

**Phlox Floridana Research Grant 2007
Final Report**

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TO: Lisa Roberts, Executive Director, Florida Wildflower Foundation

FROM: Joanna Booth, Salter Tree and Herb Farm

December 2008 Final Report R-004-07

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Executive Summary

Phlox floridana was in hiding for many months. Unlike its cousins *Phlox nivalis* and *Phlox pilosa* who make an early, showy appearance in the spring, *Phlox floridana* waits.

For the first seven months of the grant cycle there was eager anticipation for the emergence of *Phlox floridana* colonies. It was April when *floridana* started blooming. Even attempting to research existing colonies was very time consuming. Over ninety percent of listed *Phlox floridana* sites, in Florida, were referenced 60, 70 and even 80 years ago. The search was narrowed by date of reference, local proximity, and a tip-off by a revered botanist - *Phlox floridana* was found at Big Pine Tract, in Brooksville. The Big Pine Tract identification specimen was supported as *Phlox floridana* by USDA Botanists. But specimens from another site in Brooksville, and in Bay Yard Point in Clay County, were determined to be *Phlox pilosa*, not *floridana*. The ability to complete the project was assured even with one colony, but soon two colonies in Leon County and two colonies in Wakulla County were found, expanding the gene-pool and adding regional variety to the *floridana* propagation colony characteristics at the farm in Madison.

The difficulties in locating *P floridana* were overcome, with effort and assistance. The Southwest District of the Florida Fish and Wildlife Commission gave permission to collect at Big Pine Tract, at Brooksville. *Phlox floridana*, unlike *pilosa*, has no visible vegetative growth during dormancy. When visiting Big Pine Tract, in April 2008, a second site, an undeveloped residential lot in Brooksville, was found. Specimen samples were not confirmed as *Phlox floridana*, however, propagation and seed gathering from this site was suspended.

During the collection period at Big Pine Tract, the adverse management practices of exotic plant controls were observed. Herbicide had been applied to several areas within

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the *Phlox floridana* colony. Sadly, the colony was already in a county maintained mow

zone, so it was an even greater burden on the colony to withstand repeated applications of herbicide. Because the management styles for conservation versus eradication are contradictory, a Public Records request was made for additional documentation on invasive control practices. This documentation supports the need for educational efforts to begin and question the expansive, state-wide use of herbicides on public lands and the effects on wildflower populations in Florida.

Three, soon to be four locations of *Phlox floridana* plants at the Salter Tree and Herb Farm will reveal the species habitat preference in Madison. *Phlox floridana* growth habits are less aggressive compared to *nivalis* and positively anemic compared to *Phlox pilosa*. Depending on the season a cutting is collected, *floridana* will take three to six months to set a good root system. If a *Phlox floridana* stem was detached at the crown it had a high probability of rooting during the growing season. If a node was submerged in soil to root, it had a 50/50 chance of continuing to grow vegetatively. Rooting conditions were noted for cuttings in a mist house, without mist in a propagation house, and directly in sand with irrigation. In the heat of the summer, *floridana* cuttings frequently experience complete, above-ground, die-back but evidence suggests that the buried nodes are still active and may emerge with new sprouts in the spring. Some of these "dormant twigs" are showing new growth in the cold frames, during the November 2008 frosts. The mortality of the first generation cutting material is unclear at this time. Losing vegetative top-growth may not mean the demise of the cutting. Also, several plants in the wild were observed to succor and branch where cuttings were made. These plants will continue to be observed.

A collection of late season cutting material, from Wakulla County sites, was set in moist perlite, in September. Three months later, these stems all offer resistance when gently pulled. If rooting activity is confirmed in early January 2009, the stems will be directly transplanted into soil at the propagation site. Due to *Phlox floridana*'s shorter vegetative growing season, continued data collection is warranted through the second funding period.

Soil testing results have been completed through the UF/IFAS Agricultural Extension Service. An analysis, with soil experts in Leon County, is planned for the 2009 funding year. Cuttings have rooted and been transplanted to three of four different site locations at the Salter Tree and Herb Farm, in Madison. The fourth site will be planted in 2009. Plant adaptation and survivability will continue to be documented.

Fertilization methods have included a schedule of bi-monthly treatments of 20-20-20 plant food versus no plant food. At the propagation sites, light applications of the fertilizer versus no fertilizer is continued. The third condition of applying naturally occurring plant litter is being used to fertilize the transplants as well.

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Germination observations have been rescheduled to the 2009 grant activities due to insufficient quantity of seeds available in 2008. Collecting seed in the wild and at the farm

will take priority in the next year.

Indications of *Phlox floridana* preferences in containers will continue. Peat, clay, and polyurthene containers are being used. A biodegradable, wood-based container will be added to the data collection in 2009.

Polemoniaceae expert, Carolyn Ferguson, Curator of the Kansas State University Herbarium, is still interested in specimen material for genetic testing research.

This grant has enabled new colonies to be discovered. It has broadened the network of support from agency employees and individuals who are interested in locating and preserving Florida native wildflowers. The grant has also allowed for a culturally significant species to focus the spotlight on Florida's diminishing, diverse flora.

The objectives of the *Phlox Floridana* Research Grant have been met. Source material has been located in five locations (three different counties); permission to collect has been acquired in all five locations; growth habits have been noted and data collection is ongoing. Plants have been donated to the following persons during the first grant cycle: Dr. Richard Weaver with FDACS, Carolyn Ferguson at KSU, Nancy Desmond with Environmental Equities, William Bates of Lake City, and Anne Mackay with Florida Wildflower Foundation.

1. Project Contact

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Purpose: Research seed and stock development, planting and fertilization methods for *Phlox floridana*, Florida Phlox, a perennial, Florida native wildflower.

Study Objective:

*Find source material: Completed and ongoing.

*Acquire permits or permission to propagate by cuttings and seed gathering activities: Completed and ongoing. Documentation and images available.

*Note growth habits, germination and rooting requirements, available nutrients and environments: Available and ongoing.

3.

*Establish propagation colony; propagate and notify native plant growers of propagation material development: Completed and ongoing. (See AFNN 2009 Directory)

*Plant material has been donated to private individuals. More plants will continue to be distributed to individuals, educational, and research activities, to create and sustain the availability of *Phlox floridana*.

II Documentation

Research

- *Plant and habitat description: sites, documents, *Atlas of Florida Vascular Plants*
 - *Bay Yard Point, Dr. Cecil Slaughter, map, emails, travel
 - *Big Pine Tract, Chinsegut, FWC maps, emails, letters, travel, Public Records on herbicide profiles, contract, price, application data, management and volunteer management records; Conceptual Management Plan-1997, Commonly Used Herbicides document
 - *Brooksville lot, permit, emails, ID sample, seed collection
 - *Apalachicola National Forest permit request, emails, letters (no response)
 - *Nearly Native Nurseries, Jim Rogers, Florida plant material
 - *Wendy Poag, Taylor County sightings
 - *Dr. Loren Anderson, FSU, local specimen listings, spread sheet
 - *Dr. Bruce Hansen, USF recent specimen listings
 - *Kent Perkins, UF, specimen listings
 - *Carolyn Ferguson, KSU, emails
 - *Activity list
 - *Travel log
 - * Annual precipitation log, 2008 Weather Central, Inc., Tallahassee Democrat
 - *Propagation site description, planting dates, observations
 - *Sensitive Plant list, Osceola National Forest
- *Source of origin: all sites have permission to collect, ID supported, collection dates, GPS data, soil samples, and images
- BPT, Big Pine Tract, Hernando County
 - BVK, Brookville residential lot, Hernando County
 - Hwy 20, Leon County
 - SPH, Springhill Road, Leon County
 - WAKU-spe, Spears property, Wakulla County
 - WAKU-brn, Braun property, Wakulla County
 - UF/IFAS Soil Testing Laboratory, 4 sample results from wild colonies and 4 sample results from farm colony sites: docs

III List of Images

- 1) brook 041 - Big Pine Tract *Phlox floridana*
- 2) brook 042 - Big Pine Tract *Phlox floridana* colony
- 3) brook 043 - Big Pine Tract *Phlox floridana*
- 4) brook 048 - Big Pine Tract ID collection sample
- 5) BPT 22 - Herbicide to *Phlox floridana* at Big Pine Tract
- 6) BPT 23 - Herbicide to *Phlox floridana* at Big Pine Tract
- 4.
- 7) BPT 24 - Herbicide to *Phlox floridana* at Big Pine Tract

- 8) leon 006 - Leon County Phlox *floridana*
- 9) leon 009 - Leon County Phlox *floridana* bud
- 10) Picture 057 - farm site propagation colony under poultry wire
- 11) Picture 058 - "close-up"
- 12) Picture 059 - rooted cutting in 4" polyurthene plastic, over wintering in habitat
- 13) Picture 060 - cuttings rooting into perlite bed
- 14) Picture 063 - April May cuttings in 4" rounds in November
- 15) Picture 066 - rooted cutting transplanted to irrigated site Nov 2008
- 16) Wak 13 - Wakulla Phlox *floridana*

Budget

	<u>Proposed</u>	<u>Used</u>
Labor		
Research (80)	1,840.00	1,840.00
Prepare 4 sites (32 hrs)	\$736.00	736.00
Weeding/fertilization/prop- agation (50 hours)	1,150.00	1,150.00
Travel (125 hours) search/coll	2,875.00	2,875.00
Gas @ .35/mi 12 site visits	1,000.00	1,000.00
Report generation (20 hours)	<u>460.00</u>	<u>460.00</u>
SUBTOTAL	\$8,061.00	8,061.00
Materials		
Landscape fabric 3' x 300'	70.00	70.00
Flags	40.00	40.00
Anchor pins and signage	85.00	85.00
Rooted liners for stock	87.50	87.50
Office supplies	<u>75.00</u>	<u>75.00</u>
SUBTOTAL	\$357.50	357.50
TOTAL COST	\$8418.50	8418.50

In Kind Contribution by STHF

*Irrigated land occupancy for propagation colony, 3 yrs 1,500.00

Mist house bench space for one year (rotating cuttings) 500.00

Overages in gasoline costs and report generation have been contributed