

Annual Report 2013

# Nebraska FOREST SERVICE

[nfs.unl.edu](http://nfs.unl.edu)



Enriching lives by protecting,  
restoring and utilizing Nebraska's  
tree and forest resources.





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2013  
Annual Report

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## Credits

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### Cover Photo:

Chat Canyon in north-central Nebraska, summer 2013

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38,000  
acres

Annual  
expansion of  
eastern redcedar

14,000

Career and  
volunteer  
firefighters in  
Nebraska

280,000  
tons

Debris from  
trees damaged  
in Chadron's  
October storm

500

Sustainable  
landscape  
projects  
implemented

1,000

Trees planted  
during ReTree  
Nebraska Week



## A Message from the Nebraska State Forester

Dr. Scott J. Josiah

“Disruption is the new normal” was the keynote message at the National Association of State Foresters (NASF) annual meeting in November, presented by Bruce McIntyre, Consulting Partner at PricewaterhouseCoopers and titled “The World is Changing Right in Front of Us.” This powerful message comes not from government, but from industry, where guesses about the future can make or break a company. The forest industry believes that disruption is here to stay, and the best strategy to deal with it is to increase resilience—in our forests, in our economies and in our organizations.

Nebraska has certainly seen its share of “disruption” in just the last few years, from unprecedented floods, to unprecedented drought, to unprecedented wildfires and, most recently, unprecedented early and damaging snows in the Pine Ridge. Unprecedented is the key word here. Not to mention the recent political and economic challenges, and the emerging economic opportunities around potential markets for woody biomass. Needless to say, I don’t think McIntyre was far off in his analysis.

The strategic question we now face is twofold: 1) how do we create resilience in our systems to deal with growing instability, and 2) how do we position Nebraska Forest Service programs for the “new normal”? The Nebraska Forest Service and our partners were busy in 2013 addressing these key strategic questions. A major step forward was the passage by the Nebraska Legislature of the Wildfire Control Act.

This legislation substantially strengthened state fire suppression programs by:

- adding an air tanker during the fire season;
- increasing wildfire training for volunteer firefighters;
- expanding provision of firefighting equipment to fire districts;
- establishing a forest products marketing, utilization and investment program;
- providing state cost-share funds for forest fuels reduction and land restoration.

These actions will save lives and property by keeping fires smaller, reducing fire intensity and risk, restoring severely damaged lands and creating new sources of economic growth. Statewide community tree-planting programs, intensified efforts to monitor and maintain forest health against a growing list of pests and forestry landowner assistance programs round out these efforts to create greater resilience to the reality of increased disruption.

Much more work needs to be done. The rapid expansion of eastern redcedar by 38,000 acres per year is a major concern (and opportunity). Emerald ash borer is now in Colorado, Kansas, Iowa, Missouri and Minnesota and threatens 54 million ash trees across Nebraska. The Pine Ridge forests require landscape-scale ecological restoration efforts due to the loss of nearly two-thirds of the forest cover to wildfire.

This annual report details much of this work. We hope you enjoy perusing this report and learning of opportunities where you can pitch in to help address these critically important issues.

Tell us what you think about this report at [nfs.unl.edu/report/survey](http://nfs.unl.edu/report/survey).

# Reducing Fire Risks

COMING ON THE HEELS OF Nebraska's worst ever year for wildfires, and after receiving input from firefighters from around the state, the Nebraska Wildfire Control Act of 2013 was crafted by Senator Al Davis and the Nebraska Unicameral to increase the state's capacity to suppress wildfires. The 2012 fires burned nearly 500,000 acres, 65 structures, cost at least \$12 million in suppression costs, and created more than \$112 million in negative economic impacts. These intense "megafires" also exposed some serious gaps in the state's capacity to quickly and effectively suppress rapidly growing forest fires.

The goals of the Act were to:

- substantially improve the protection of life and property across Nebraska by increasing the capacity of volunteer fire districts.
- reduce wildfire size and intensity through rapid and effective initial aerial attack, better trained firefighters, improved fire suppression equipment, and expanded forest fuels reduction activities.
- reduce costs to the state's emergency fund for wildfire suppression by keeping fires smaller.
- mitigate damage to watersheds caused by catastrophic wildland fire.

To achieve these goals, the Act authorized several actions:

- NEMA now contracts with a private aviation company to place one Single Engine Air Tanker (SEAT) during the fire season at the Valentine airport (or where the fire danger is highest) to provide rapid initial attack and keep fires small, especially in high-risk coniferous forests.
- Using federal dollars from the U.S. Forest Service, and state dollars appropriated by the Act, SEAT bases have been established in Valentine, Alliance and Chadron, as well as a mobile SEAT base. An additional SEAT base is being installed at North Platte. All SEAT bases are managed by the NFS.



*Firefighters work to earn their national firefighter II certification by practicing the construction of a fire line during a field day at Horning Farm near Plattsmouth.*

- Provide cost-share funds to thin unnaturally dense coniferous (pine and cedar) forests to reduce fuel loads, substantially reducing wildfire risk, intensity, and rate of the spread, and reduce risks to residents, communities and emergency personnel.
- Support the utilization of woody biomass and other forest products, facilitate new market development and foster market-driven approaches to accomplish forest fuels reduction.
- Expand NFS wildfire training programs for volunteer firefighters, private landowners and communities in order to increase fire suppression effectiveness and safety (new trainers located in Chadron and Valentine).
- Expand the Federal Excess Property Programs managed by the NFS to provide volunteer fire districts with more and a wider range of fire suppression equipment.
- Provide cost-share funds for restoring forest lands that have been damaged by wildfires.

Safely suppressing intensive, fast moving wildfires requires well-trained firefighting personnel. Increasingly

severe wildfires with off-the-charts intensity are occurring across the west. These fires put firefighters in ever greater jeopardy, most recently evidenced by the tragic loss of 19 members of the Granite Mountain Hotshots, an elite, highly-trained Type I hotshot crew in Arizona. This event reminded everyone that our state was extremely fortunate to escape the 2012 fire season with only minor firefighter injuries and focused a spotlight on the continued need for expanded firefighter training.

Of the more than 14,000 career and volunteer firefighters in Nebraska, only 1,862 individuals have completed national wildland fire certification training. The Act directly addresses this acute need by tripling the capacity for wildland fire training in the NFS. This will increase the amount and variety of wildland fire training available, increase the number of Nebraska firefighters eligible for national wildland fire certification, improve efficiencies by locating the training providers closer to the students and assist with major training efforts such as the Nebraska Wildland Fire Academy and State Fire School.

The Wildfire Control Act of 2013 was a game changer for volunteer fire districts, for Nebraskans and for our forest resources. Its benefits will accumulate with each passing year, reducing the risk of megafires, improving firefighter and citizen safety, enhancing the sustainability of our forests and fostering rural economic development.

**The NFS now has more than \$57 million worth of firefighting equipment on loan to volunteer fire districts statewide, and will accelerate placement of even more equipment in the years ahead.**



*The Roberts Tract Fire near Chadron, part of the Dawes Complex, burned in both the 2006 and 2012 wildland fires. Studies indicate that reburned areas severely impact species diversity and ecosystem resilience.*



*(Above) NFS mechanics test the water flow capacity of recently acquired excess federal property before transferring the equipment to a volunteer fire department.*



# Twice Burned

NFS learned some harsh lessons from the 2006 and 2012 fire seasons, and now faces real challenges in trying to sustain the ponderosa pine forest in northwest Nebraska.

A case in point is the Robert's Tract Fire of 2006, which has been a real eye opener. Most of the 2006 fire footprint hadn't been managed (logged or thinned) for more than 80 years. Consequently, the overstocked conditions primed the forest for a wildfire. In spite of the unmanaged conditions, the 2006 fire burned in a "mosaic" pattern across the landscape, leaving green (live) forest stands interspersed with black/brown (dead) stands separated by open meadows commonly found in the Pine Ridge.

Between 2006 and 2012, the dead trees within the Robert's Tract Fire were in varying stages of snapping, windthrowing and falling to the ground. This heavy woody fuel load hindered movement of grazing animals, resulting in increased understory grass cover and a very risky, volatile source of fuel. The concern was that a "reburn" would wipe out the residual stands of trees that would provide seed source for the future forest.

So was the case in 2012 when the entire Robert's Tract was burned over with the fast moving West Ash Creek Fire. As predicted, the last remnants of green, living seed trees were burned, along with any hope of the Robert's Tract being a forest anytime soon.



# Disruption: The New Normal

NEBRASKA TREES AND FORESTS HAVE CERTAINLY seen their share of “disruption” in just the last few years. The enormous and long-lasting floods along the Missouri River in 2011 flooded nearly 22,000 acres of bottomland forest for four months, damaging infrastructure and drowning millions of Nebraska’s trees. The record drought and unprecedented wildfires in 2012 were a disaster for large areas of the state, costing \$128 million in damage. Two-thirds of the Pine Ridge forest ecosystem has now been lost to intense wildfires over the past 30 years.

Most recently, unusually heavy snows occurred in the Pine Ridge in early October 2013, wiping out cattle herds and creating 280,000 tons of debris from Chadron’s community trees damaged during the storm. Add to these events the threat to 54 million ash trees in Nebraska from emerald ash borer, now found to the east, south and west of Nebraska in Colorado, Kansas, Iowa, Missouri and Minnesota. And the Ips beetle is now attacking our pine forests.

Then there is the rapid spread of eastern redcedar under existing forests and into rangelands, expanding at a rate of 38,000 acres of new forest established each and every year.

What’s going on?

Nebraska, like much of the western U.S., faces rapid changes in its climate and forests. It’s getting warmer, especially during the winter and at night. During the growing season, trees that endure hotter days and warmer nights are weakened when they respire more, burning off too much of the energy saved during

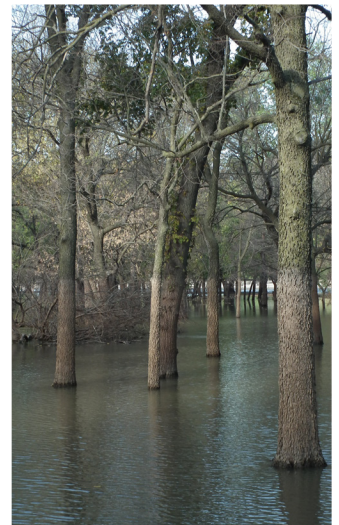
the daylight hours. Warmer winters allow insects to survive and spread beyond their native range. Accelerated introductions of exotic invasive insects and diseases from other continents continue to spread unchecked, attacking trees with no immunity or defenses.

At the same time, Nebraska’s pine and cedar forests are growing denser, with far more trees than is natural crowding our forests. Forest fires in the past burned more frequently, in sparser forests, at a lower intensity and stayed on the ground. Today, fires burn at unheard of intensity due to the enormous fuel loads, killing everything and sterilizing and damaging the soil for years to come. The combination of higher temperatures, more frequent intense droughts and higher fuel loads creates explosive conditions for wildfire. Erratic severe weather just makes things worse, with powerful storms damaging trees and forests across the state.

*Disruption truly appears to be the new normal.*

The strategic question we now face is twofold: 1) how do we create resilience in our systems to deal with growing instability, and 2) how do we position Nebraska Forest Service programs for the “new normal” to best respond to these threats and challenges?

The Nebraska Forest Service is committed to proactively meeting these challenges of our time. They are being met by enhanced collaboration between and among our many partners, by strategic thinking and action, by assembling the necessary resources and expertise, and by harnessing the private sector.



( Left) Large-scale flooding of forests along the Missouri River near Omaha in 2011. (Above) Flooding along the Missouri River at NP Dodge Park in Omaha in 2011.



YOU MAY HAVE SEEN THEM. They stand out among the other still green pines along the rivers and developed landscapes in western and northern Nebraska, announcing their untimely demise by turning brown.

In many cases what you're seeing is an outbreak of damaging bark beetles in Nebraska's native pine forests of north-central and western Nebraska, brought on by the severe drought of 2012. Ips beetles, also known as pine engraver beetles, attacked and killed hundreds of trees stressed by drought and overly dense stands. Forests along the Niobrara and Snake rivers in Brown, Keya Paha and Cherry counties were the hardest hit, with half the pines being killed in some areas.

And as dry conditions continue, the beetle has the potential for causing even more widespread tree mortality. While Ips beetles have not killed as many trees in the Pine Ridge as they have along the Niobrara and Snake rivers, their damage has caused concern, especially among



*Signs of Ips beetles, also known as pine engraver beetles, are evident in ponderosa pine along the Snake River in north-central Nebraska. The beetle has the potential to cause widespread tree mortality.*

# Damaging Outbreak

landowners who often confuse the Ips beetle with the even more damaging mountain pine beetle, which was first confirmed in Nebraska in 2009. At that time, the mountain pine beetle was causing widespread mortality of pines in Colorado, Wyoming and South Dakota, and foresters feared the mountain pine beetle would cause similar damage in Nebraska. But climatic conditions in Nebraska are different enough that the beetle did not survive well and caused limited tree mortality.

Even so, landowners have been alarmed at the similarity between the symptoms and tree mortality caused by the Ips beetles in the past few years. They fear the already significant tree mortality could quickly equal the damage mountain pine beetles have caused in neighboring states.

When it comes to beetles feeding on the forest, it's survival of the fittest. Ips beetle adults avoid healthy trees in favor of those weakened by environmental stress or disease, boring through tree bark and the outer wood, to lay eggs in the tunnels they create. Larvae from eggs feed in bark

and outer wood, and the tunnels disrupt the flow of water and nutrients to the tree. Adult beetles also bring in fungus that grows in the wood. The combined damage from the beetles and the fungus can cause the top of the tree or the entire tree to die.

Landowners can help control Ips beetles by following proper forest management procedures and avoiding conditions that create local outbreaks:

- Maintain appropriate stocking densities for trees in forests and windbreaks. Thin overly dense stands to improve tree vigor.
- Conduct logging operations and tree removals whenever possible from August through December to allow remaining woody material to dry enough to kill developing larvae.
- If possible, burn, chip or crush with a bulldozer, remaining woody material—slash—to speed drying.
- Don't pile logs and slash, because it slows drying and increases beetle survival.
- Don't pile logs, slash and fresh

firewood near standing trees, because beetles from the piles can easily attack nearby trees.

- Proper watering, mulching and pruning promote good tree health and beetle resistance.
- During construction activities, protect roots of trees that will be left in the landscape, and remove weakened or badly damaged trees.
- Don't place additional soil over root areas, and don't leave pruned branches near trees.
- High-value trees can be protected with sprays of appropriate insecticides.

In the long-term, problems with Ips beetles will likely become more frequent if Nebraska experiences continued periods of significant drought. But remember, forest pest outbreaks are cyclical, followed by population declines as forest conditions change. Eventually, the current outbreaks will diminish as forests are thinned, infested trees removed and moisture conditions improve.

FROM CHADRON TO FALLS CITY, PALLETS TO pellets, Nebraska's forest products industry remains strong. The industry employs an estimated 3,700 people in the state while producing shipments of products valued at \$850 million annually. These products are produced in communities across the state, often having positive impacts on rural Nebraska communities, such as Ashland, Bellwood, Bellevue, Chadron, Clarks, Falls City, Fremont, Grand Island, Kearney, Kenesaw, Lincoln, Louisville, Madison, Norfolk, North Platte, Omaha, Osmond, Seward, Sidney, South Sioux City, Springview, Wayne and Valparaiso.

# Profitable Forests

The Nebraska Forest Service is committed to fostering new business development and working to increase wood product utilization in Nebraska. Using wood products for home and facility heating and cooling applications, among other uses, is vital for the stability and longevity of Nebraska's forest products industry.

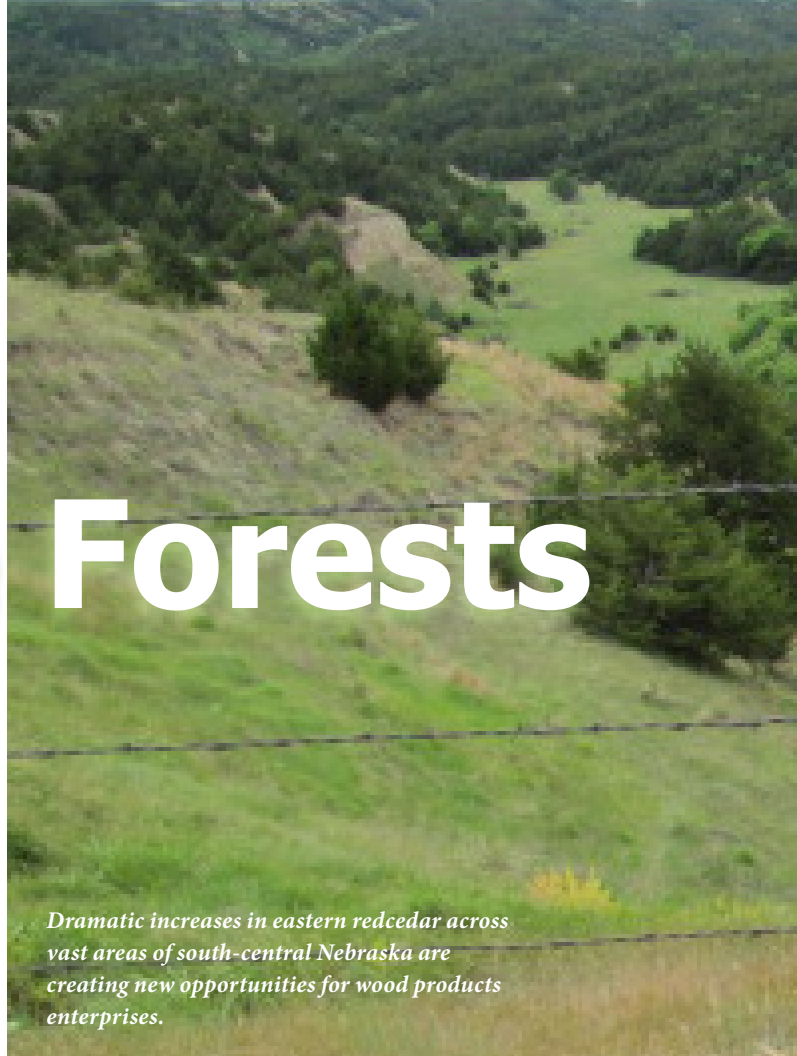
Many large forest products enterprises rely on the use of their waste wood as an additional product line, whether as animal bedding material, woodchip heating and cooling fuel or mulch material for landscaping or erosion control. However, in many rural communities, there is a limited market for landscape mulch and animal bedding material.

The development of woody biomass utilization systems for heating and cooling applications at facilities including workshops, warehouses, school and college campuses, agricultural and livestock operations, hospitals and correctional institutions creates a 30-year economic demand for woodchip fuel products for each system installed.

Nebraska is also fortunate to have active forest management activities occurring each year across the state. These activities include thinning forests to increase forest health and decrease wildfire potential, managing eastern redcedar encroachment in native forests and grasslands and invasive species control. These activities produce large supplies of residual waste wood that is traditionally burned in large piles during the winter. This wood waste, when chipped, has a value of \$40 to \$60 per ton of chips as a renewable energy fuel.

Utilization of this material will increase Nebraska's renewable energy usage, transform a waste product into an economic product, reduce fossil fuels usage, decrease facility heating and cooling costs (especially when compared to propane), improve air quality, create jobs in rural Nebraska and provide a boost to local economies.

NFS is also working with enterprises within Nebraska and across the region to bring new economic opportunities to the state including biochar (wood-based charcoal-like material) for soil fertility improvement and soil, water and air pollutant capture, wood-based compost and combined heat and power operations producing heat and electricity for large facilities.



*Dramatic increases in eastern redcedar across vast areas of south-central Nebraska are creating new opportunities for wood products enterprises.*



*(Above) District Forester Rich Woollen demonstrates a portable band sawmill to show the types of products available from eastern redcedar. (Right) At the Eastern Redcedar Expo workshop, Jed Wagner and Dr. Scott Josiah, Nebraska state forester and director of the Nebraska Forest Service, examine a load of redcedar chips created by a chipper.*

**Finding new uses for forest products can create good paying jobs and profitable businesses.**





## Nebraska Forest Products

**\$850 million:**

Forest products  
shipped annually  
by Nebraska  
companies



**Logs for Lumber**

**3,700  
people:**

Employed by  
forest products  
industry in  
Nebraska



**Woodchips & Firewood**

**Pellets for animal bedding,  
home heating & barbecuing**





*Small hands tightly grip shovels that scoop life-giving earth to support newly planted trees. Children and adults alike are getting serious about planting more trees, whether in schoolyards, at public buildings, cemeteries or neighborhoods.*

IT TAKES MANY HANDS TO MAKE QUICK WORK of planting trees in Nebraska. After all, it's tough to be a tree in our state, what with drought, floods and storms. For four years the ReTree Nebraska program has educated Nebraskans on the benefits of planting trees and encouraged people to plant for future generations. ReTree Nebraska Week, the last full week in September, is a great time to celebrate the beauty and value of trees, and to plant many more.

Fall is a great time to plant a tree. Fall's cooler temperatures allow trees to devote increased energy to root growth and build root systems, which is the most important part of establishing trees. To encourage everyone to plant more trees, ReTree Nebraska makes mini-grants available to tree advocates statewide, especially for fall planting. In 2013, volunteers planted approximately 1,000 trees in 52 communities, impacting more than 90 diverse planting sites including schools, parks, business districts and neighborhoods.

Community participation is key to getting trees planted and nurturing them to full growth. Mini-grants assist tree advocates in promoting tree planting in their communities via the media, demonstrations and a common message statewide.



*During ReTree Week in Chadron, Campus Landscape Coordinator Lucinda Mays discusses tree care and planting at Chadron State College.*

## ReTree Nebraska Week

# Community Participation

The objective is to provide trees with high-quality root systems that are easily transported and planted without the need for heavy equipment.

Planting smaller nursery stock also requires less water for establishment. Large-maturing tree species are promoted by the grants, including oak species, Kentucky coffeetree, elm, hackberry, catalpa and American sycamore, to increase our tree canopies and to encourage planting more large shade trees rather than small ornamentals.

"Trees are one of the most important resources for Nebraska communities," said Sally Ganem, Nebraska's First Lady and ReTree Nebraska chair. "Trees represent a major investment in our communities that pays dividends for generations. The economic benefits of trees go far beyond providing shade for our schools and parks. Tree-lined business districts welcome shoppers and often encourage them to shop longer and more often."

**Volunteers planted  
1,000 trees in 52  
communities.**

In 2013, Ganem took part in several ReTree Nebraska Week tree-planting events and workshops in Gering, Scottsbluff and Chadron, with help from students, colleges, community staff and volunteer citizens. The week's capstone event included an all-day Greener Nebraska Towns (GNT) conference to encourage communities to improve their planted landscapes, which was organized locally by the Chadron GNT committee.

GNT seeks to significantly improve the green infrastructure or landscape of communities across Nebraska. The eight partner communities include Scottsbluff, Chadron, North Platte, Hastings, Lincoln, Grand Island, Fremont and Bellevue. These communities receive grant funding and technical assistance to implement intensive tree planting, waterwise landscaping and targeted education.

With that much impact, Chadron conference organizer Lucinda Mays said, "It's important that the expense and effort





(Above) North Platte students listen as NFS District Forester Rachel Allison explains the proper way to plant a tree. (Left) NFS Forester Justin Evertson demonstrates proper pruning techniques on a mature tree at a workshop in Imperial in September.



ReTree Nebraska is a cooperative effort of:

Nebraska Forest Service  
Nebraska Statewide Arboretum  
Nebraska Community Forestry Council  
University of Nebraska—Lincoln Department of  
Agronomy and Horticulture  
Institute of Agriculture and Natural Resources

The ReTree mini-grant is part of the Trees for Nebraska Towns (TNT) grant, which is funded by the Nebraska Environmental Trust (a beneficiary of the Nebraska Lottery) as part of the ReTree Nebraska Initiative. The program is coordinated by the Nebraska Forest Service (NFS) on behalf of the Nebraska Statewide Arboretum, Inc. (NSA).



put into planted landscapes be carefully managed.”

ReTree Week’s growing success is due to the dedicated tree advocacy network in Nebraska: 240 ReTree ambassadors, 105 Tree City USA tree boards, 90 Nebraska Statewide Arboretum curators and countless enthusiastic community staff and volunteers. With this growing network of community advocates, the future of Nebraska’s community forests looks bright.

**Every \$1 invested in trees generates  
between \$2 and \$5 in benefits.**



Nebraska boasts  
two national  
champion trees.

# Nebraska Champs

IN ORDER TO FOSTER stewardship and engage Nebraskans with trees, the NFS curates the Champion Tree program, documenting the largest individual tree of nearly 100 different species across the state. Program nominations are submitted online or by mail at any time by tree enthusiasts from across the state and measured by foresters in their respective regions. These many nominations highlight the diversity and wonder of Nebraska's tree and forest resources. Champion trees are often found in parks and cemeteries, where ownership and management are unlikely to change over time, providing a long-term home for trees as unique as Nebraskans themselves.

The largest eastern cottonwood in the country was recently identified north of Beatrice and recognized by American Forests on their national Big Trees register. As Nebraska's state tree, we can all be proud to have this giant in Nebraska, where cottonwoods are native. With a diameter of nearly 12 feet, the base of this tree wouldn't fit in most kitchens!

Our other national champion tree is a dwarf chinkapin oak growing in an isolated population in Richardson County. NFS, in coordination with the Nebraska Statewide Arboretum, proudly facilitates the protection of this unique population of oak trees.

Nebraska has a number of new state champions of note, including a ponderosa pine in Lancaster County measured at more than 70 feet high and 12 feet in trunk circumference. A former champion pawpaw tree in a residential Bellevue lot was dethroned by an even bigger tree growing along the bluffs of southern Cass County. At 35 feet high, this tree grows among a grove of other pawpaw trees and bears fruit relished by local wildlife during their brief fall season.

A number of unique trees in Ralph Steyer Park (Blair) have been nominated as Nebraska champions, including yellowwood (60 by 64 feet), cork tree (60 by 66 feet) and a huge Shumard oak weighing in at 95 feet high with a 4-foot-thick trunk.

To nominate a Champion Tree, go to [nfs.unl.edu/championtree/championtreereguidlines.asp](http://nfs.unl.edu/championtree/championtreereguidlines.asp)



(Above) Owner Kevin Naber is dwarfed by the size of this National champion eastern cottonwood near Beatrice, a multi-trunked tree that stands 88 feet high with a 108-foot canopy spread and a total trunk circumference of 36 feet, 9 inches. (Below) Nebraska champion pawpaw tree near Peru is 35 feet high.





# Preserving a Niobrara Gem

## The Niobrara River runs through this ecologically significant property near Valentine.

A SPECTACULAR FORESTED property along the Niobrara River, the Chat Canyon Wildlife Management Area, was acquired in 2013 by a coalition of conservation organizations and forever protected from subdivision and development. Some 30 miles west of Valentine, this beautiful, diverse and ecologically significant 400-plus-acre property is bisected by the Niobrara River.

Chat Canyon is the home of unusually high numbers of nesting Yellow-breasted Chats, a beautiful songbird that is increasingly uncommon elsewhere and which has disappeared in eastern Nebraska.

This acquisition was the culmination of a 12-year effort on the part of the Nebraska Forest Service to implement the Forest Legacy Program, and involved numerous NFS staff and two state foresters.

This acquisition never would have happened without the partnership, tenacious support and highly competent contributions of many people from the University of Nebraska, U.S. Forest Service (USFS), Nebraska Game and Parks Commission (NG&PC), Nebraska Environmental Trust (NET), The Conservation Fund, the National Wild Turkey Federation (NWTF) and two landowners who were passionately committed to conservation. Funding was provided by the USFS, NET, NG&PC and NWTF.

The years of hard work by many highly skilled people to help secure this property paid off despite the many ups and downs and near-death experiences

in the process—two aborted acquisitions, multiple grant extensions, despairingly short funding deadlines, and the daunting complexities of managing an acquisition involving six organizations.

The property is now owned and operated by Game and Parks, and adds to their statewide network of Wildlife Management Areas. Uniquely, it will be co-managed for both forestry and wildlife objectives under a formal agreement between the Commission and the NFS. Chat Canyon WMA is a significant,

important and permanent addition to Nebraska's protected wildlands, and will serve as a powerful demonstration to other landowners of how forestry and wildlife management objectives can be combined in the Niobrara forest ecosystem.

We want to thank our partners who contributed in important and significant ways to achieve this groundbreaking conservation effort. Your work has resulted in a lasting conservation legacy for all Nebraskans.



*(Top) The Niobrara River runs through Chat Canyon, adding beauty, recreation opportunities and value for people who access public lands. (Above) A view from the north-central portion of the property looking south over the river valley to the high hills and trees on the south demonstrates that Chat Canyon and the Niobrara Valley are a Nebraska treasure. The biodiversity of this property is unique in Nebraska and includes prairie, wetlands, coniferous forest and deciduous trees.*



# Forestry Education

AS PART OF A MAJOR EFFORT TO CREATE A FORESTRY Education Center, NFS foresters, horticulturalists and work crews tackled nearly a dozen major projects in 2013 to begin crafting this forested landscape into an array of educational demonstrations. Supported with funding from the U.S. Forest Service, USDA National Agroforestry Center, USDA Specialty Crops Research Initiative and the Nebraska Environmental Trust, the project is converting the 240-acre Horning Farm State Demonstration Forest (near Plattsmouth) from a limited-access forestry research forest to a broadly accessible and critically needed regional forestry education center.



*Fencing helps exclude deer from the hazelnut plantings. In the background are plantings of hazelnut hybrids, bur oak and white pine.*

This will be the only tree, forest and agroforest management-focused educational center in Nebraska or the region. It will serve a broad clientele, including woodland and acreage owners, agricultural producers, conservation and green industry professionals and urban residents. Twenty demonstrations will promote and educate diverse clientele in sustainable forest, agroforest and urban tree management practices for eastern Nebraska.

Completed 2013 projects included tree removal, thinning existing forest stands, eradicating invasive honeysuckle, cutting a nature trail, preparing for planting new edible buffer and pollinator habitats and constructing areas for future prescribed burn

demonstrations. Hybrid hazelnut research field demonstrations were expanded, drip irrigated and protected from deer.

## **Planned demonstrations include:**

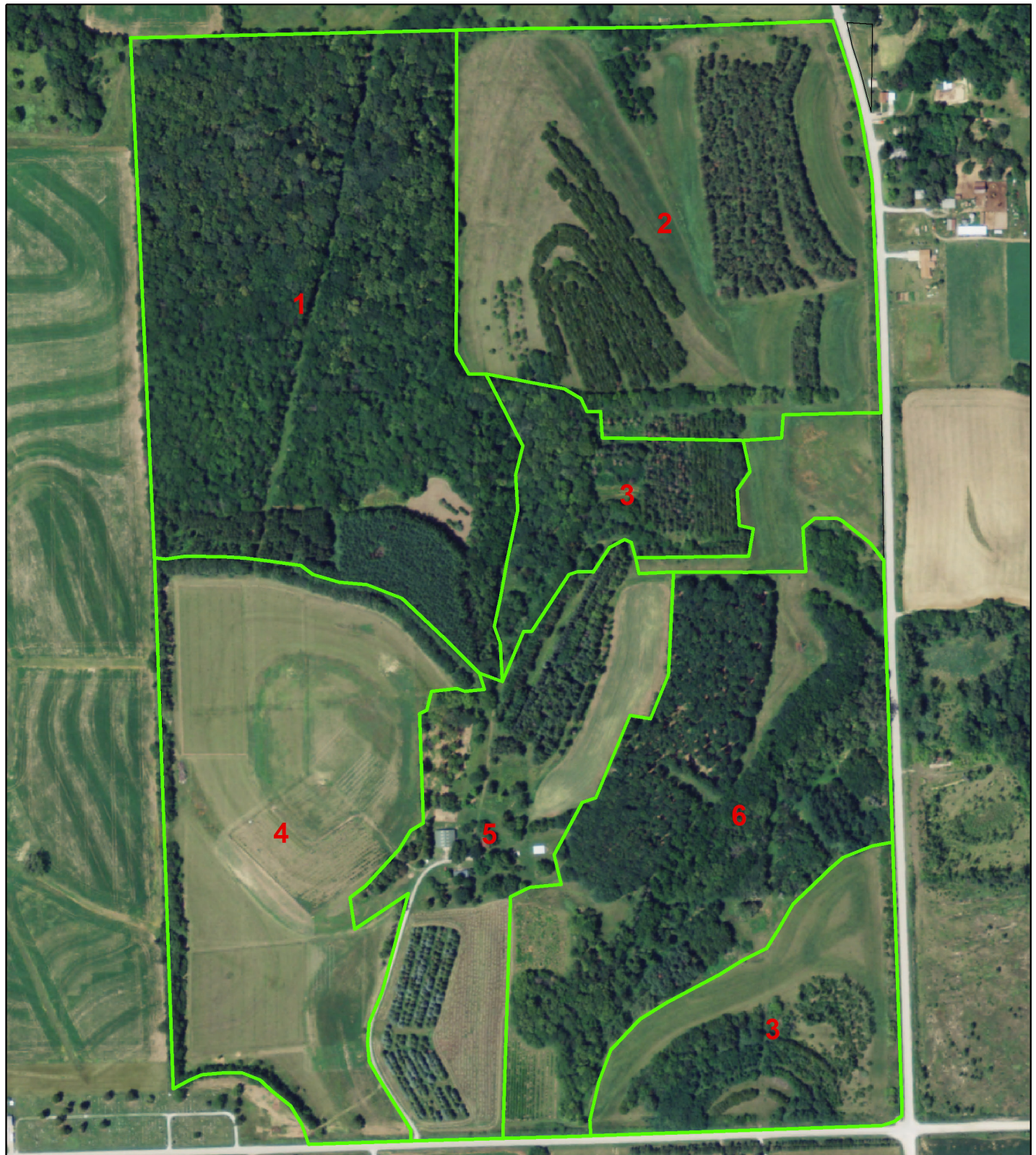
1. Walnut enrichment under existing forest
2. Management of pasture that succeeded to forest
3. Management of invasive plant species
4. High quality walnut timber production
5. Oak savanna restoration in forested stands
6. Oak savanna creation from brome pasture
7. Deer exclosures to demonstrate impacts of deer browse
8. Demonstration of deer browse protective devices
9. Regenerating oak through natural and artificial regeneration
10. Direct seeding of nut trees
11. Woody biomass thinning demonstrations and marketing
12. Forest management to enhance wildlife habitat
13. Manage oak stands for mast (acorn) production
14. Multi-story forest farming for specialty forest products (fruit, medicinals, botanicals)
15. Create “edible buffers” by restoring degraded field windbreaks for wind protection and specialty forest products
16. Create pollinator habitat along windbreaks
17. Alley cropping with nut trees, woody florals and hay
18. Alley cropping demonstrations with black walnut, hickory, northern pecan, Chinese chestnut and American chestnut
19. Develop arboretum/community forestry demonstrations, including species demonstrations, green infrastructure, tree planting and pruning
20. Demonstrate improved wood product utilization for woody biomass and wood products

Education and outreach activities will include: training/ educational and outreach events for agencies, conservation groups, nonprofits, green industry, forest landowners, birders and the public, mentored hunts and master naturalist training in working forest management.

The development of the Center is guided by a multi-organizational steering committee composed of conservation organizations and agencies, including NFS, the Nebraska Game and Parks Commission, The Nature Conservancy, Lower Platte South NRD, Nebraska Statewide Arboretum, NRCS and Papio Missouri River NRD lending critically important technical support and advice.



# Horning Farm Forestry Education Center



- 1. Forest Management
- 2. Agroforestry
- 3. Oak Savanna

- 4. Nut Production & Agroforestry
- 5. Arboretum & Species Testing
- 6. Forest Management for Wildlife & Specialty Products



# Public Opinion on Trees & Forests

DURING HOT SUMMER DAYS AND COOL AUTUMN nights we welcome the benefits our trees provide—shade, cool breezes and the changing colors of the leaves. Most Nebraskans have a basic understanding of the benefits our trees and forests provide—clean air and habitat for wildlife. Yet many still don't know of countless other advantages of healthy trees and forests. Making more people aware of how trees and forests can benefit them financially, psychologically and socially can only improve life in Nebraska, right?

To answer this question and to chart a course for NFS educational programs, we decided to find out what Nebraskans know about our trees and forests. We started by asking the Bureau of Sociological Research at the University of Nebraska (UNL) to develop a scientific, statistically valid survey that would provide

## Comparison of Survey Results

### 2012 Top 5 Concerns

1. Reduced tree planting
2. Water pollution
3. Drought or lack of water
4. Condition of forests
5. Converting treed areas to cropland

### 2013 Top 5 Concerns

1. Drought or lack of water
2. Reduced tree planting
3. Water pollution
4. Condition of forests
5. Subdividing & developing forestland

# By the Numbers

the information we needed. The Bureau conducted two surveys, one in 2012 and a follow-up in 2013 that included a comparison of the two surveys.

The first survey provided an introduction to Nebraskans' concerns about trees and forests and to their level of understanding about trees. We weren't surprised that most Nebraskans surveyed understand many of the benefits trees provide. However, many lacked a deeper and more useful understanding.

The follow-up survey not only provided additional information from a different group of respondents but also indicated important differences in both their level of concern and understanding. Survey results show an increase in the level of concern for six issues: drought or lack of water, wildland fires, subdividing and developing forestland, climate change, the poor condition of our forests and the build-up of dense brush and other materials in the forest that can fuel wildfires.

Several differences between the two surveys emerged. For example, in 2012 respondents' top concern was reduced tree planting. But

in 2013 that concern was replaced by concern for drought or lack of water.

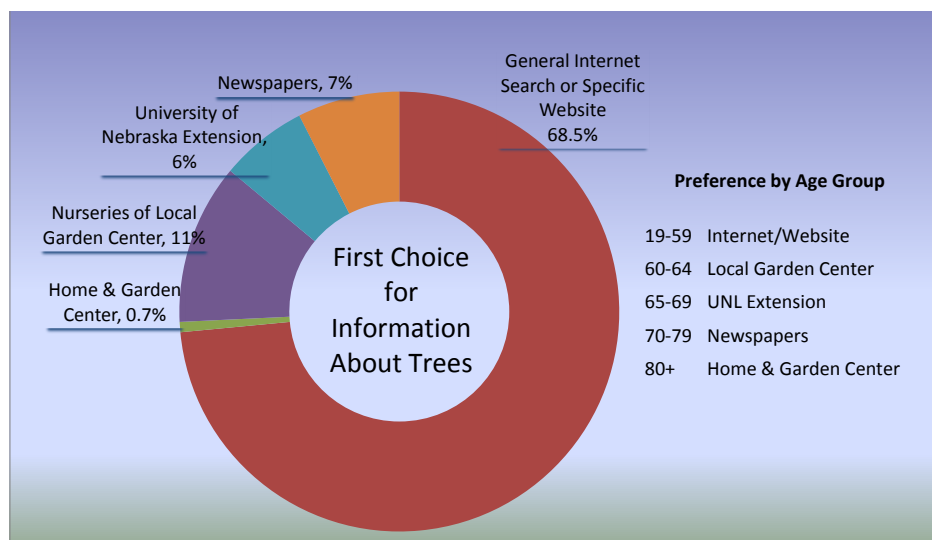
Drought and lack of water moved to the top of the list, especially among two age groups: 19-29 and 55-59. Concerns about climate change also increased among three age groups: 19-29, 40-49 and 50-54. Concern for wildland fire also rose significantly among those ages 19-29 and 50-64.

In addition to asking Nebraskans to rate their concerns about trees and forests, researchers also asked where they obtain information about trees. The overwhelming choice for finding information is the internet. This is true for those from ages 19 to 59. Other top sources include nurseries of local garden centers and home and garden centers, newspapers and the University of Nebraska Extension. However, it was mostly older Nebraskans surveyed who selected newspapers and home and garden centers as the first place they get information about trees.

Researchers also asked respondents what they are interested in learning about trees and forests. Tree planting and

care workshops and tree pest identification topped the list of interests for both the 2012 and 2013 surveys. However, the 2013 survey revealed more Nebraskans want to learn about firewise training for homeowners and the effects of drought on trees.

These survey results provide the NFS with an opportunity to better serve our citizens by developing more relevant informational materials and programs that meet their needs. View survey results at: <http://nfs.unl.edu/documents/2013TreeSurvey.pdf>.





# Aging Like Fine Wine

## *Forty-year study chronicles growth of black walnut trees in southeast Nebraska.*

AS A YOUNG DISTRICT FORESTER WITH THE Nebraska Forest Service (NFS), Dennis Adams' interest was in black walnut timber production and growth. This led him to begin measuring the annual growth of individual black walnut trees in both selected plantations and native woodland sites in his southeast Nebraska forestry district. Now, after 40 years with the NFS, his wealth of growth data has been analyzed and is summarized in the NFS technical paper titled "Growth of Black Walnut in Southeast Nebraska."

For this study, tree diameter and height were measured on selected black walnut trees on five sites in southeast Nebraska. The number of years that measurements were recorded on each site ranged from 25 to 45 years. No other known study in the Midwest has collected continuous growth data on black walnut trees over such a long period of time. Soil type, groundcover, tree stocking and other site conditions varied, as did management intensity. The results of this study will form the basis for locally accurate recommendations to landowners concerning planting and managing black walnut for timber in Nebraska and the surrounding region.

Results of this long-term study indicate that the average annual increment of diameter growth on each site ranged from about 0.23 to 0.33 inches, with the average for all five sites of about 0.28 inches per year. Site quality and weather clearly affect walnut growth. Dry years reduced growth at all sites.

Even though growth was slower on some sites and/or management intensity (thinning, pruning, weed control) varied, in general, the trees exhibited a very steady linear growth. The data also indicate that as trees mature their diameter growth slowly decreases. However, with intensive management, annual growth remained constant over time and did not decline with age.

The main conclusions that can be drawn from this long-term study include:

- Optimum growth of black walnut timber is a function of multiple factors including climate, site characteristics and silvicultural management.



*Native to eastern Nebraska, black walnut is considered a premiere hardwood timber species. Forester Dennis Adams measures the diameter of one of the black walnut trees in the timber production and growth study.*

- One-inch (cumulative) of diameter growth can be expected in three or four years for black walnut timber trees growing on suitable sites in southeast Nebraska and the surrounding area.
- On good sites, proper forest management is important to achieve maximum and sustained growth of timber trees.

The NFS technical paper "Growth of Black Walnut in Southeast Nebraska" is available in hard copy upon request or on the website: [nfs.unl.edu](http://nfs.unl.edu).



# Green Infrastructure



*Student volunteers dig holes for tree planting in Chadron as part of the GNT project.*

WATER, OUR MOST PRECIOUS resource, is poorly managed in most communities. Nebraska ranks the fifth highest in the nation in community per capita water consumption. Most of this water is used for landscape irrigation, a usage further increased by recent drought. Nebraska communities also are facing water quality issues—non-point source pollution, bank erosion and increased

water temperatures—caused by storm-water runoff.

Habitat loss is another challenge. Much of our land in the United States is somehow touched by agriculture or development and has resulted in a large loss of biodiversity. The U.S. has 4 million miles of roads and 62 million acres in mowed grass. Research shows that many of the ornamental plants from other countries planted in our communities have little value for native insects and birds. Purposefully choosing native plants

and incorporating them into our backyard and municipalities can help create habitat for insects and wildlife.

The Nebraska Forest Service, in collaboration with the Nebraska State-wide Arboretum, is addressing these problems through innovative initiatives aimed at enhancing green infrastructure in Nebraska communities. The Water-wise Initiative, Trees for Nebraska Towns (TNT) and Sustainable Schoolyard Initiative (SSI) focus on water conservation and water quality landscapes, while providing



habitat through use of native and regionally adapted plant materials.

Through the Waterwise Initiative, NSA and NFS are increasing public awareness of green infrastructure's many benefits and encouraging communities to adopt solutions wherever possible.

Efforts are also underway to empower Nebraska citizens, through outreach and demonstration projects, to make choices in their own landscapes on behalf of the environment. Projects completed in Omaha used cutting edge design principles which are now being adopted throughout the region and shared with colleagues around the U.S. In Scottsbluff, a project that removed concrete to capture stormwater in parking lots has led to conversation, design and action in greening other areas of the downtown.

The Nebraska Environmental Trust has been critical to the green infrastructure investments and success in implementing community landscape projects, granting more than \$5 million toward the projects above and toward an older Green Space Initiative. Through these programs, 500 sustainable landscape projects have been implemented in more than 168 Nebraska communities—and we continually seek new partners and projects.

These projects have encouraged and enabled Nebraska communities to use environmentally-sound landscape



practices that conserve water, improve water quality, create habitat, improve air, save energy and restore community forests. The ultimate goal of these efforts is to change how we think about our landscapes—our yards, streets or parks—from an ornamental to an ecological view. The momentum is building, the body of research is growing and federal non-point source pollution regulations are helping the cause. The next step is to focus more on our community spaces as habitat, so there is still a lot to learn.



## What IS Green Infrastructure?

Green infrastructure uses vegetation, soils and natural processes to manage water and create healthier urban environments.

At the scale of a city or county, green infrastructure refers to the patchwork of natural areas that provides habitat, flood protection, cleaner air and cleaner water.

At the scale of a neighborhood or site, green infrastructure refers to stormwater management systems that mimic nature by soaking up and storing water. Some examples include:

- Downspout disconnection
- Rainwater harvesting
- Rain gardens
- Permeable pavements
- Green streets & alleys
- Planter boxes
- Community forests
- Green parking
- Green roofs
- Land conservation
- Bioswales
- Deep-rooted & waterwise plantings

*Green infrastructure projects such as tree planting and stormwater plantings were installed this year as part of the Greener Nebraska Towns (GNT) project, a partnership of the Nebraska Statewide Arboretum (NSA), Nebraska Forest Service (NFS) and the Nebraska Environmental Trust (NET). (Top) Scottsbluff parking lot bioswale planting, part of the GNT project. (Above) Volunteers plant Scottsbluff parking lot bioswales through an educational workshop, part of the GNT project.*



# Grants/Cost-share Awarded to NFS Partners in 2013

County	Community	Organization/Project	FEPP/FFP*		County	Community	Organization/Project	FEPP/FFP*	
			Grant	Replacement				Grant	Replacement
			Amount	Value				Amount	Value
Adams	Ayr	Hastings Rural Fire District		2,900	Butler	Abie	Abie Fire Department	1,000	
Adams	Hastings	Hastings Fire Department	1,400		Butler	Bellwood	Bellwood Fire Department	150	
Adams	Holstein	Holstein Rural Fire District	430	587,000	Butler	Brainard	Butler County Fire Prevention Coop.	500	
Adams	Roseland	Roseland Rural Fire District		349,000	Butler	Bruno	Bruno Rural Fire District		97,200
<b>Adams Total</b>			<b>1,830</b>	<b>938,900</b>	Butler	David City	David City Rural Fire District	1,000	1,900
Antelope	Brunswick	Brunswick Fire Department	2,600		Butler	Dwight	Dwight Rural Fire District	1,400	487,600
Antelope	Clearwater	Clearwater Rural Fire District		113,000	Butler	Linwood	East Central Prevention Coop.	200	
Antelope	Neligh	Neligh Rural Fire District	2,400	352,000	Butler	Linwood	Linwood Fire Department	250	
Antelope	Oakdale	Oakdale Rural Fire District		305,000	Butler	Rising City	Rising City Rural Fire District		252,000
<b>Antelope Total</b>			<b>5,000</b>	<b>770,000</b>	<b>Butler Total</b>			<b>4,500</b>	<b>838,700</b>
Arthur	Arthur	Arthur Rural Fire District		230,000	Cass	Alvo	Eagle/Alvo Rural Fire District		44,500
<b>Arthur Total</b>				<b>230,000</b>	Cass	Avoca	Avoca Rural Fire District		884,000
Banner	Harrisburg	Banner Rural Fire District		374,000	Cass	Greenwood	Greenwood Rural Fire District		43,500
<b>Banner Total</b>				<b>374,000</b>	Cass	Manley	Weeping Water Rural Fire District		205,000
Blaine	Brewster	Brewster Rural Fire District		531,900	Cass	Murdock	Murdock Rural Fire District		293,000
Blaine	Dunning	Dunning Rural Fire District		469,000	Cass	Plattsmouth	Plattsmouth Rural Fire District		249,000
Blaine	Purdum	Purdum Rural Fire District		202,000	Cass	Union	Union Rural Fire District		133,000
Blaine		Landowners**	1,167		<b>Cass Total</b>				<b>1,852,000</b>
<b>Blaine Total</b>			<b>1,167</b>	<b>1,202,900</b>	Cedar	Belden	Belden Rural Fire District	4,000	314,600
Boone	Albion	Albion Rural Fire District		23,000	Cedar	Hartington	Hartington Fire Department	2,500	
Boone	Cedar Rapids	Cedar Rapids Rural Fire District		421,000	Cedar	Laurel	Laurel Fire Department	1,000	
Boone	Petersburg	Petersburg Rural Fire District		21,000	Cedar	Randolph	Randolph Rural Fire District		44,000
Boone	Primrose	Primrose Rural Fire District	2,700	547,000	Cedar	Wynot	Wynot Fire Department	1,750	
Boone	Saint Edward	Saint Edward Rural Fire District		221,000	<b>Cedar Total</b>			<b>9,250</b>	<b>358,600</b>
<b>Boone Total</b>			<b>2,700</b>	<b>1,233,000</b>	Chase	Imperial	Imperial Rural Fire District		282,000
Box Butte	Alliance	Alliance Rural Fire District	1,674	343,000	Chase	Wauneta	Wauneta Rural Fire District		113,000
Box Butte		Landowners**	1,203		<b>Chase Total</b>				<b>395,000</b>
<b>Box Butte Total</b>			<b>2,877</b>	<b>343,000</b>	Cherry	Cody	Barley Rural Fire District		178,000
Boyd	Lynch	Lynch Rural Fire District		329,000	Cherry	Cody	Cody Rural Fire District		696,500
Boyd	Naper	Naper Fire Department	3,200		Cherry	Kilgore	Kilgore Rural Fire District		239,000
Boyd	Spencer	Spencer Rural Fire District		395,000	Cherry	Merriman	Merriman Rural Fire District	240	402,000
<b>Boyd Total</b>			<b>3,200</b>	<b>724,000</b>	Cherry	Nenzel	Mid-Cherry Rural Fire District		1,364,000
Brown	Ainsworth	Ainsworth Fire Department	580		Cherry	Valentine	Valentine Rural Fire District		204,000
Brown	Ainsworth	Brown County Rural Fire District		318,000	Cherry	Wood Lake	Wood Lake Rural Fire District		202,000
Brown	Calamus	Brown County Rural Fire District		121,000	Cherry		Landowners**	129,211	
Brown	Johnstown	Johnstown Fire Department	1,300		<b>Cherry Total</b>			<b>129,451</b>	<b>3,285,500</b>
Brown	Long Pine	Brown County Rural Fire District	2,160	245,500	Cheyenne	Dalton	Dalton Rural Fire District		226,000
Brown		Landowners**	67,507		Cheyenne	Dalton	Dalton-Gurley Rural Fire District		157,000
<b>Brown Total</b>			<b>71,547</b>	<b>684,500</b>	Cheyenne	Gurley	Dalton-Gurley Rural Fire District		205,000
Buffalo	Amherst	Amherst Rural Fire District	3,000	683,000	Cheyenne	Potter	Potter Rural Fire District	2,600	379,000
Buffalo	Miller	Miller Rural Fire District		305,000	Cheyenne	Sidney	Sidney Rural Fire District		493,000
Buffalo	Pleasanton	Pleasanton Rural Fire District		304,000	<b>Cheyenne Total</b>			<b>2,600</b>	<b>1,460,000</b>
Buffalo	Ravenna	Ravenna Rural Fire District		150,000	Clay	Clay Center	Clay Center Rural Fire District		170,000
<b>Buffalo Total</b>			<b>3,000</b>	<b>1,442,000</b>	Clay	Edgar	Edgar Rural Fire District		43,500
Burt	Craig	Craig Rural Fire District		6,700	<b>Clay Total</b>				<b>213,500</b>
Burt	Lyons	Lyons Fire Department	600		Colfax	Clarkson	Clarkson Rural Fire District	1,800	23,000
<b>Burt Total</b>			<b>600</b>	<b>6,700</b>	Colfax	Howells	Howells Fire Department	3,000	
					Colfax	Leigh	Leigh Rural Fire District		113,000
					<b>Colfax Total</b>			<b>4,800</b>	<b>136,000</b>
					Cuming	Beemer	Beemer Fire Department	989	
					<b>Cuming Total</b>			<b>989</b>	

\*FEPP/FFP = Federal Excess Personal Property/Federal Firefighter Property currently loaned to Rural Fire Districts

\*\* = Landowners receiving cost-share funds for forest fuels treatment and/or forest management activities



# Grants/Cost-share Awarded to NFS Partners in 2013

			FEPP/FFP*					FEPP/FFP*	
County	Community	Organization/Project	Grant Amount	Replacement Value	County	Community	Organization/Project	Grant Amount	Replacement Value
Custer	Anselmo	Anselmo Rural Fire District		661,500	Furnas	Arapahoe	Holbrook-Edison-Arapahoe RFD	2,979	163,000
Custer	Ansley	Ansley Rural Fire District		46,000	Furnas	Beaver City	Beaver City Fire Department	2,000	
Custer	Broken Bow	Broken Bow Fire Department	1,709		Furnas	Edison	Edison Fire Department	1,600	
<b>Custer Total</b>			<b>1,709</b>	<b>707,500</b>	Furnas	Oxford	Oxford Rural Fire District	1,500	172,000
Dawes		Landowners**	148,590		Furnas	Wilsonville	Wilsonville-Hendley RFD		112,000
<b>Dawes Total</b>			<b>148,590</b>		<b>Furnas Total</b>			<b>8,079</b>	<b>447,000</b>
Dawson	Cozad	Cozad Fire Department	4,000		Gage	Adams	Adams Rural Fire District	1,800	80,400
Dawson	Eddyville	Eddyville Rural Fire District		87,000	Gage	Barneston	Barneston Rural Fire District		111,500
Dawson	Farnam	Farnam Rural Fire District	2,600	208,200	Gage	Blue Springs	Blue Springs Rural Fire District	1,496	87,000
Dawson	Sumner	Sumner Rural Fire District		305,000	Gage	Clatonia	Clatonia Rural Fire District		34,000
<b>Dawson Total</b>			<b>6,600</b>	<b>600,200</b>	Gage	Odell	Odell Rural Fire District		13,000
Deuel	Chappell	Chappell Rural Fire District		222,000	Gage	Wymore	Wymore Rural Fire District		13,000
<b>Deuel Total</b>				<b>222,000</b>	<b>Gage Total</b>			<b>3,296</b>	<b>338,900</b>
Dixon	Dixon	Dixon Rural Fire District		398,000	Garden	Lewellen	Blue Creek Rural Fire District		132,500
Dixon	Newcastle	Newcastle Rural Fire District	630	285,000	Garden	Oshkosh	Garden County Rural Fire District		448,000
Dixon	Ponca	Ponca Rural Fire District	250	113,000	<b>Garden Total</b>				<b>580,500</b>
Dixon	Wakefield	Northeast Nebraska Fire Prevention Coop.	250		Garfield	Burwell	Burwell Rural Fire District		43,500
Dixon	Wakefield	Wakefield Fire Department	394		<b>Garfield Total</b>				<b>43,500</b>
<b>Dixon Total</b>			<b>1,524</b>	<b>796,000</b>	Gosper	Elwood	Gosper Co. Rural Fire District	3,975	513,000
Dodge	Fremont	Fremont Fire Department	140		<b>Gosper Total</b>			<b>3,975</b>	<b>513,000</b>
Dodge	Hooper	Hooper Rural Fire District		305,000	Grant	Ashby	Rackett Rural Fire District		246,000
Dodge	Inglewood	Fremont Rural Fire District		533,700	Grant	Hyannis	Sandhills Rural Fire District	1,250	318,000
Dodge	North Bend	North Bend Rural Fire District	963	266,000	<b>Grant Total</b>			<b>1,250</b>	<b>564,000</b>
Dodge	Scribner	Scribner Rural Fire District		326,000	Greeley	Greeley	Greeley Rural Fire District		132,500
Dodge	Snyder	Snyder Rural Fire District	625	15,000	Greeley	Scotia	Scotia Rural Fire District		44,000
Dodge	Snyder	Dodge County Firefighters	1,000		Greeley	Spalding	Spalding Rural Fire District	2,356	113,000
Dodge	Uehling	Uehling Rural Fire District		335,000	Greeley	Wolbach	Wolbach Rural Fire District	2,000	89,000
Dodge	Winslow	Winslow Rural Fire District	4,000	625,000	<b>Greeley Total</b>			<b>4,356</b>	<b>378,500</b>
<b>Dodge Total</b>			<b>6,728</b>	<b>2,405,700</b>	Hall	Cairo	Cairo Rural Fire District		54,000
Douglas	Valley	Valley Rural Fire District		1,700,000	Hall	Doniphan	Doniphan Rural Fire District		305,000
<b>Douglas Total</b>				<b>1,700,000</b>	<b>Hall Total</b>				<b>359,000</b>
Dundy	Benkelman	Benkelman Rural Fire District		178,000	Hamilton	Giltner	Giltner Fire Department	2,000	
<b>Dundy Total</b>				<b>178,000</b>	Hamilton	Marquette	Marquette Rural Fire District		44,000
Fillmore	Milligan	Milligan Rural Fire District		113,000	Hamilton	Phillips	Phillips Rural Fire District	200	305,000
Fillmore	Ohio	Ohio Rural Fire District		205,000	<b>Hamilton Total</b>			<b>2,200</b>	<b>349,000</b>
Fillmore	Shickley	Shickley Rural Fire District		282,000	Harlan	Alma	Alma Rural Fire District		230,000
<b>Fillmore Total</b>				<b>600,000</b>	Harlan	Orleans	Orleans Rural Fire District	1,105	845,000
Franklin	Campbell	Campbell Rural Fire District		566,900	Harlan	Stamford	Stamford Rural Fire District		587,000
Franklin	Hildreth	Hildreth Rural Fire District	900	121,000	<b>Harlan Total</b>			<b>1,105</b>	<b>1,662,000</b>
Franklin	Naponee	Naponee Rural Fire District		44,000	Hayes	Hayes Center	Hayes County Rural Fire District		44,000
Franklin	Riverton	Riverton Rural Fire District		255,000	<b>Hayes Total</b>				<b>44,000</b>
<b>Franklin Total</b>			<b>900</b>	<b>986,900</b>	Hitchcock	Palisade	Palisade Rural Fire District		23,000
Frontier	Curtis	Curtis Fire Department	2,669		Hitchcock	Stratton	Stratton Rural Fire District		226,000
Frontier	Eustis	Eustis Rural Fire District	540	400,000	<b>Hitchcock Total</b>				<b>249,000</b>
Frontier	Maywood	Maywood-Wellfleet Rural Fire District		344,000	Holt	Atkinson	Atkinson Fire Department	4,000	
<b>Frontier Total</b>			<b>3,209</b>	<b>744,000</b>	Holt	Chambers	Chambers Rural Fire District		43,500
					Holt	O'Neill	O'Neill Rural Fire District		179,000
					Holt	Page	Page Rural Fire District		239,000
					Holt	Stuart	Stuart Rural Fire District		157,000
					<b>Holt Total</b>			<b>4,000</b>	<b>618,500</b>
					Hooker	Mullen	Mullen Rural Fire District		339,000
					<b>Hooker Total</b>				<b>339,000</b>

\*FEPP/FFP = Federal Excess Personal Property/Federal Firefighter Property currently loaned to Rural Fire Districts

\*\* = Landowners receiving cost-share funds for forest fuels treatment and/or forest management activities



# Grants/Cost-share Awarded to NFS Partners in 2013

County	Community	Organization/Project	FEPP/FFP*	
			Grant Amount	Replacement Value
Howard	Boelus	Boelus Rural Fire District		448,900
Howard	Dannebrog	Dannebrog Rural Fire District	920	112,000
Howard	Elba	Elba Rural Fire District		120,500
Howard	Farwell	Farwell Rural Fire District		258,700
<b>Howard Total</b>			<b>920</b>	<b>940,100</b>
Jefferson	Daykin	Daykin Rural Fire District	590	113,000
Jefferson	Diller	Diller Rural Fire District		113,000
Jefferson	Plymouth	Plymouth Rural Fire District		113,000
<b>Jefferson Total</b>			<b>590</b>	<b>339,000</b>
Johnson	Cook	Cook Rural Fire District		43,500
Johnson	Sterling	Sterling Rural Fire District	750	113,000
<b>Johnson Total</b>			<b>750</b>	<b>156,500</b>
Kearney	Axtell	Axtell Rural Fire District		113,000
Kearney	Wilcox	Wilcox Rural Fire District	3,800	89,000
<b>Kearney Total</b>			<b>3,800</b>	<b>202,000</b>
Keith	Brule	Brule Rural Fire District		89,000
Keith	Keystone	Ogallala Rural Fire District		250,000
Keith	Paxton	Paxton Rural Fire District		170,000
<b>Keith Total</b>				<b>509,000</b>
Keya Paha	Springview	Keya Paha Rural Fire District		157,000
Keya Paha		Landowners**	27,798	
<b>Keya Paha Total</b>			<b>27,798</b>	<b>157,000</b>
Kimball	Bushnell	Bushnell-Johnson Rural Fire District	510	134,500
Kimball	Dix	Dix Fire Department	650	56,000
Kimball		Landowners**	2,793	
<b>Kimball Total</b>			<b>3,953</b>	<b>190,500</b>
Knox	Creighton	Creighton Fire Department	150	
Knox	Crofton	Crofton Rural Fire District		145,500
<b>Knox Total</b>			<b>150</b>	<b>145,500</b>
Lancaster	Firth	Firth Rural Fire District		47,000
Lancaster	Hickman	Hickman Rural Fire District		418,000
Lancaster	Lincoln	Nebraska Game & Parks Commission		264,000
Lancaster	Lincoln	Southeast Rural Fire District		180,000
Lancaster	Waverly	Waverly Rural Fire District		573,000
<b>Lancaster Total</b>				<b>1,482,000</b>
Lincoln	Hershey	Hershey Fire Department	3,565	
Lincoln	Maxwell	Maxwell Rural Fire District		16,000
Lincoln	Sutherland	Sutherland Rural Fire District	1,600	232,000
Lincoln	Wallace	Wallace Rural Fire District	3,000	312,000
<b>Lincoln Total</b>			<b>8,165</b>	<b>560,000</b>
Logan	Stapleton	Stapleton Rural Fire District		438,000
<b>Logan Total</b>				<b>438,000</b>
Loup	Taylor	Loup County Rural Fire District	250	158,000
<b>Loup Total</b>			<b>250</b>	<b>158,000</b>
Madison	Battle Creek	Battle Creek Fire Department	1,700	
<b>Madison Total</b>			<b>1,700</b>	
McPherson	Tryon	McPherson County Rural Fire District		134,000
<b>McPherson Total</b>				<b>134,000</b>
Merrick	Chapman	Chapman Rural Fire District		200,000
Merrick	Palmer	Palmer Rural Fire District		89,000
Merrick	Silver Creek	Platte Valley Rural Fire District		44,000
<b>Merrick Total</b>				<b>333,000</b>

County	Community	Organization/Project	FEPP/FFP*	
			Grant Amount	Replacement Value
Morrill	Bayard	Bayard Fire Department	2,680	
Morrill	Bridgeport	Bridgeport Rural Fire District		89,000
Morrill	Broadwater	Broadwater Rural Fire District		485,000
<b>Morrill Total</b>			<b>2,680</b>	<b>574,000</b>
Nance	Belgrade	Belgrade Rural Fire District		89,000
Nance	Genoa	Genoa Fire Department	2,700	
<b>Nance Total</b>			<b>2,700</b>	<b>89,000</b>
Nemaha	Julian	Brock-Julian Rural Fire District		248,500
Nemaha	Nemaha	Nemaha Rural Fire District	1,374	133,000
Nemaha	Peru	Peru Fire Department	3,000	
<b>Nemaha Total</b>			<b>4,374</b>	<b>381,500</b>
Nuckolls	Hardy	Hardy Rural Fire District		305,000
Nuckolls	Lawrence	Lawrence Rural Fire District		113,000
Nuckolls	Ruskin	Ruskin Rural Fire District		89,000
<b>Nuckolls Total</b>				<b>507,000</b>
Otoe	Dunbar	Dunbar Rural Fire District		113,000
Otoe	Syracuse	Syracuse Rural Fire District		167,000
Otoe	Unadilla	Unadilla Rural Fire District		47,000
<b>Otoe Total</b>				<b>327,000</b>
Pawnee	Burchard	Burchard Rural Fire District		205,000
Pawnee	DuBois	DuBois Rural Fire District		418,000
Pawnee	Pawnee City	Pawnee City Rural Fire District		139,000
<b>Pawnee Total</b>				<b>762,000</b>
Perkins	Grant	Grant Fire Department	1,300	
Perkins	Madrid	Madrid Rural Fire District		230,000
Perkins	Venango	Venango Rural Fire District		136,000
<b>Perkins Total</b>			<b>1,300</b>	<b>366,000</b>
Phelps	Funk	Funk Rural Fire District		113,000
Phelps	Holdrege	Holdrege Rural Fire District		2,000
<b>Phelps Total</b>				<b>115,000</b>
Pierce	Hadar	Hadar Rural Fire District		179,500
<b>Pierce Total</b>				<b>179,500</b>
Platte	Columbus	Platte Co. Emergency Management		142,000
Platte	Humphrey	Humphrey Fire Department	1,500	
Platte	Monroe	Monroe Rural Fire District		16,000
Platte	Platte Center	Platte Center Rural Fire District		424,000
<b>Platte Total</b>			<b>1,500</b>	<b>582,000</b>
Polk	Osceola	Osceola Rural Fire District		297,000
Polk	Polk	Polk Rural Fire District		230,000
Polk	Stromsburg	Stromsburg Rural Fire District		510,000
<b>Polk Total</b>				<b>1,037,000</b>
Red Willow	Indianola	Indianola Rural Fire District		113,000
Red Willow	Lebanon	Beaver Valley Rural Fire District	550	44,500
Red Willow	McCook	Red Willow Western Rural Fire District		460,000
<b>Red Willow Total</b>			<b>550</b>	<b>617,500</b>
Richardson	Falls City	Falls City Rural Fire District		43,500
<b>Richardson Total</b>				<b>43,500</b>
Rock	Bassett	Gracy Rural Fire District		314,000
Rock	Bassett	Rock County Rural Fire District		274,000
Rock	Newport	Newport Rural Fire District		695,000
Rock		Landowners**	2,813	
<b>Rock Total</b>			<b>2,813</b>	<b>1,283,000</b>

\*FEPP/FFP = Federal Excess Personal Property/Federal Firefighter Property currently loaned to Rural Fire Districts

\*\* = Landowners receiving cost-share funds for forest fuels treatment and/or forest management activities



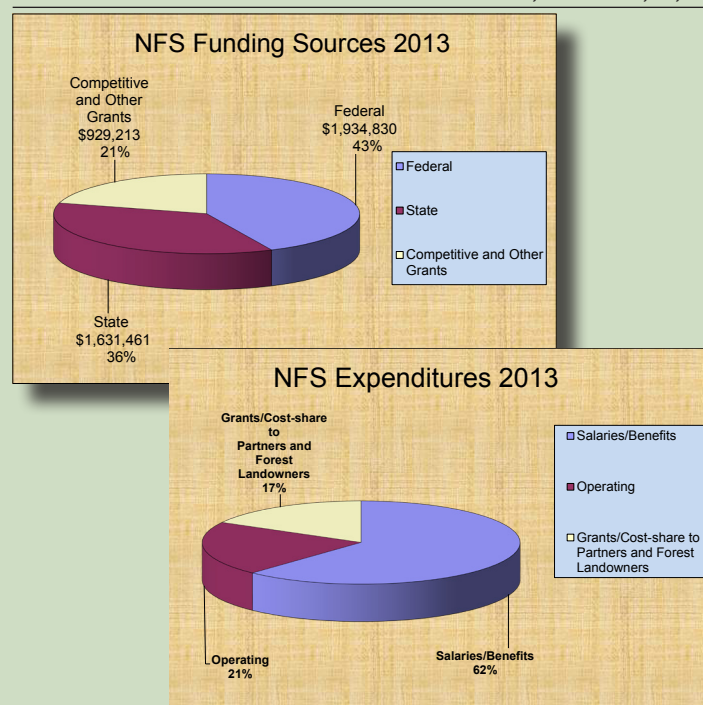
# Grants/Cost-share Awarded to NFS Partners in 2013

County	Community	Organization/Project	FEPP/FFP*	
			Grant Amount	Replacement Value
Saline	DeWitt	Saline County Rural Fire District		349,000
Saline	Dorchester	Saline County Rural Fire District		205,000
Saline	Friend	Friend Fire Department	4,000	
Saline	Swanton	Swanton Fire Department	500	
Saline	Tobias	Saline County Rural Fire District		205,000
Saline	Western	Saline County Rural Fire District		100,000
Saline	Wilber	Saline County Rural Fire District		471,000
<b>Saline Total</b>			<b>4,500</b>	<b>1,330,000</b>
Saunders	Ashland	Ashland Rural Fire District		1,700,000
Saunders	Cedar Bluffs	Cedar Bluffs Rural Fire District		398,750
Saunders	Ceresco	Ceresco Fire Department	4,000	
Saunders	Colon	Colon Rural Fire District		305,000
Saunders	Ithaca	Ithaca Rural Fire District	2,500	146,000
Saunders	Malmo	Malmo Rural Fire District	4,000	247,000
Saunders	Mead	Mead Rural Fire District	4,000	389,000
Saunders	Prague	Prague Rural Fire District	1,400	274,000
Saunders	Valparaiso	Valparaiso Rural Fire District		88,000
<b>Saunders Total</b>			<b>15,900</b>	<b>3,547,750</b>
Scotts Bluff	Gering	Gering Valley Rural Fire District	1,300	89,000
Scotts Bluff	Henry	Henry Fire Department	310	89,000
Scotts Bluff	Lyman	Lyman-Kiowa Rural Fire District		133,000
Scotts Bluff	Minatare	Minatare-Melbeta Rural Fire District	1,000	89,000
Scotts Bluff	Mitchell	Mitchell Rural Fire District		178,000
Scotts Bluff	Morrill	Morrill Fire Department	2,440	
Scotts Bluff	Scottsbluff	Scottsbluff Rural Fire District		178,000
Scotts Bluff		Landowners**	5,673	
<b>Scotts Bluff Total</b>			<b>10,723</b>	<b>756,000</b>
Seward	Bee	Seward County Rural Fire District		16,000
Seward	Cordova	Seward County Rural Fire District		113,000
Seward	Garland	Garland Fire Department	900	
Seward	Pleasant Dale	Seward County Rural Fire District		21,000
Seward	Staplehurst	Staplehurst Rural Fire District		68,000
Seward	Tamora	Seward County Rural Fire District	1,900	16,000
Seward	Utica	Seward County Rural Fire District	1,900	113,000
<b>Seward Total</b>			<b>4,700</b>	<b>347,000</b>
Sheridan	Gordon	Gordon Rural Fire District	700	87,000
Sheridan	Hay Springs	Hay Springs Rural Fire District		510,000
Sheridan	Lakeside	Heart of the Hills Rural Fire District		230,000
Sheridan	Rushville	Rushville Rural Fire District	2,200	117,000
Sheridan		Landowners**	294,441	
<b>Sheridan Total</b>			<b>297,341</b>	<b>944,000</b>
Sherman	Ashton	Ashton Rural Fire District		23,000
Sherman	Rockville	Rockville Rural Fire District		2,000
<b>Sherman Total</b>				<b>25,000</b>
Sioux	Harrison	Harrison Rural Fire District		620,000
Sioux		Landowners**	15,421	
<b>Sioux Total</b>			<b>15,421</b>	<b>620,000</b>
Stanton	Pilger	Pilger Fire Department	1,200	
Stanton	Stanton	Stanton Rural Fire District	3,495	157,000
<b>Stanton Total</b>			<b>4,695</b>	<b>157,000</b>

\*FEPP/FFP = Federal Excess Personal Property/Federal Firefighter Property currently loaned to Rural Fire Districts

\*\* = Landowners receiving cost-share funds for forest fuels treatment and/or forest management activities

County	Community	Organization/Project	FEPP/FFP*	
			Grant Amount	Replacement Value
Thayer	Alexandria	Alexandria Rural Fire District		43,500
Thayer	Chester	Chester Rural Fire District		40,000
Thayer	Deshler	Deshler Rural Fire District		394,000
Thayer	Hebron	Hebron Rural Fire District		584,000
Thayer	Hubbell	Hubbell Rural Fire District		156,000
<b>Thayer Total</b>				<b>1,217,500</b>
Thomas	Halsey	Halsey Rural Fire District		294,000
Thomas	Thedford	Thedford Rural Fire District		342,000
Thomas		Landowners**	1,167	
<b>Thomas Total</b>			<b>1,167</b>	<b>636,000</b>
Thurston	Pender	Pender Fire Department	4,000	
Thurston	Thurston	Thurston Rural Fire District		113,000
<b>Thurston Total</b>			<b>4,000</b>	<b>113,000</b>
Valley	Arcadia	Arcadia Rural Fire District		133,500
Valley	Ord	North Loup Rural Fire District	3,996	
<b>Valley Total</b>			<b>3,996</b>	<b>133,500</b>
Washington	Arlington	Arlington Fire Department		305,000
Washington	Ft. Calhoun	Ft. Calhoun Fire Department	4,000	
Washington	Herman	Herman Rural Fire District		113,000
<b>Washington Total</b>			<b>4,000</b>	<b>418,000</b>
Webster	Bladen	Bladen Rural Fire District		487,000
Webster	Blue Hill	Blue Hill Rural Fire District		226,000
Webster	Guide Rock	Guide Rock Rural Fire District		305,000
Webster	Red Cloud	Red Cloud Rural Fire District		585,000
<b>Webster Total</b>				<b>1,603,000</b>
Wheeler	Bartlett	Wheeler County Rural Fire District		249,000
Wheeler	Ericson	Wheeler County Rural Fire District		113,000
<b>Wheeler Total</b>				<b>362,000</b>
York	Benedict	Benedict Rural Fire District		418,000
<b>York Total</b>				<b>418,000</b>
State Fire Marshal Training Division			5,000	
Nebraska State Volunteer Firefighters Association			5,750	7,000
<b>Grand Total</b>			<b>882,218</b>	<b>57,157,850</b>







*Covered with hoar frost, this row of ponderosa pine in Waverly's Wayne Park take on a ghostlike appearance. Winter 2012.*

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