aclt

American Chestnut Land Trust

Ecosystem Services: "Trading a brand-new car for a for small, amorphous share in 450 acres of tick-infested woods?"

Land Trusts using ES benefits to support land protection – American Chestnut Land Trust

Local Government Advisory Committee to the Chesapeake Executive Council

How is land valued?

Native Americans- Land could not be owned, any more than water, air, sunlight

European colonists had a different perspective

*". . .many of the European **colonists** felt that they **needed** to "conquer" the **land** and "**tame**" their environments to bring them in line with a more Europeanized ideal of living and civilization. . ."*

Ownership of land was a way to do that.

- https://www.historycentral.com/Revolt/Americans/prioreconomic.html

Unsplash
Sam Mkhize

For Sale!

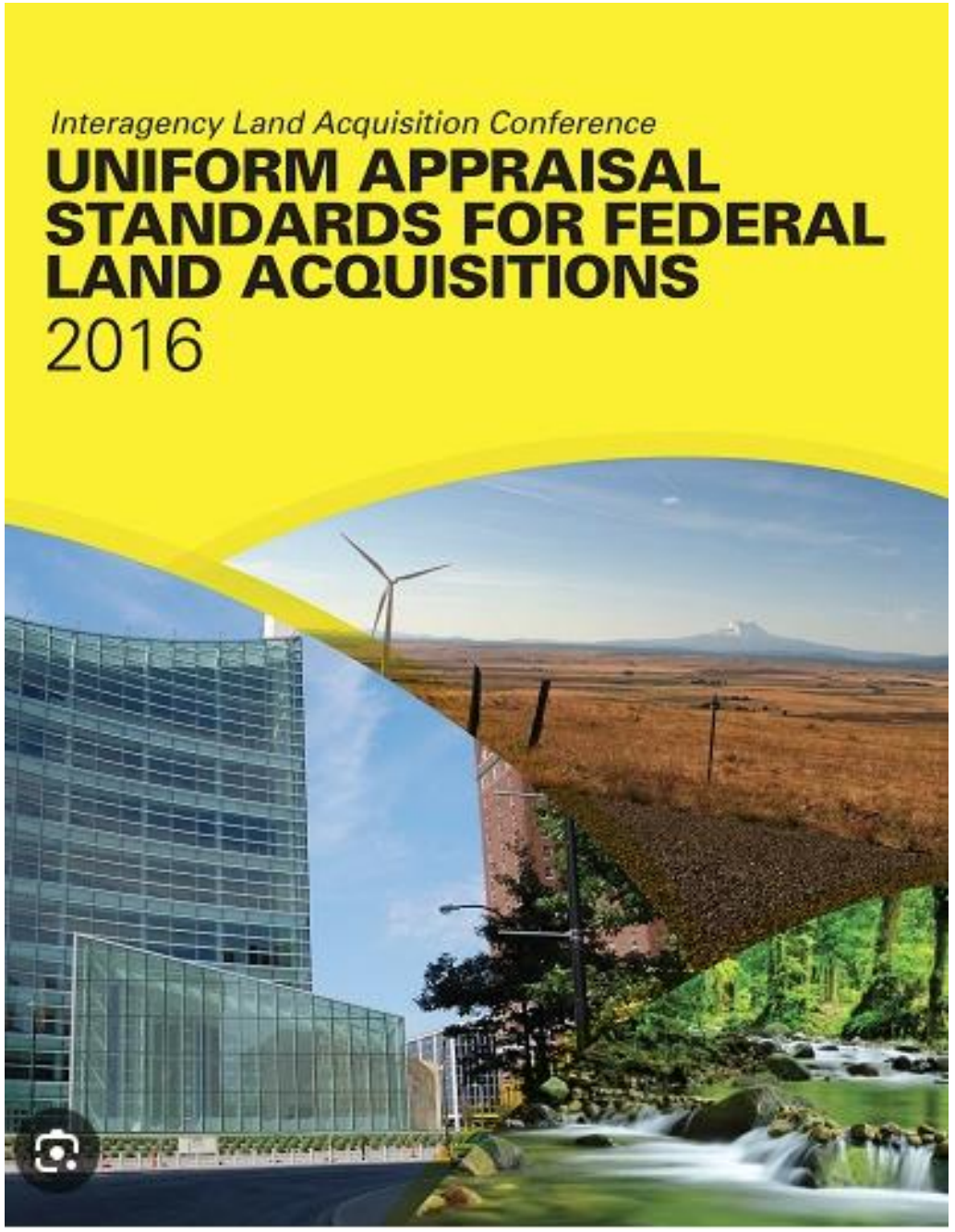
- Farms were valued for their productivity, for their farm buildings. Often buyers wanted a good woodlot too and access to fresh water for their livestock.

Three trends affected the way land was valued in the Bay region in the 20th Century

- **Agriculture Scales Up**, pushing out small farms on the East Coast. 60% of all farms were lost in the MidAtlantic Region.
- **Trade agreements** hurt vegetables and fruit producers and disconnecting the consumer from the knowledge of how food is produced
- **Sprawl.** Developers bought up lands from farmers that were no longer economically viable, pushing development out into rural landscapes, consuming millions of acres

Source: The Future of Sustainable Farming and Forestry and Maryland

There was a need for an official estimate of value for mortgage and other purposes



Trouble with rural land appraisals

- **They typically value farmland for short term economic gain (residential development)**
- They don't value the timber on the land in most cases, or other natural resources
- They don't value ecosystem services that we are trying to protect such as streams, wetlands

For these reasons, the appraisals are often low for properties with high ecosystem services

LAND SALES GRID

Sale	Subject	1	2	3	4	5
Address						
Rights Conveyed	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple
Conditions of Sale		Arm's Length	Arm's Length	Arm's Length	Arm's Length	Arm's Length
Zoning	FFD	RCD	RCD	RCD	FFD	RCD
Sale Date	3/15/2021	7/30/2020	11/30/2018	4/2/2019	12/30/2020	5/25/2017
Sales Price		$650,000.00	$450,000.00	$549,950.00	$400,000.00	$610,000.00
Value of Imp.	N/A	$49,200.00	$0.00	$0.00	$0.00	$0.00
Land Value	N/A	$600,800.00	$450,000.00	$549,950.00	$400,000.00	$610,000.00
Number of Acres	162.96 +/- Ac	100.368	50	142.87	100.00	102.5
Price/Acre	N/A	$5,985.97	$9,000.00	$3,849.30	$4,000.00	$5,951.22
Time	N/A	1.3%	4.6%	3.9%	0.4%	7.6%
Adjusted Price/Ac		$6,060.80	$9,412.50	$3,999.64	$4,016.67	$6,404.17
Location	South of Prince Frederick	0%	0%	0%	0%	0%
Size - Acres	162.96 +/- Ac	-10%	-20%	-5%	-10%	-10%
Tillable/Soils	See Soil Survey	0%	0%	0%	0%	0%
Frontage/Access	Public	0%	-5%	0%	20%	0%
Topography	Wooded/Rolling	0%	0%	10%	0%	0%
Zoning	FFD	0%	0%	0%	0%	0%
Utilities	Well & Septic	0%	0%	0%	0%	0%
Shape/Engineering	Irregular/None	0%	0%	-5%	0%	0%
Other/Development Potential	Irregular	0%	0%	10%	10%	-10%
Net Adjustment		-10%	-25%	10%	20%	-20%
Gross Adjustment		10%	25%	30%	40%	20%
Price/Acre		$5,454.72	$7,059.38	$4,399.60	$4,820.00	$5,123.34

Appraisal

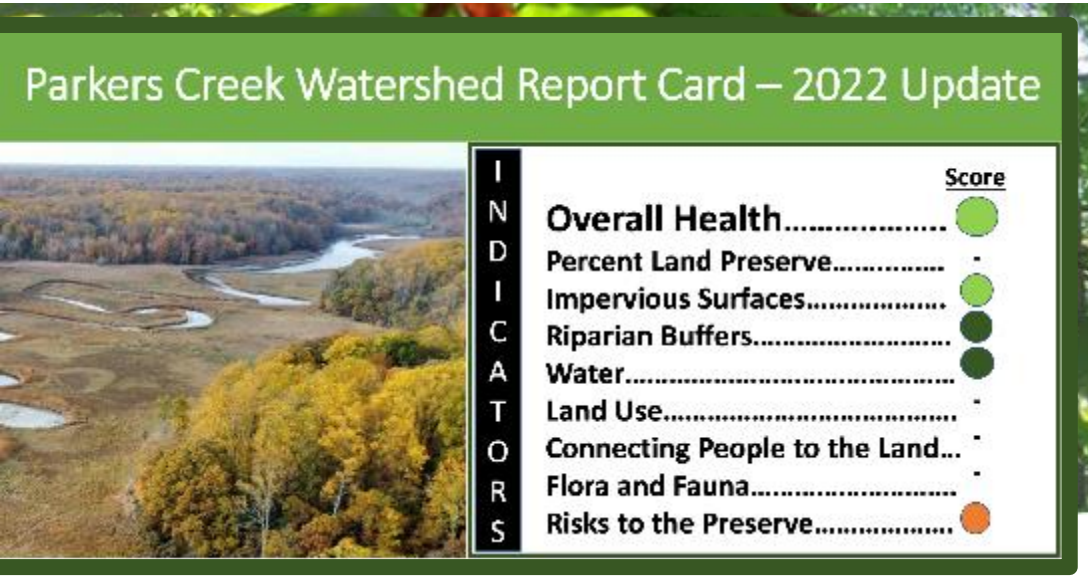
"Development of the properties within the neighborhood into lots has proven to be physically possible, financially feasible and legally permissible, while creating wealth maximization."

Is that all that rural lands are?

NOT counted in appraisals

Ecosystem Services - $370,000/yr. Asset- $7.4 m

Ecosystem Service Name *(and biophysical unit)(range)*	Annual Parcel-Level Values*		Annual Per-Acre Values**	
	Biophysical	Economic	Biophysical	Economic
Air Pollution Removal: Carbon Monoxide (CO) *(kg per year)(0-1.35 kg per acre per year)*	184.16	$4.93	1.18	$0.03
Air Pollution Removal: Nitrogen Dioxide(NO_2) *(kg per year)(0- 9.01 kg per acre per year)*	788.32	$33.94	5.04	$0.22
Air Pollution Removal: Sulfur Dioxide(SO_2) *(kg per year)(0- 6.67 kg per acre per year)*	346.88	$3.55	2.22	$0.02
Air Pollution Removal: Ozone (O_3) *(kg per year)(0-34.35 kg per acre per year)*	3572.71	$857.93	22.85	$5.49
Air Pollution Removal: Particulate Matter(PM_{10}) *(kg per year)(0-8.34 kg per acre per year)*	957.63		6.13	
Air Pollution Removal: Particulate Matter($PM_{2.5}$) *(kg per year)(0-1.80 kg per acre per year)*	135.78	$1,122.41	0.87	$7.18
Carbon Sequestration *(mT per year)(0-4 mt per acre per year)*	89.17	$13,330.02	0.57	$85.26
Groundwater Recharge *(m3per year)(445 - 1236 m3 per acre per year)*	10511.68	$50,717.00	67.23	$324.40
Nitrogen Uptake Potential Index *(1 = low to 3 = high)**	1.00	$5,098.00	No Data	$32.61
Stormwater Mitigation Potential Index *(1 = low to 5 = high)**	2.14	$108,358.00	No Data	$693.08
Wildlife Habitat and Biodiversity Potential Index *(0 = low to 100 = high)**	92.01	$177,389.00	No Data	$1,134.61
Surface Water Protection	No Data	$0.00	No Data	$0.00
Total Annual Economic Value	No Data		No Data	$2,283.66



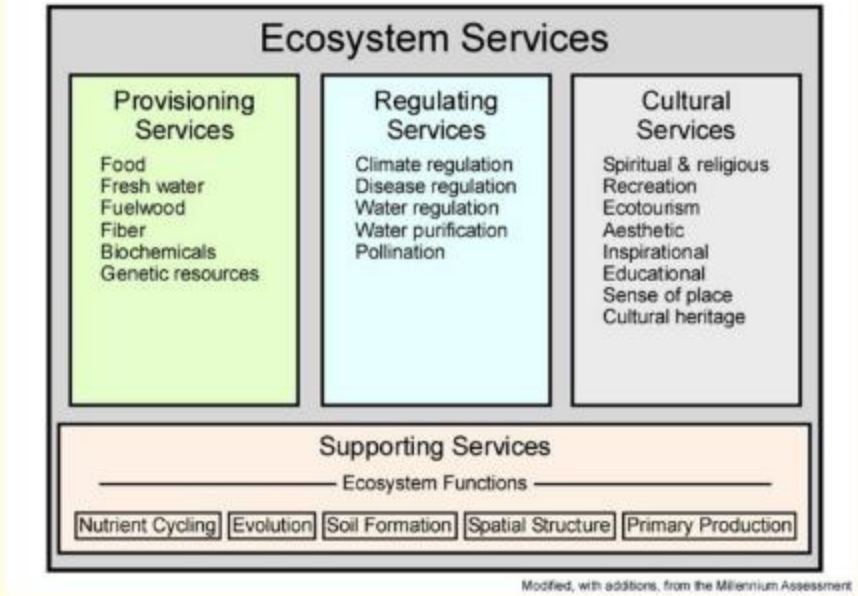
Ecosystem Services

<u>Yearly</u> ecosystem services provided by ACLT forests and wetlands:

- Absorb over 150 tons of pollutants that would otherwise be in the air we breathe or in the Bay.
- Contained 320,000 tons of carbon stored as of 2019, and continue to soak up another 18,000 tons per year out of the atmosphere as the forests grow and mature.
- Replenish over 65 million gallons of water to the aquafers, feeding our wells and rivers.
- Save $2,796,476 in flood prevention and stormwater mitigation.
- Provide habitat for a biodiverse wildlife. ACLT is designated an Important Bird Area, and has several endangered and at risk species that are of conservation priority.

Ecosystem Services

"Benefits gained by people from the environment"



As classified by the Millennium Ecosystem Assessment (MEA 2005)

Preserved Land in the Parkers Creek and Governors Run Watersheds

4,500 acres protected

Parkers Creek

Chesapeake Bay

Port Republic

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Legend

- ACLT-Owned Properties
- DNR-Owned Properties
- Conservation Easements
- Other Preserved Properties
- Trails 2022
- Streets

0 0.5 1 1.5 2 Miles