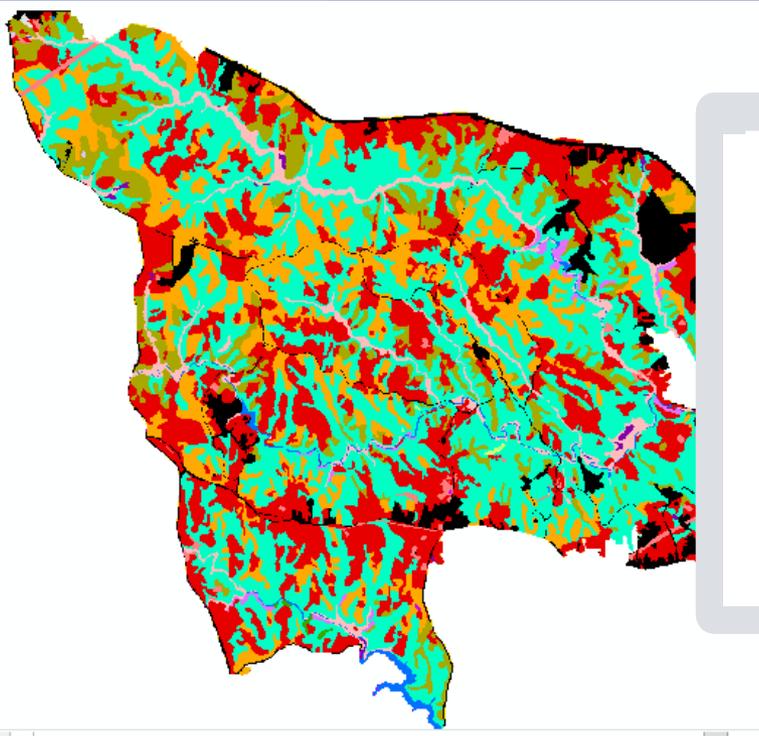


# Prince William Forest Park Case Study

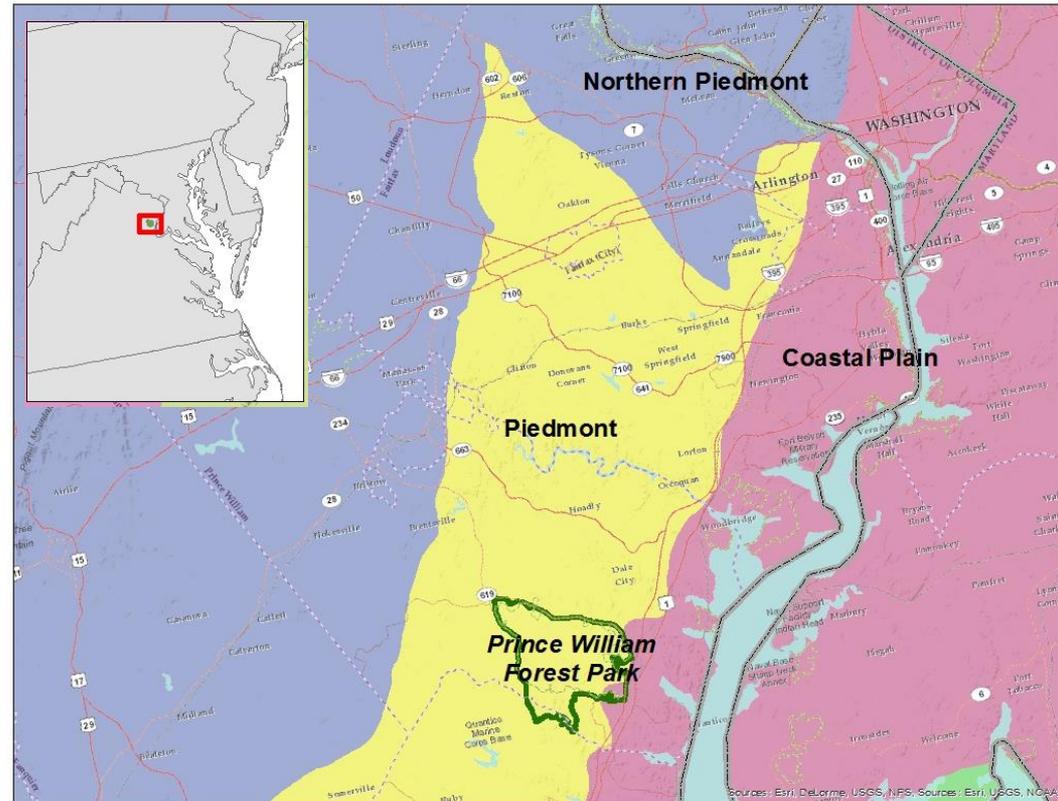


Regan Smyth and Don  
Faber-Langendoen

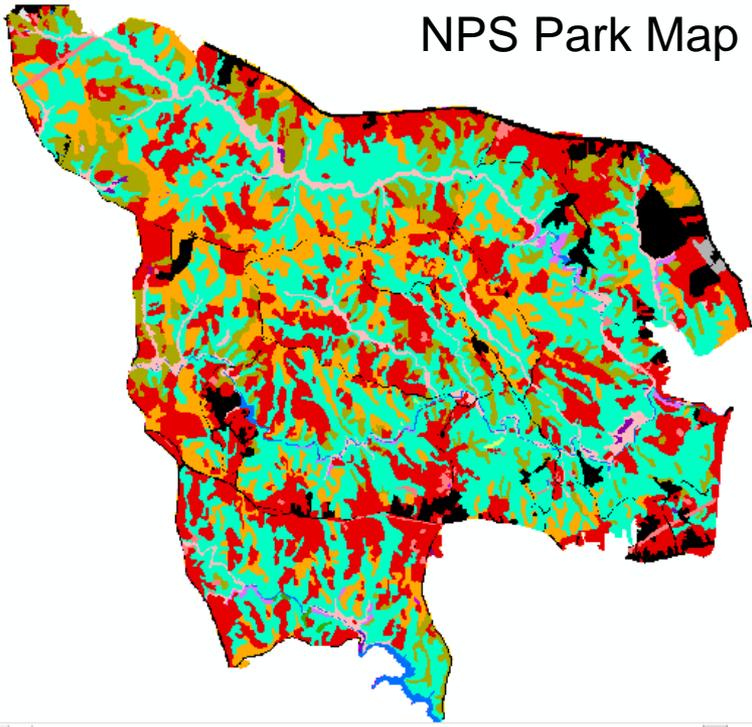


# Prince William Park

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



NPS Park Map

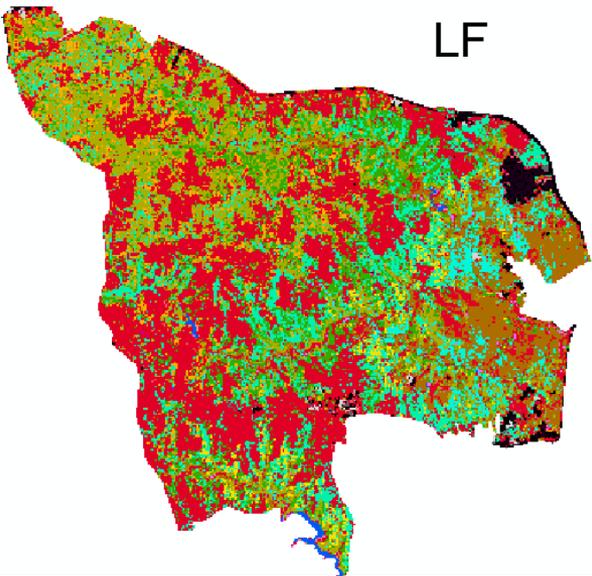


**Legend**

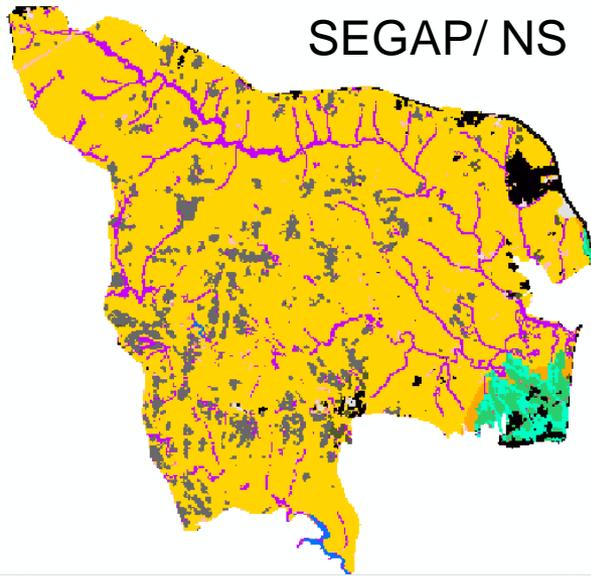
-  Dry Oak-Pine Forest
-  Dry-Mesic Forest
-  Mesic Forest
-  Wetland Forest
-  Ruderal Forest
-  Ruderal Scrub, Vine, & Grassland
-  Developed

# All Maps Differ

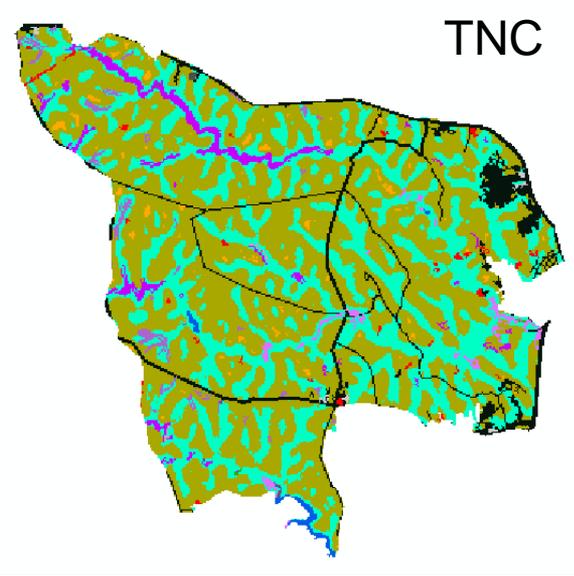
LF



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

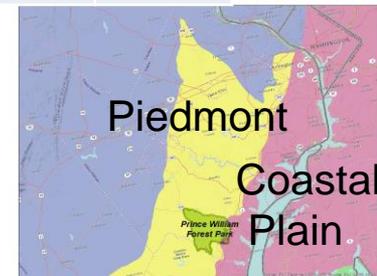
- Actual difference in targets

	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

SEGAP

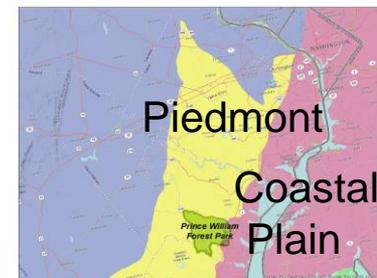
TNC

Landfire

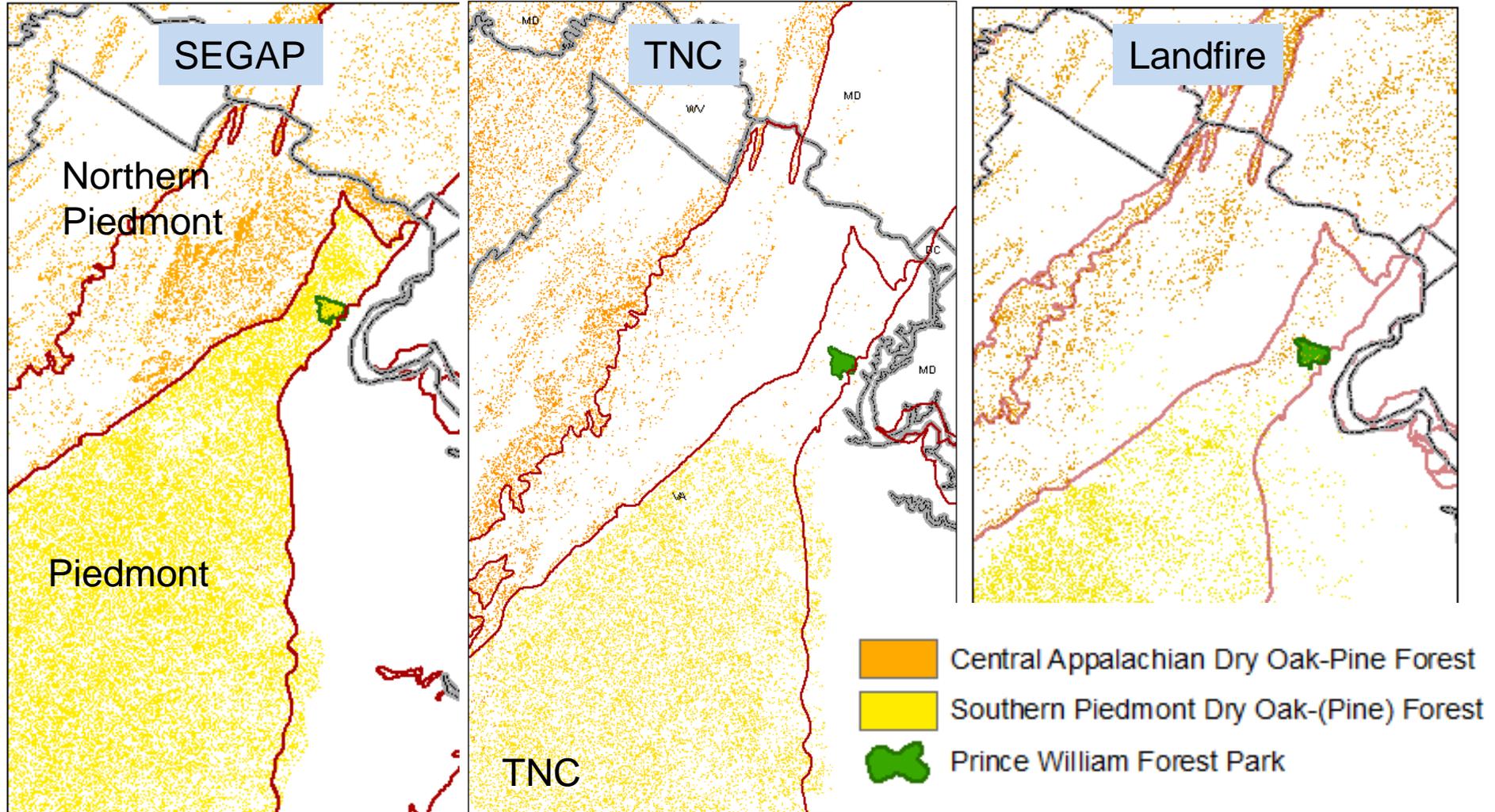
- 
- Appalachian (Hemlock)-Northern Hardwood Forest
  - Southern Atlantic Coastal Plain Mesic Hardwood Forest
  - Southern Piedmont Mesic Forest
  - Prince William Forest Park

# Different Use of Range Restrictions

Name	NPS	LF	NS/GAP	TNC
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# Different Use of Range Restrictions



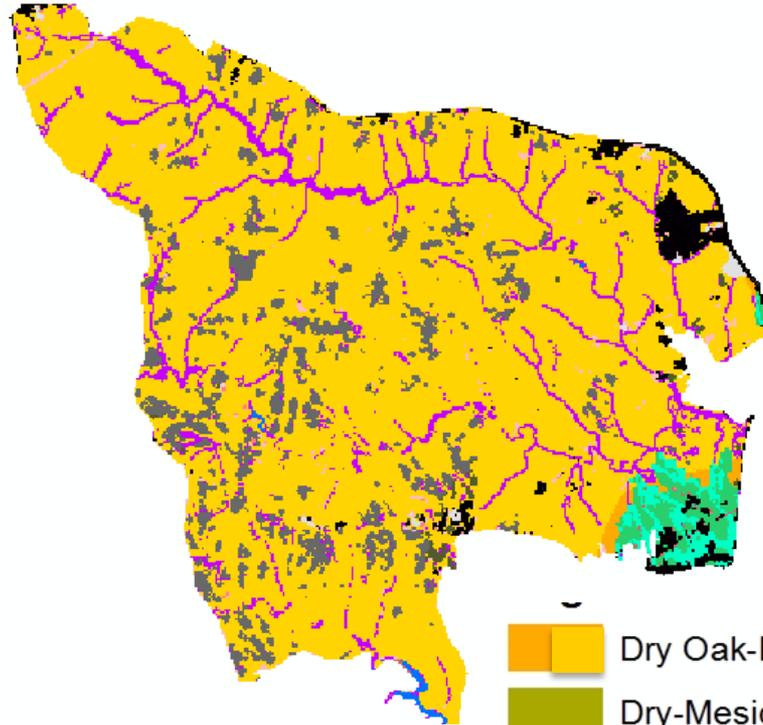
# Dry -> Mesic Gradient

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%
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# Dry -> Mesic Gradient



- Appalachian (Hemlock)-Northern Hardwood Forest
- Southern Atlantic Coastal Plain Mesic Hardwood Forest
- Southern Piedmont Mesic Forest
- Prince William Forest Park



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

# 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

## 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