

THE INSTALLATION, ESTABLISHMENT, AND MAINTENANCE OF THE ROUNTREE PRAIRIE THE UNIVERSITY OF WISCONSIN-PLATTEVILLE¹

by

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Abstract: The Rountree Prairie is a 30-acre parcel adjacent to the Rountree Branch, a small trout stream that runs through the University of Wisconsin-Platteville campus greenbelt. Historically the prairie site was pastured; row cropped, cultivated as a nursery, and abandoned old field. A number of nursery hardwoods, conifers, and shrubs populated the old field. Aspen and a few other aggressive woody species have invaded the site. The site is predominately open, moderately well to well drained, and nearly level to gently sloping. The soils, formed in loess, are primarily silt loam. The Reclamation Student Chapter raised money and with volunteer help and a modicum of financial help from the University Grounds Department embarked on a several year process of restoring prairie to an area that was prairie/oak savanna during pre-settlement times. The students are primarily responsible for exotic weed control, seedbed preparation, seeding, and maintenance of the site. Periodic prescribed burning is the primary maintenance technique. The site serves as an outdoors-experiential learning laboratory and as a passive recreational respite for students and the community alike.

Additional Key Words: native plant community restoration.

Introduction

The University of Wisconsin-Platteville owns more than 70 acres of open land on the southern and western borders of the campus. Faculty recognized this area in the 1940's and 50's as having potential for restoration and learning. The acreage is unique because the Rountree Branch of the Little Platte River bisects it. The Rountree Branch is a trout stream (Molitor et al., 1993). This land, known as the greenbelt, is designated for conservation and to serve the campus and the general public as a scientific, research, and recreation facility (Culbertson, 1996).

The greenbelt designation was contained in a 1967 Campus Master Plan document for the purpose of the previously stated goals and also to serve as a

buffer from development along the campus borders. The Campus Planning Committee recommended in 1976, based on the uniqueness of the area, the development of a natural greenbelt for stream restoration, reforestation, prairie preservation, and related conservation practices. During this period, Campus Planning along with the Wisconsin Department of Natural Resources, students, and faculty were engaged in surveying and planning stream restoration activities, planting trees, shrubs, and grasses, constructing hiking trails, and translocating a historic iron bridge to span the stream. More than 60 species of prairie grasses and forbs were seeded in a small area on the western end of the greenbelt (Molitor et al., 1993, and Culbertson, 1996).

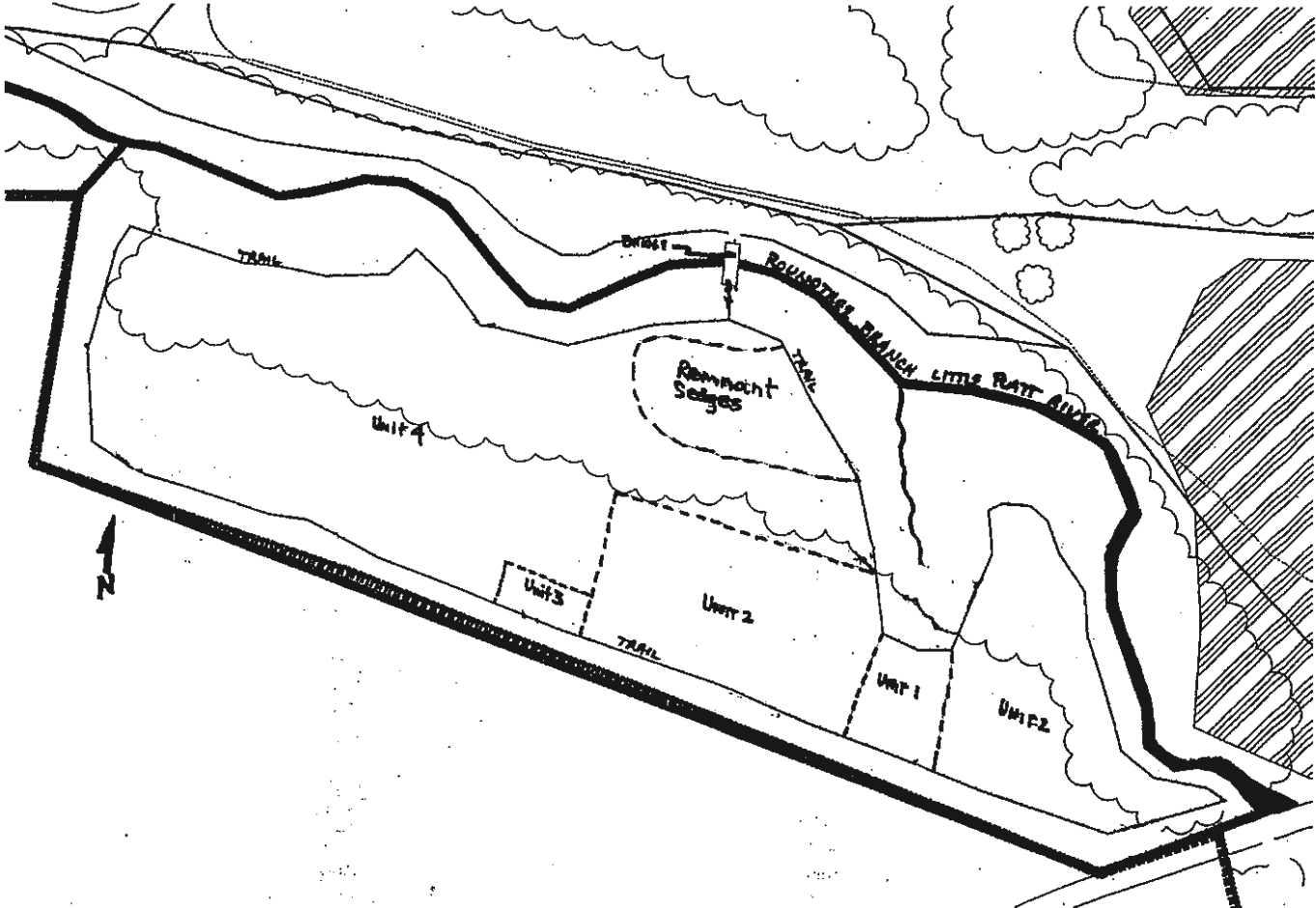
Subsequent to this activity, conservation actions languished. The focus was on developing intensive recreational areas in the greenbelt such as basketball courts, sledding hill, cross country course, rugby fields, and park amenities like toilets, pavilions and parking. Most existing plant communities adjacent to the Rountree Branch are considered disturbed communities and are in a neglected state. They have been invaded by weedy species of grasses, forbs, shrubs, and trees.

In reaction to this neglect, Dr. Roger Higgs, the Director of Reclamation, and two reclamation students, Chris Rieck and Alan Domnick approached the Greenbelt Committee with a long-term plan for restoring a 30-acre parcel of the greenbelt to native prairie (Figure 1). The

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Figure 1. ROUNTREE PRAIRIE RESTORATION SITE PLAN UW-PLATTEVILLE



Greenbelt Committee recommended in March 1998 adoption of the plan (Appendix 1) with minor changes on the basis that the plan clearly fit with the greenbelt mission and strategic plan (UW-Platteville Greenbelt Committee, 1998A). The Campus Planning Committee approved the plan in April 1998 (UW-Platteville Campus Planning Committee, 1998B).

Cooperatively, the UW-Platteville Campus Planning and Greenbelt Committees, Campus Maintenance Department, Grounds Department, Auxiliary Services, Reclamation Department, and the Reclamation Club committed themselves to the project. It was expected to take five to ten years to complete the original restoration project. Regular maintenance activity was expected and would be performed as needed.

The restoration process would serve as an educational tool and would provide opportunity for research and experimentation. The trail would provide recreational opportunities in an aesthetically pleasing environment for both the university and the local community. The prairie restoration would help improve the health of the Rountree Branch watershed, the stream itself, and provide a more diverse and abundant habitat for a range of plants and animals. A kiosk constructed at the site would provide educational opportunities for the public and students on prairies. The site would also be a source of pride and a tribute to the university and its Reclamation Department.

Methods and Materials

The following abbreviated chronology of events illustrates not only the methods and materials used, but also the focus, dedication, and cooperation of student, faculty, staff, and community prairie enthusiasts.

- Early April 1998 - Burned 1/3-acre (unit one).
- April 23, 1998 - Applied RoundUp™ over unit one.
- May 4, 1998 - Rototilled unit one.
- May 11, 1998 - Applied Plateau™ over unit one except for several 10 ft. X 10ft. areas that were seeded with herbicide intolerant forbs. Plateau™ was used because it was donated to the Chapter for weed control. Overall 21 native forbs and 3 native grasses were seeded. A partial list of species and the relative amounts seeded are contained in Appendix 2. This list is partial because some locally harvested seed was sown without documentation.
- Summer 1998 - Mowed unit one at height of 6 inches.
- September 18, 1998 - Applied RoundUp™ to 3-acre area (unit two).
- Fall 1998 - Collected local native prairie seed.
- October 27, 1998 - Cleared brush and chisel plowed unit two to prepare the future seedbed.
- February 15, 1999 - Purchased additional local native seed to supplement seeding unit two.
- April 10, 1999 - Burned units one and two.
- Mid-to-late April 1999 - Disked and culpacked unit two for smooth seedbed.
- May 2, 1999 - Applied Plateau™ over unit two and seeded with native grasses and forbs. Nine forbs and two grasses plus a miscellaneous grab bag of hand-collected seed were broadcast using a hand broadcaster.
- Late summer 1999 - Mowed units one and two at a height of 6 inches.
- July 1, 1999 - In the spirit of the Greenbelt Strategic Plan for research and experimentation, a new program director encouraged disembarking from the recipe approach to prairie planting. Undoubtedly some students would be faced with different conditions and circumstances in their working careers, so it would be good to have options for prairie restoration. The students and staff agreed to experiment with a variety of approaches, hoping not to lose momentum.
- Fall 1999 - Collected native prairie seed by hand at local remnant stands.
- Fall 1999 - Located and drove metal stakes into the corners of the management units for purposes of future monitoring.
- December 1999 - Scalped a 1/10-acre area (unit three) with a front-end loader to mimic construction site conditions and see what effect, if any, the scalping would have on wild parsnip, an aggressively invasive and phytotoxic species. Approximately 2 inches of surface soil were removed and stockpiled for later use elsewhere. First year results show approximately 95 % reduction in wild parsnip.
- December 17, 1999 - Applied prairie hay at a rate of approximately 1 ton per acre over unit three as the sole seed source and as a means to control erosion. The prairie hay came from a high quality state natural area prairie remnant about 40 miles from the site and was provided by a former reclamation student in cooperation with the Wisconsin Department of Natural Resources.
- January 2000 - Purchased and received donations of additional native prairie grass and forb seed.
- March 30, 2000 - Burned units one, two, and four. Units one and two were burned as part of the

management burn regime and to help reduce exotic weed growth. Unit four is about a five-acre area that completes the entire prairie restoration area that lies within an overtly shaped limestone hiking and cross-country loop trail. Unit four was burned to remove duff and stimulate vegetative growth so herbicide contact would be more effective.

- April 2000 - Scouted unit four and delineated subunits containing native sedges and forbs that would not receive herbicide treatment.
- May 2, 2000 - Applied RoundUp Ultra™ to unit four except for subunits containing desirable vegetation.
- June 23, 2000 - Mowed unit four to height of 6 inches.
- Summer 2000 - An information kiosk was constructed at the loop trailhead near the historic iron bridge that spans the Rountree Branch.
- July 5, 2000 - Sprayed another application of RoundUp Ultra™ on unit four at a rate of 1.5 quarts per acre.
- October 3, 2000 - Winter rye cover crop drilled in unit four at about 50 pounds per acre for purposes of erosion control and weed competition.
- December 9, 2000 - Frost seeded unit four. On a subzero breezy morning 19 volunteer students, faculty, and community members hand broadcast prairie forb and grass seed. A matrix of short grasses was drilled around the unit's perimeter using a Truax brand no-till drill. A matrix of tall grasses was drilled in the unit's interior using a Truax brand no-till drill. Seven grasses and 23 forbs were seeded plus a variety of hand collected seed. The frost seeding was done to demonstrate another feasible method of sowing prairie. Immediately after sowing the forbs and grasses, several inches of snow covered the installation and lasted all winter.
- Spring 2001 - Projected burn of units one, two, and three.

The entire site within the limestone loop trail has been seeded with prairie plant species. Trees and shrubs remain to be girdled and removed from the area. There is a never-ending battle with aggressive invasive species such as thistles, wild parsnip, reed canary grass, and brome. We plan to control invasive species through the use of fire, spot herbicide, and

mechanical removal. The original seedings will continue to be enriched through additional seeding. Quantitative plant monitoring will be initiated in 2001. The area will be surveyed using a GPS unit and a database built containing the quantitative vegetation performance within the units. In addition, we'll select additional areas to restore with the seed from this native prairie restoration.

Acknowledgments

This project was made possible by the efforts of many people. Al Domnick, Chris Rieck, and Dr. Roger Higgs were inspired by the site and promoted the restoration project. The Reclamation Club and other volunteers saw this portion of the project to completion. Dennis Palmer of Auxiliary Services oversaw the construction of the kiosk. Fred Koeller and Greg Smedema of the UWP Pioneer Prairie University Farm donated time and services by performing tillage and mechanical planting operations. Pattie Haack helped procure the prairie hay and assisted with the kiosk display, and provided excellent leadership. Alicia Adams of the UWP Pioneer Prairie University Farm donated the use of her four-wheeler and sprayer. Reclamation students and volunteers assisted with the manual labor, seeding, and prescribed burns. Businesses such as Cyanamid in Frankfort, Ohio and Applied Ecological Services of Brodhead, Wisconsin donated herbicide and seed respectively. UW-Platteville physical plant and grounds crew provided labor, equipment, funding, and strong interest in the success of this project. There are others, especially all the community members who have taken interest and have volunteered, even under adverse conditions. Let the prairie grow.

Literature Cited

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- Culbertson, Robert G. May 3, 1996. Memo from the Chancellor to the UW-Platteville Greenbelt Committee containing history, mission statement, and development strategies.
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Appendix 1. LONG-TERM NATIVE PRAIRIE DEVELOPMENT PLAN ROUNTREE BRANCH UW-PLATTEVILLE

Dr. Roger Higgs, Director,
Alan Domnick & Chris Rieck, Reclamation Student Chairs

The reclamation program/major pledges itself to the development of the 30-acre Rountree Prairie from its inception in 1997-98 and for its development over the next five to ten years. The reclamation club has voted its support and has established a full-time committee (Al Domnick and Chris Rieck, co-chairs). The Reclamation 302: Reclamation Revegetation class (Dr. Higgs, instructor) will monitor, plan and do manual work on this project each spring. Other reclamation classes, soils classes and the Ecology class in Biology (Dr. Elizabeth Frieders) will also be involved in some aspects of this project.

The area has an excellent landscape and soil area to develop a prairie. The area has a few problems (normal), which need to be dealt with – some short and some long-term. There are some trees and shrubs, which either need, removed, girdled or sawed. Most vegetation is **not** native on this site. The soil has a very poor supply of native plant seed. Thus, most of the area will need reseeded with native grass and forb species (a couple of small areas can remain without reseeding). The cost to seed one acre with native seeds adapted to Southwest Wisconsin will be \$200.00 to \$1,000.00 per acre from native seed suppliers depending upon the species utilized (grasses are cheaper). The area or portions thereof, will need to be burned in April 1998 and burned irregularly (on purpose) every one-three years.

The area would be split into different management units of varying sizes for aesthetic, educational and functional reasons. Exact species for the management areas will vary because of management processes, costs, educational use and aesthetics. The forbs add much natural beauty, but the seed cost is much higher than for grasses. The decisions for the exact species for planting can wait of a particular year's planting. The Reclamation 302 class will develop a species list for 5 – 10 years for management units by May 1998. This can serve as a tentative guide for 5 – 10 years.

An accelerated schedule could see completion in five years. A more relaxed schedule will take ten years. After year 10, there will always be the need to occasionally burn, cut brush, spot spray and spot plant more native seeds.

Yearly plans will include the following:

Spring 1998:

1. Burn all or part (students)
2. Roundup herbicide – 1/3 acre – April
3. Plant 1/3 acre (May); rototill (grounds crew); plant/rake (students)
4. Tree spade: few small trees before fire (grounds crew)

Summer 1998:

1. Mow weeds on 1/3 acre at 6-inch height – three times (June, July, August) (grounds crew). Note: If Plateau herbicide is used, then mowing may be reduced or not needed.

Fall 1998:

1. Spray next year's area (1 – 5 acres) with Roundup (field sprayer – grounds crew) Sept. 15 – 30
2. hand weed (sweetclover, wild parsnip) or spot spray 1/3 acre (students)

Winter 1998 – 99

1. Saw (ground level) silver maples, aspen trees, large honeysuckle, pine trees and some other brush (grounds crew mostly, maybe some student help).
2. Small brush cutting (students?)

Spring 1999:

1. Burn portion (students)
2. Plow or rototill 1 – 5 acres, or more
3. Seed 1 – 5 acres, or more (grounds crew – mechanical; students? – by hand)

Summer 1999:

1. Mow all seeded areas three times at 6-inch height unless Plateau Herbicide used.

Fall 1999:

1. Spray next year's area (1 – 5 acres) with Roundup (field sprayer – Grounds crew) Sept. 15 – 30
2. Hand weed or spot spray seeded areas (students)

Winter 1999 – 2000

1. Finish cutting trees, brush and burning wood (these are soft-wooded trees).

Spring 2000

1. Burn (?)
2. Plow or rototill 1 – 5 acres, or more
3. Seed 1 – 5 acres, or more (grounds crew-mechanical, students?–by hand)

Summer 2000:

1. Mow seeded areas from this year and last year three times at 6 inch height unless Plateau herbicide used.

Fall 2000:

1. Spray next year's area (1 – 5 acres, or more) with Roundup (field sprayer-grounds crew) Sept. 15 – 30
2. Hand weed or spot spray seeded areas (students)

Spring 2001:

Same as previous year

Summer 2001:

Same as previous year

Fall 2001:

Same as previous year

Year 2002:

Same as previous year

Year 2003 – 2007:

Same as previous year

Years 2008 – 2018:

- 1 Occasionally burn Spot plant more native seeds.
- 2 Cut brush as needed.
- 3 Develop educational studies.
- 4 Spot spray weeds.
- 5 Signage

Cost based on 30 acres

Seed: \$3,000.00 - \$10,000.00

Signage: (appropriate, maintainable & tasteful) \$200.00
- \$500.00

Herbicide: donated

Tillage, spraying, mowing, sawing, tree spade: UWP
grounds crew.

Appendix 2. Plant species seeded in the Rountree Prairie during the period 1998 - 2000.

Scientific Name	Common Name	Spring 1998	Spring 1999	Spring 2000	Fall 2000	Total less hand collected	Seeds per oz or lb (PLS)
Grasses							
<i>Andropogon gerardii</i>	Big Bluestem	5 lb	15 lb	2 lb	1 lb	23 lb	131,200/lb
<i>Bouteloua curtipendula</i>	Side Oats Grama				2 lb	2 lb	128,000/lb
<i>Elymus canadensis</i>	Canada Wild Rye	1 lb			3 lb	4 lb	67,200/lb
<i>Panicum virgatum</i>	Switchgrass				1 lb	1 lb	288,000/lb
<i>Schizachyrium scoparium</i>	Little Bluestem				2 lb	2 lb	140,800/lb
<i>Sorghastrum nutans</i>	Indian Grass	5 lb	10 lb	2 lb	2 lb	19 lb	132,800/lb
<i>Sporobolus heterolepis</i>	Prairie Dropseed				2 oz	2 oz	14,000/oz
Forbs							
<i>Allium cernuum</i>	Nodding Onion		3 oz	0.5 oz		3.5 oz	7,700/oz
<i>Amorpha canescens</i>	Leadplant	1 oz				1 oz	17,000/oz
<i>Anemone virginiana</i>	Tall Thimbleweed				0.5 oz	0.5 oz	28,000/oz
<i>Aster laevis</i>	Smooth Blue Aster				1.0 oz	1 oz	48,000/oz
<i>Aster novae-angliae</i>	New England Aster	5 oz	2 oz	1 oz		8 oz	70,000/oz
<i>Baptisia leucantha</i>	White Wild Indigo				1 oz	1 oz	1,600/oz
<i>Cassia hebecarpa</i>	Wild Senna	2 oz			2 oz	4 oz	1,400/oz
<i>Coreopsis tripteris</i>	Tall Coreopsis	1 oz	4 oz	1 oz	1 oz	7 oz	11,000/oz
<i>Desmodium canadense</i>	Showy Tick Trefoil				2 oz	2 oz	5,500/oz
<i>Desmodium illinoense</i>	Illinois Tick Trefoil	1 oz				1 oz	4,300/oz
<i>Echinacea pallida</i>	Pale Purple Coneflower	3 oz			3 oz	6 oz	5,000/oz
<i>Eryngium yuccifolium</i>	Rattlesnake Master	2 oz		0.5 oz	2 oz	4.5 oz	8,000/oz
<i>Eupatorium maculatum</i>	Joe Pye Weed			1 oz		1 oz	85,000/oz
<i>Geum triflorum</i>	Prairie Smoke				0.5 oz	0.5 oz	34,000/oz
<i>Helenium autumnale</i>	Sneezeweed			1 oz		1 oz	100,000/oz
<i>Helianthus divaricatus</i>	Woodland Sunflower				1.5 oz	1.5 oz	
<i>Helianthus occidentalis</i>	Western Sunflower	1 oz				1 oz	13,000/oz
<i>Heliopsis helianthoides</i>	Early or False Sunflower			0.5 oz	1 oz	1.5 oz	6,500/oz
<i>Hypericum spathulatum</i>	Shrubby St. John's Wort			0.5 oz		0.5 oz	

Scientific Name	Common Name	Spring 1998	Spring 1999	Spring 2000	Fall 2000	Total less hand collected	Seeds per oz or lb (PLS)
<i>Lespedeza capitata</i>	Round-headed Bush Clover	1 oz				1 oz	10,000/oz
<i>Liatris pycnostachya</i>	Prairie Blazing Star	1 oz			1.5 oz	2.5 oz	12,000/oz
<i>Lupinus perennis</i>	Wild Lupine				1 oz	1 oz	1,000/oz
<i>Monarda fistulosa</i>	Wild Bergamot	1 oz	4 oz		1 oz	6 oz	78,000/oz
<i>Oenothera biennis</i>	Common Evening Primrose	8 oz	10 oz			18 oz	550,000/oz
<i>Parthenium integrifolium</i>	Wild Quinine	1 oz		0.5 oz		1.5 oz	6,800/oz
<i>Penstemon digitalis</i>	Foxglove Beardtongue	1 oz				1 oz	100,000/oz
<i>Petalostemum purpureum</i>	Purple Prairie Clover	1 oz	2 oz			3 oz	20,000/oz
<i>Phlox pilosa</i>	Prairie Phlox				0.2 oz	0.2 oz	19,000/oz
<i>Potentilla arguta</i>	Prairie Cinquefoil		4 oz			4 oz	150,000/oz
<i>Pycnanthemum virginianum</i>	Mountain Mint				1 oz	1 oz	220,000/oz
<i>Ratibida pinnata</i>	Yellow Coneflower	5 oz		1 oz	6 oz	12 oz	27,000/oz
<i>Rosa carolina</i>	Wild Rose				1 oz	1 oz	2,900/oz
<i>Rudbeckia hirta</i>	Black-eyed Susan	9 oz	4 oz	0.5 oz	2 oz	15.5 oz	100,000/oz
<i>Silphium laciniatum</i>	Compass Plant	1 oz			1 oz	2 oz	650/oz
<i>Silphium perfoliatum</i>	Cup Plant	1 oz				1 oz	1,400/oz
<i>Silphium terebinthinaceum</i>	Prairie Dock				1 oz	1 oz	1,100/oz
<i>Solidago nemoralis</i>	Old Field Goldenrod			1 oz		1 oz	300,000/oz
<i>Tradescantia ohimensis</i>	Ohio Spiderwort				1 oz	1 oz	8,000/oz
<i>Verbena hastata</i>	Blue Vervain			1 oz		1 oz	100,000/oz
<i>Verbena stricta</i>	Hoary Vervain		4 oz		1 oz	5 oz	32,000/oz
<i>Veronia fasciculata</i>	Common Ironweed	1 oz				1 oz	20,000/oz
Total		13.94 lb	27.31 lb	4.625 lb	13.2 lb	59.075 lb	