

## Forest Economic Assessment Methodology Summary

### Background:

The identification of economically important forest lands focuses on the potential for future economic benefits associated with timber management activities. This considers not only the potential economic gain from forest harvest operations, but also the long-term economic sustainability of forest management and the local importance of the timber and wood products industry. The economic portion of the MD DNR Strategic Forest Lands Assessment was used as the initial model for the forest economic assessment of the CBP Resource Lands Assessment. Due to data limitations DE, D.C., WV and NY portions of the watershed were excluded.

**Data:** A maximum of seventeen analysis parameters were used for the assessment. Data should not be used to make comparisons between states because each state provided different input data sets. The Maryland data was directly derived from the Maryland Strategic Forest Land Assessment, but the data was clipped to the exclude portions of the state outside of the watershed and scores of 0 were converted to no data to visually match MD data with data from other jurisdictions.

### **Local Parameters:** (36.73-meter scale)

- Biophysical influences
- Species Composition
- Soil Productivity
- Precipitation
- Forest Density
- Management Constraints
- Riparian and Wetland features
- Steep Slopes
- Rare, Threatened and Endangered Species

### **Regional Parameters:** (HUC 11 scale converted to 36.73-meter)

- Landscape: Fragmentation
- Socioeconomic: Compatibility of Timber Management Activities, Contiguity of Ownership, Local Importance of Forest Products Industry, Historic Timber Harvests, and Sourcing Areas/Timbersheds
- Programmatic: Impacts of Growth, Private Land Protection Designations, Public Land Management Activities

### Methodology:

Every parameter was broken into ranges and assigned a score. Forests were evaluated to determine a score for every parameter within each grid. For example, the slope was classified into the following ranges and scored to place high value on gently sloping forests to reflect the economic preference for timber harvest on flat slopes: 0-10% -score=10, 11-20% -score=7, 21-25%- score=4 and greater than 25% slope- score=1. In addition, each parameter was weighted to emphasize parameters with greater influence on the economic value of forest. The score of each parameter in each grid cell was multiplied by the assigned weight. The resulting product was assigned to the corresponding grid and the grids were summed to score forests in terms of their potential economic value.

## Economic Model Matrix for Maryland's Strategic Forest Lands Assessment and the Chesapeake Bay Program's Resource Lands Assessment

SCALE	Categories	Factors	Data		Interpretation (Possible Scores)					Weight
			MD SFLA	Resource Lands						
LOCAL ("CONTENT")	Biophysical Influences <i>(influences what is grown)</i>	Species Composition	GAP Vegetation	PA: USGS/Park Service National Atlas	High Value Species Associations <b>(8-10)</b>	Moderate Value Species Associations <b>(4-7)</b>	Low Value Species Associations <b>(1-3)</b>	See GAP alliance rankings		8
				VA: GAP Vegetation						
		Soil Productivity	STATSGO		80 - 90 <b>(10)</b>	75 - 79 <b>(7)</b>	64 - 74 <b>(4)</b>	55 - 63 <b>(1)</b>	Scores based on Average Site Index	5
		Precipitation	30 year average total precipitation (1961-1990)		MD: 46 – 55 <b>(10)</b>	MD: 44 – 45 <b>(7)</b>	MD: 42 – 43 <b>(5)</b>	MD: 40 – 41 <b>(3)</b>	MD: 33 – 39 <b>(1)</b>	2
	PAVA: 46 – 61 <b>(10)</b>				PAVA: 44 – 45 <b>(7)</b>	PAVA: 42 – 43 <b>(5)</b>	PAVA: 40 – 41 <b>(3)</b>	PAVA: 31 – 39 <b>(1)</b>		
	Forest Density	% Forest Cover (subpixel LANDSAT analysis)	CBP % Forest Cover derived from 1993 MRLC	75-100% <b>(10)</b>	50-75% <b>(7)</b>	25-50% <b>(4)</b>	< 25% <b>(1)</b>		5	
	Management Constraints <i>(influences what is harvested)</i>	Riparian and Wetland Features	MDP Streams NWI Wetlands	NHD NWI Wetlands	Not in Stream/Wetland or Buffer <b>(10)</b>	In Wetland (including 100' wetland buffer) <b>(5)</b>	In 100' Stream Buffer <b>(1)</b>			5
Steep Slopes		DEM/Slope		0-10% <b>(10)</b>	11-20% <b>(7)</b>	21-25 % <b>(4)</b>	> 25 % <b>(1)</b>		7	
Rare, Threatened and Endangered Species		Sensitive Species Project Review Areas (SSPRA)	PA: no available data	Not in MD SSPRA or VA NHS <b>(10)</b>	In MD SSPRA or VA NHS <b>(1)</b>				3	
	VA: Natural Heritage Sites									
REGIONAL ("CONTEXT")	Landscape <i>(Influences of forest land distribution)</i>	Fragmentation/patch size analysis	Mean Forest Patch Size at MD 8-digit watershed scale FRAGSTAT metric	CBP Patch Size data – from FRAGSTATS	> 100 Acres <b>(10)</b>	50 - 99 Acres <b>(7)</b>	25 - 49 Acres <b>(5)</b>	10 - 24 Acres <b>(3)</b>	1 - 9 acres <b>(1)</b>	5

Socioeconomic <i>(existing external influences)</i>	Probability of Sustainable Commercial Timber Management	Timber Management Probability Model Census 2000	Spatially aggregated data derived from Census 2000	See scoring table above for explanation of percentage conversion.					7
				> 75% (10)	50-75% (7)	25-50% (5)	< 25% (3)	Near 0% (1)	
	Contiguity of Ownership	Parcelization MD PropertyView	Road Density	MD: > 100 Acres (10)	MD: 50 - 99 Acres (7)	MD: 25 - 49 Acres (5)	MD: 10 - 24 Acres (3)	MD: 1 - 9 Acres (1)	MD: 5
				PA/VA: 2 - 4 Acres (7)	PA/VA: 0 - 2 Acres (1)				PA/VA: 2
	Local Importance of Timber and Primary Manufacturing industry	IMPLAN % Total Industry Output for Timber Management/ Harvesting and Primary Manufacturing relative to Total County Industry Output		MD: 3.02-15.81% (10)	MD: 0.74-3.02% (7)	MD: 0.35-0.74 % (5)	MD: 0.14-0.35 % (3)	MD: 0-0.09% (1)	6
				PA/VA: 3.02-87.5% (10)	PA/VA: 0.74-3.02% (7)	PA/VA: 0.35-0.74 % (5)	PA/VA: 0.14-0.35 % (3)	PA/VA: 0-0.09% (1)	
	Local Importance of Secondary Manufacturing industry	IMPLAN % Secondary Manufacturing Industry Output relative to Total County Industry Output		MD: 2.09-11.25 % (10)	MD: 1.26-2.09% (7)	MD: 0.61-1.26% (5)	MD: 0.17-0.61% (3)	MD: 0-0.17% (1)	4
				PA/VA: 2.09-63.7 % (10)	PA/VA: 1.26-2.09% (7)	PA/VA: 0.61-1.26% (5)	PA/VA: 0.17-0.61% (3)	PA/VA: 0-0.17% (1)	
	Historic Timber Harvests	MD: Harvested Acres over 5 Year period (1995 - 2000)	PA (1989) VA (1992) 1 Year Growing Stock Removals	7398 - 20648 Acres (8-10)	4504 - 7397 Acres (5-7)	0 - 4503 Acres (1-4)	See Historic Timber Harvest Ratings		6
	Sourcing Areas/ Timbersheds	MD and adjacent (within 50 miles) Sawmill Locations	NE Sawmill Locations	< 10 Miles to Sawmill (10)	10-20 Miles to Sawmill (5)	> 20 Miles to Sawmill (1)			1
Programmatic <i>(intended external influences)</i>	Impacts of Growth	PFA, Water or Sewer	CBP Development Hotspots	Outside a PFA/Hotspot (10)	Inside a PFA/Hotspot (0)			7	
	Private Land Protection Designations	MD: Forest Legacy, Rural Legacy	PA/VA: N/A - no equivalent data	In Rural or Forest Legacy Area (10)	Not in Rural or Forest Legacy Area (0)			3	
	Public Land Management Activities	MD: Public Lands (including mngmt zones, wildlands)	PA/VA: CBP Public Lands	See Rules Tables					10