

LRTF Projects Awarded for Iowa Ecotype Project (Natural Selections) 1990-2013

Summary compiled by Greg Houseal, Project Manager, November 2013

90-00-LRTF-005, 1990 - \$27,000.00

Description: Iowa Ecotype Project

Remnant collections of seed of sideoats grama (*Bouteloua curtipendula*), Canada wild rye (*Elymus canadensis*), and roundheaded bushclover (*Lespedeza capitata*) were initiated in 1990. Seventy-three populations were collected.

90-00-LRTF-202, 1991 - \$21,750.00

Description: Iowa Ecotype Project

The project initiated remnant seed collection of two species: purple prairie clover (*Dalea purpurea*), and tall dropseed (*Sporobolus compositus* [formerly *asper*]). Seed collections were made by UNI. Populations were propagated both at UNI and cooperatively with USDA-NRCS Elsberry Plant Materials Center, Elsberry, MO.

90-00-LRTF-301, 1992 - \$27,648.00

Description: Iowa Ecotype Project

The project initiated remnant seed collection of three species for foundation seed increase: Pale purple coneflower (*Echinacea pallida*), June grass (*Koeleria macanthra*), and Oxeye sunflower (*Heliopsis helianthoides*). Seed collections were made by UNI. Populations were propagated both at UNI and cooperatively with USDA-NRCS Elsberry Plant Materials Center, Elsberry, MO. One hundred twenty-eight populations were collected.

90-00-LRTF-305, 1993 - \$27,648.00

Description: Iowa Ecotype Project

The project initiated remnant seed collection of three new species for foundation seed increase: Prairie blazingstar (*Liatris pycnostachya*), Little bluestem (*Schizachyrium scoparium*), and Indian grass (*Sorghastrum nutans*). Seed collections were made by UNI. Populations were propagated both at UNI and cooperatively with USDA-NRCS Elsberry Plant Materials Center, Elsberry, MO. One hundred eighty-six populations were collected.

90-00-LRTF-405, 1994 - \$27,648.00

Description: Iowa Ecotype Project

The project initiated remnant seed collection of three new species for foundation seed increase: Rattlesnake master (*Eryngium yuccifolium*), Big bluestem (*Andropogon gerardii*), and Tall dropseed



Rattlesnake master seed increase plot at UNI.

(*Sporobolus compositus*). Seed collections were made by UNI. Populations were propagated both at UNI and cooperatively with USDA-NRCS Elsberry Plant Materials Center, Elsberry, MO. Two hundred thirty-nine populations were collected. The project released the first Iowa source-identified foundation seed to commercial producers via USDA-Elsberry PMC and Iowa Crop Improvement Association. All three zones of sideoats grama and Canada wild rye were released in 1994 (total of 32.7 pounds of foundation seed).

90-00-LRTF-503, 1995 - \$31,590.00

Description: Iowa Ecotype Project

The project initiated remnant seed collection of these species for foundation seed increase: Rough blazingstar (*Liatris aspera*), Horsemint (*Monarda fistulosa*), Rigid goldenrod (*Oligoneuron rigida*) and New England aster (*Symphotrichum novae-angliae*). Seed collections were made by UNI. Populations were propagated both at UNI and cooperatively with USDA-NRCS Elsberry Plant Materials Center, Elsberry, MO. One hundred fifty-four populations were collected. First release of Little bluestem - Zone 3.

90-00-LRTF-703, 1997 - \$24,348.00

Description: Iowa Ecotype Project

The project initiated remnant seed collection of these species for foundation seed increase: Canada anemone (*Anemone canadensis*), Switchgrass (*Panicum virgatum*), and Great blue lobelia (*Lobelia siphilitica*). Special permission to collect seed from State Preserves (specifically for switchgrass, but other species as well) was obtained from the State Preserves Advisory Board by the Iowa Ecotype Project.

Release Update: Six ecotypes of five species were released (54 pounds foundation seed released). Eight species in commercial production. Source Identified certification doubled from 1996 production. Iowa Crop Improvement Association (ICIA) certified 26 acres of native species production, and growers reported 725 pounds of Iowa Source Identified seed production for 1997.

90-00-LRTF-819, 1998 - \$25,000.00

Description: Iowa Ecotype Project

The project initiated remnant seed collection of White wild indigo (*Baptisia alba*), 27 accessions; Prairie cordgrass (*Spartina pectinata*), 41 accessions; and Culver's root (*Veronicastrum virginicum*), 36 accessions for foundation seed increase. A total of 367 collections of seed of 21 different species were accessioned from remnant prairies across Iowa. Approximately 1340 collections of 27 species have been accessioned to date. Propagated and transplanted nearly 280 different accessions, representing 15 species of remnant collected seed in UNI ecotype seed nurseries.

Release Update: A total of eleven species of 22 ecotypes have been released to date (198 pounds foundation seed of five species of five ecotypes in 1998 alone), for a total of 359 pounds of IEP foundation seed released to growers. Growers reported 53 acres and 4,462 lbs. of Source Identified seed produced in 1998.

90-00-LRTF-904, 1999 - \$25,000.00

Description: Ecotype production plots

The establishment of a new center at UNI, called the Native Roadside Vegetation Center (NRVC), provided 35 acres of land for establishing seed increase plots at UNI. Propagated and plug-planted seed nurseries of six new ecotypes on UNI-NRVC land, spring of 1999. Plot maintenance and seed harvesting continue at UNI and Elsberry, and Elsberry continues to clean seed for the Project. The project initiated remnant seed collection of the following new species for 1999: Bluejoint grass (*Calamagrostis canadensis*), 30 new accessions; Mountain mint (*Pycnanthemum virginianum*), 42 new accessions; and Prairie sage (*Artemisia ludoviciana*), 15 new accessions. One hundred three new collections of seed representing 16 different species were added to the project. Several incidental collections of narrow-leaved Mountain mint (*Pycnanthemum tenuifolium*) and Hairy mountain mint (*Pycnanthemum pilosum*) from southern Iowa were also added to the project in 1999.

Release Update: A total of 16 species of 30 ecotypes have been released to date (71 pounds of 5 species of 8 ecotypes in 1999 alone), for a total of 430 pounds of IEP foundation seed released to growers since 1994. Growers reported 125 certified acres and 8,496 lbs. of Source Identified seed produced in 1999. Additionally, UNI hosted an IEP Grower and Industry Meeting and round table discussion at UNI, December 15, 1999, to discuss potential market for native seed in Iowa.

90-00-LRTF-008, 2000 - \$31,250.00

Description: Iowa Ecotype Project

One hundred eighteen (118) new collections of seed representing 17 different species were added to the project in 2000. These included three new species for 2000: Ohio spiderwort (*Tradescantia ohioensis*), 23 new accessions; Bottle gentian (*Gentiana andrewsii*), 32 new accessions; and Bracted spiderwort (*Tradescantia bracteata*), 2 new accessions; as well as additional collections of species featured in previous years.

Release Update: Initiated a new Production Rights Agreement and Licensing Fee with growers. A total of 23 species of 30 ecotypes have been released to date. Growers reported 328 certified acres and 24,123 lbs. of Source Identified seed produced in 2000.

Propagated and transplanted nearly 159 different accessions, representing 13 species of remnant collected seed in UNI-NRVC ecotype seed nurseries. Field technician/graduate student hired to work part-time for the project. Twenty-four new foundation seed increase plots were planted at UNI-NRVC. Purchased second-hand Duetz 35 HP tractor for plot work with matching funds. Acquired the lease of an additional 3+ acres adjoining UNI land from Cedar Falls Utilities for Zone 3 production. Acquired the use of (permanent loan) a Hege 125B self-propelled combine (1978



IEP Natural Selections™ tag with logo and ICIA Source Identified 'Yellow Tag' attached to bag.

model) from Hawkeye Community College for combining courser material. It will also be used as a stationary threshing machine.

Initiated discussion with growers about research into trademark registration and licensing of Iowa Ecotype Project through UNI Intellectual Property Committee. Completed registration of federal trademark for IEP seed: "Natural Selections: species that belong, seeds that thrive." Bag tag printed and delivered to ICIA for distribution to IEP growers to be attached to each bag of certified IEP seed.

Published articles: Preserving Our Native Prairies, Consider the Source, *Iowa Conservationist*, July-August 2000; Source Identified Seed: The Iowa Roadside Experience, *Ecological Restoration*, Vol. 18, No.3, Fall 2000 pp. 173-183.

90-00-LRTF-009, 2000 - \$3,405.00

Description: Equipment –Brillion 5-foot Seeder

Received LRTF grant to purchase Brillion 5-foot sure stand seeder. Ordered in December 1999 for February 2000 delivery. The Native Roadside Vegetation Center (NRVC) at UNI will establish small-scale (.1 to .25 acre) seed increase fields for dozens of native prairie species in the coming years. A versatile, yet simple device is needed to efficiently plant small quantities of seed. Efficient use of the Brillion seeder requires careful preparation of the seed bed which is desirable for good weed control and for successful establishment of very fine seeds. With good seed bed preparation, the Brillion seeder allows placement of fine seeds on the soil surface, which are then subsequently pressed into the soil by a roller. Seeding depth can be adjusted up to 1/2" in depth for larger seeded species.

Brillion seeder was used to establish first direct-seeded (1/3 acre Zone 2 Switchgrass) increase field and 23 direct-seeded IEP increase plots on UNI-NRVC land, totaling 9 forb species.

90-00-LRTF-107, 2001 - \$25,000.00

Description: Seed production (Iowa Ecotype Project)

Two-hundred sixty one (261) new collections of seed representing 28 different species were added to the project. These figures include the three new species for 2001: Leadplant (*Amorpha canescens*), 45 new populations; Prairie dropseed (*Sporobolus heterolepis*), 11 new populations; and Canada milkvetch (*Astragalus canadensis*), 9 new accessions; as well as additional collections of species featured in previous years. A total of 1823 accessions of seed have been made since 1990.



Examples of cone-tainers used to populate seed increase plots.

Propagation and Plot Establishment

Twenty-four thousand plugs were grown at UNI for transplant into foundation seed increase plots in the spring of 2002. Little bluestem fields were sown for all three zones, plus cordgrass and bluejoint production areas were expanded using plugs cut from existing nursery beds with bulb cutters. Ten of the eleven grass species currently in the project have been planted into production plots, the exception being prairie dropseed since additional populations are desired. Eighteen of the 26 forb species are now in production plots for all three zones, so IEP is well on the way to the goal of establishing an increase plot for each of the 37 species currently in the project. Fall transplanted corms of Zone 1, 2, and 3 *Liatris pycnostachya*, and Zone 1 and 2 *Liatris aspera* from old IEP plots into new fields to increase seed production of existing accessions.

Commercial Production of IEP Seed

Released 127 PLS lbs. of native seed in the spring 2002 (55 PLS lbs. of three grass species, plus 72 PLS lbs. of seven forb species) to seven growers. IEP growers reported 486 certified acres and nearly 56,000 lbs. of Iowa Ecotype Project seed production for 2001. Over 94,000 lbs. of commercial IEP seed have been produced since 1996.



Zone 2 Prairie Blazingstar seed increase plot at UNI.

Public Relations/Marketing

- Published article: [Yielding the Right-of-Way to Natives](#), Orion Afield, Spring 2002, p. 28
- Published IEP Website on World Wide Web, Spring 2002 in cooperation with UNI Public Relations.
- Completed purchase and took delivery of Westrup seed cleaning equipment, which was used to clean over 100 lbs. of forb and grass seed in the fall of 2001.

90-00-LRTF-108, 2001 - \$9,600.00

Description: Equipment – Six-foot Pull-type Seed stripper

This grant funded a pull-type six-foot native seed stripper to be used in the harvest of foundation seed increase plots at the Native Roadside Vegetation Center at UNI. First harvest of Zone 3 Canada wild rye with the seed stripper.

90-00-LRTF-201, 2002 - \$30,240.00

Description: Iowa Ecotype Project

Three-hundred eighteen new remnant collections of seed representing 33 different species were added to the project, including the three new species for 2002: Yellow coneflower (*Ratibida pinnata*), 101 populations; Thimbleweed (*Anemone cylindrica*), 60 populations; and Showy goldenrod (*Solidago speciosa*), 12 populations.

Propagation and Plot Establishment

Approximately twenty-four thousand plugs were grown at UNI for transplant into foundation seed increase plots in Spring 2003. Currently there are 95 production plots at UNI-NRVC. Twenty-six forb species and eleven grass species of the Project total of 40 species are now in foundation seed increase plots.

Commercial Production of IEP Seed

Fifteen sources of 10 species were released for commercial production to seven commercial seed producers in March of 2003. A total of 112 lbs. of foundation seed was released primarily from the UNI Native Roadside Vegetation Center production plots. IEP growers reported 538 certified acres and 59,489 lbs. of IEP seed produced in 2002. Over 150,000 lbs. of Iowa Source Identified Seed have been produced since 1996. The Project is working closely with the Iowa Crop Improvement Association to develop a seed directory focused exclusively on yellow tag source-identified native seed for promotional purposes.

90-00-LRTF-205, 2002 - \$3,700.00

Description: Equipment - Seed handling equipment

The grant provided funds for Iowa Ecotype Project to purchase various small lab equipment and supplies needed for proper handling and storing, accurate weighing, and shipping of IEP foundation seed. The items purchased include two digital bench scales (100# and 25# capacities), Fischbein Portable Bag Sewing machine and supplies, 10 U.S. Sieve series, large cloth bags, and seed envelopes.

90-00-LRTF-311, 2003 - \$35,640.00

Description: Iowa Ecotype Project

One hundred seventy-one (171) new remnant collections of seed representing 14 different species were added to the project, including three new species for 2003: Creamy indigo (*Baptisia bracteata*), Rosin weed (*Silphium integrifolium*), and White prairie clover (*Dalea candida*).

Propagation and Plot Establishment

More than twenty thousand plugs were grown at UNI for transplanting into foundation seed increase plots in Spring



Student employee bags seed using Fischbein portable bag sewing machine.

2004. Currently, there are over 100 production plots at the Native Roadside Vegetation Center certified by Iowa Crop Improvement Association as Source Identified Seed. Plot maintenance, seed harvest, and seed cleaning are now major IEP activities at the Center.

Commercial Production of IEP Seed

Sixteen regional sources of 12 species were released for commercial production to six commercial seed producers in March of 2004. A total of 31 lbs. 8 oz. of foundation seed was released from the UNI Native Roadside Vegetation Center production plots (42 lbs. total combined release from Elsberry and NRVC). IEP producers reported 751 certified acres and 63,294 lbs. of IEP Source Identified seed produced in 2003.

90-00-LRTF-414, 2004 - \$37,420.00

Description: Iowa Ecotype Project

Approximately 100 populations of 24 species were collected from remnants, including three new species: Porcupine grass (*Hesperostipa spartea*), 24 populations; Smooth blue aster (*Symphotrichum laeve*), 27 populations; and Sweet coneflower (*Rudbeckia subtomentosa*), 15 populations.

Propagation and Plot Establishment

Approximately twenty thousand plugs were grown at UNI for transplanting into foundation seed increase plots in Spring 2005. Continue seed increase plot establishment for new species. Plot maintenance, seed harvest, and seed cleaning continue to be major IEP activities at the Native Roadside Vegetation Center. Two full-time staff and approximately one FTE of undergraduate student employees provide the labor for these activities over the past several years.

Commercial Production of IEP Seed

Twenty-one sources of 16 species were offered for release to eight commercial producers in spring 2005. A total of 76 lbs. of foundation seed (mostly smaller-seeded forb species) was released from the Native Roadside Vegetation Center to eight producers in 2005. IEP producers reported 756 certified acres and 56,843 lbs. of IEP Source Identified seed produced in 2004.

90-00-LRTF-503, 2005 - \$36,450.00

Description: Iowa Ecotype Project

Three new species – New Jersey tea (*Ceanothus americanus*), 6 populations; Wild quinine (*Parthenium integrifolium*), 5 populations; and Virginia wild rye (*Elymus virginicus*), 29 populations – and multiple new collections of seed were added to the project this year. Over 15,000 plugs were grown, and additional seed increase plots established. Plot maintenance, seed harvest, and seed cleaning continue to be major IEP activities at the Tallgrass Prairie Center. Two full-time staff and approximately one FTE of undergraduate student employees provide the labor for these activities. Currently 52 species of 152 regional sources are in the project. Eighty-four sources of native species have been released for commercial production since the project's inception. Over 60,000 lbs. of IEP source-identified seed was produced in 2005 by commercial growers.

90-00-LRTF-517, 2005 - \$10,188.00

Description: Equipment - Truax U86 seed drill

The grant provided funds to purchase a 6-foot Truax no-till seed drill for seeding foundation seed increase plots for the Iowa Ecotype Project, as well as for seeding prairie restorations for research and demonstrations affiliated with the Tallgrass Prairie Center and the UNI Campus. The Center offered 42 sources of 25 native species for release to producers. One-hundred forty two (142) pounds of IEP foundation seed were released in spring 2006.

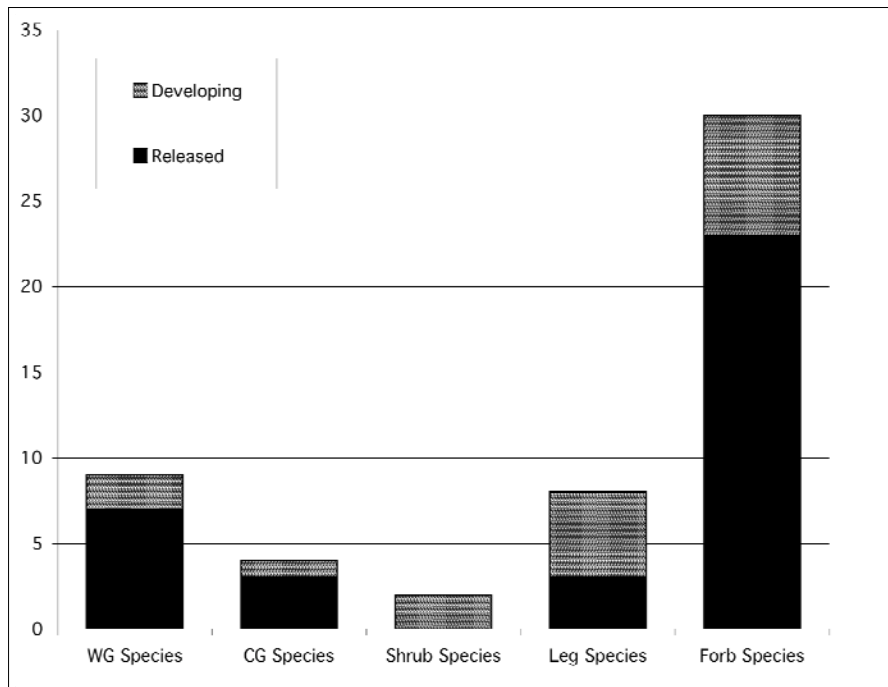
90-00-LRTF-605, 2006 - \$38,340.00

Description: Iowa Ecotype Project

One-hundred twenty three (123) new remnant collections of seed of approximately 16 species were added to the project, including southern Iowa Tall coreopsis (*Coreopsis tripteris*), 17 populations, and additional populations of previously collected species. The Project also initiated both a wetland plant component and upland sedge component with additional outside funding over the next 2-3 years. 'Upland' Carex species already collected include Prairie sedge (*C. bicknellii*), Plains oval sedge (*C. brevior*), Heavy sedge (*C. grvida*), and Troublesome sedge (*C. molesta*). Over 2,560 accessions of remnant seed of approximately 55 native species are now in the Project.

Plot maintenance, seed harvest, and seed cleaning continue to be major IEP activities at the Tallgrass Prairie Center. Two full-time staff and approximately one FTE of undergraduate student employees provide the labor for these activities. Eighty-six regional sources of 36 native species have been released for commercial production since the project's inception.

Iowa Ecotype Project – Status of Collections and Releases July 2006



Bar height equals total number of ecotypes by plant species. Solid portion of bar represents number of ecotypes released for commercial production. Stippled portion of bar represents number of additional ecotypes under development. Key: WG = Warm season grasses; CG = Cool season grasses; Leg = Legume species

IEP Promotional Activities

- Native Species Committee representative, Iowa Crop Improvement Association
- Iowa Prairie Network, Region 3 Board Member (NE Iowa)
- Mid-West Seed Native Seed Quality Conference, Omaha, NE. February 20-22, 2006.
- Developed content for redesigned Iowa Ecotype Project website.
- Invited speaker, 19th Annual Roadside Conference. "Roadmap for Managing Genetic Diversity" Johnston, IA, Sept 8-9, (200 participants).
- Presentation, "Genetic Diversity: Sowing What we Reap". Iowa Prairie Network Annual Meeting at Hartman Reserve Nature Center, June 24-25, 2005.
- Invited speaker, Trees Forever, Stewards of the Beautiful Land, Seed Source/Harvest, August 23, 2005, Cove Restaurant, Rochester Cemetery Prairie (15 attendees)
- Native Seed Harvesting and Cleaning workshop, October 13, 2005, 24 participants.
- Native Seedling Identification workshop, 9-2:00, April 27, 2006, 32 participants.



Tallgrass Prairie Center Director Daryl Smith leads LRTF Advisory Committee members on tour of new IEP greenhouse.

90-00-LRTF-606, 2006 - \$4,860.00

Description: Equipment, Greenhouse

This grant provided funding for equipment and supplies for the new greenhouse facility at the Tallgrass Prairie Center at UNI. Sixteen modular greenhouse benches, an overhead mist system for germination, watering wands, potting soil components, hose reels, and hoses were purchased for the Iowa Ecotype Project.

90-00-LRTF-705, 2007 - \$38,370.00

Description: Iowa Ecotype Project

One hundred and fourteen additional (114) seed collections of 16 grass and forb species were added to the project in 2007. New species include Tall cinquefoil (*Potentilla arguta*), Grass-leaved goldenrod (*Euthamia graminifolia*), and Willow aster (*Symphotrichum praealtum*). In addition, 116 collections of seven species of upland sedges were collected and accessioned, for a total of 230 seed collections of 22 species. Over 25,000 plugs were grown, and additional seed increase plots established. Currently nearly 60 species are in the project. Eighty-four regional sources of native species have been released for commercial production since the project's inception. The Project will continue collecting wetland plant species in the fall of 2007 for propagation and increase in 2008. Separate funding provided installation of waterline, site preparation, irrigation equipment, bed-former and mulch layer for irrigated seed production areas of sedges and other wetland species.

IEP producers reported 869 certified acres and nearly 210,000 lbs. of IEP source-identified seed production for 2007. Currently, sixty-one sources of thirty species of IEP seed are in active commercial production by private growers.

90-00-LRTF-811, 2008 - \$41,378.00

Description: Iowa Ecotype Project

The Tallgrass Prairie Center maintained Source Identified certification through the Iowa Crop Improvement Association on 43 species in 123 different foundation seed increase plots. Certification provides third-party verification of species and source and is a requirement of AOSCA (Association of Seed Certifying Agencies) for the Source ID program. Five native seed producers requested a total of forty-three regional sources ('ecotypes') of 28 species in 2008. Approximately 140 pounds of certified foundation seed was released to growers in 2008.

Four new sedge species were established and increased over the past two growing seasons. Remnant collections of six additional sedge species and one grass species were collected during the 2008 field season for seed-increase evaluation. These are: *Carex buxbaumii*, Buxbaum's sedge; *Carex pellita*, Woolly sedge; *Carex annectens*, Yellow fox sedge; *Carex vulpinoidea*, Fox sedge; *Carex bebbii*, Bebb's sedge; *Carex sartwellii*, Sartwell's sedge and *Glyceria striata*, Fowl manna grass.

90-00-LRTF-911, 2009 - \$41,645.00

Description: Iowa Ecotype Project

The Tallgrass Prairie Center maintained Source Identified certification through Iowa Crop Improvement Association on 52 species in 99 different production plots in 2009.

New species established for increase at the Center include: *Carex stricta*, Tussock sedge (Iowa); *Carex haydenii*, Hayden's sedge (Iowa); *Scirpus cyperinus*, Wool grass (Iowa); *Lobelia cardinalis*, Cardinal flower (Iowa); *Symphotrichum oolentangiense*, Sky blue aster (Zone 1); and *Prunella vulgaris var. lanceolata*, Self-heal (Iowa). Re-established production plots to re-supply inventory were *Solidago speciosa*, Showy goldenrod (Zone 1); *Astragalus canadensis*, Canada milkvetch (Zone 1); *Lobelia siphilitica*, Great blue lobelia (Zone 2); *Parthenium integrifolium*, Wild quinine

(Eastern Iowa). Nine species/sources were released for commercial production, including three *Carex* species (*C. bicknellii*, *C. brevior*, and *C. molesta*).

Wetland Plant Materials Development Initiative

The Center has been developing several *Carex* species as foundation seed over the past three years, and information presented on collection methods, production, harvesting, cleaning, and seed yields for several species in production were presented. Wetland specialists, resource managers, botanists, and native seed growers from various agencies and organizations were invited to the Center to participate in a wetland plant materials development summit.



Growing sedges in the IEP greenhouse.

The primary purpose for the meeting was to identify and prioritize species for collection and seed increase for commercial development for wetland restoration. Invited participants included representatives from Natural Resources Conservation Services (NRCS); Iowa Dept. of Transportation (DOT)-Office of Location and Environment; Iowa Crop Improvement Association (ICIA); Prairie Resource Center, Iowa DNR; Regional Biologist, Ducks Unlimited (DU)-Iowa; Partners for Fish and Wildlife, US Fish and Wildlife Service (USFWS); Drake University; Natural Resources, Polk County Conservation Board; and Iowa Native Seed Growers.

The group reviewed a list of species commonly specified in wetland mixes by state and federal agencies and assessed existing commercial availability of seed sources. A focal point was the ecological potential of sedges (species of *Carex*) for sedge meadow and wet prairie restoration, and some of the challenges with identification, propagation, and seed production. The group also identified a need for more riverine, submergent and aquatic vegetation (SAV) to be available to meet the needs of restoration for these types of wetlands.

90-00-LRTF-003, 2010 - \$46,643.00

Description: Iowa Ecotype Project

The Tallgrass Prairie Center maintained Source Identified certification through Iowa Crop Improvement Association on 42 species in 66 plots. In addition, 9 new plots of 9 species were added to certification in 2010. Iowa Crop reported over 800 acres and approximately 200,000 lbs of Project seed being produced and certified commercially as Source Identified seed in Iowa. Eight species were released for commercial production, including Northern Iowa Leadplant (*Amorpha canescens*), Northern Iowa White wild indigo (*Baptisia alba*), Northern Iowa Smooth blue aster (*Symphyotrichum leave*), Southern Iowa Showy tick (*Desmodium canadense*), Yellow

fox sedge (*Carex annectens*), and Virginia mountain mint (*Pycnanthemum virginianum*). Iowa Crop and the TPC have been collaborating with other partners to promote native plants through a new initiative, 'Plant Iowa Natives (www.plantiowanative.com). The website list providers of native plant materials as well as service providers to help manage remnant and restored native plant communities.

90-00-LRTF-110, 2011 - \$41,330.00

Description: Iowa Ecotype Project

Certification provides third-party verification of species and sources and is a requirement of AOSCA (Association of Seed Certifying Agencies) for the Source ID program. Iowa Crop again reported approximately 800 acres and over 180,000 lbs of Project seed being produced and certified commercially as Source Identified seed in Iowa. Fifty-three species from 116 Iowa sources ('ecotypes') have been released from the project since it's inception (see table).

The Tallgrass Prairie Center maintained Source Identified certification through Iowa Crop Improvement Association on 50 species in 61 plots in 2011. Eleven new plots of 11 species will be added in 2011. Of these, three species are being regrown to replenish foundation seed for those sources, and 8 species are either new to the project or were planted as further increase of initially small quantities of seed previously collected for the project. The species that are new or were planted for further increase are *Carex buxbaumii*, Buxbaum's Sedge (Iowa), *Carex laeviconica*, Smoothcone Lake Sedge (Iowa), *Carex sartwellii*, Running Marsh Sedge (Iowa), *Carex trichocarpa*, Hairy-fruited Lake Sedge (Iowa), *Scirpus atrovirens*, Dark Green Bulrush (Iowa), *Anemone cylindrica*, Thimbleweed (Northern Iowa), *Potentilla arguta*, Prairie Cinquefoil (Iowa), *Rudbeckia subtomentosa*, Sweet Coneflower (Eastern Iowa). Species re-established as production plots to re-supply inventory are *Artemisia ludoviciana*, Prairie Sage (Central Iowa); *Coreopsis palmata*, Prairie Coreopsis (Northern Iowa); and *Sporobolus heterolepis*, Prairie Dropseed (Northern Iowa).

Long-term Seed Storage Provided by NCGRP

The National Center for Genetic Resources Preservation (NCGRP), Fort Collins, CO, agreed to provide 'black box' storage for small amounts of regional foundation seed (Iowa Ecotype Project/ Natural Selections) developed by the Tallgrass Prairie Center at UNI over the past 20 years. This arrangement was facilitated by Mark Widrlechner, USDA-ARS Horticulturist at the North Central Regional Plant Introduction Station at Iowa State University in Ames, IA. Recently retired, Widrlechner explained that the Center's seed increase program is a "valuable project at the University of Northern Iowa to develop regional, synthetic populations of native, Iowa prairie plants and...to ensure that these regional synthetics get out to the land managers who need them." Black box storage means that while NCGRP will maintain these seed sources in appropriate long-term storage at the National facility, it will remain the Tallgrass Prairie Center's responsibility to regenerate the collection to maintain viability. Approximately 145 regional sources of over 60 native species were included in 'black box' storage.

90-00-LRTF-202, 2012 - \$46,983.00

Description: Iowa Ecotype Project

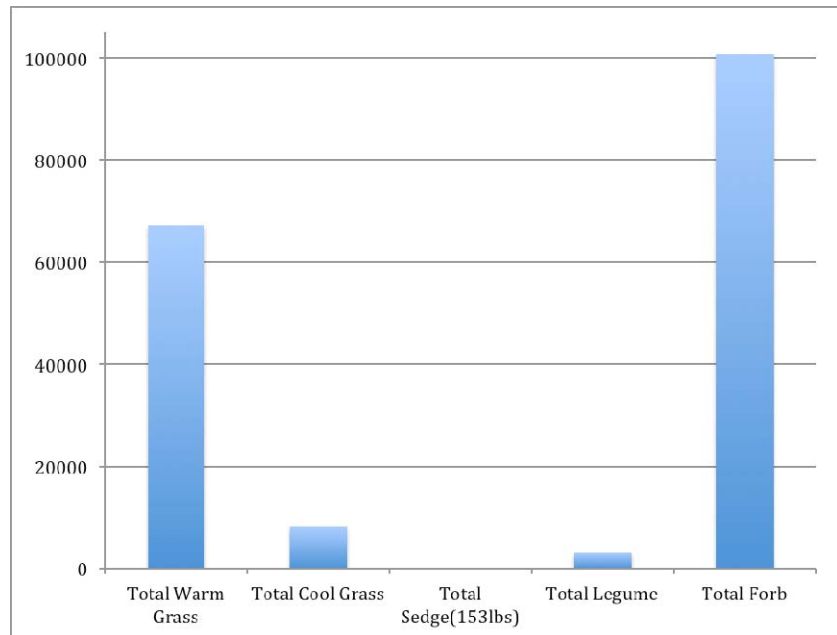
Iowa Crop Improvement Association reported 544 acres and approximately 179,000 lbs of Project seed being produced and certified commercially as Source Identified seed in Iowa (2011 crop). Total certified warm season grass production was 423 acres, 67,146 lbs; cool season grass production 22 acres, 8,136 lbs; total sedge production 2.19 acres, 153 lbs; total legume 8.98 acres, 2,983 lbs; and total certified forb production was 87 acres, 100,748 lbs, which is remarkable (see graph). Fifty-three species from 116 Iowa sources ('ecotypes') have been released from the project since its inception. The Tallgrass Prairie Center maintained Source Identified

certification through Iowa Crop Improvement

Association on 48 species in over 56 plots in 2012. Six new seed increase plots were added in 2012, either new to the project or were planted as further increase of initially small quantities of seed previously collected for the project. These were *Carex gravida*, Heavy Sedge (Iowa); *Asclepias tuberosa*, Butterfly milkweed (Northern Iowa); *Desmodium illinoensis*, Illinois tick trefoil

(Iowa); *Koeleria macrantha*,

Prairie Junegrass (Central Iowa); *Euthamia graminifolia*, Grassleaved goldenrod (Iowa); and *Bouteloua curtipendula*, Sideoats grama (Northern Iowa)



Irrigation challenges with *Carex* plot maintenance/management: The plasticulture system installed over the past three years has been very successful and improving establishment, controlling weedy competition, and increasing seed yields for both wetland and upland species. Production of many *Carex* species would not be productive without this system in place. New irrigation tubing was purchased and installed this spring (Netafim) to allow retrofitting of irrigation line post-burning of *Carex* plots (which destroyed much of the original plastic mulch and t-tape when plots were established three years previous). The new system can be rolled up end of season and stored and re-installed post burn to prevent damage. Some very early flowering species (*C. stricta*, *C. sartwellii*, and *C. buxbaumii*), were in full flower this spring before it was prudent to operate irrigation (because of nighttime freezing temperatures that would have ruptured t-tape and/or steel pipe/hydrants). These species may require an alternate system of irrigation, perhaps berming up around plot and flood irrigating very early season to promote flowering and seed set. This will require some experimentation.

90-00-LRTF-314, 2013 - \$43,688.00

Description: Iowa Ecotype Project

The Tallgrass Prairie Center maintained Source Identified certification through Iowa Crop Improvement Association on 32 foundation seed production fields. Increase plots of winged-loose strife (*Lythrum alatum*), Turtlehead (*Chelone glabra*), Missouri goldenrod (*Solidago missouriensis*), Sullivan's milkweed (*Asclepias sullivantii*) were established. Notably, the first harvest of Tussock sedge (*Carex stricta*), Smoothcone lake sedge (*Carex laeviconica*), and Illinois tick trefoil (*Desmodium illinoise*) occurred this summer. Twenty seven species were harvested from seed increase plots this year. Twenty-two releases (species and sources) were made to commercial growers this year. A cooperative project with Iowa DNR, the Monarch Joint Venture, and Xerces Society allowed the Center to develop increase plots for butterfly milkweed (*Asclepias tuberosa*) and Sullivan's milkweed (*Asclepias sullivantii*) that will also be made available for release to commercial growers. Article at: <http://monarchjointventure.org/news-events/news/milkweed-seed-harvesting-and-prairie-restoration#prettyPhoto>

Program Manager represented the Tallgrass Prairie Center and Natural Selections Seed through two presentations at the 2nd National Native Seed Conference in Santa Fe, NM, April 8-11, 2013 (<http://nativeseed.info/>). Over 260 professionals from land management agencies, wildlife agencies, seed and nursery industry, conservation organizations, and academic institutions attended. The conference was an excellent opportunity to network and share information about the collection, research and development, production, and use of native plant materials. Presentations included research and general information on species selection and seed collection, plant material evaluation, seed zone determination, field establishment and cultural practices, commercial native seed production, storage and distribution solutions, current methods for successful habitat restoration & rehabilitation, ecoregional native plant materials programs, and economics and policies supporting restoration & rehabilitation. Natural Selections Seed (aka Iowa Ecotype Project) is highly regarded for it's efforts to bring native plant materials to the commercial market, and indeed has inspired similar efforts around the nation, from Long Island to Oregon, and from Texas to Minnesota. An overriding theme of this conference is practical information with direct implications for management. It presented a unique opportunity to exchange information among groups confronting the same issues in different parts of the world. Presentations from the 2010 conference in Snowbird, UT are available at <http://nativeseed.info/2010/presentations.html>. The National Native Seed Conference is organized by the Native Seed Network, a program of the Institute of Applied Ecology, Corvallis, OR, with major sponsorship by the Bureau of Land Management.



Carex stricta flowering abundantly in seed increase plot at the Tallgrass Prairie Center.

Presentations: The Eco Chamber: Ecology, Economics, and Ecotypes

Poster: Native Sedges (*Carex* spp) for Prairie and Wetland Restoration

