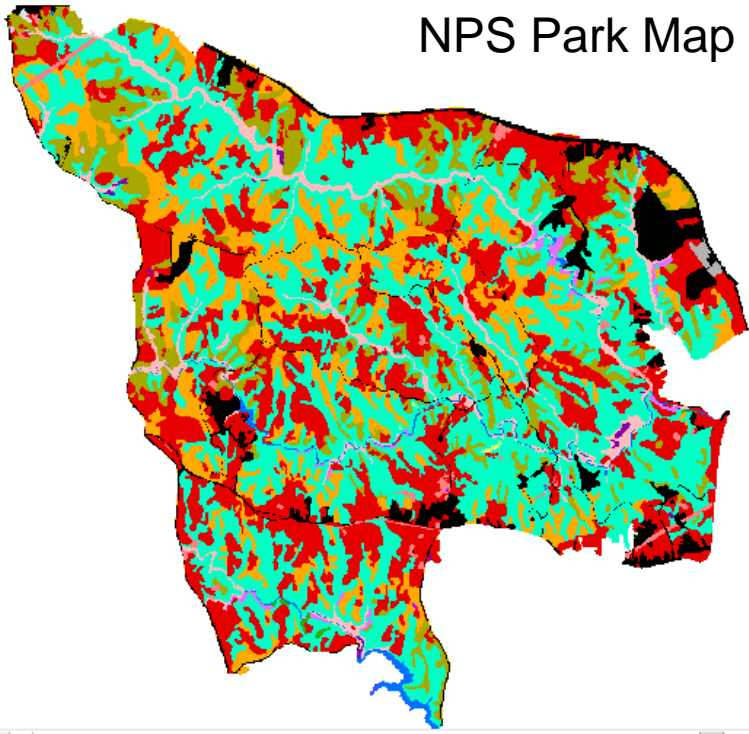


Prince William Park

- NPS vegetation map (associations) provides “true” picture
- Located in zone of overlap
- Shows challenges of mapping ecosystems in transition zones



NPS Park Map

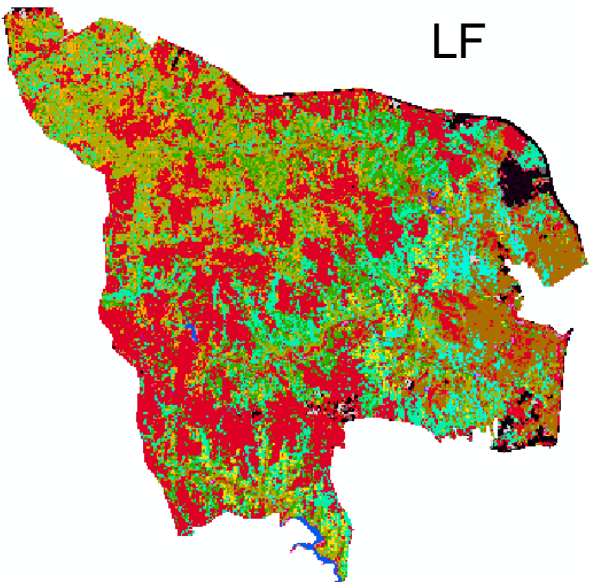


Legend

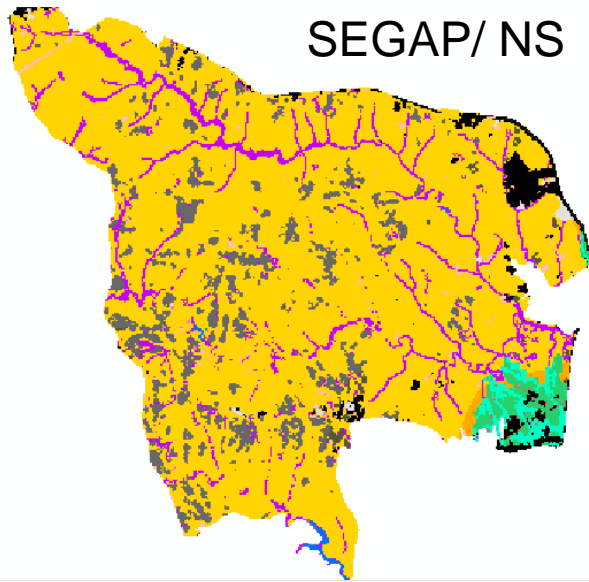
-  Dry Oak-Pine Forest
-  Dry-Mesic Forest
-  Mesic Forest
-  Wetland Forest
-  Ruderal Forest
-  Ruderal Scrub, Vine, & Grassland
-  Developed

All Maps Differ

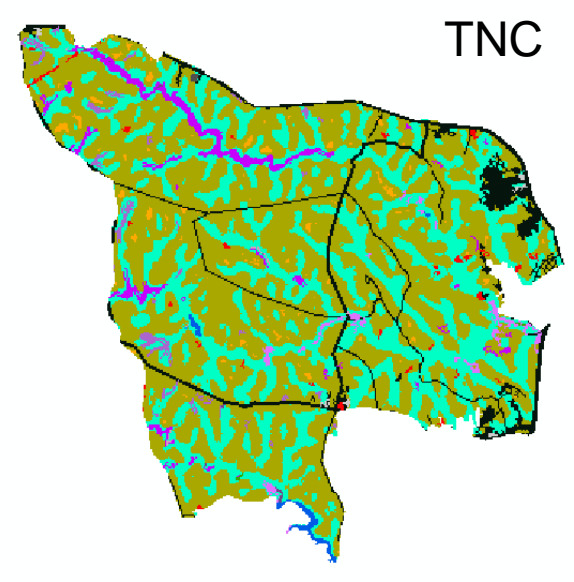
LF



SEGAP/ NS



TNC



General Reasons for Differences

- Differences in Targets – Actual
- Differences in Targets – Conceptual
- Different Reliance on Geophysical Setting and Remote Sensing Data
- Different Use of Range Restrictions
- Different Treatment of Cultural and Ruderal/Semi-natural Types
- Deliberate Changes to Improve Product
- Different Methods - obviously

Number of Natural Systems

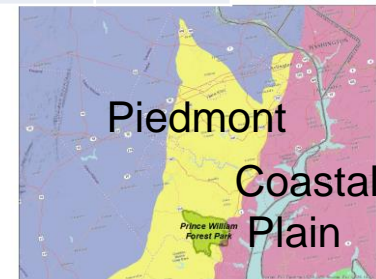
- Actual difference in targets

	NPS	LF	GAP/ NS	TNC
# Matching	9	5	3	6
# Non-matching		10	5	5
Total # Systems	9	15	8	11

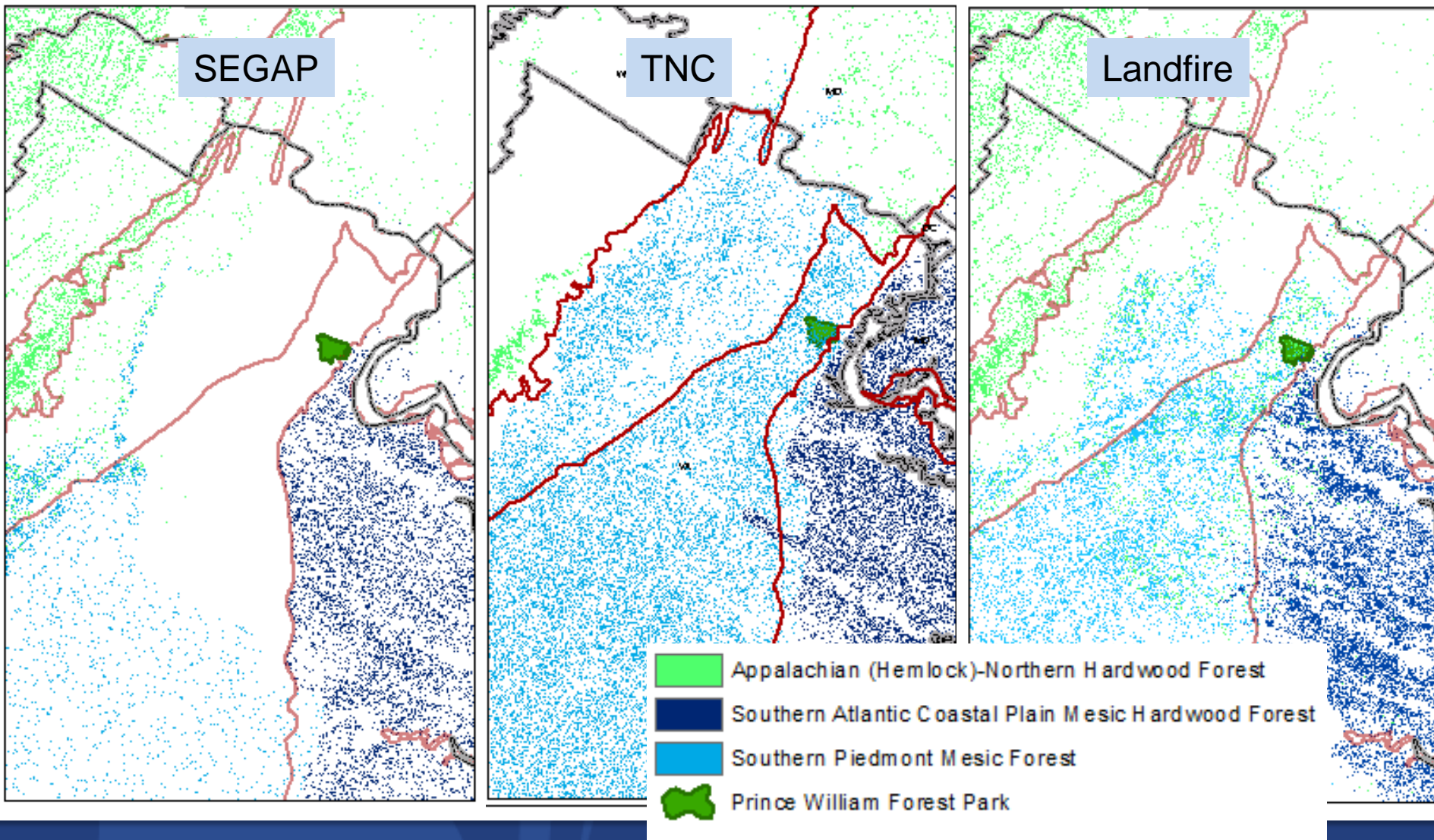
Different Use of Range Restrictions

Name	NPS	LF	NS/GAP	TNC
Appalachian (Hemlock)-Northern Hardwood Forest	0.08%	13%	0.01%	0.03%
S. Atlantic Coastal Plain Mesic Hardwood Forest	37%	4%	1%	
Southern Piedmont Mesic Forest		12%		32%
Central Appalachian Dry Oak-Pine Forest	14%	5%	0.49%	1%
Southern Piedmont Dry Oak(-Pine) Forest		2%	76%	
Northeastern Interior Dry-Mesic Oak Forest	9%	16%		55%
Northern Atlantic Coastal Plain [DM] Hardwood Forest	1%	9%		
Southern Piedmont Small Floodplain and Riparian Forest			7%	2%
Ruderal Forest	26%	35%		

List only includes systems > 5%

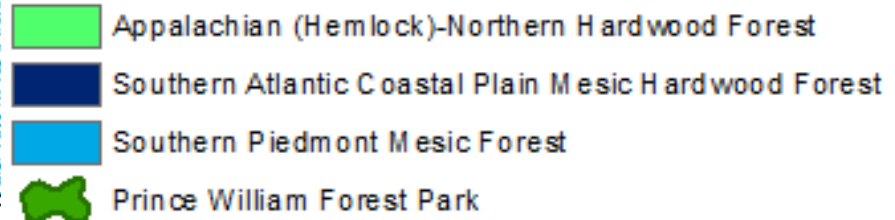


Different Use of Range Restrictions



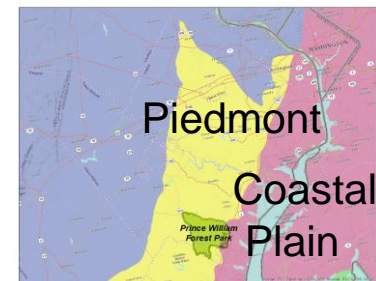
Different Use of Range Restrictions

SACP Mesic Hardwood Forest Classification Comments:
Differences from mesic forests of the Piedmont are sometimes fairly subtle, and species that differentiate them in one part of the range many not work in other parts. In particular, some species that are excluded from the Coastal Plain farther south are common components farther north. In MD and DC, this system can extend into the Piedmont, straddling the fall zone where the Coastal Plain and Piedmont meet.

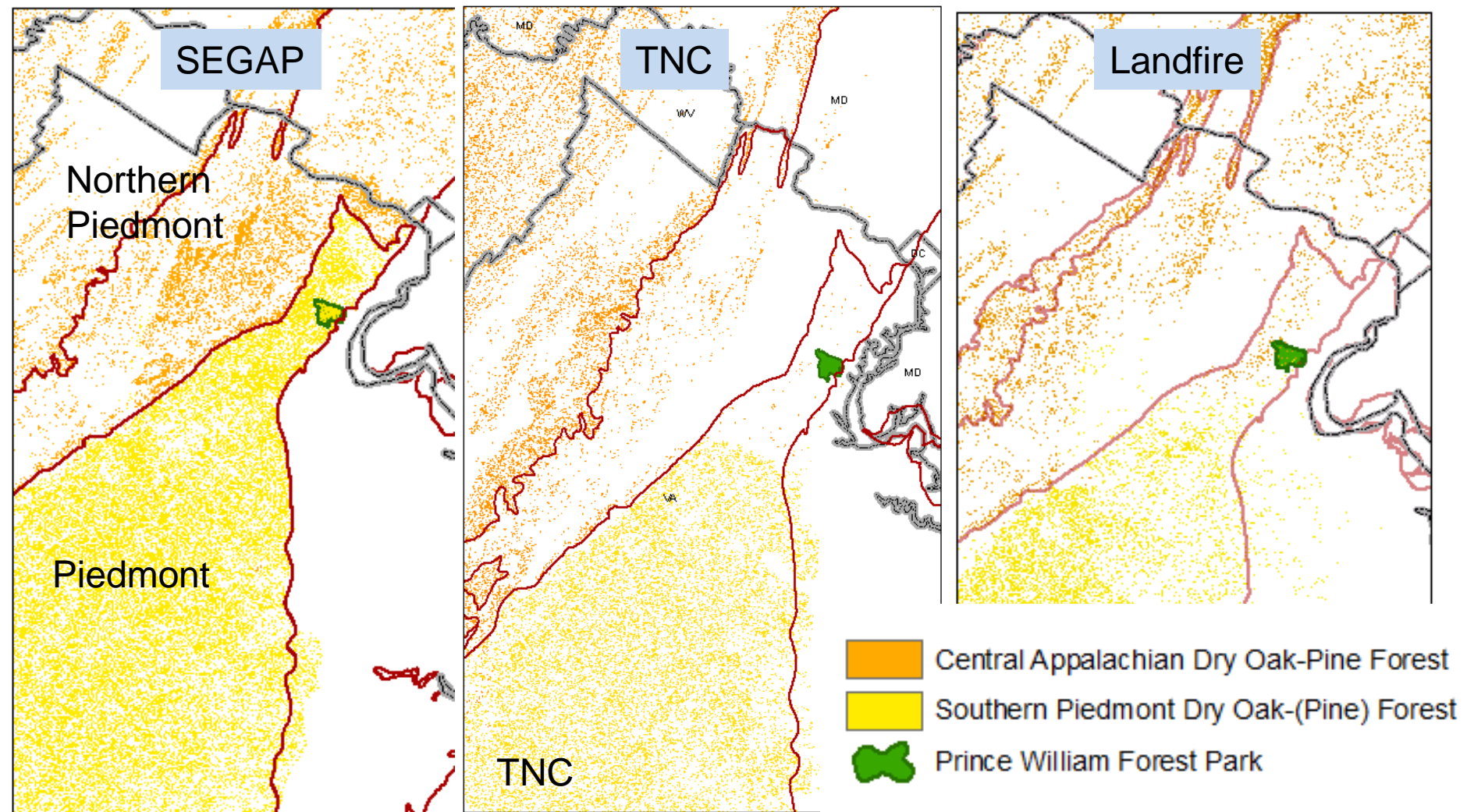


Different Use of Range Restrictions

Name	NPS	LF	NS/GAP	TNC
Appalachian (Hemlock)-Northern Hardwood Forest	0.08%	13%	0.01%	0.03%
S. Atlantic Coastal Plain Mesic Hardwood Forest	37%	4%	1%	
Southern Piedmont Mesic Forest		12%		32%
Central Appalachian Dry Oak-Pine Forest	14%	5%	0.49%	1%
Southern Piedmont Dry Oak(-Pine) Forest		2%	76%	
Northeastern Interior Dry-Mesic Oak Forest	9%	16%		55%
Northern Atlantic Coastal Plain [DM] Hardwood Forest	1%	9%		
Southern Piedmont Small Floodplain and Riparian Forest			7%	2%
Ruderal Forest	26%	35%		



Different Use of Range Restrictions



Classification Comments

Central Appalachian Dry Oak-Pine Forest Range:

This system ranges throughout the Piedmont from Alabama to Virginia. In Virginia, it is primarily central and southern, *but extends into a narrow portion of northern Virginia in the Piedmont ecoregion.*

Southern Piedmont Dry Oak-(Pine) Forest Range:

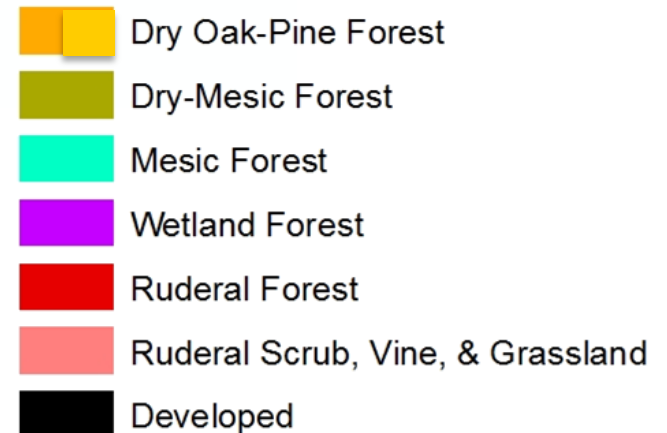
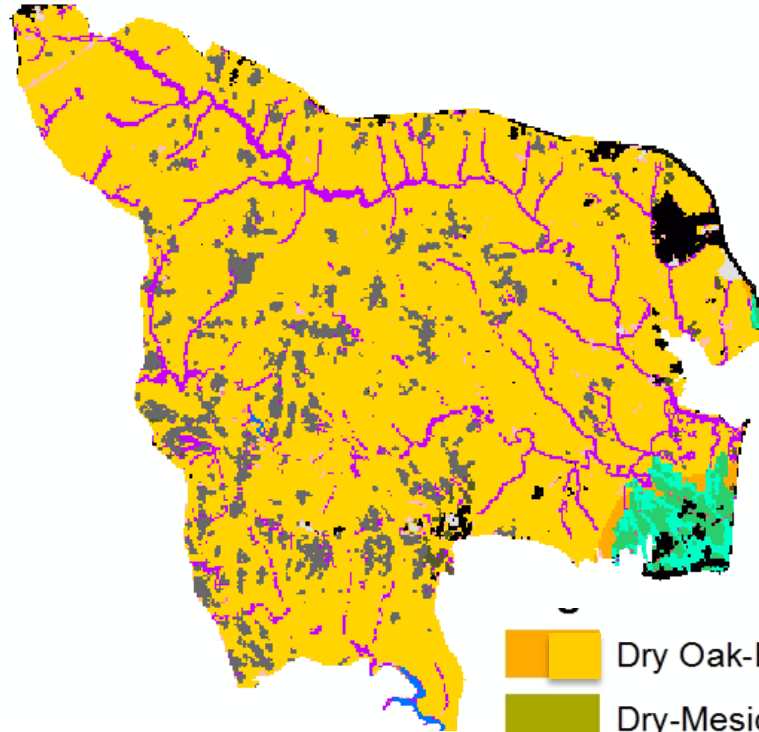
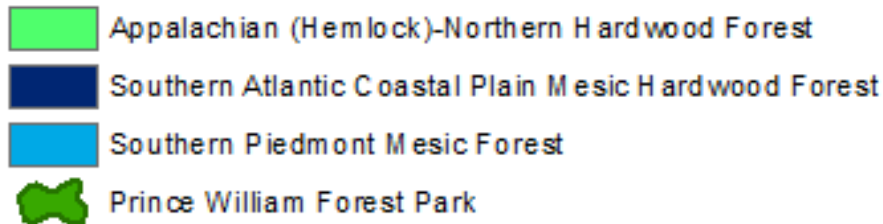
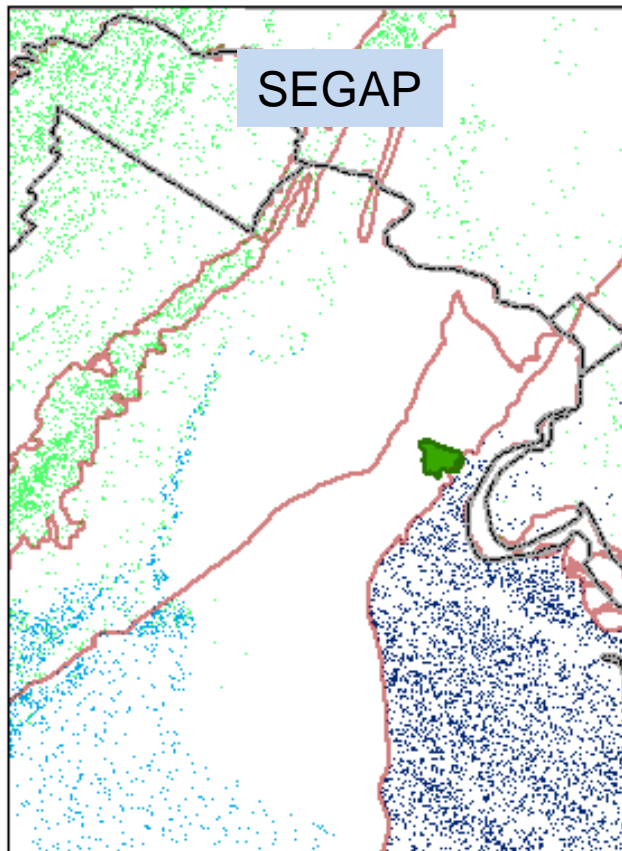
This system is found from central New England through Pennsylvania and south to the Roanoke River in southern Virginia. *It is primarily Appalachian but overlaps slightly into the upper Piedmont and fall zone in Virginia, Maryland and the District of Columbia.*

Forest
Forest

Dry -> Mesic Gradient

Name	NPS	LF	NS/GAP	TNC
Appalachian (Hemlock)-Northern Hardwood Forest	0.08%	13%	0.01%	0.03%
S. Atlantic Coastal Plain Mesic Hardwood Forest	37%	4%	1%	
Southern Piedmont Mesic Forest		12%		32%
Central Appalachian Dry Oak-Pine Forest	14%	5%	0.49%	1%
Southern Piedmont Dry Oak(-Pine) Forest		2%	76%	
Northeastern Interior Dry-Mesic Oak Forest	9%	16%		55%
Northern Atlantic Coastal Plain [DM] Hardwood Forest	1%	9%		
Southern Piedmont Small Floodplain and Riparian Forest			7%	2%
Ruderal Forest	26%	35%		

Dry -> Mesic Gradient



Treatment of Ruderal Vegetation

Name	NPS	LF	NS/GAP	TNC
Ruderal Forest	26%	35%		
Managed Tree Plantation		0.1%	8%	0.04%
Ruderal Scrub, Vine, & Grassland	4%			
Ruderal Upland - Old Field				1%
Successional Meadow / Grassland			1%	
Clearcut - Grassland/Herbaceous			0.1%	
Successional Shrub/Scrub (Clear Cut)			0.1%	
Non-Specific Disturbed			0.02%	

This table does not include SEGAP systems with semi-natural modifiers

Overall Accuracy

NPS Map: >80%*

TNC

- Raw accuracy = 6%; 18% if merge Piedmont and Coastal Plain Mesic
- Biggest source of error: points mapped as S. Piedmont mesic observed as numerous other forest types
- Low accuracy may reflect limits of general northeast landform/veg models at southern limits

SEGAP

- Raw accuracy = 2%; 12% if merge dry forest types
- Low accuracy due to significant over-mapping of S. Piedmont Dry Oak Pine; does not reflect on SEGAP map as a whole

Landfire

- Raw accuracy = 39%; 45% if merge mesic and dry forest types
- Higher accuracy largely due to success at capturing ruderal vegetation

Takeaways

- AA: substantial departure from NPS map
- Differences are explainable:
 - Geographic gradients (Piedmont versus Coastal Plain)
 - Mesic to dry gradient
 - Treatment of ruderal and transition forest
- Some problems local, some persist at regional scale
- Difficult to identify a “best” map