

USDA and Agroforestry: Key Policies and Issues

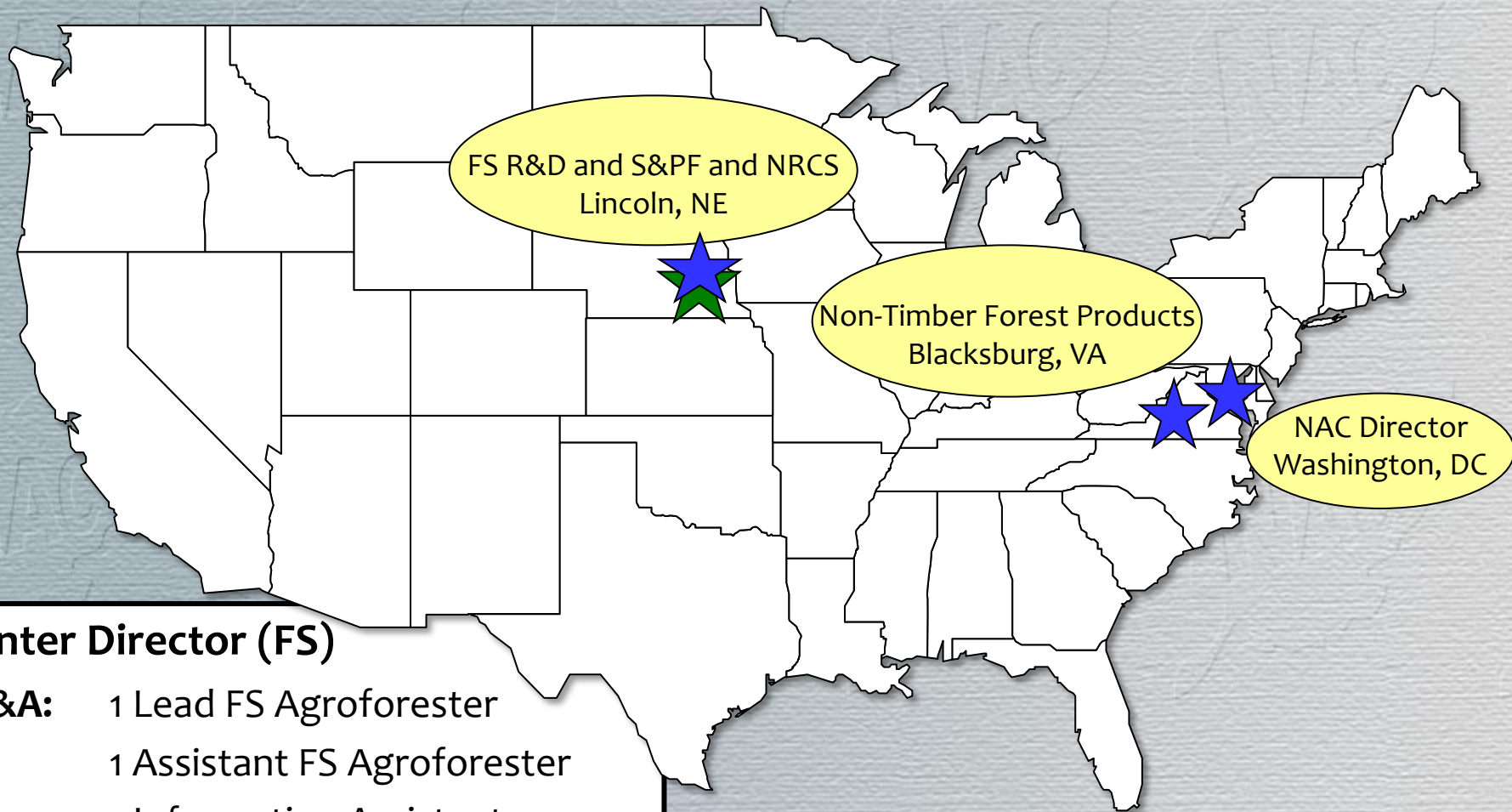
USDA National Agroforestry Center

Agroforestry Academy

Columbia, MO

July 21, 2015

NAC Network



FS R&D and S&PF and NRCS
Lincoln, NE

Non-Timber Forest Products
Blacksburg, VA

NAC Director
Washington, DC

Center Director (FS)

TT&A: 1 Lead FS Agroforester
1 Assistant FS Agroforester
1 Information Assistant

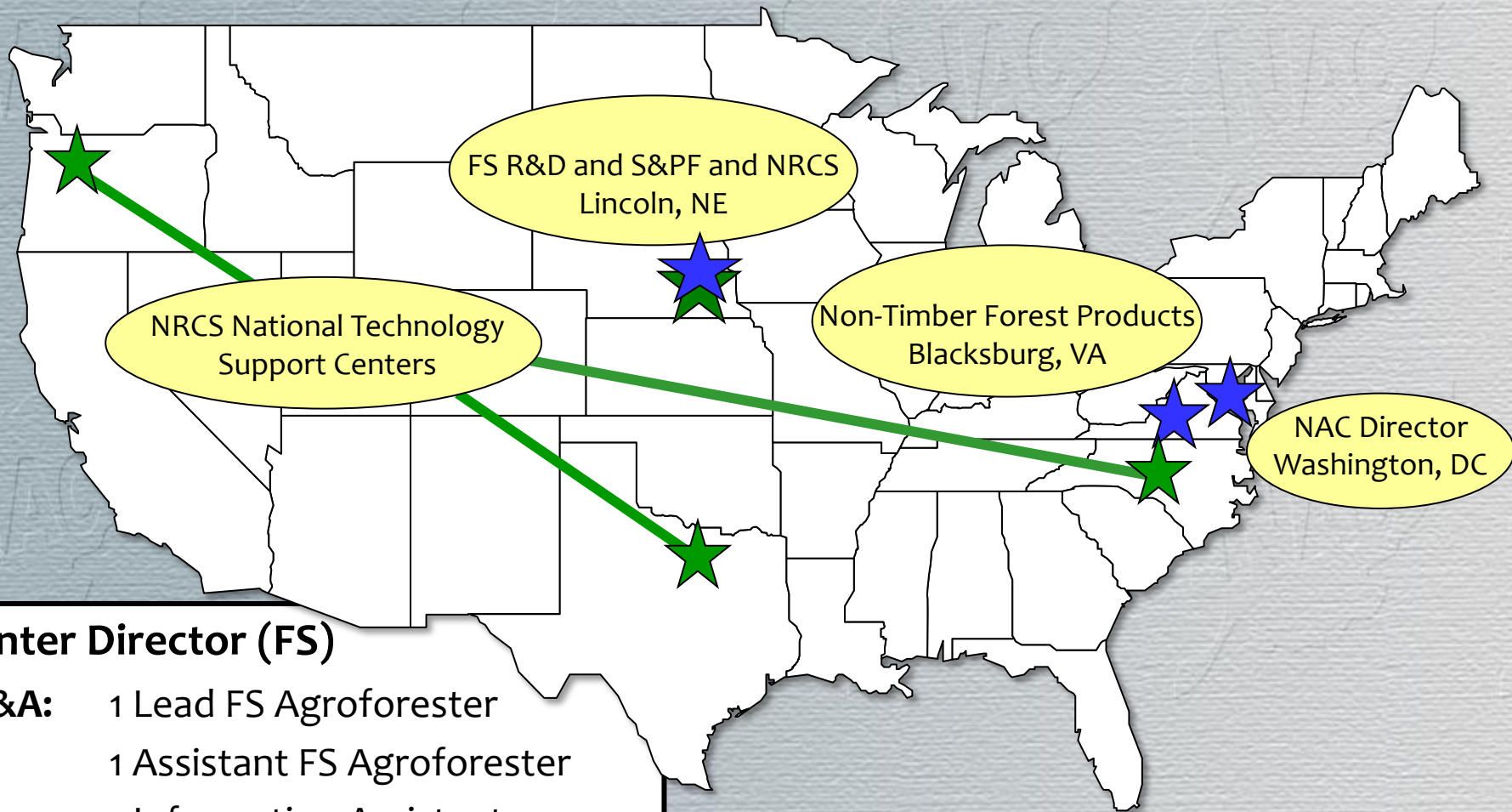
R&D: 3.75 FT Scientists (FS)
1 GIS Specialist
1 Technician

Admin: 2 Admin Professionals

A partnership of



NAC Network



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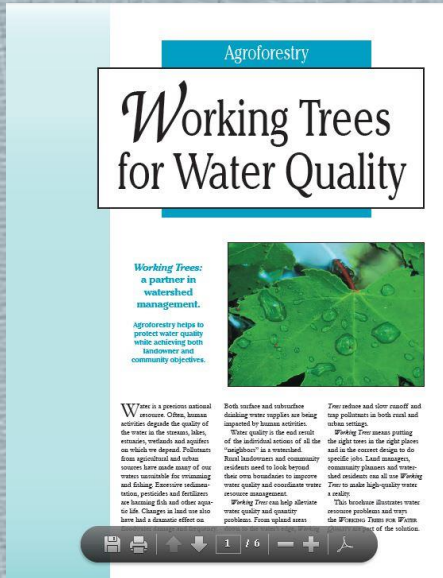
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A partnership of

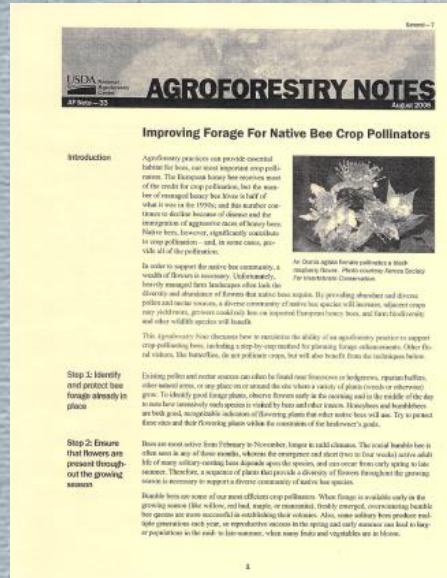


T&A Products

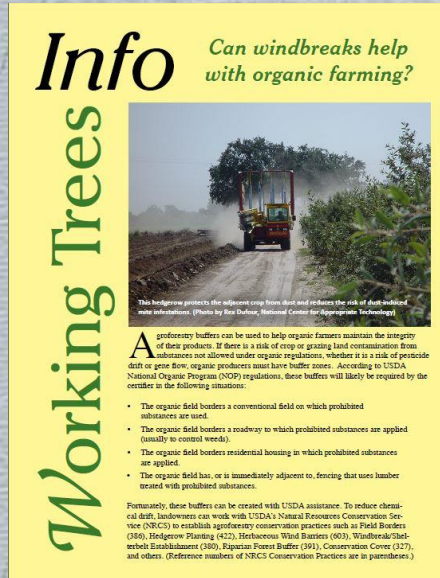
Brochures



Technical Notes



Information Sheets



Newsletters



Presentations



Tools



Displays



TT&A Activities

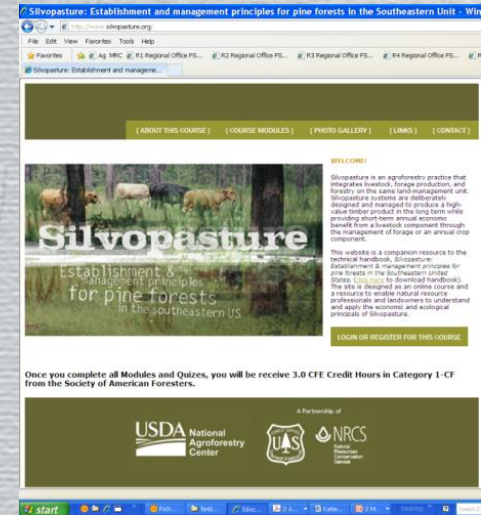
Demonstration Sites



Agroforestry Academies



Online Training



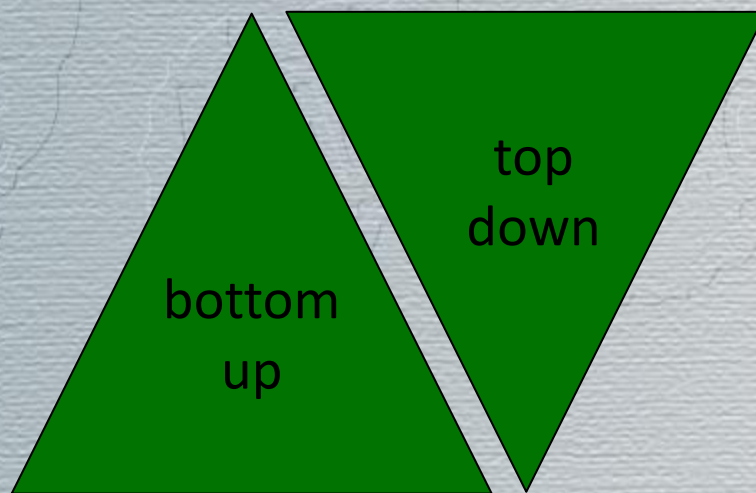
Case Studies



Workshops

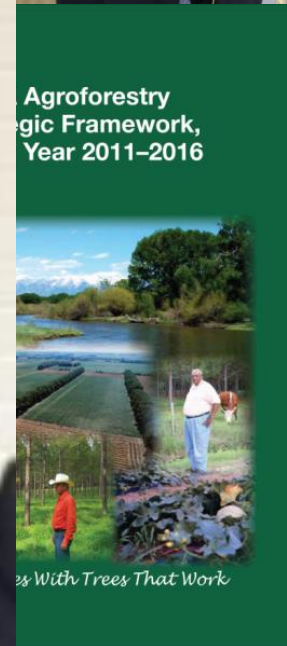
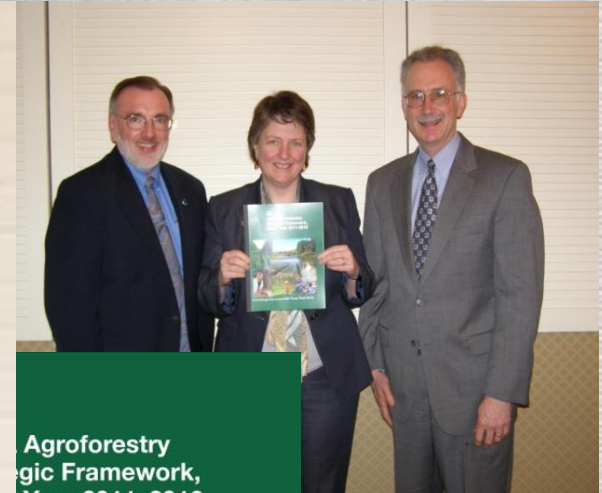


How do federal programs and policies relate to regional efforts?



USDA Agroforestry Strategic Framework, 2011-2016

- Released
- Input from
(Agroforestry
Workshop
- Developed
team (five
National A
Foresters
Districts)



USDA Strategic Framework for Agroforestry, 2011-2016

Purpose:

- Increase awareness & support for agroforestry
- Identify future USDA emphasis areas for agroforestry R&D and technology transfer

Three Goals:

- **ADOPTION** – Increase use of agroforestry by landowners and communities
- **SCIENCE** – Advance the understanding and tools
- **INTEGRATION** – Incorporate into an all-lands approach to conservation and economic development

USDA Strategic Framework for Agroforestry, 2011-2016

Key accomplishments:

- **USDA Agroforestry Executive Steering Committee**
(guides Strategic Framework implementation)
- **USDA Departmental Regulation on agroforestry**
(http://www.ocio.usda.gov/sites/default/files/docs/2012/Agroforestry_DR_2013.pdf)
- **First-ever USDA report on agroforestry**
FY 2011-12 financial commitments, accomplishments, case studies, next steps

USDA Strategic Framework for Agroforestry, 2011-2016

USDA Agroforestry Executive Steering Committee

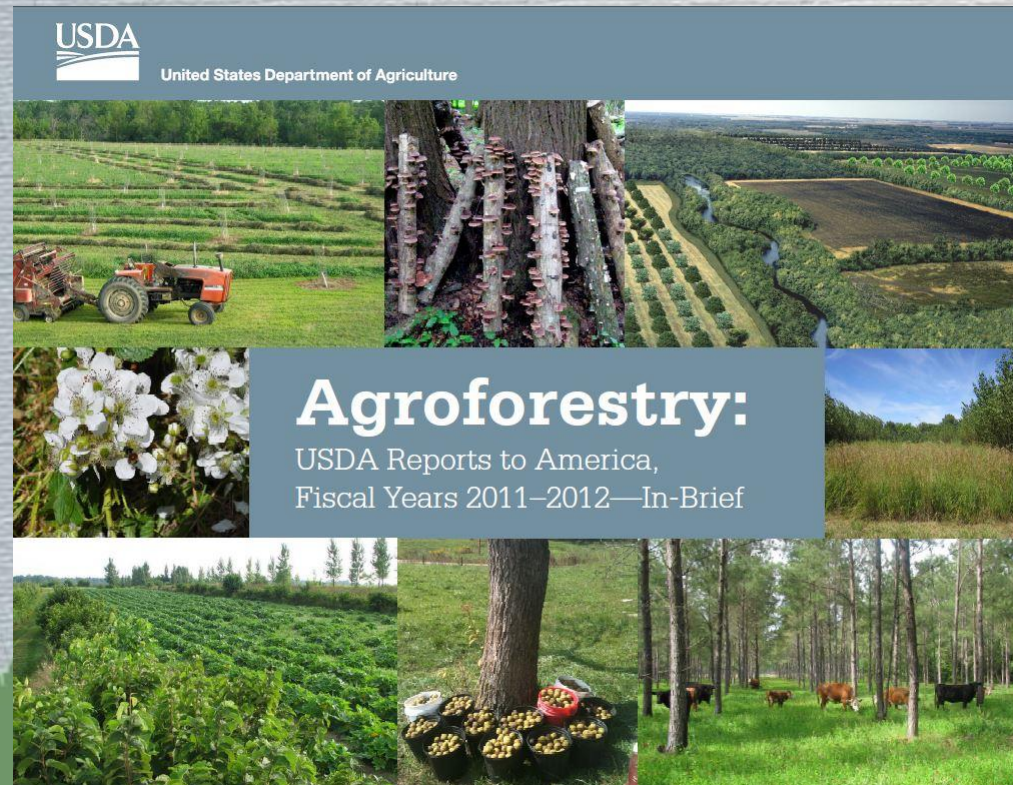
- ✓ Agricultural Marketing Service (AMS)
- ✓ Agricultural Research Service (ARS)
- ✓ Farm Service Agency (FSA)
- ✓ Forest Service (FS)
- ✓ National Agricultural Statistics Service (NASS)
- ✓ National Institute of Food and Agriculture (NIFA)
- ✓ Natural Resources Conservation Service (NRCS)
- ✓ Rural Development (RD)

Current Chair: Wayne Honeycutt, NRCS Deputy Chief

Agroforestry: USDA Reports to America

- Comprehensive (~180 p) & in brief (~30 p) versions
- Federal Fiscal Years 2011-2012
- **\$333 million invested by USDA (FY 2011-12)**
- 15 case studies – feature producers, scientists, partnerships, others

<http://www.usda.gov/documents/usda-reports-to-america-comprehensive.pdf>



Agroforestry: USDA Reports to America

\$333 million invested in agroforestry (FY 2011-12)

- < 1 percent of USDA's total obligations
- 95% (\$328 million) supported technical and financial assistance to help landowners apply practices
 - 99% to riparian buffers and windbreaks
 - 1% to alley cropping, multi-story cropping/forest farming, and silvopasture
- Primary programs:
 - Conservation Reserve (FSA)
 - Environmental Quality Incentives (NRCS)

Agroforestry: USDA Reports to America

Inside the other 5 percent (~\$15 million)

- **Agroforestry Research, Education, Extension:**
 - \$4 million - ARS (7 labs)
 - \$2.8 million - FS (7 labs, Natl. Agroforestry Center)
 - \$3.9 million – NIFA (41 land-grant univ., 6 others)
- **Technology Transfer, Training/Workshops, Outreach**
 - \$3.9 - FS (all states except AK, AZ, OR, NM, WA)
- **Marketing, Rural Development**
 - \$800,000 – AMS, RD

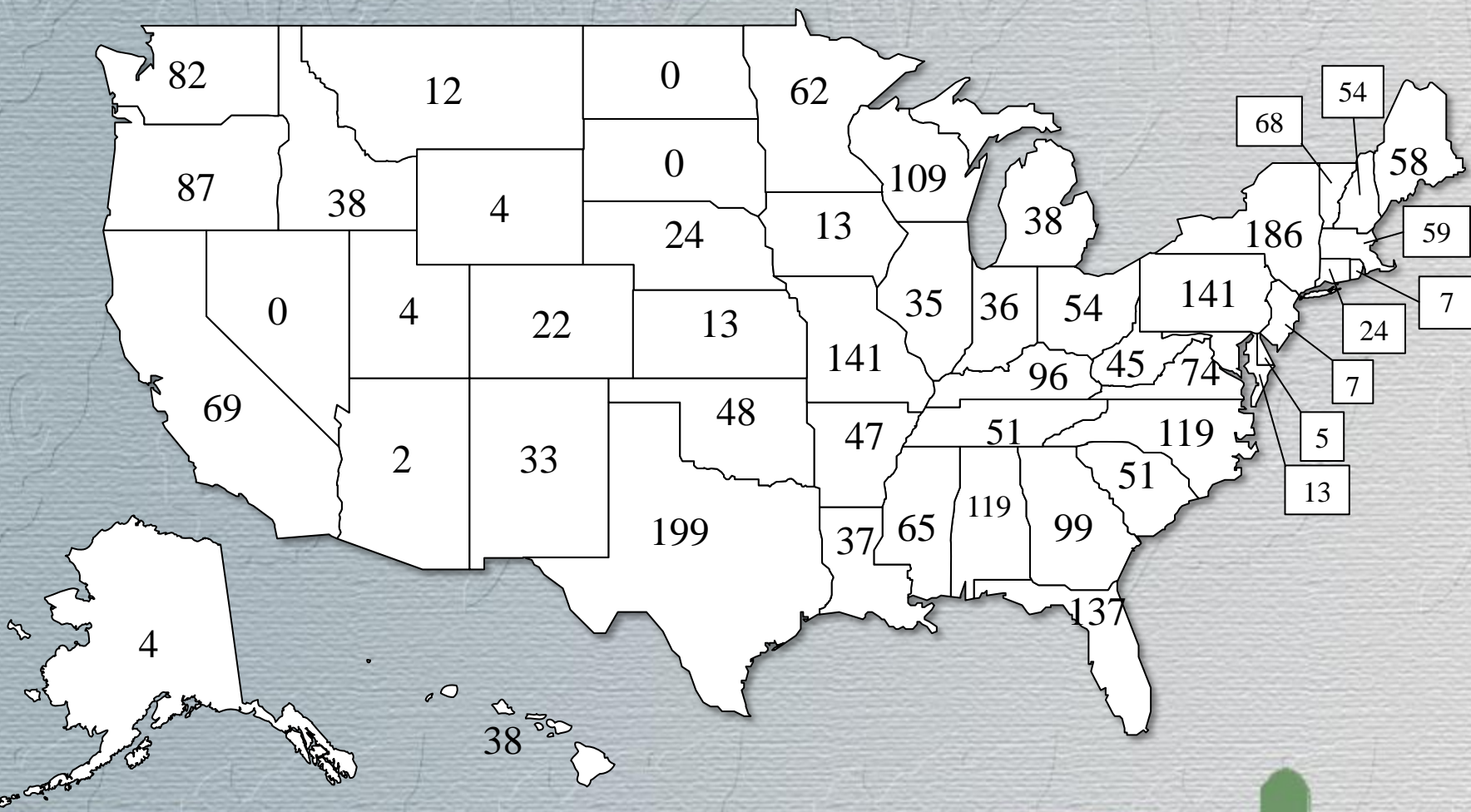
POLICIES

2012 Census of Agriculture included the first-ever agroforestry practice question:

“At any time during 2012, did this operation practice alley cropping or silvopasture as an integrated Agroforestry system?”

- **2,725 farms** in all but three states said “yes”
- **Makes possible:** follow-on surveys and analysis of producers who responded “yes” or “no”

2,725 farms said they practiced alleycropping or silvopasture



POLICIES

FSA Conservation Practices

- CP5 Field Windbreak
- CP16 Shelterbelt
- CP17 Living Snow Fences
- CP22 Riparian Buffer
- CP31 Bottomland Timber Establishment on Wetlands

NRCS Technical Standards

- Alley Cropping (311)
- Multi-Story Cropping (379)
- Riparian Forest Buffers (391)
- Silvopasture establishment (381)
- Windbreak/Shelterbelt Establishment (380)
- Windbreak/Shelterbelt Restoration (650)

POLICIES

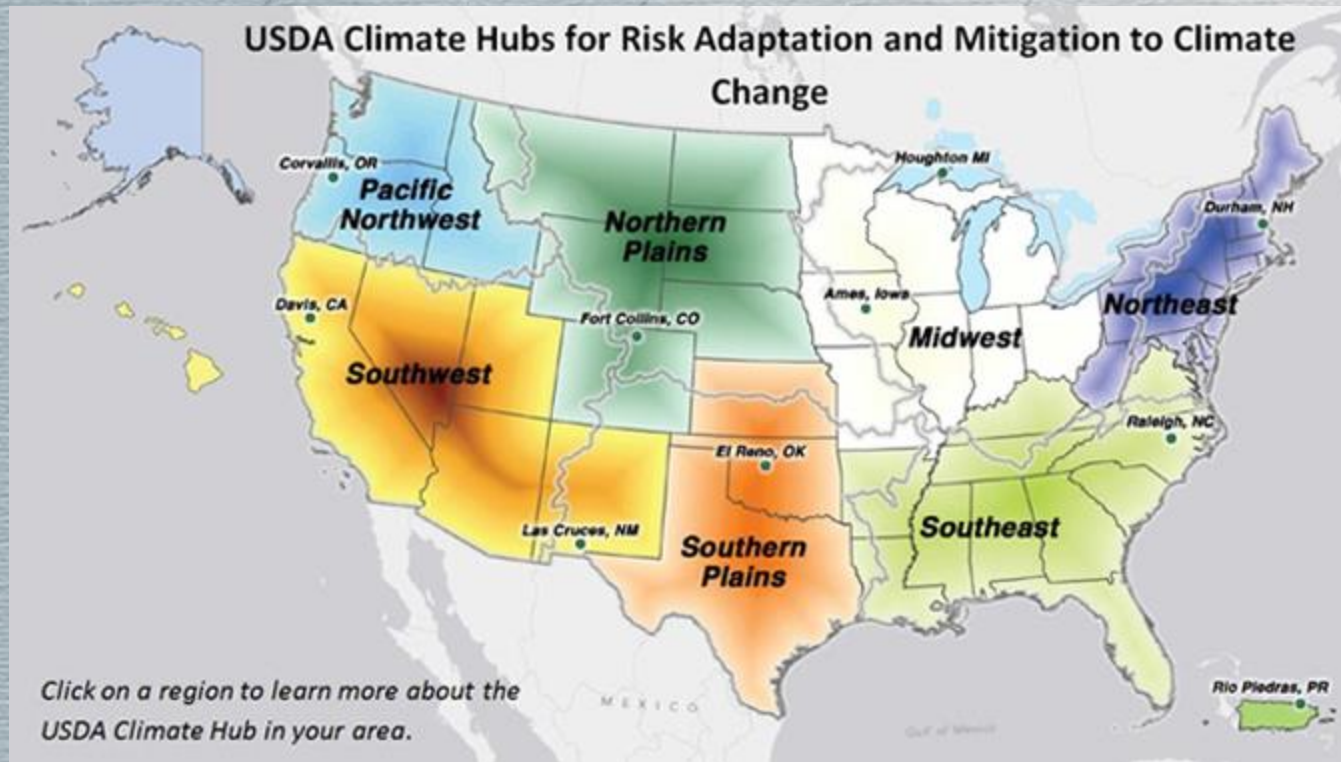
NRCS Technical Standards

As of September 2012, the numbers of States and territories that have adopted agroforestry practices (with their practice code) are as follows:

- Alley Cropping (311): 35 States, 8 territories, and Washington, DC.
- Multi-Story Cropping (379): 11 States and 8 territories.
- Riparian Forest Buffers (391): 50 States, 8 territories, and Washington, DC.
- Silvopasture (381): 24 States and 8 territories.
- Windbreak/Shelterbelt Establishment (380): 44 States, 8 territories, and Washington, DC.
- Windbreak/Shelterbelt Restoration (650): 35 States and 8 territories.

ISSUES

1) Climate Change



ISSUES

1) Climate Change


NAC Publications related to mitigating and adapting to climate change

Info *Mitigating Heat Stress in Cattle*

Working Trees

What causes heat stress?

Heat stress in cattle causes a reduction in feed intake, weight gain, milk production and breeding efficiency. Ideal conditions for beef and dairy cattle include a temperature range between 41° and 77° F. Higher temperatures begin to cause stress in cattle, depending on environmental factors such as shade, access to water, relative humidity, diet, surrounding vegetation and terrain.



Livestock crowd together in the shade of a lone tree. ©NAC Photo

There are also internal physiological issues that contribute to heat stress. For example, greater amounts of fat in heavier cattle cause them to reflect from heat stress more so. Similarly, heavier cattle have more internal heat to dissipate than leaner animals. Some forage plants such as tall fescue and perennial ryegrass can be endophyte infected, producing alkaloids that raise deep body temperature in cattle. All of these factors contribute to heat stress.

Heat stress can even result in greater calf mortality and increased veterinary costs. Moreover, it causes livestock to drink more water, and lose more sodium, magnesium, and potassium in their urine.

Management strategies for coping with heat

Shade and water for cattle is paramount! Therefore, management strategies must include provision of shade, providing adequate water, improving ventilation in barns, providing more high quality forage and reducing work necessary to access food, mineral and water. Livestock shading can be employed with trees, buildings, or portable structures, but cattle generally prefer natural shade. Trees on the grazing landscape usually have an advantage over barns and temporary structures because of the cooling effect that evapotranspiration provides, better ventilation and reduced reflection of sunlight rays. When producers are unable to manage grazing through rotational systems, block plantings of trees provided with fencing will provide shade on the north and east sides of the planting. However, producers that employ rotationally grazed systems with silvopasture achieve maximum benefits. Silvopastures provide shade throughout the pasture which benefits the cattle whether walking, loafing or grazing. An ample supply of water is another important tool for coping with heat. A rise in the ambient temperature from 70° to 90° F results in a 38% increase in drinking water requirement for beef cattle. Whether utilizing block plantings of trees or silvopasture, it is also important to provide continuously available mineral supplements and salt. In rotationally grazed silvopastures, moving livestock to new pastures more frequently will provide higher quality forage. Better quality forage requires less fermentation, which can result in reduced rumen heat.

USDA National Agroforestry Center *Inside Agroforestry*

WEATHER ALERT



BREAKING NEWS

...(Lincoln, NE) Agroforestry Mitigates Extreme Weather Effects...(Home)

Kate MacFarland
National Agroforestry Center
Lincoln, NE

R esidents of the US and other countries are increasingly facing extreme weather events such as drought, intense storms, and wildfires. Agroforestry provides many opportunities to help mitigate and adapt to these events through establishing practices that lessen their impact on crops and livestock. This newsletter examines a range of agroforestry practices that can be employed, including riparian forest buffers, silvopastures, windbreaks, alley cropping, and forest farming.

Some of these articles focus on direct interventions that landowners can take to lessen the impacts of extreme weather events on their land. A number of agroforestry practices can be used to reduce fuel loads and make landscapes more resilient to fire. Riparian forest buffers can be used to lessen the impacts of severe storms and flooding.

Windbreaks can be used to distribute snow, increasing water availability in the face of drought. Silvopasture can help reduce stress on livestock at times of extreme heat.

Other articles in this newsletter focus on the role of agroforestry in reducing greenhouse gas emissions. Producing feedstock for biofuels that replace fossil fuels can reduce greenhouse emissions. New tools are being developed to measure how much carbon is sequestered through implementing agroforestry practices on farms and ranches.

Agroforestry practices have multiple benefits, achieving landowners' goals for income creation, food production, habitat improvement, or water quality, while simultaneously providing opportunities to mitigate and adapt to extreme weather events. This newsletter seeks to share information about many of these opportunities. &

Newsletter Outlook

SNOW	HEAT	FLOOD
3	5	10

ISSUES

1) Climate Change



Agroforestry & Climate Change: Reducing Threats and Enhancing Resiliency in Agricultural Landscapes (May 2014, Nebraska City, NE)

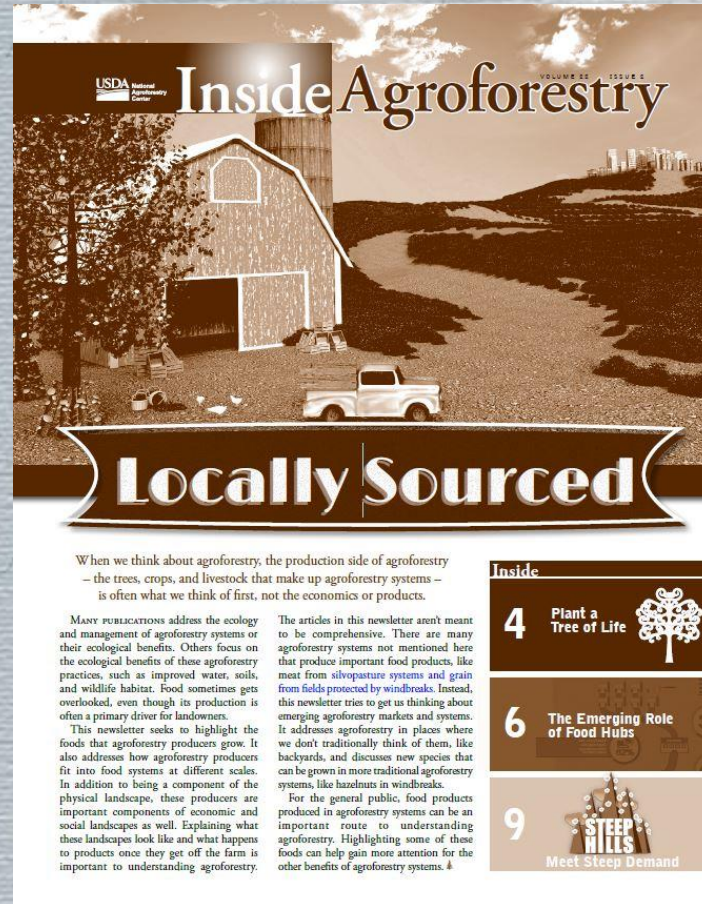
- **Purpose:** to produce a USDA technical report on the potential of agroforestry to serve as a mngt option for both GHG mitigation & climate change adaptation tool.
→ to feed into the 2017 National Climate Assessment
- **Focus:** on many areas in agroforestry where the scientific research is growing and benefits can be seen; as well as on the major gaps that impede our understanding and application, and therefore, **what are those major research priorities.**

Support
document on
agroforestry for
the 2017
National Climate
Assessment

ISSUES

2) Local Food and Organic Food

NAC publications related to markets for local food produced in agroforestry systems



ISSUES

2) Local Food and Organic Food



ISSUES

2) Local Food and Organic Food



Participation in
USDA organic
group

ISSUES

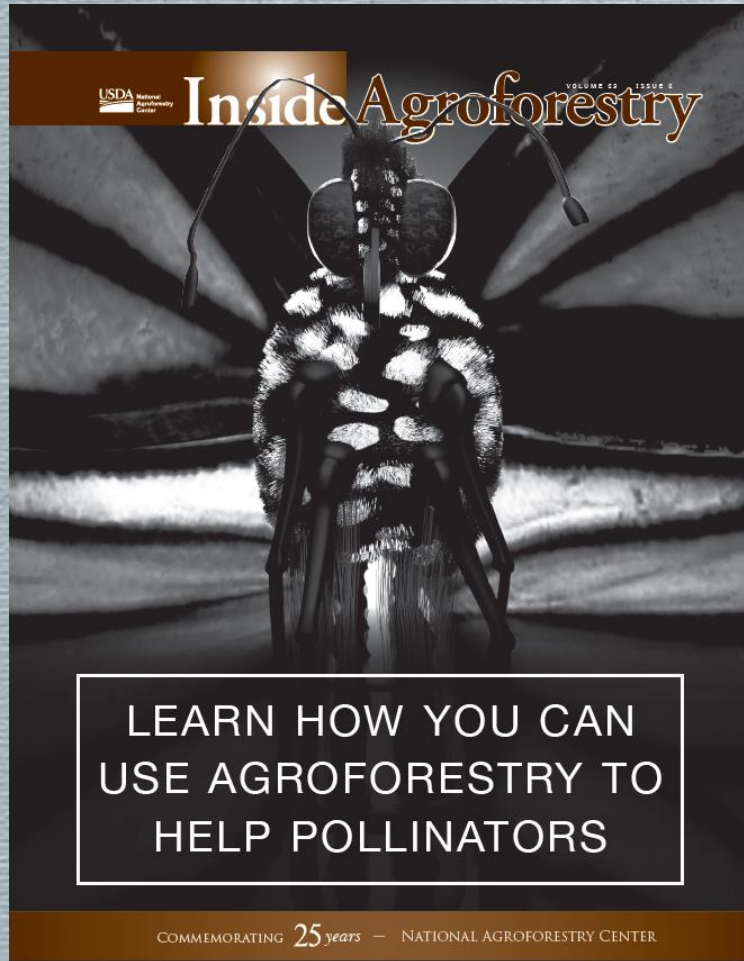
3) Pollinators

Federal Strategy to Promote the Health of Bees and other Pollinators (announced June 20, 2014)



ISSUES

3) Pollinators



Info

How can agroforestry help pollinators?

Working Trees



Over one hundred crop species in North America require a visit from an insect pollinator to be most productive. In the past, native bees, feral honey bees, and other pollinators could meet the needs of these diverse crops because farms were typically interspersed with pollinator habitat. Today, farms in the U.S. are larger and have less nearby habitat to support pollinators. Private landowners can do a lot to support these critical pollinators by providing habitat and food sources for honey bees, native bees, butterflies, and others. Pollinator habitat and floral diversity on the farm also benefit producers of insect pollinated crops by improving pollination and increasing yield. Agroforestry practices can be designed to meet the needs of both pollinators and landowners.

3-STEP APPROACH TO HELP POLLINATORS

01

Recognize

Many agroforestry practices already provide good habitat for pollinators

02

Protect

Protect the existing habitat from damaging disturbances and pesticides

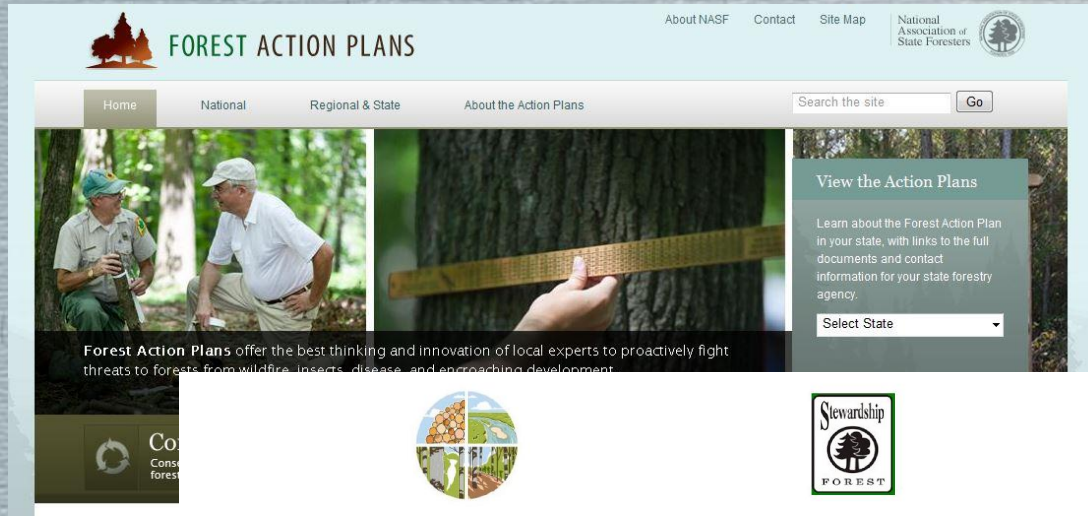
03

Enhance

Improve the existing habitat by adding a variety of flowering plants or nesting habitats.

ISSUES

4) Forest Stewardship Program

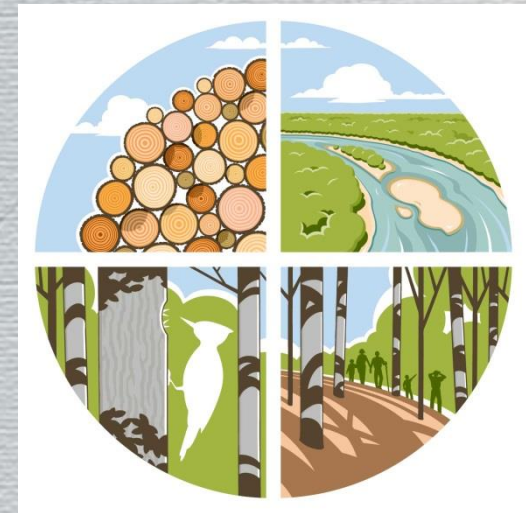


Forest Stewardship Program Resource Elements

Version 7/15/2013

The following 13 natural resource elements are addressed in all Forest Stewardship Management Plans when they are present and applicable to the landowner and the management of the property:

- | | |
|--------------------------------------|--|
| 1. Soil and Water | 8. Forest Health |
| 2. Biological Diversity | 9. Archeological, Cultural, and Historic Sites |
| 3. Aesthetic Quality | 10. Wetlands |
| 4. Recreation | 11. Fire |
| 5. Timber | 12. Carbon Cycle |
| 6. Fish and Wildlife | 13. Range/Agroforestry/Silvopasture |
| 7. Threatened and Endangered Species | |



- Inclusion in Forest Action Plans
- Inclusion in forest stewardship plans via resource elements

Questions?

Publications available at: <http://nac.unl.edu/>