NC STATE UNIVERSITY

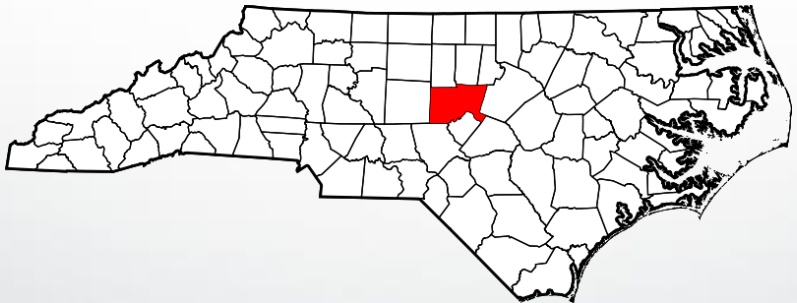
Re-Envisioning Vulnerability to Climate Change in Chatham County

Brian Bulla

What's this all about & why is it important?

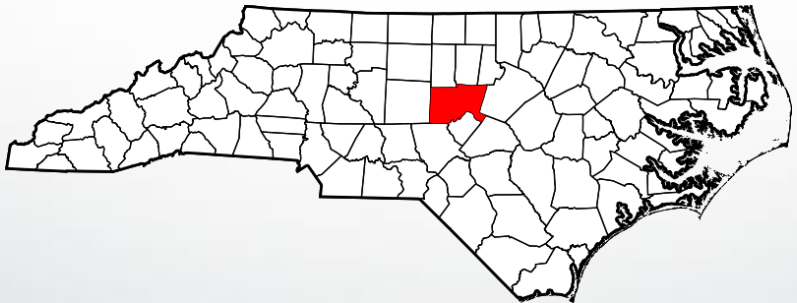
Understanding if/how small-scale farmers in Chatham County are experiencing a changing climate

- 1,100 farms in Chatham County, North Carolina
- 40% of these are between 10 and 49 acres in size
- Climate change threatens food systems and livelihoods
  - Those impacts may be especially tough on small-scale farmers



Chatham County

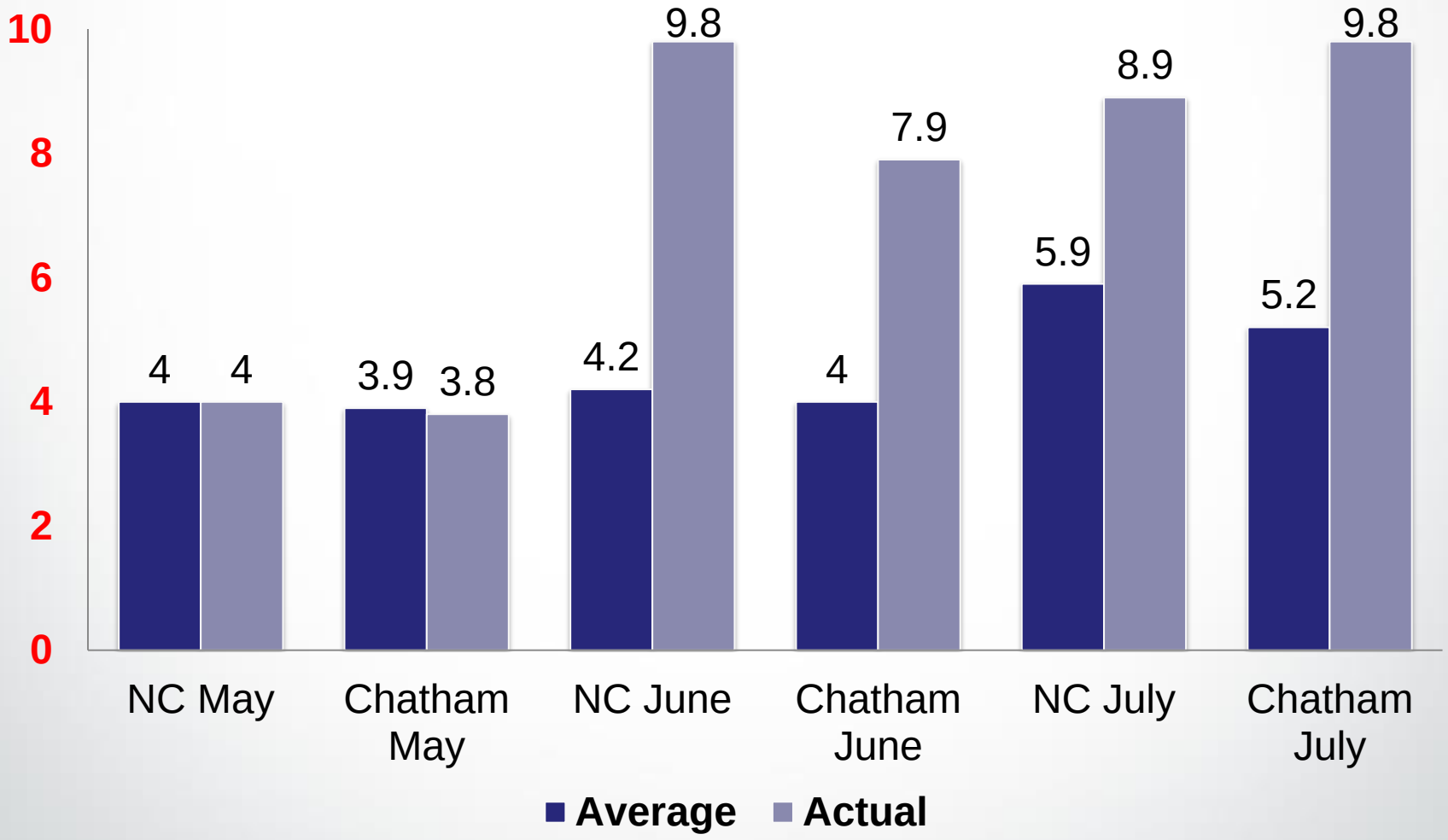
- Climate Change is an established concern & point of discussion
- Photovoice
  - Began in efforts to foster Literacy and Education
  - Commonly used now in Public Health Research
  - Participant driven process
- Photovoice presents a new way to examine climate change
  - From the farmers' perspective
  - Project began in June ended in December 2013



The Participant Farmers

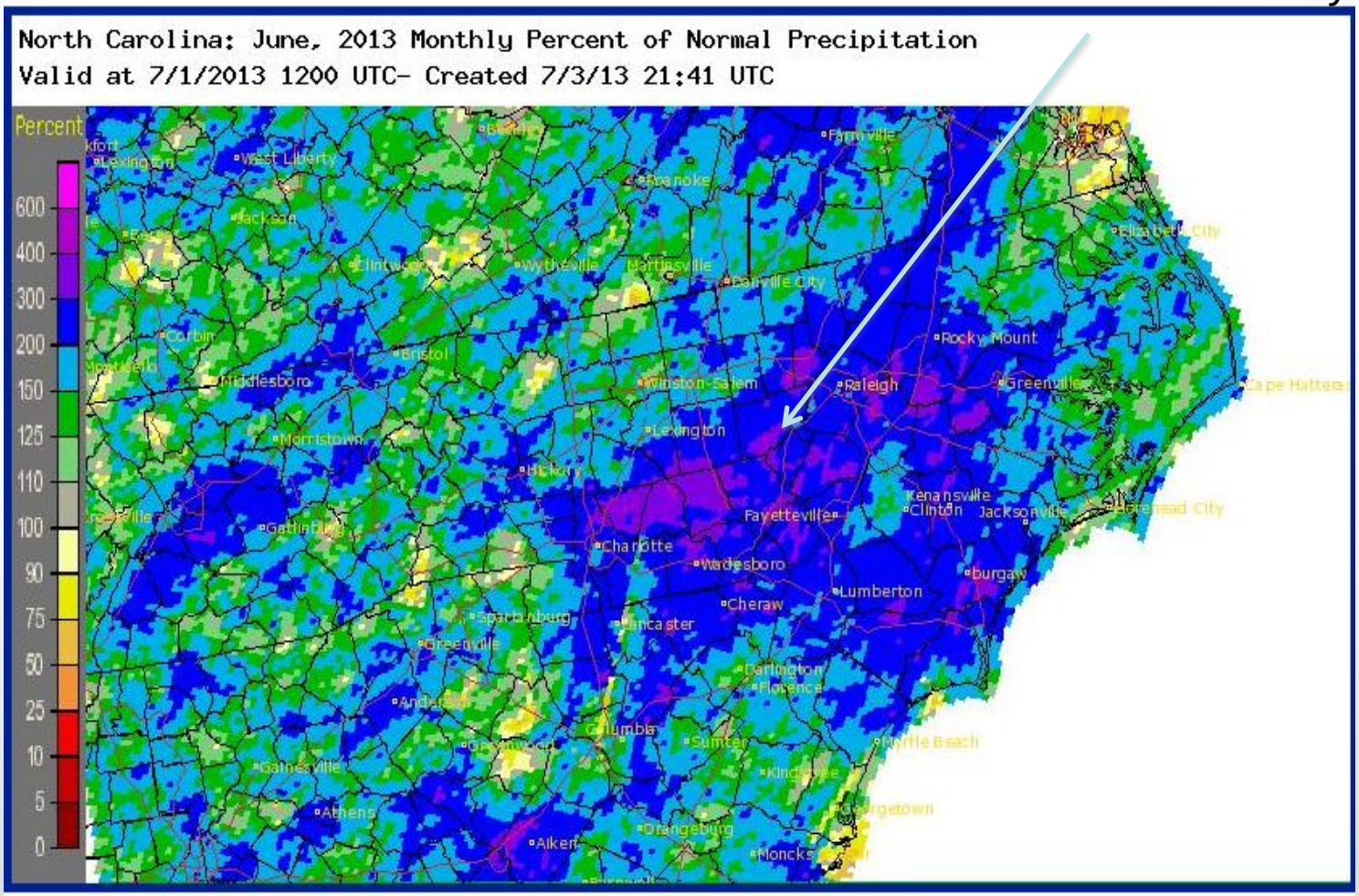
	Farmer A	Farmer B	Farmers C & D	Farmer E	Farmer F	Farmer G
Years farming	42	4	5	<1	30	8
Farming Acreage	3 acres	2 acres set in 140	4 acres	0.5 acres	215 acres	4 acres
Types of crops	Vegetables	Mushroom Vegetables	Herbs, Rice, Asian heirloom	Vegetables & hops	Cattle & Hay	Vegetables, Fruit, Poultry
Full/Part-time	Full-time	Full-time	Full-time	Part-time	Part-time	Full-time
Farming methods	Organic	Organic	Organic & Permaculture	Organic	Hormone & Antibiotic free	Organic **Certified*

Rainfall Totals: May, June, July 2013



June 2013

Chatham County



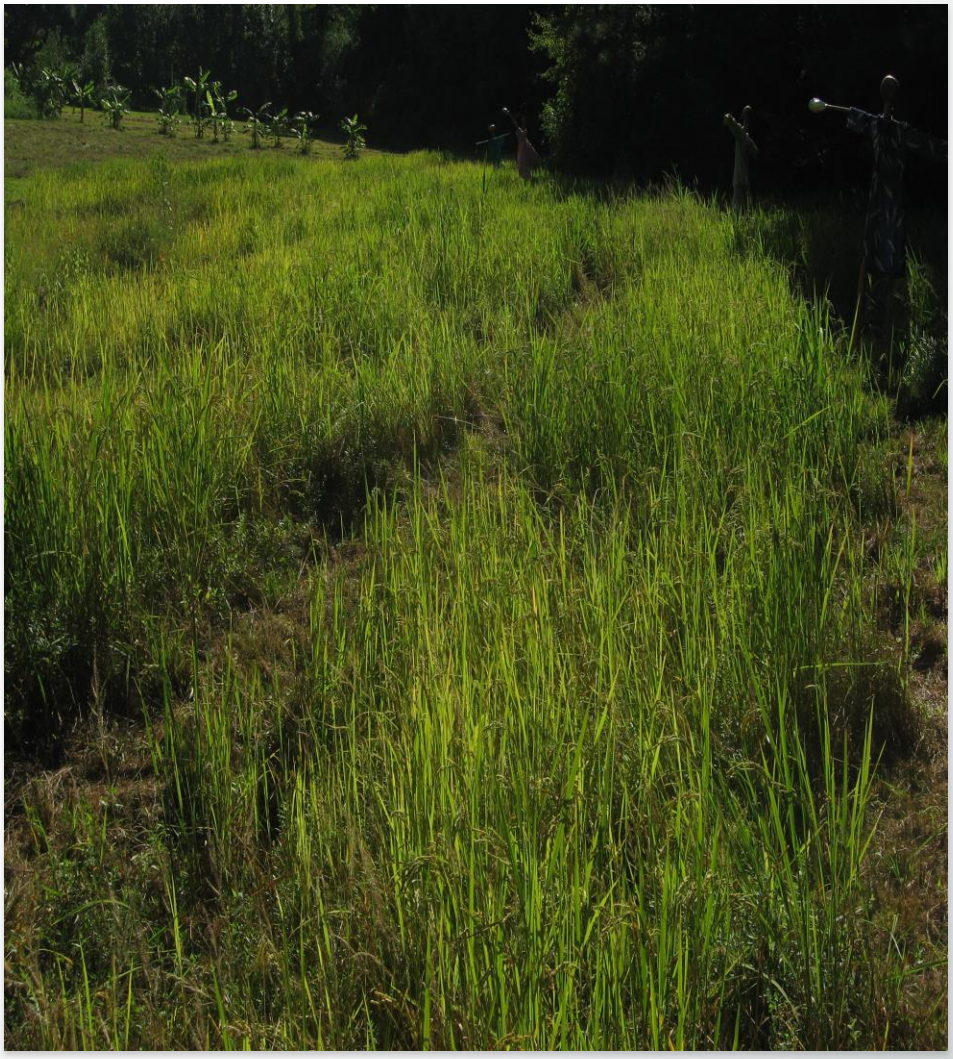
The Good & The Bad

- Good: precip., plenty of grass for cattle, microstegium, changes in the growing season ~ extended winter growing season

- Bad: precip., crop/equip damage, lost market opportunities, need for new/more equipment, erosion, tougher summer growing season

The Uncertain

- Growing rice in central North Carolina?
- Pests: fire ants & ticks
- Adaptive capacity of animals
  - (on-farm & off-farm animals)
- Ability to meet local demand
  - CSA
  - Farmers Market
  - Restaurants
- Development pressure



Need for Resiliency

- Meaning "*coping with changing conditions*"
- How: by exploring the use of shade/cover; planting schedules, polycultures

Farmer Comments

Farming is "*outdoor gambling*"

- "*I feel like we are doing a lot more adjusting now than we have in my lifetime*"
- "*The pace of change is accelerating*"

The *rituals* and *rules* of farming are probably changing and…

- we're not sure which ones,
- or how,
- or when,
- or where,
- or why ~ but good luck!

Farmer Findings

- Adaptive strategies discussed by the farmers include:
  - expanded seed saving/sharing programs
  - further crop/species diversification efforts
  - building informal peer-to-peer information and support networks

- Expect more Good, Bad, and Uncertain
  - new/expanded/limited crop potential
  - sudden loss/damage to crop and equipment
  - concerned about vulnerability to heat

Project Findings

- Need for site-specific adaptation
- Informal networks can foster resiliency
  - Farmer-to-farmer
  - Farmer-to-customer
- Need support and planning from
  - The community
  - Community officials
- Responses that are F^4
  - (flexible, fast, future-focused)

Implications

- Policy-makers and researchers should take an integrated approach to understanding vulnerability
  - otherwise vulnerability to climate change may just be thought of as a threat to infrastructure and sectors of the economy (energy, transportation, public works, etc.) thereby marginalizing people and livelihoods
  - We also need policy responses addressing social vulnerabilities

- Sounds great, but what does that mean?
  - Think about how vulnerability to climate change is conceptualized & discussed
  - Focusing in on what is being presented as the problem

Vulnerability & Climate Change

There are a few ways to think about vulnerability as it relates to climate change

- Risk Hazard
  - Out-come oriented; NC Hwy 12
  - Vulnerability & change over short time frame
- Socially & Politically constructed
  - Starting –point; contextual
  - Vulnerability & change over a generational time frame
- Ecological Resilience
  - Natural & manmade systems interacting
  - Vulnerability & change over much longer periods of time

Thank you!

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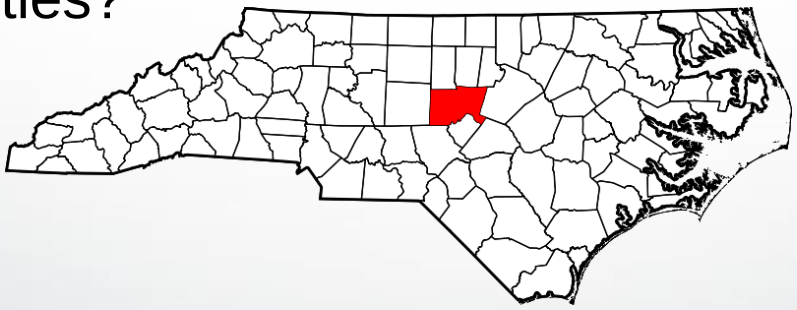
Connecting the dots

1. How can small-scale farmers most effectively communicate their cc problems/concerns to local & state policy planning officials?

1. What type(s) of local zoning reg/ordinances should small-scale farmers be pursuing that might have worked in other farming communities?

1. Can small-scale farmer be aided through local development programs to pro-actively address their on-farm structural vulnerabilities?



Connecting the dots

4. How can we get planners and farmers working together to solve issues related to climate change adaptation?

5. What information is most necessary for planner to begin crafting adaptive solutions for the farming community?

6. In times of emergency (post-disaster), speed and deliberation are equally important but competing considerations; so how can small-scale farmers be incentivized through local planning practices to respond in an adaptive manner?