

Indigenous & University Collaborations for Environmental Mapping & Resilience Planning

National Tribal and Indigenous Climate Conference

August 30, 2022



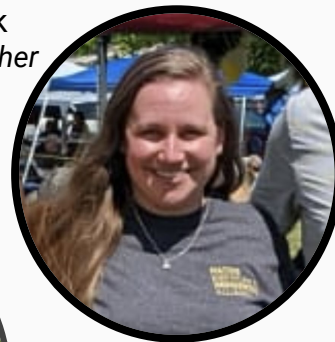


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Our Partnership

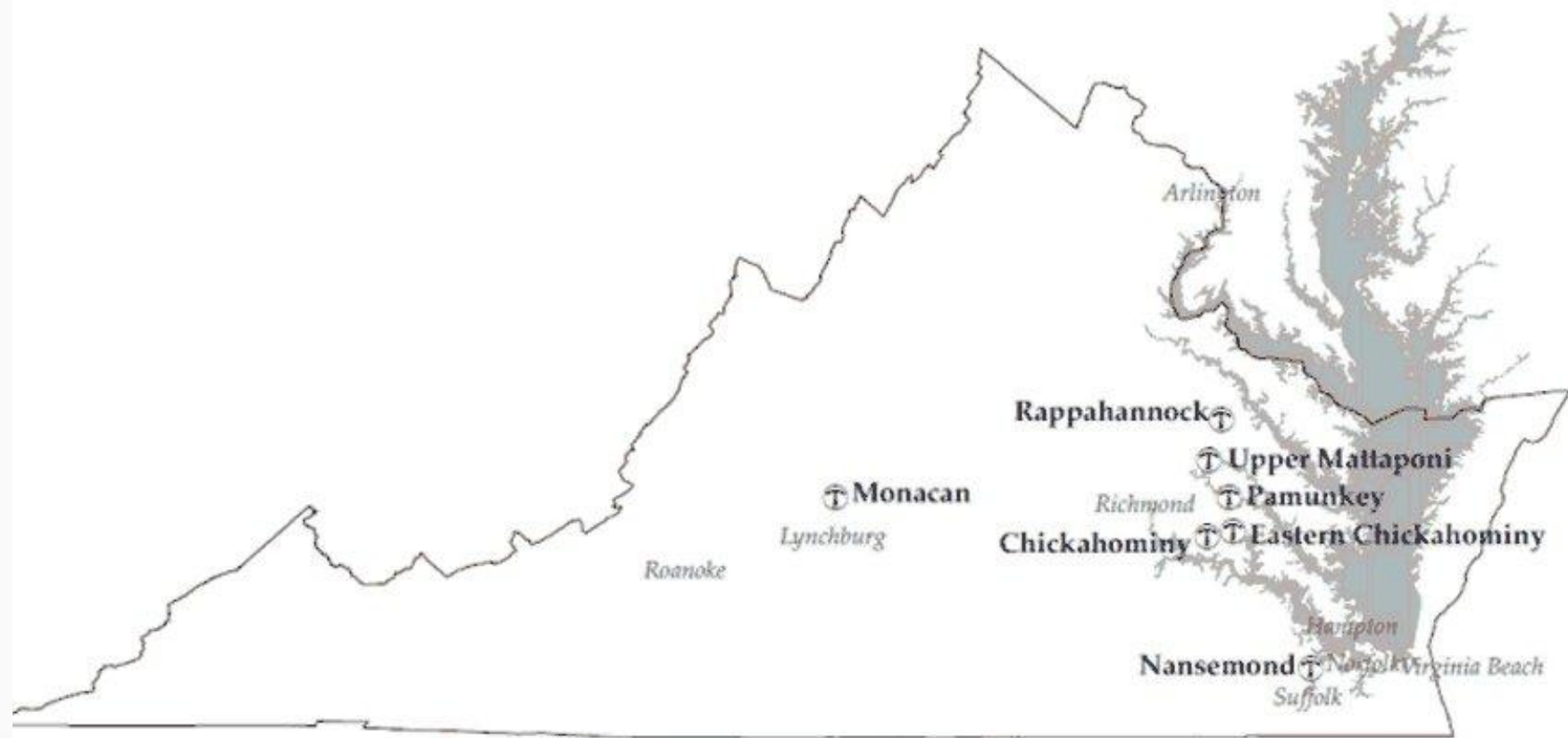


Institute for a
Sustainable
Earth



- Chickahominy Indian Tribe and Upper Mattaponi Indian Tribe
 - Federal Recognition (2018), along with several other Virginia Tribes.
 - Located in the Tidewater Region of Virginia, where environmental threats include rising sea levels, ground/air/water pollution due to industry, and suburban sprawl from nearby Richmond.
 - Both tribes are standing up tribal governments and rolling out environmental governance plans, in parallel with territorial acquisition.
- George Mason University (in Northern Virginia)
 - Some of our **priorities**: Indigenizing campus and curriculum; decolonizing environmental science research methods; reciprocity and sustainability.

Federally Recognized Tribes in Virginia



The Research



Institute for a Sustainable Earth



How can we collect, organize, and analyze socio-environmental data to support Tribal decision-making in environmental management and resilience planning?

An interdisciplinary team of 10 undergraduates, 2 grad students, 2 professors, and several Tribal Citizens.



Specific Tribal Goals for Summer 2022:
Our Overarching Research Question: How can we collect, organize, and analyze place-based socio-environmental data to support Tribal decision-making (and sovereignty) in environmental management and resilience planning?

Goal	Methods	Deliverables
<i>Chickahominy Indian Tribe (Dana C. Adkins, Tribal Environmental Director)</i>		
Investigate food security, indigene foodways to ensure healthy living for Tribal Citizens and the broader ecosystem	<ul style="list-style-type: none"> • Research the broad range of Indigenous food sovereignty programs nationwide • Gather and systematize information on community gardens, greenhouses, permaculture, agroforestry, food deserts, and community health data in Chickahominy territory 	<ul style="list-style-type: none"> • Collaboratively develop an Indigenous foodways curriculum focused on regional traditional foods and gardening for use in Tribal educational programming • Suggest programs or policies the tribe could implement to ensure food sovereignty, health benefits, and ecosystemic healing
Wildlife assessment of the Powhatan (James) River tribal property	<ul style="list-style-type: none"> • Bird survey • Observational mapping of tree & other plant species • Identification of add'l culturally-significant species (fish/veils) 	<ul style="list-style-type: none"> • Survey data & analysis: species IDs, numbers, range. • Make data compatible with GIS software • Community participation in surveys & training
Train Tribal Citizens in GIS and Geospatial data	<ul style="list-style-type: none"> • Identify and collect USGS, ESA, NASA, and LIDAR data (among others) on land use, soil, air, climate, census, tax plats, etc., as pertain to Chickahominy territory 	<ul style="list-style-type: none"> • Host 2 training sessions near end of the summer <ul style="list-style-type: none"> ◦ Materials for tribal-led trainings in future • Work with Tribal staff to safeguard data in keeping with Indigenous Data Sovereignty

	Description	Format
1	Ethnobiology Handbook of the Chickahominy Indian Tribe	.pdf
2	Wildlife Survey: Chickahominy on the Powhatan	.xlsx
3	Food Sovereignty Booklet	.pdf
4	Composting Presentation for Tribal Citizens	.pptx
5	Composting Handout for Tribal Citizens	.pdf
6	Signage for the Chickahominy Community Garden	.pdf, etc.
7	Water Quality Data (Powhatan & Chickahominy Rivers)	.xlsx
8	GIS Training on July 20, 2022: Video	.mp4
9	GIS Training on July 20: Slideshow	.pptx
10	GIS Data for ArcGIS: Various Data shared via External Hard-drive	N/A



Project Deliverables: Chickahominy Indian Tribe

Chickahominy Tribal Center

Community Garden

Chickahominy on the Powhatan

Mamanahunt

Chickahominy Tribal Lands

Summer 2022

Surveying Recently Repatriated Lands: Chickahominy On the Powhatan

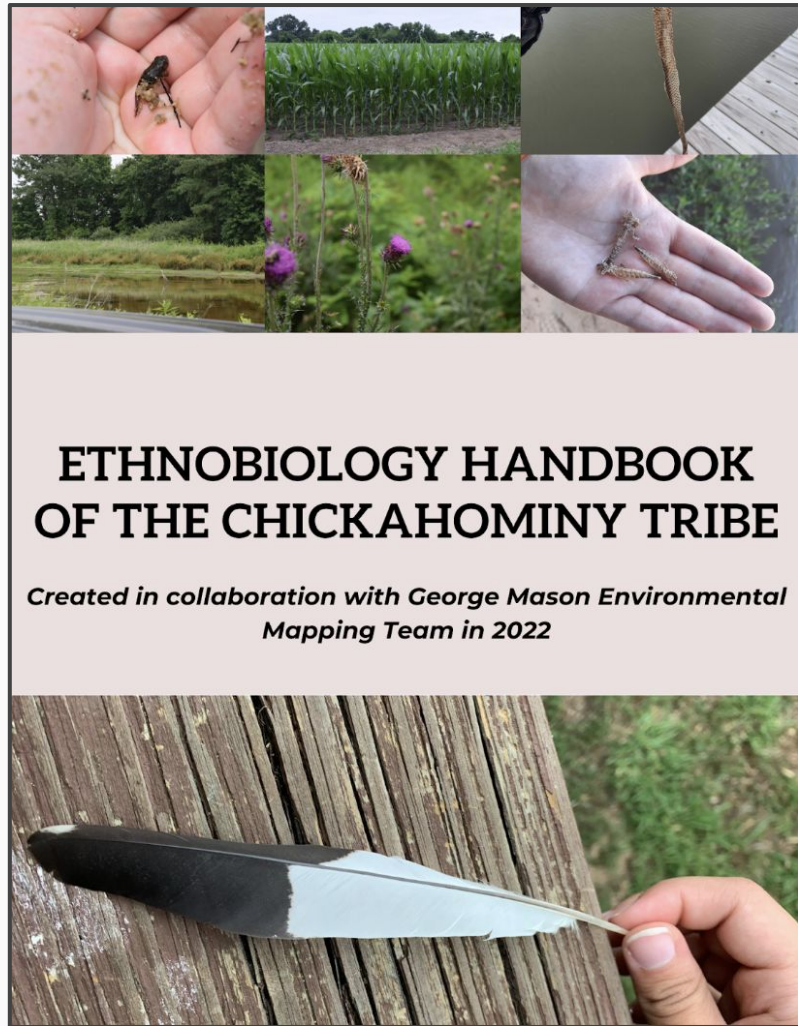


Surveying Recently Repatriated Lands: Chickahominy On the Powhatan



	A	B	C	D	E	F	G
1	Chickahominy Bird Survey						
2	Survey Location: Chickahominy on the Powhatan-12580 Wilcox Rd, Charles City, VA						
3	Start Time: June 21,2022 - 6:23AM, Total Time Recorded: 168 minutes						
4	Traveling total: 3.44 mi (37.319,-77.104)						
5	Common Bird Name	Scientific Name	Order	Family	Genus	Alpha Code	Total
6	Canada Goose	<i>Branta Canadensis</i>	Anseriformes	Anatidae	Branta	CAGO	10
7	Mourning Dove	<i>Zenaida macroura</i>	Columbiformes	Columbidae	Zenaida	MODO	2
8	Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Cuculiformes	Cuculidae	Coccyzus	YBCH	1
9	Great Blue Heron	<i>Ardea herodias</i>	Pelecaniformes	Ardeidae	Ardea	GBHE	1
10	Black Vulture	<i>Coragyps atratus</i>	Cathartiformes	Cathartidae	Coragyps	BLVU	34
11	Osprey	<i>Pandion haliaetus</i>	Anseriformes	Pandionidae	Pandion	OSPR	5
12	Bald Eagle	<i>Haliaeetus leucocephalus</i>	Accipitriformes	Accipitridae	Haliaeetus	BAEA	3
13	Belted Kingfisher	<i>Megaceryle alycon</i>	Coraciiformes	Alcedinidae	Megaceryle	BEKI	1
14	Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	Piciformes	Picidae	Melanerpes	RBWO	1
15	Downy Woodpecker	<i>Dryobates pubescens</i>	Piciformes	Picidae	Dryobates	DOWO	1
16	Pileated Woodpecker	<i>Dryocopus pileatus</i>	Piciformes	Picidae	Dryocopus	PIWO	2
17	Eastern Wood-Pewee	<i>Contopus virens</i>	Passeriformes	Tyrannidae	Contopus	EWPE	3
18	Acadian Flycatcher	<i>Empidonax virescens</i>	Passeriformes	Tyrannidae	Empidonax	ACFL	1
19	White-eyed Vireo	<i>Vireo griseus</i>	Passeriformes	Vireonidae	Vireo	WEVI	2
20	Yellow-throated Vireo	<i>Vireo flavifrons</i>	Passeriformes	Vireonidae	Vireo	YTVI	1
21	Red-eyed Vireo	<i>Vireo olivaceus</i>	Passeriformes	Vireonidae	Vireo	REVI	5
22	Blue Jay	<i>Cyanocitta cristata</i>	Passeriformes	Corvidae	Cyanocitta	BLJA	1
23	American Crow	<i>Corvus brachyrhynchos</i>	Passeriformes	Corvidae	Corvus	COCR	1
24	Fish Crow	<i>Corvus ossifragus</i>	Passeriformes	Corvidae	Corvus	FICR	1
25	Common Raven	<i>Corvus corax</i>	Passeriformes	Corvidae	Corvus	CORA	1
26	Carolina Chickadee	<i>Poecile carolinensis</i>	Passeriformes	Paridae	Poecile	CACH	2
27	Tufted Titmouse	<i>Baeolophus bicolor</i>	Passeriformes	Paridae	Baeolophus	TUTI	2
28	White-breasted Nuthatch	<i>Sitta carolinensis</i>	Passeriformes	Sittidae	Sitta	WBNU	1
29	Blue Grav Gnatcatcher	<i>Polioptila caerulea</i>	Passeriformes	Polioptilidae	Polioptila	BGGN	1

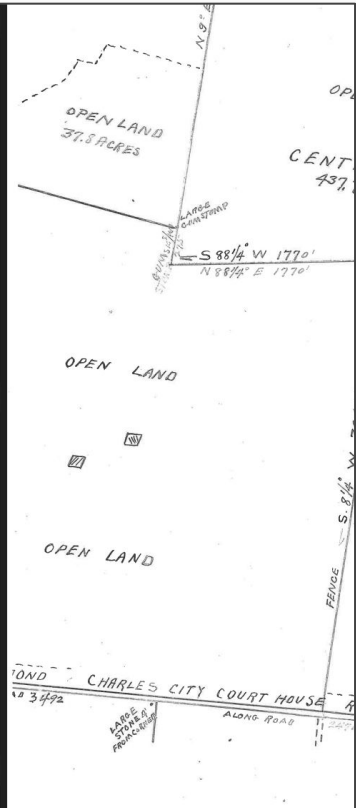
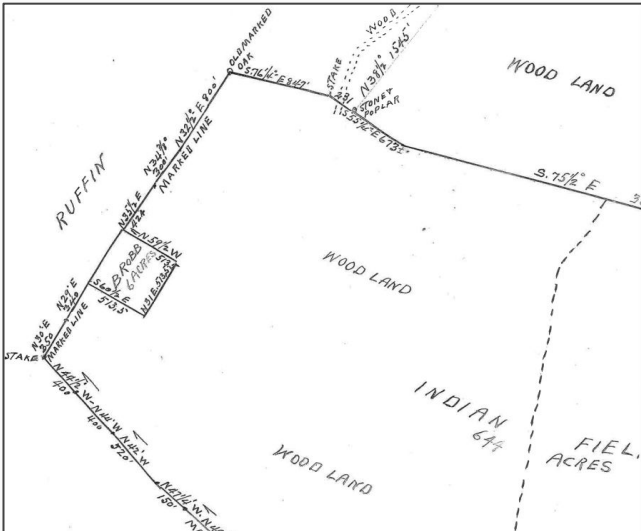
Chickahominy Ethnobiology at Mamanahunt and Chickahominy on the Powhatan



Chickahominy GIS Workshop

An all-day collaboration:

- ArcGIS Basics
- Counter-mapping
- Data security & sovereignty
- Historical & archival research on recently reacquired properties

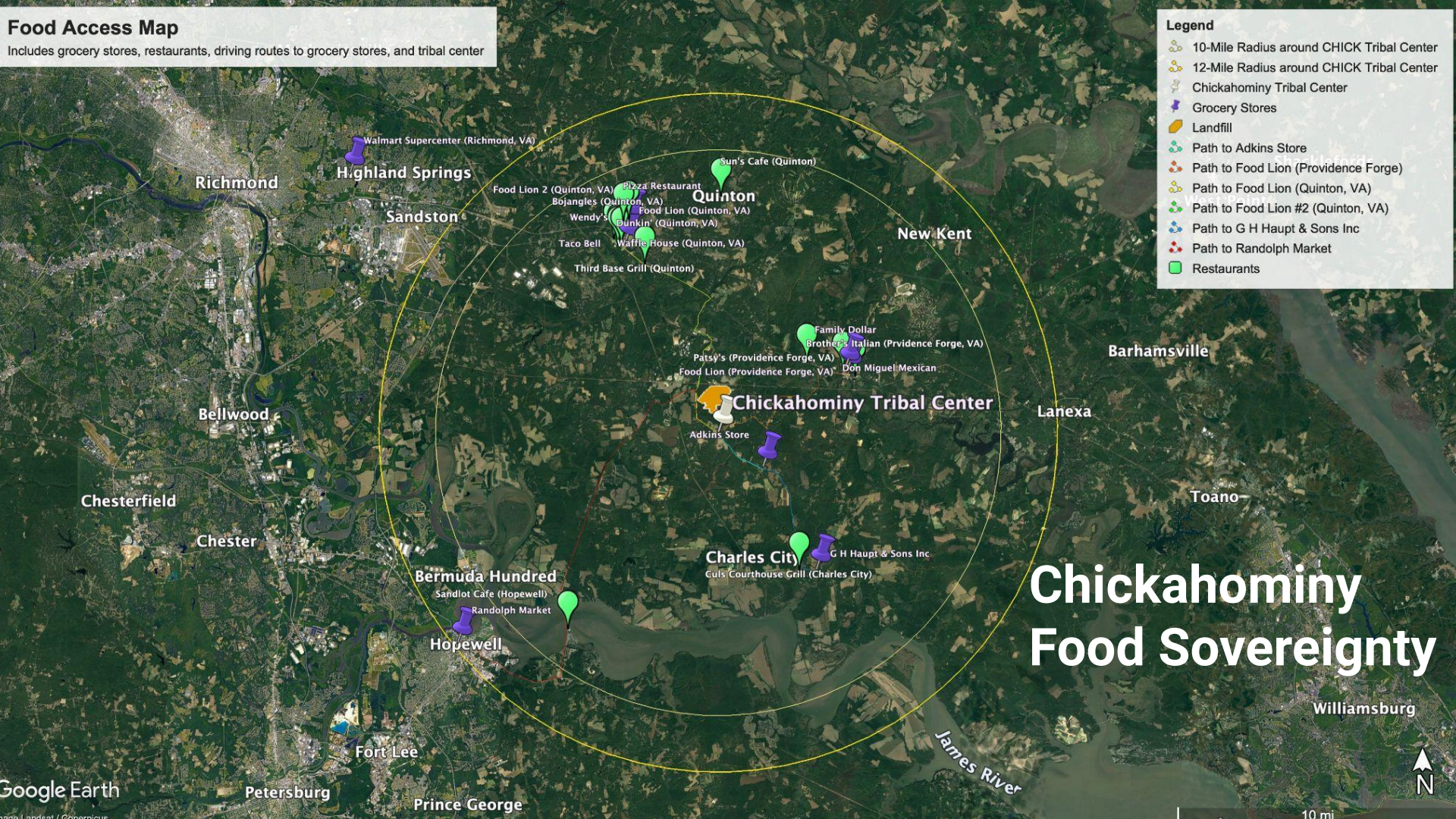


Food Access Map

Includes grocery stores, restaurants, driving routes to grocery stores, and tribal center

Legend

- 10-Mile Radius around CHICK Tribal Center
- 12-Mile Radius around CHICK Tribal Center
- Chickahominy Tribal Center
- Grocery Stores
- Landfill
- Path to Adkins Store
- Path to Food Lion (Providence Forge)
- Path to Food Lion (Quinton, VA)
- Path to Food Lion #2 (Quinton, VA)
- Path to G H Haupt & Sons Inc
- Path to Randolph Market
- Restaurants



Chickahominy Food Sovereignty

Chickahominy Community Garden

An EPA-funded effort

- Three-sisters horticulture
- Community-based composting
- Volunteer-drive

CHICKAHOMINY TRIBE

FOOD SOVEREIGNTY BOOKLET

Produced in collaboration with
George Mason University
Indigenous Environmental Mapping
and Resilience OSCAR STIP
Faculty, Graduate Researchers,
and Undergraduate Students



Open Air Composting: Turning Waste into Garden “Black Gold”

Transformation of problem into
solution

Prepared in collaboration between
Chickahominy Tribe & GMU
research team



CHICKAHOMINY TRIBE COMMUNITY GARDEN



ALL ARE WELCOME

	Description	Format
1	<p>GIS Package File with Various Feature Layers, including:</p> <ul style="list-style-type: none"> • Tribally-owned properties • King William County real estate parcels, roads, and addresses • Sites of environmental concern in the region • Zoning Maps • Watershed data • Virginia Counties 	<p>ZIP / .rar</p> <p>+ several .pdf maps</p>
2	Time Lapse Illustrations of Landscape and Watershed over Time	<p>2 .gifs</p> <p>2 .mp4s</p>
3	Air Quality (PM2.5) Data, 1998 - 2020 (from EPA)	.pdf
4	Indigenous Data Sovereignty Literature Review	.pdf



Upper Mattaponi

Also a constituent of the “Powhatan Confederacy,” Algonquian-speaking tribes of the Tidewater.

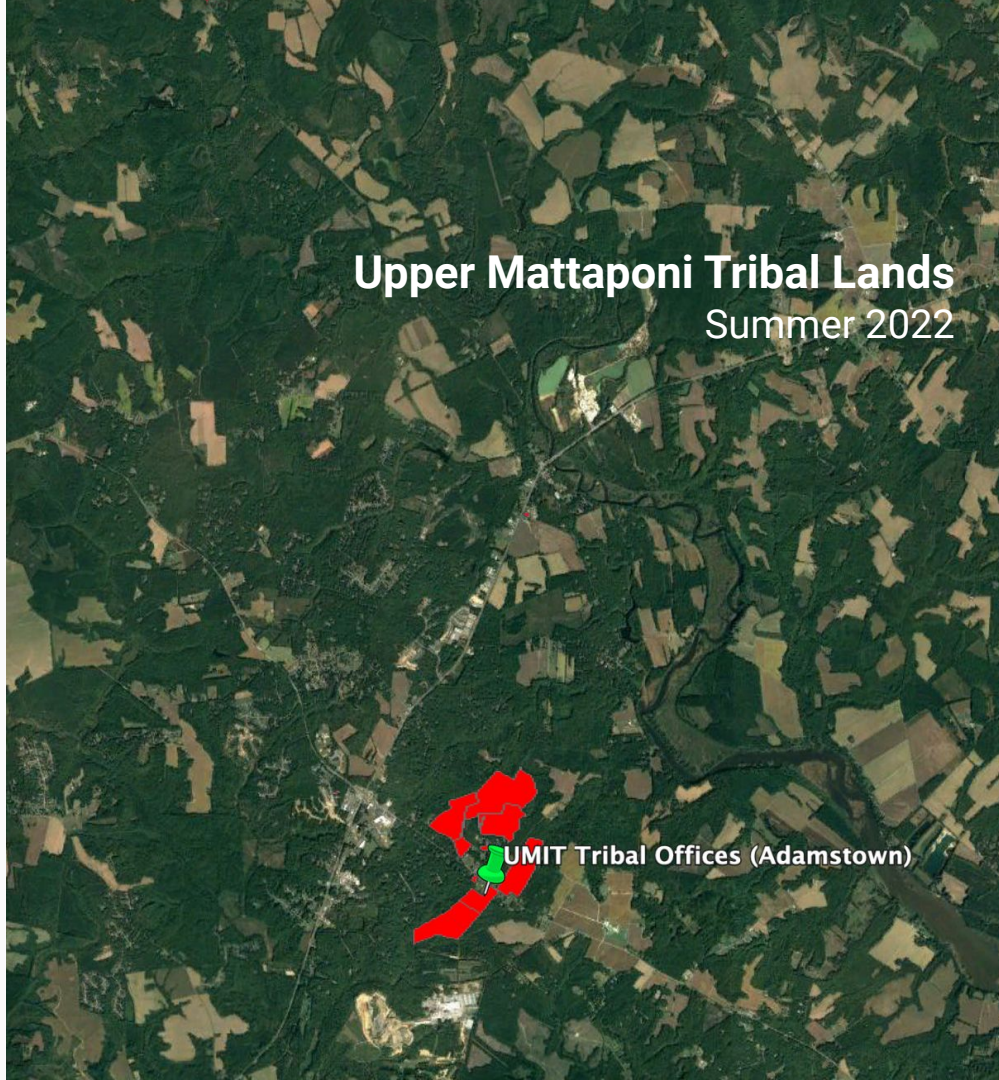


From “Map of Virginia, 1624” by John Smith & William Hole

Upper Mattaponi

Recently acquired lands
1,283 acres

UMIT is the first Virginia
Tribe to have lands taken
into trust (May 2022).



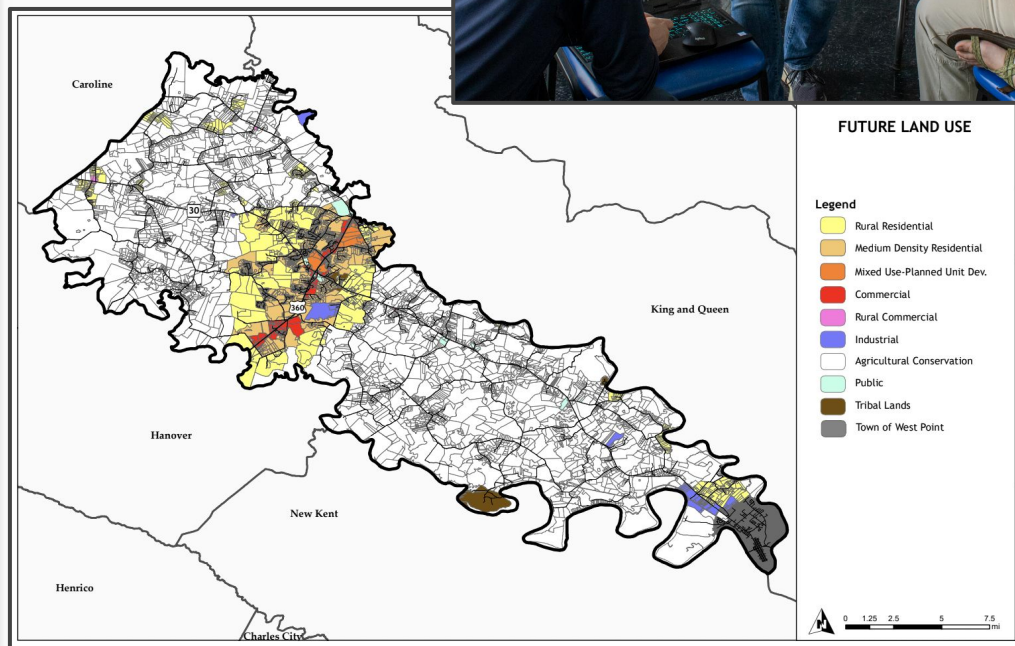
Upper Mattaponi Tribal Lands

Summer 2022

UMIT Tribal Offices (Adamstown)

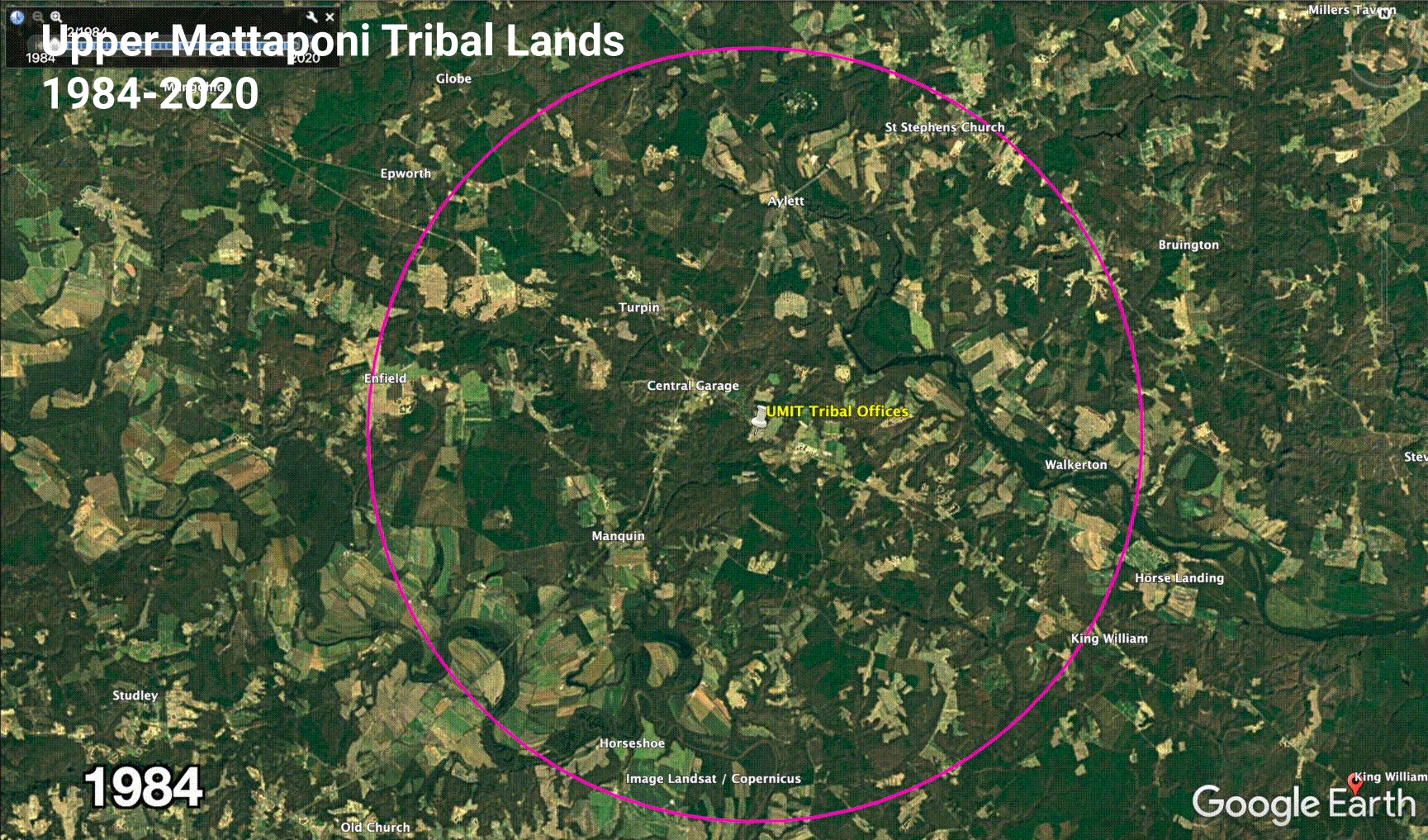
Upper Mattaponi

Co-creating a GIS database with data layers for parcels, air quality, and remote sensing imagery to track environmental change over time.



Upper Mattaponi Tribal Lands

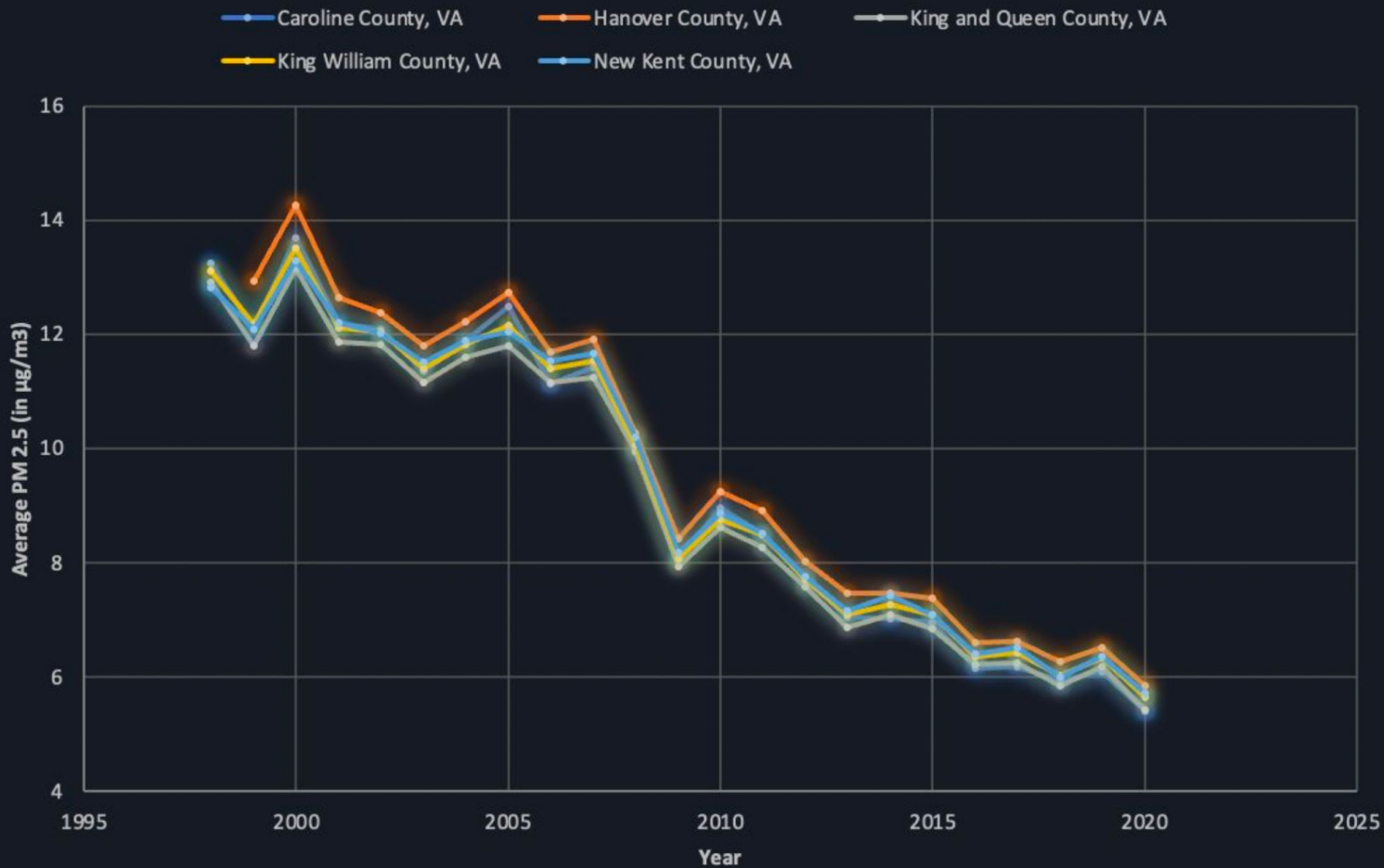
1984-2020



1984

Air Quality Trends in Upper Mattaponi Homelands by County, 1998-2020

(Source: U.S. EPA)



Upper Mattaponi Indigenous Data Sovereignty



Indigenous Data Sovereignty: A Literature Review and Report

Upper Mattaponi Indian Tribe

Indigenous Environmental Mapping and Resilience Planning Project, Summer 2022

Summary

The purpose of this report is to provide a survey of the ways the principles of Indigenous data sovereignty (IDS) have been applied by North American tribal and non-tribal groups. These examples are put forward as examples and suggestions from which the Upper Mattaponi Indian Tribe leadership may draw for developing tribal data guidelines and policy. The report begins with an introduction to the recent developments in the conversation on IDS. This is followed by an overview of what IDS is, relevant definitions, and the significance of implementing IDS principles in support of Indigenous sovereignty. The report, then, summarizes examples by tribal and non-tribal entities putting IDS frameworks into use in relation to tribal administration, in environmental management and beyond. Finally, the report lists resources including organizations and networks for further exploration of exercising and increasing Indigenous data

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Reflections & Future Goals

How can we collect, organize, and analyze socio-environmental data to support Tribal decision-making in environmental management and resilience planning?

An interdisciplinary team of 10 undergraduates, 2 grad students, 2 professors, and several Tribal Citizens.





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Reflections & Future Goals

1. We've stressed **relationships** rather than hard & fast "results."
2. We've made efforts to forge an **additive** and **reciprocal** dynamic.
3. But timelines can be out of sync...
4. ...and trust-building is an ongoing, continuous process.
5. Possibilities for **inter-tribal data projects** in Virginia are exciting...
6. ...and tribal sovereignty remains paramount, presenting both challenges and opportunities for future coordination and sharing of data across tribes.



Thank you!

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