



**NRCS and Wildlife Habitat
in Urban Environments:
Linking Farm, School, and
Community Agriculture**

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Xerces Society & USDA NRCS ENTSC
Greensboro, NC

Photo: Judy Stierand,
NC Native Plant Society



Xerces-NRCS partner biologists support pollinator habitat creation and management, which benefits other beneficial insects and wildlife.

Since 1971, the Society has worked to protect wildlife through the conservation of invertebrates and their habitat.



Xerces blue butterfly
(*Glaucopsyche xerces*), the first
U.S. butterfly to go extinct due to
human activities.

www.xerces.org



Help people reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters



NRCS District Conservationist Carl Wright & Cypress Gardens Gardener Elizabeth Vaughn learning about and planting a pollinator meadow at Dirt Works Incubator Farm. Photo insert: Nancy Adamson



Dirt Works Incubator Farm is a project of Lowcountry Local First at Rosebank Farms on John's Island near Charleston, S.C.



NRCS Urban Ag & Wildlife

- ❖ Urban trends
- ❖ Farm Bill nuts & bolts
- ❖ NRCS conservation programming & what is available in urban areas
- ❖ Partnership examples
- ❖ Additional resources for supporting wildlife

*Related links posted in a separate .pdf with the webinar (& replay)



bumble bee
on blazing star,
Liatris spicata

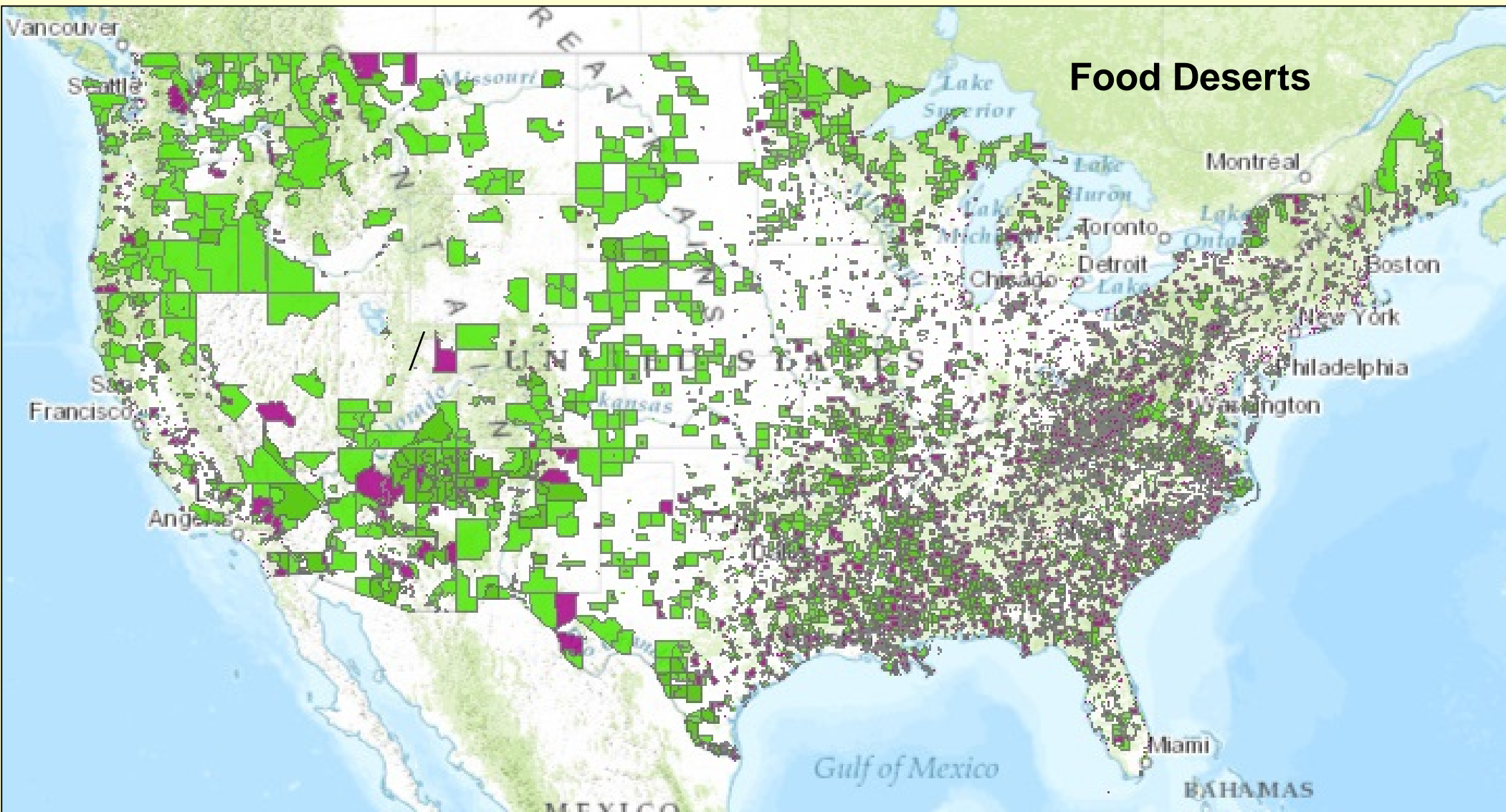


Current trends support more urban agriculture. Knowing the farmers, supporting local production & eating local fare at restaurants (farm-to-table), reduced pesticide use, and agri-tourism (U-pick, work exchange...) increasingly valued.





- More than ½ mile from supermarket and without access to a vehicle
- Low income residents more than 1 mile (urban) or 10 miles (rural) from supermarket

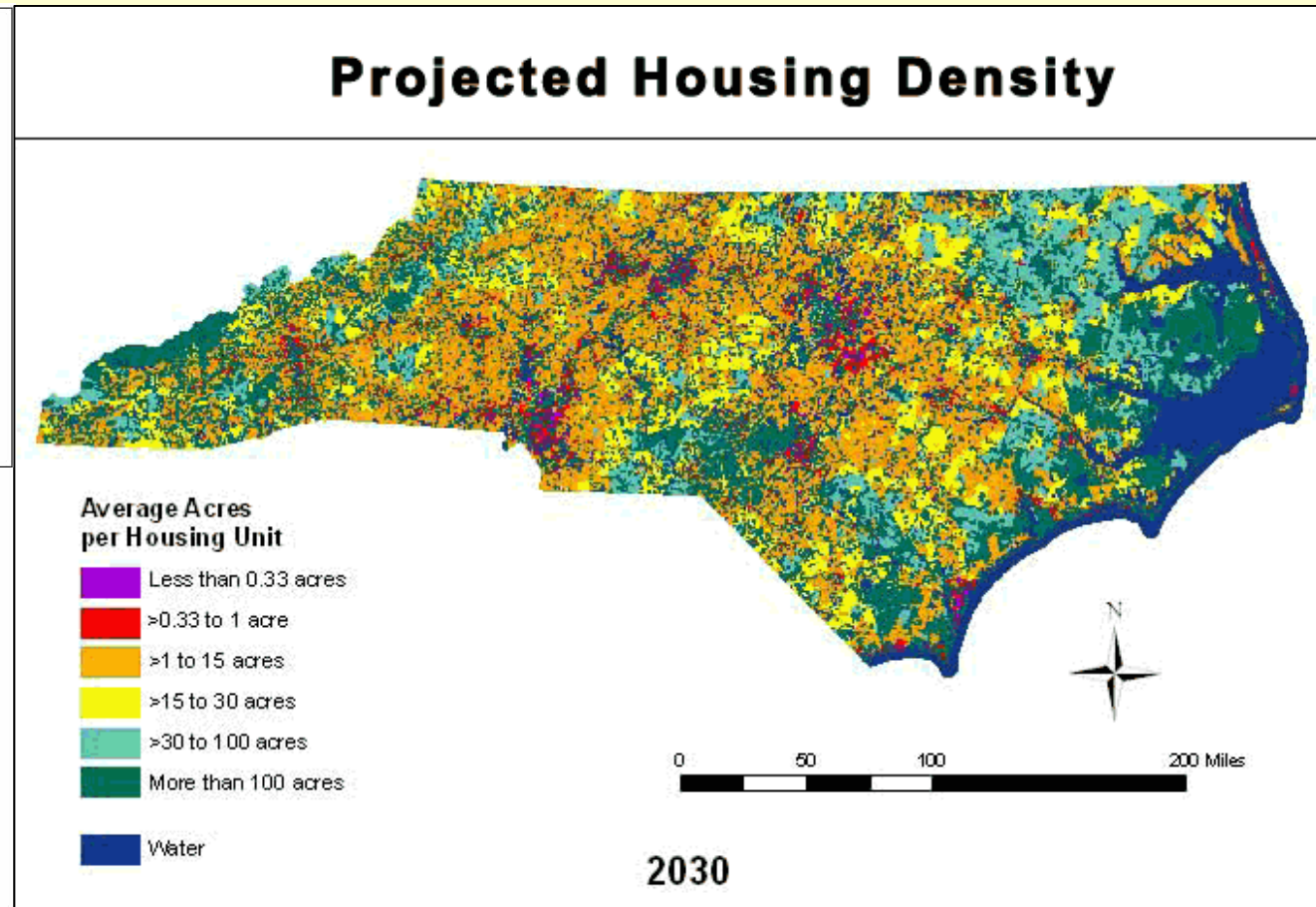
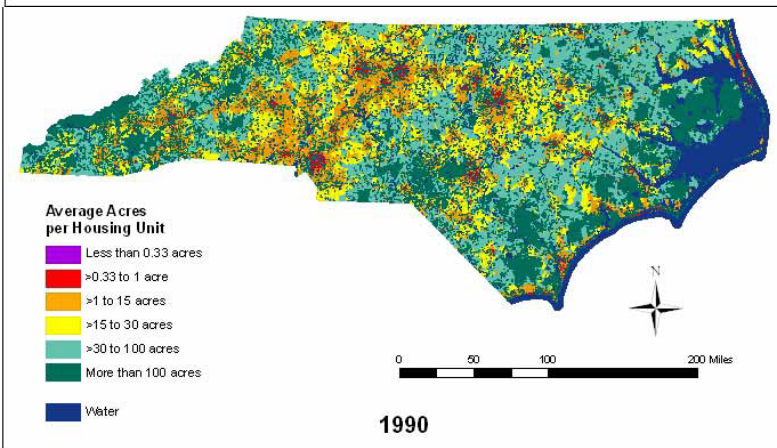
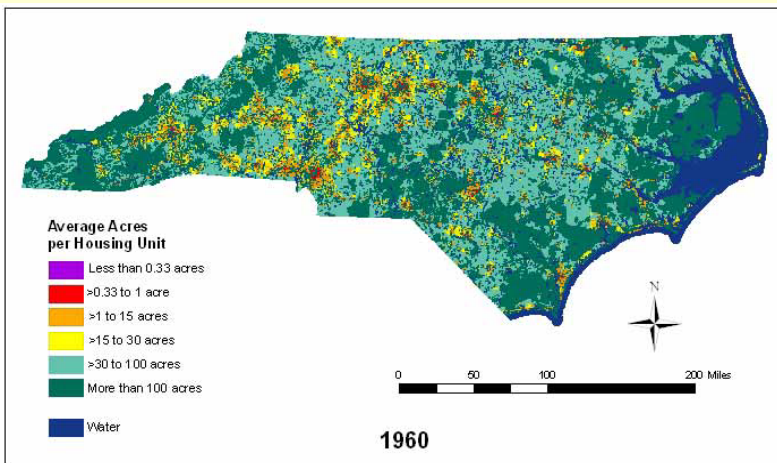


Source: USDA Economic Research Service

<http://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas.aspx>



North Carolina housing density in 1960 and 1990, and projected density in 2030.



Maps courtesy of the Conservation Trust of North Carolina and Dr. Volker Radeloff, University of Wisconsin-Madison, published in the NC Wildlife Resources Commission Green Growth Toolbox <http://www.ncwildlife.org/Conserving/Programs/GreenGrowthToolbox/WhyGreenGrowth.aspx>.



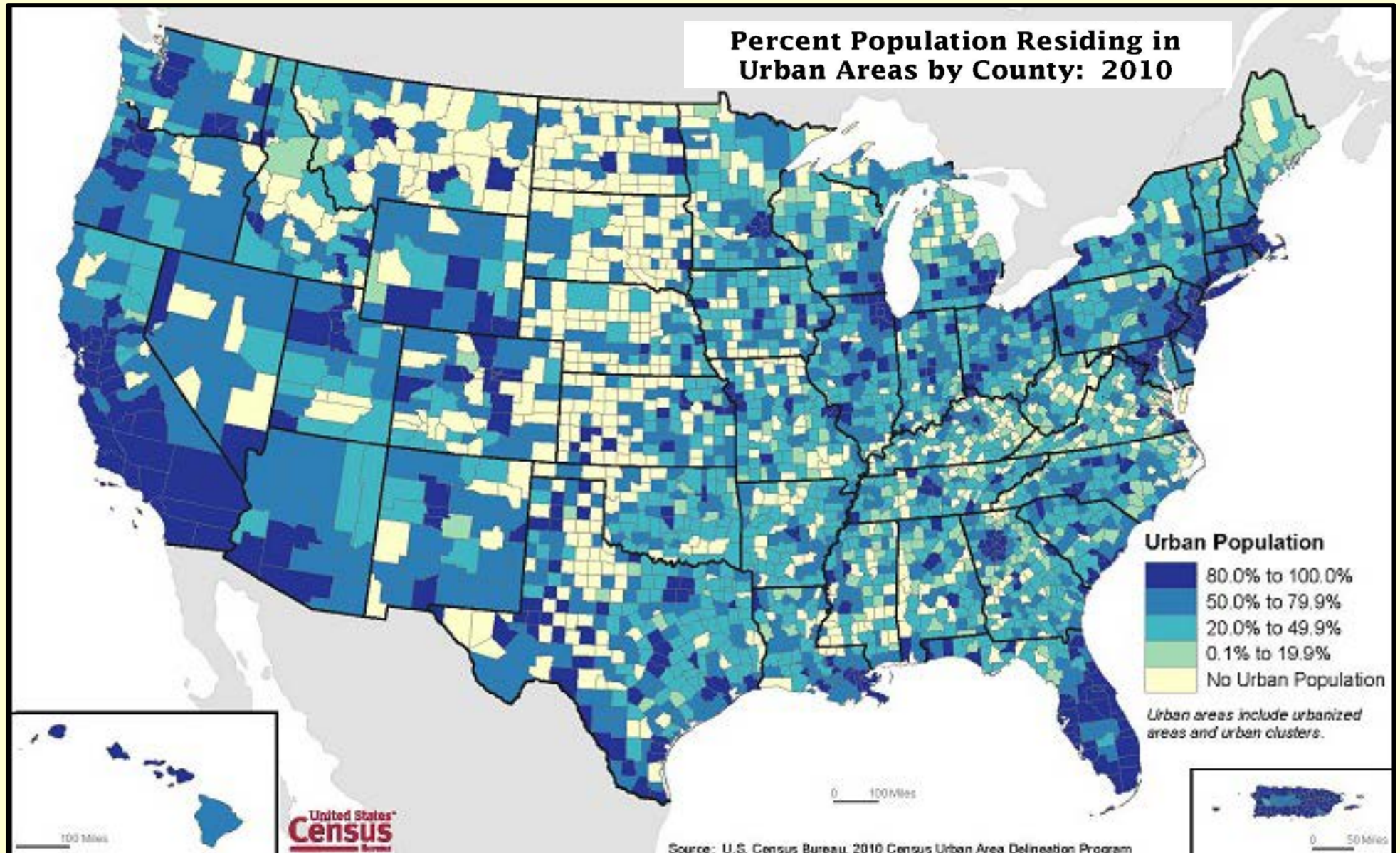
US urban population trends

1935, ~**56%** of 126 mill. when Congress created Soil Conservation Service (SCS)

1994, ~**78%** of 260 mill. SCS became Natural Resources Conservation Service (NRCS)

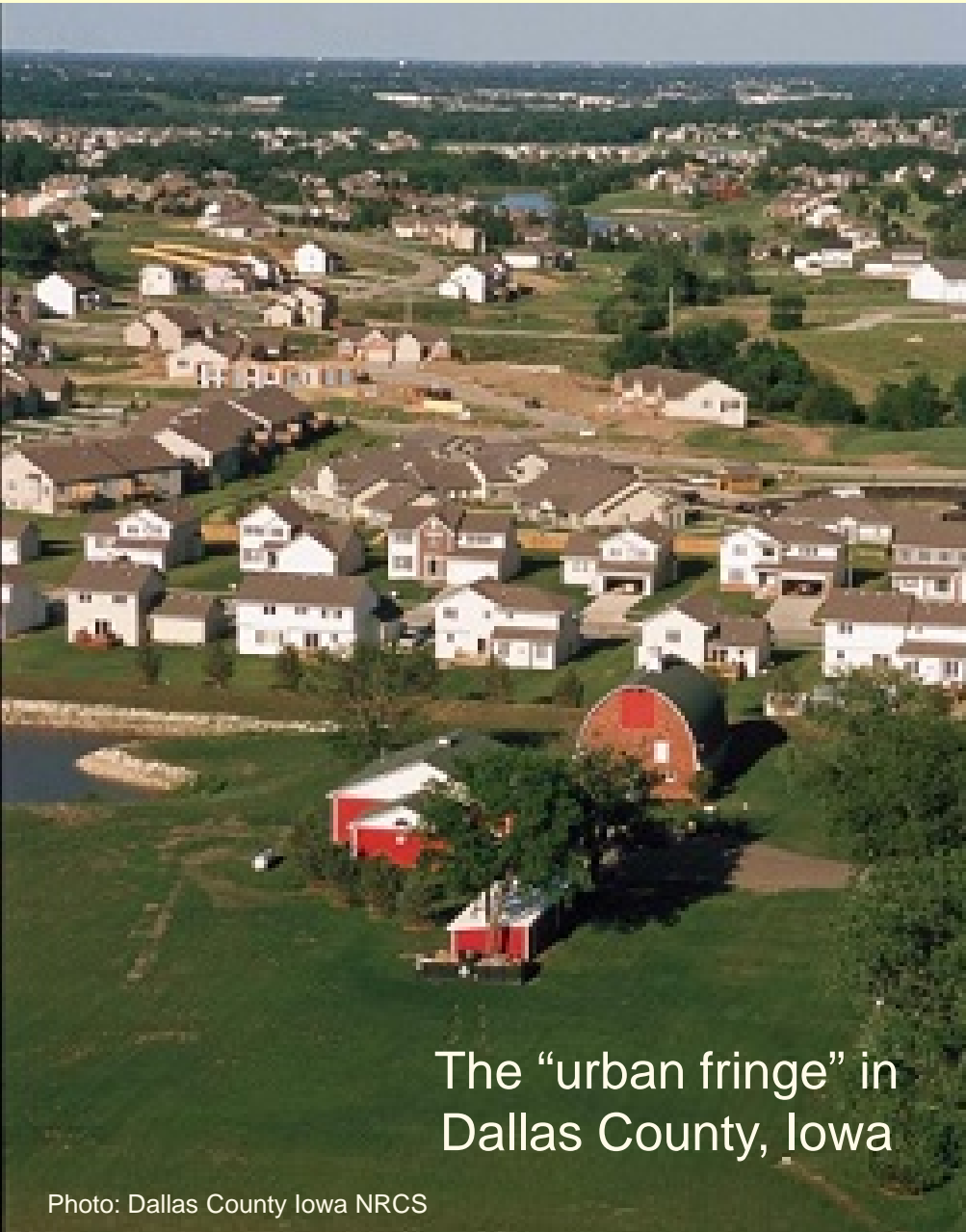
2015, **83%** of 320 mill.

2050, projected **89%** of 400 mill. (www.Worldometers.info)





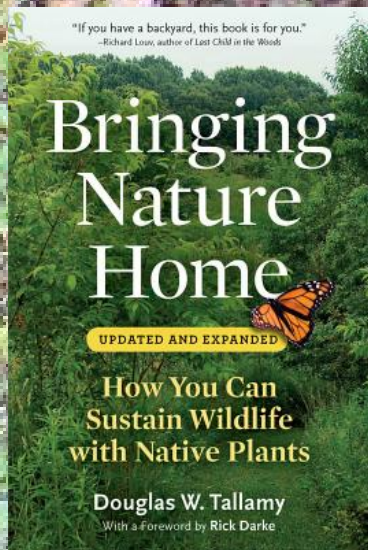
Habitat loss affects the cleanliness of our watersheds, our air, the pollinators and other beneficial insects that ensure crop pollination and reduce the need for pesticides, but also has social impacts that are more pronounced in urban & suburban areas.





In addition to supporting wildlife, riparian preservation and restoration help improve air and water quality, increase water infiltration, and have many other benefits.

NRCS supported stream restoration in Old Salem, NC, not only restored ecological functions (like supporting enough fish to feed this heron), it also created a treasured recreation area for urban residents wanting to connect with nature.





green sweat bee
on blueberry

**NRCS Farm Bill work
supporting urban agriculture
and wildlife habitat**



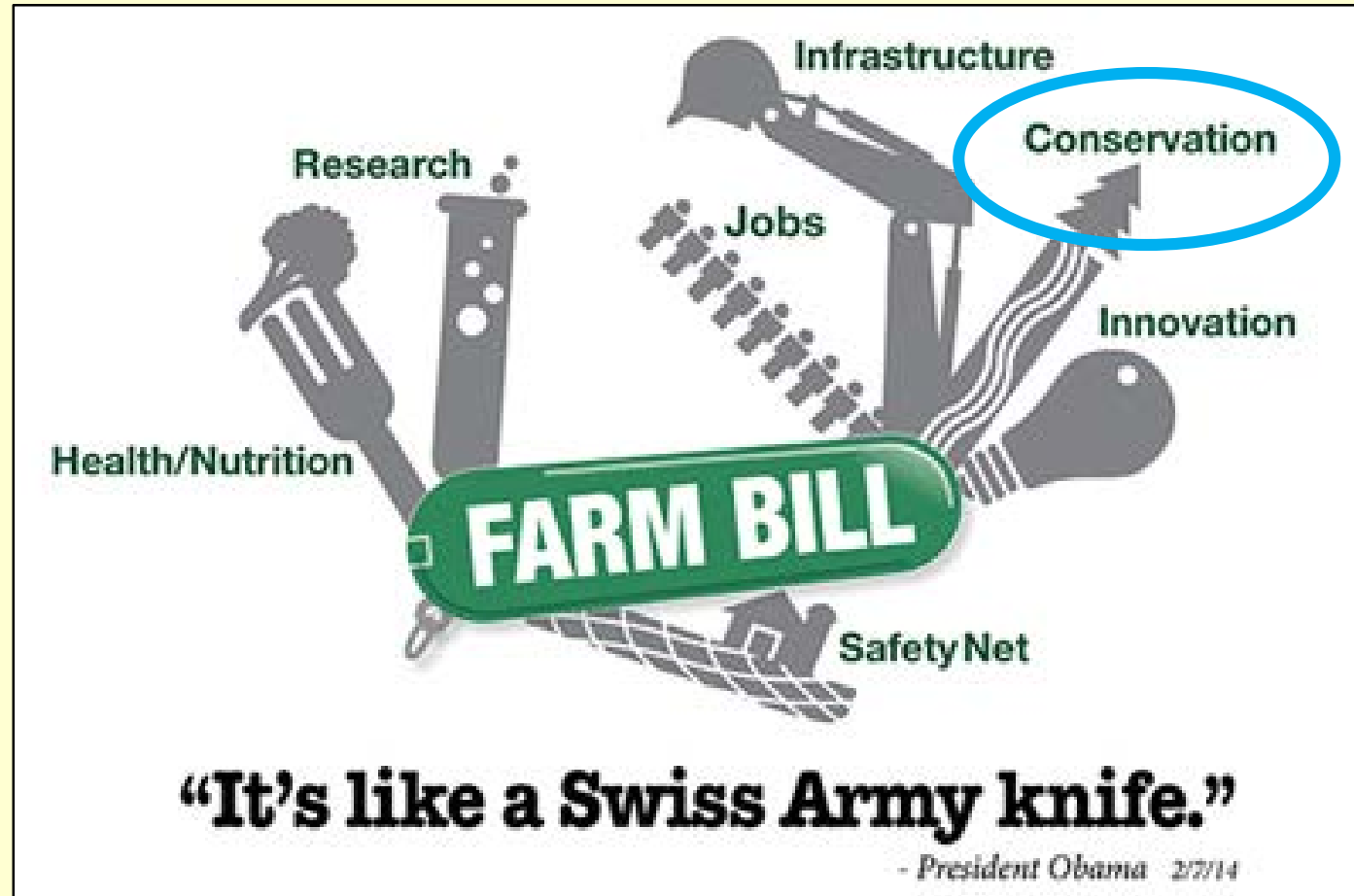
NRCS works closely with the Farm Services Agency to implement conservation programming. A farmer's main contact at NRCS is the local District Conservationist.

Federal farm & food-related grants overviews

- <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/farmbill/>
- <http://sustainableagriculture.net/publications/grassrootsguide/farm-bill-programs-and-grants/>

Other USDA conservation agencies*

- **Office of Environmental Marketing**--emerging markets for carbon sequestration, water quality, wetlands, biodiversity, and other ecosystem services
- **Forest Service**--wildland fire



* http://www.usda.gov/wps/portal/usda/usdahome?navid=PROGRAM_AND_SERVICE



Financial and technical assistance to help agricultural producers make and maintain conservation improvements on their land

Alabama farmer Brian Keller of Oak Hill Farm in Grand Bay Alabama working with NRCS District Conservationist Joyce Nicholas. Micro-irrigation, plastic-culture with cover crops between rows, crop rotation, and integrated pest management help conserve resources on the farm.



EQIP Environmental Quality Incentives Program—includes wildlife habitat

ACEP Agricultural Conservation Easement Program—wetland and forestland restoration, protection, and enhancement

CIG Conservation Innovation Grants—research grants, testing new technologies

CTA Conservation Technical Assistance—technical, but some discretionary FA



NRCS awarded a **Conservation Innovation Grant (CIG)** in 2013 to several Chesapeake Bay region organizations testing **water quality trading** aimed at improving the bay's water quality and benefiting the more than 300 species of fish, shellfish and crab, and other wildlife of the bay—a rapidly urbanizing region.



EQIP is NRCS' largest conservation program for individuals.



EQIP wildlife habitat conservation priorities include

- Early successional habitat
- Grassland bird habitat
- Wetlands & shallow water habitats
- Stream & riparian corridor habitats
- Forested habitats

AL NRCS William Puckett, USFWS Dan Everson, and AL NRCS Jeff Thurmond by a gopher tortoise burrow, launching an initiative to support the tortoise habitat



McArthur Fellow Will Allen expanded his Oak Creek Farm in Milwaukee into an urban youth employment program in Milwaukee, Chicago, and Madison (plus internationally) and is now experimenting with a 5-story vertical farm, with some EQIP support.



Will & young farmers



Will & Ag Secretary Tom Vilsack

<http://www.growingpower.org/about/leadership/will-allen/>



Much of NRCS' urban EQIP assistance is for seasonal high tunnels, providing excellent opportunities for linking farm and wildlife conservation.



Elvis d'Agrella in Houston, TX serves customers with growing interest in “buying local” and built a high tunnel to extend his growing season.

Webinar on cover crops & wildlife (replay from 22 June 2015)
<http://practicalfarmers.org/news-events/events/farminars/>



NRCS has tremendous technical resources, especially for wildlife conservation*

Plants & Animals

- Fish & wildlife
- Insects & pollinators
- Invasive species & pests
- Livestock plants

Urban Conservation & Sustainable Landscaping

- Community gardens
- Rain gardens
- Native plant landscaping

Backyard Conservation

- Backyard pond or wetland
- Composting & mulching
- Nutrient & pest management
- Tree planting
- Wildlife habitat

*Links posted in a separate .pdf
with the webinar (& replay)



green sweat bee on
white milkweed



NRCS provided technical assistance for this urban stream corridor restoration project in Old Salem, NC, in the late 1990s.

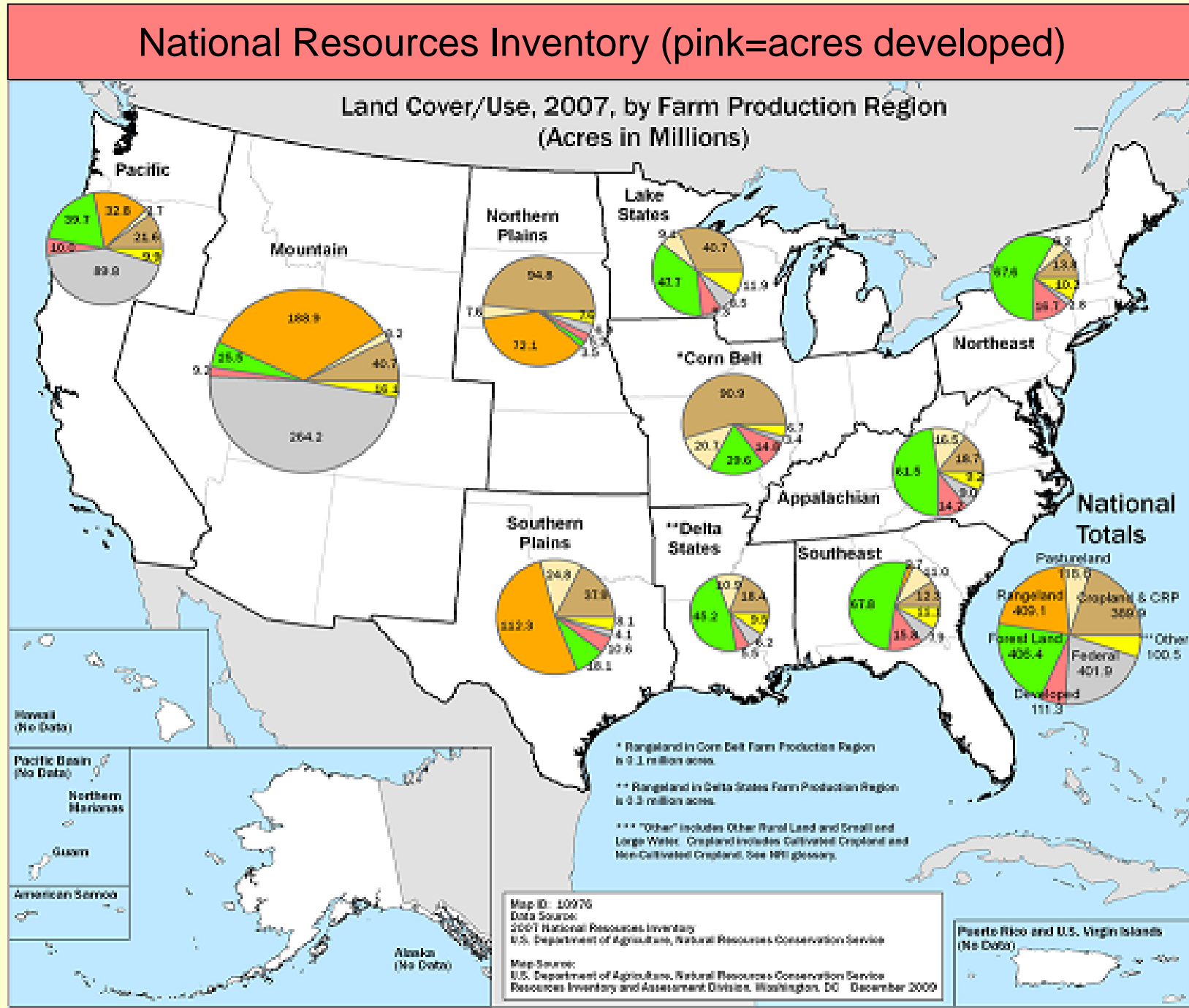
Tanner's Run was restored by Old Salem, Pilot View RC&D, and the City of Winston-Salem, with a matching grant from the NC Clean Water Management Trust Fund.





Broadly utilized resources/tools for planners & conservationists

- Rapid Watershed Assessments
- Web Soil Survey
- PLANTS Database
- National Resources Inventory





Easements to eligible landowners to conserve working agricultural lands, wetlands, grasslands and forestlands

English Swamp, an old growth swamp forest in Richland County, SC, that was protected with a Wetlands Reserve Program (WRP) easement hosts lacewing roadside skippers on downy lobelia.



Much NRCS urban agricultural and wildlife conservation programming is in partnership with other federal, state, or local agencies, especially SWCDs.

Cleveland High Tunnel Initiative



<https://www.youtube.com/watch?v=mleeQRatut0>

Alfonso Norwood, Urban Conservationist

NRCS partnered with:

- FSA
- Cuyahoga SWCD
- Ohio State Univ. Extension Service
- Federation of Southern Cooperatives
- City of Cleveland
- Fair Food Network

NACD* Urban & Community Conservation Webinars

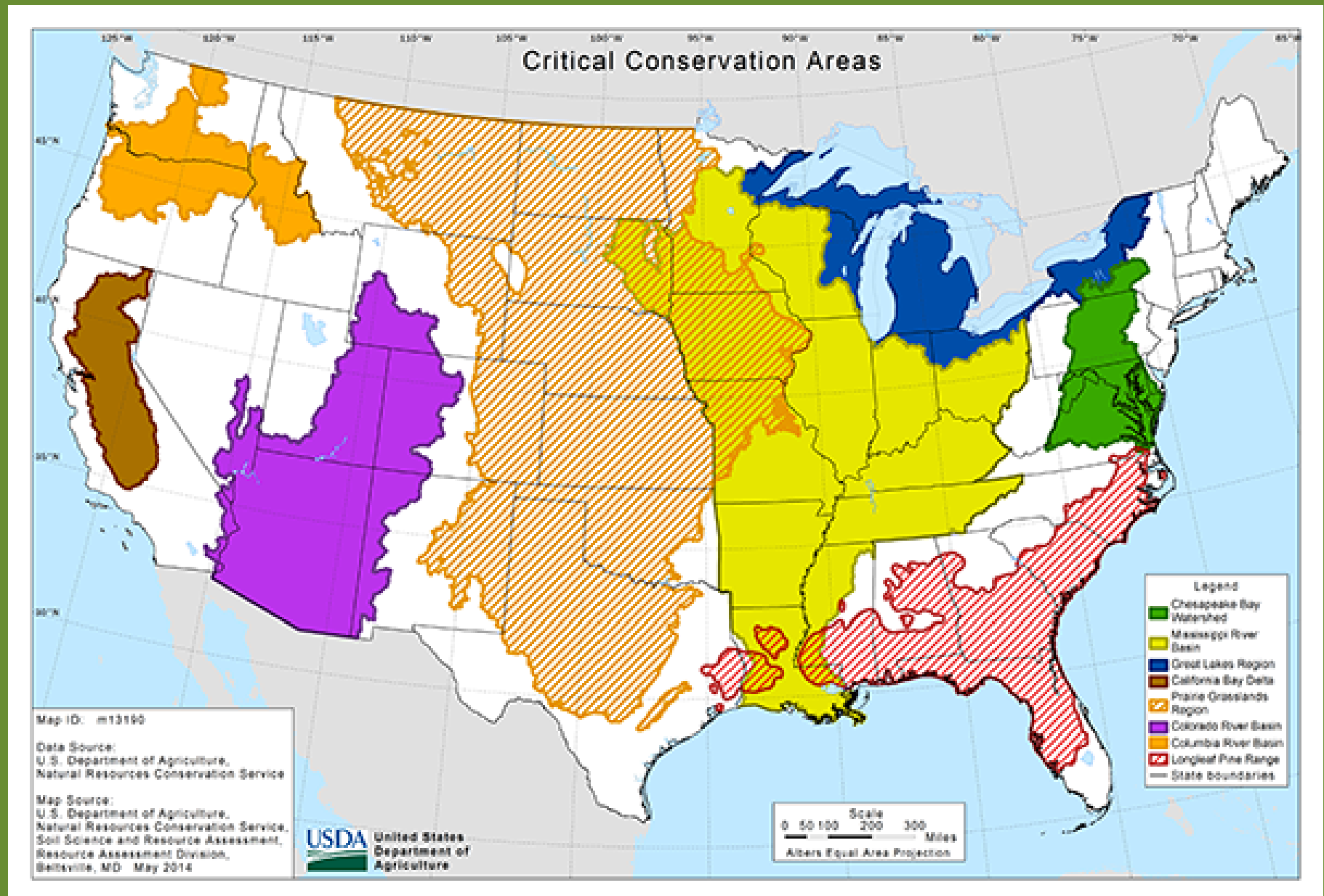
<http://www.nacdnet.org/policy/urban/webinars>

Feb. 19: Reaching Urban & Community Audiences

*National Association of Conservation Districts



RCPP collaborative projects are funded with competitive grants that leverage other funding to match NRCS grants. Some funds reserved for critical conservation areas.





Even with EQIP financial assistance, seasonal high tunnels can be expensive. The Wiregrass RC&D Council in Alabama developed a lower cost tunnel kit approved for EQIP in the state (when installed according to vendor instructions).



A timber frame helps make this high tunnel more affordable



Contribution Agreements, MOAs (Memoranda of Agreement), MOUs (Memoranda of Understanding)

The NC Wildlife Resources Commission partner biologists support implementation of Farm Bill programs along with state level conservation initiatives.

The screenshot shows a web browser window with the URL www.ncwildlife.org/Conserving/Programs/GreenGrowthToolbox/GreeningOrdinances.aspx. The page features a navigation menu with categories: Species, Habitats, Land Management, Municipalities/Counties, Programs, and Learn/Resources. The main header is titled "GREEN GROWTH TOOLBOX" with the subtitle "Wildlife & Natural Resource Stewardship in Planning". On the left, there is a vertical sidebar of buttons: GGT Home, About the GGT, Why Green Growth?, Conservation Data, Habitat Conservation Recommendations, Green Planning, Greening Incentives & Ordinances, and Greening Development Site Location, Review & Design. The main content area is titled "Greening Incentives and Ordinances" and includes a text block: "Greening Incentives and Ordinances means structuring incentives, zoning and development ordinances to conserve priority habitats and remove regulatory barriers to better conservation." A callout box on the right says "See Section 5 of the GGT Handbook for details". Below this, there is a section titled "Natural Resource-Based:" with a table of links:

Development Ordinances	Zoning	Example Ordinances	N.C. Model Natural Resources Conservation Ordinance
Low Impact Development, Solar and Smart Growth			

Below the table, there is a link to "Tampa, Florida's Upland Habitat Protection Ordinance — Designed to protect important plant communities and wildlife habitat in Tampa, the ordinance establishes an upland habitat..." followed by a small image of a tree trunk.



Cleveland Seasonal High Tunnel Initiative

Cuyahoga County

**Presented by Alfonso Norwood
Ohio NRCS Urban Conservationist**

Seasonal high tunnels (when covered with greenhouse plastic) extend the growing season. In urban areas they can have multiple community benefits.



Cleveland Seasonal High Tunnel Initiative Origin

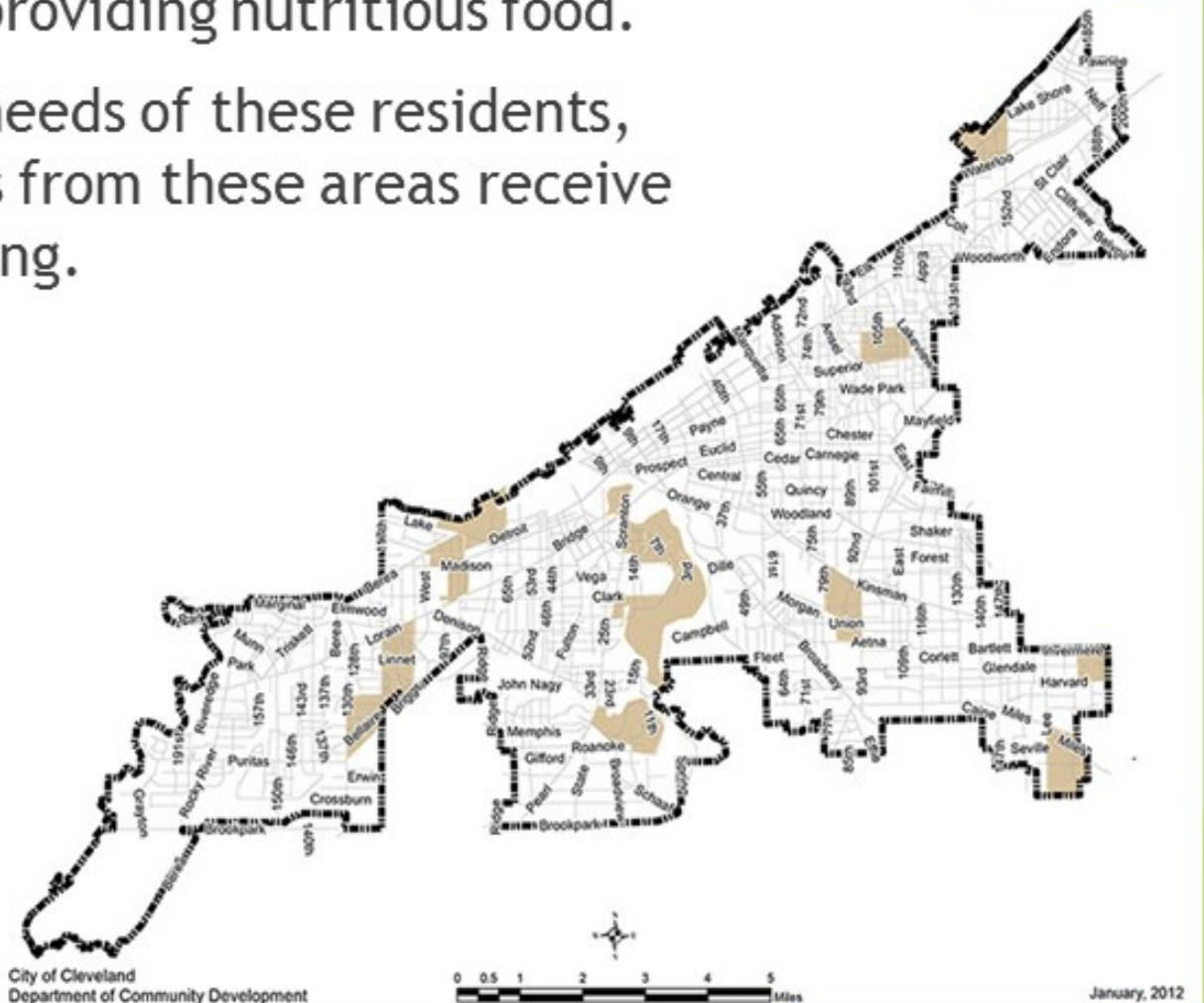
- ▶ In 2012, NRCS State Conservationist (STC) Terry Cosby allocated a portion of Ohio's Environmental Quality Incentive Program (EQIP) funds to pilot a high tunnel project in the Greater Cleveland area.
- ▶ STC Cosby also hired a full time urban conservationist to lay the groundwork for the project.
- ▶ NRCS leadership at the national level amended an agreement with the Federation of Southern Cooperatives to assist with project development and local outreach.

Objectives

- ▶ Increase urban participation in NRCS programs (EQIP).
- ▶ Increase local food production via community gardens and urban farms.
- ▶ Create business/CO-OP opportunities for constructing hoop houses.
- ▶ Build onto and promote existing Cleveland model (local food system).

Cleveland Food Deserts

- ▶ Many residents in the greater Cleveland area live in “food deserts”; areas with limited access to food near their homes. USDA created a map of food desert areas within Cleveland to show where to target assistance in providing nutritious food.
- ▶ To address the critical needs of these residents, high tunnel applications from these areas receive higher priority for funding.



Laying the Foundation

- ▶ In 2010, the City of Cleveland acted to encourage urban agriculture by modifying the zoning code to permit agricultural production in single family residential districts.
- ▶ The modified the zoning code allows farm stand sales, signage, limited animal agriculture(chickens, bees), and agricultural structures.
- ▶ They reduced city water rates for urban agriculture (\$72 for the growing season).
- ▶ The city of Cleveland has demolished thousands of vacant homes in the past years thus leaving many vacant lots suitable to farming.

Partnering

- ▶ NRCS is the planning/contracting agency of the project.
- ▶ Farm Service Agency (FSA) is the lead agency for eligibility.
- ▶ Cuyahoga Soil and Water Conservation District (SWCD) is partnering with NRCS to promote high tunnels, urban farming, and communicating the value of the project with the City of Cleveland.
- ▶ Ohio State University Extension Service (OSUE) is partnering to provide educational workshops.
- ▶ Federation Of Southern Cooperatives is partnering to conduct outreach and follow-up meetings with participants. They also help participants with obtaining leases.
- ▶ City of Cleveland will provide leases and permits that mirror the different wards.
- ▶ Fair Food Network was contracted to construct high tunnels and hold educational workshops.

Environmental Quality Incentive Program(EQIP) and Urban Farming

The following basic EQIP rules only require that, to participate, the applicant must:

- ▶ Be in compliance with highly erodible land and wetland provisions established in the 1985 Farm Bill;
- ▶ Have an interest in the agricultural operation;
- ▶ Have control of the land for the term of the proposed contract period;
- ▶ Submit an EQIP plan of operations;
- ▶ Supply information, as required by NRCS, to determine eligibility;
- ▶ Include eligible land;
- ▶ Have a resource concern which may be addressed through the implementation of an EQIP contract.



<https://www.youtube.com/watch?v=mleeQRatut0>



0:31 / 5:19

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USDA Cleveland Seasonal High Tunnel Initiative Benefits District Residents, featured in FFN video

Former NRCS Chief Dave White with Congresswoman Marcia Fudge visiting Avon Standard's high tunnel in Cleveland, Ohio (Avon is 2nd from left).



More on Avon's urban farm:
<http://go.usa.gov/3dFVj>

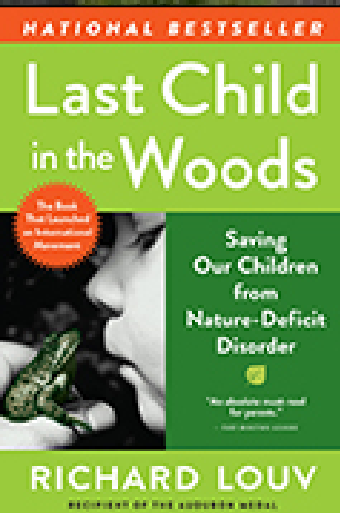
Photo: NRCS



Urban farming in the rust belt focuses on job creation, productive use of abandoned land, and youth leadership development.



Photo: Ohio City Incorporated



Agricultural corridors, especially near waterways, provide vital habitat for wildlife and a healthy, beautiful environment.

Farm-to-school programs emphasize nutrition, but outdoor program opportunities provide exercise, enhance learning, and support healthier, happier children. <http://www.letsmove.gov/>

Bell, A. C. and J. E. Dymont. 2008. Grounds for health: The intersection of green school grounds and health-promoting schools. *Environmental Education Research* 14:77-90.



Partnering with SWCDs

Soil & Water Conservation Districts are key partners in urban areas. Projects focus on

- Urban farming
- Riparian restoration
- Community and school gardens (ex. CCAP, Community Conservation Assistance Program)

Lake Conestee Nature Park, Greenville, SC,
a watershed restoration project





Partnering: Lake Conestee Nature Park

Watershed restoration has broad benefits for wildlife, environmental education, and cleaner water and air quality. 50 public & private groups collaborated.





West Virginia's Capitol Conservation District partnered with WV NRCS, WV Extension, and other regional groups to provide free Pollinator Food Plot seeds (native perennials and annuals), instructions for planting, and a wonderful plant guide highlighting wildlife benefits.

The program provided a focal point for ecological education in a primarily urban district, linking the urban population with wildlife vital for the state's tourism industry



Pollinator Food Plot Program

Ask for your free packet of Pollinator Food Plot Seeds to plant a beautiful garden full of colorful perennials and annuals. Your food plot will provide habitat and food for the little insects that are responsible for pollinating most of the produce that we enjoy.

Contact The Capitol Conservation District by calling 304-759-0736 or email us at ccd@wvca.us

Capitol Conservation District



Thanks to The Xerces Society for providing pollinator photos. Visit them at www.xerces.org



Capitol Conservation District



Protect Pollinators

Create links between planted areas by adding trees, shrubs and perennials. These will provide shelter and food for pollinators as they fly through. Provide a source of water and eliminate the use of pesticides.

Contact The Capitol Conservation District by calling 304-759-0736 or email us at ccd@wvca.us

Thanks to The Xerces Society for providing pollinator photos. Visit them at www.xerces.org



Attract Pollinators To Your Garden

Plant flowers in groups to increase efficiency. Plant a variety of flowers that will provide pollen from early spring to late fall. Plant a diversity of plants to support a variety of pollinators.

Provide a source of water. Eliminate the use of pesticides.

Contact The Capitol Conservation District by calling 304-759-0736 or email us at ccd@wvca.us

Capitol Conservation District



Thanks to The Xerces Society for providing pollinator photos. Visit them at www.xerces.org



Partnering with SWCDs

For a pollinator initiative targeting both non-ag land (municipalities, college campuses, etc.) and farms, the Chester County Conservation District in NH partnered with state agencies and NRCS.



Antioch Univ. students grow food for social service agency clients at this former prison, now farm.



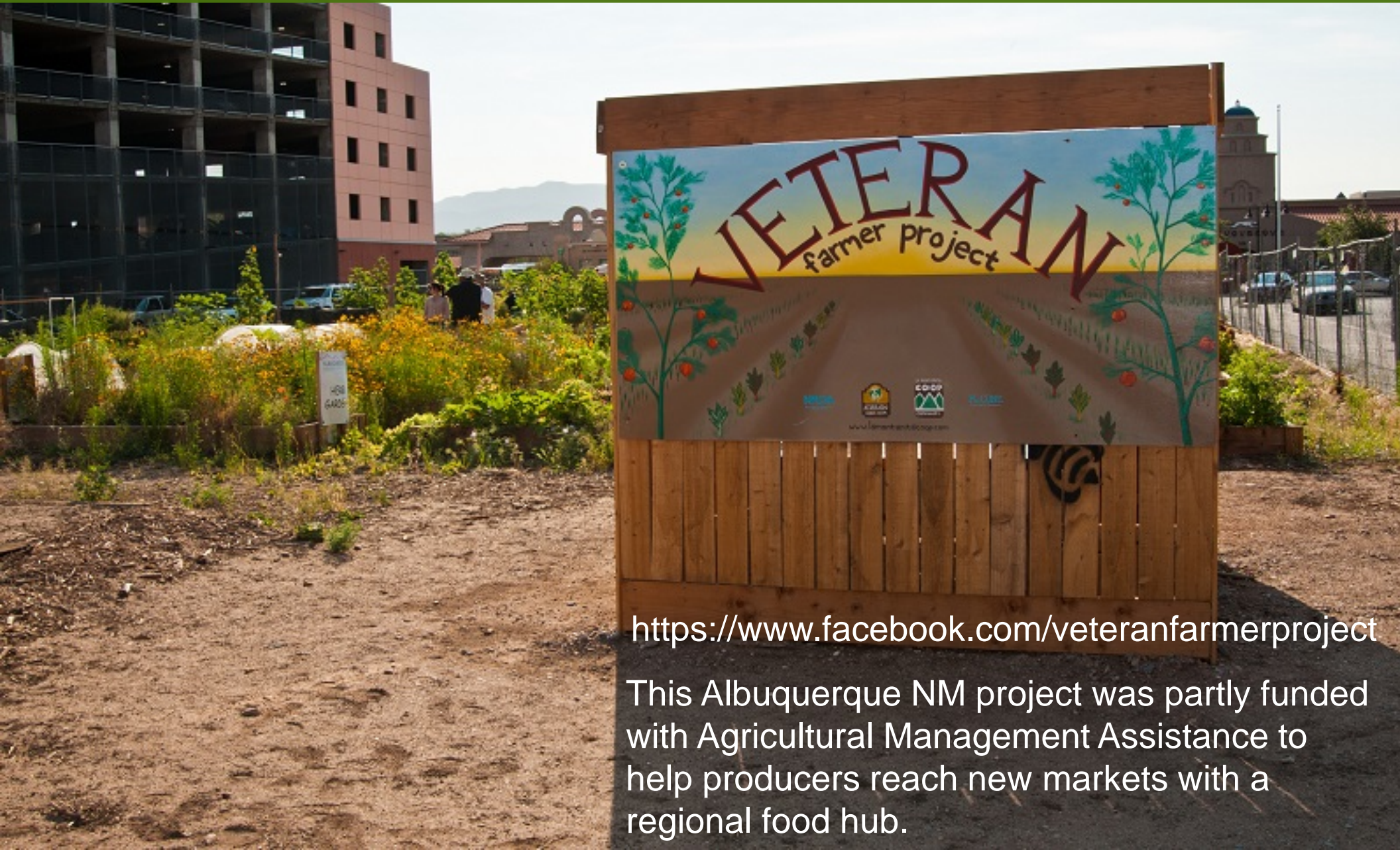
<http://www.cheshireconservation.org/pollinators>

This pollinator habitat is part of a campus sustainability program at Franklin Pierce University.



Other NRCS financial assistance

- Conservation Stewardship Program (CSP)—less relevant in urban areas
- Agricultural Management Assistance (AMA)—16 states underserved by crop insurance
- Water Bank Program—restricted to MN, ND, SD



<https://www.facebook.com/veteranfarmerproject>

This Albuquerque NM project was partly funded with Agricultural Management Assistance to help producers reach new markets with a regional food hub.



Other USDA programs

With a grant from the National Institute of Food and Agriculture, this center trains new farmers to bring healthy and affordable foods to communities with limited year-round food access. A new generation of black farmers are growing through Rotating Apprenticeship Farmer Training--Pembroke to Chicago (RAFT-PC), linking rural & urban communities.

Black Oaks Center for Sustainable
Renewable Living (BOC)
Pembroke Township, IL

<http://www.blackoakscenter.org/>

Led by Dr. Jifunza (at right)





Other USDA programs

A USDA 1890s Grant Program supports Montagnard (Degar) farmers at A&T University testing no-till small scale farming techniques. Farm-to-School, Forest Service programs, and many other efforts support urban farming & conservation.



Montagnard (Degar) farmers at Dunleith Community Garden, Greensboro, NC.



Additional resources are included in a separate hand-out with this program (and replay)

anthophorid bee,
Anthophora sp., on
clasping milkweed,
Asclepias
amplexicaulis

Questions, comments, suggestions?

Nancy Lee Adamson


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sweat bee on
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Helianthus annuus