

**St. Johns River-to-Sea Bike Loop:
Survey of May, July, and October Flowering Species**

Final Report
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Investigators

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Introduction

The St. Johns River-to-Sea Bike Loop traverses about 260 miles along a route from East Palatka to St. Augustine, then to Melbourne, then west to the St Johns River, and finally north to East Palatka. Most of the loop is along roads, with about 40 miles of paved and unpaved bike paths. The plan is for this loop to be completed and become a wildflower trail in time for Florida's quinentennial in 2013.

The first step in accomplishing the latter objective is to determine existing and potential wildflower sites along the bike loop. While spring and fall are the two major seasons for showy wildflower displays in Florida, a summer survey was warranted in order to develop a more comprehensive evaluation of existing and potential wildflower sites.

This report represents the results of our site evaluations based on our observations in May, July, and October 2009. It supersedes our May and July 2009 survey reports submitted to the Foundation.

Methods

Surveys were conducted on May 13-14, July 28-29, and October 6-7, 2009. In May, we followed the bike loop "Cue Sheets" (provided to us by Hope Howland-Cook of Bike Florida [<http://www.bikeflorida.org>]) used for Bike Florida's Inaugural Tour of the loop in 2008 (http://www.bikeflorida.org/fall_event.html). However, in July and October we skipped most residential areas. Based on our May observations, most residential sites were unsuitable for preserving or developing into wildflower sites; the two exceptions were Grand Ave. in Deland and Mango Tree Rd. in Edgewater.

The majority of the survey was conducted by car, accompanied by walking forays into each site. At Lake Beresford Park and Gemini Springs in Volusia County, Bobbie Bryant and Susanne Inman graciously arranged for use of off-road, motorized vehicles to survey the paved, off-road trails. Access to the East Central Railroad bed in Brevard and Volusia County in July and October was provided for us through the efforts of John Harper (Volusia County), Barbara Myer (Brevard County), Mike Brown (The Miami Corp.), and Jena Brooks (Florida's Office of Greenways & Trails). We are especially appreciative of John's support as he provided transportation and escorted us on the accessible portions of the rail trail in July and October. In July, we were able to survey the rail bed into the northern portion of Brevard County, a section of the future trail that we could not access in May. In October,

we gained access to more of the East Central Railroad bed in Brevard County; ultimately we surveyed about 80% of the East Central Railroad bed between the Maytown Spur Road and Titusville. Also in July and October, John Harper pointed out additional sites in Edgewater and Mims that were along or in the vicinity of the East Central Rail bed that Volusia County planned to develop as part of the bike loop.

Based on the cue sheets and information provided by John Harper, we documented four types of sites (Enhancement, View only, New planting, and Do not develop) based on our consensus opinion and knowledge about native and nonnative plant species. All species are referred to by scientific name. Common names of all species mentioned in this report are listed in Table 1 (page 54).

- Site has existing showy native wildflower or grass species that are flowering
 - **Enhancement** – Has (or has the potential to be) substantial, aesthetically-pleasing impact, and if managed appropriately, the existing native wildflower species should be sustainable, and the extent of species will probably expand.
 - **View only** – Sites that are not managed by county or FDOT roadside departments (or contractors), such as those on Merritt Island National Wildlife Refuge.
- **New planting** – Site is suitable for establishing a native wildflower planting that would have substantial, aesthetically-pleasing impact.
- **Do not develop** – Sites to avoid developing into or establishing as a native wildflower site because of
 - The presence of nonnative, invasive species. [NOTE: We did not record all occurrences of invasive, nonnative species. We focused mainly on sites that would have had potential as new wildflower sites but were excluded because of invasive, nonnative species.]
 - The presence of subcanopy adjacent to mowed strips on each side of pavement along paved off-road portions of the trail.

All Site sheet information, recommendations, etc. reflect our consensus opinion based on May, July, and October observations.

For all sites:

- We recorded habitat, GPS coordinates (accurate to 5 m or less), at least one digital image, and a general management recommendation.
- For new planting sites, we provided a list of commercially available, showy native wildflower and grass species suitable for site conditions and that are consistent with the 'sense of place' concept. Species availability (seeds or containerized plants) is based on information on the Florida wildflower seed producers' co-op web site (<http://www.floridawildflowers.com>) and the Association of Florida Native Nurseries web site (<http://www.afnn.org>). If using containerized plant materials, we suggest the use of well-rooted plugs or liners to minimize costs.
- Site numbering is based on geographical location; site numbers from the May and July reports have been modified.

In addition, ESRI-compliant shape files were generated (plus an accompanying Excel spreadsheet for site information) as was a full size color map of site locations.

- Data fields (attributes) for site, site description, species, latitude, longitude, county, habitat notes, and recommendations.
- Data formatted to provide for efficient upload into any relational database management system and may be easily imported into any standard GIS platform.
- Datum (WGS84) and projection are stated; projection file (*.pri) with each shape file suite.

And finally, we sought anecdotal information from local native plant experts/enthusiasts about native wildflowers that they have observed along the loop.

Results

Site sheets have been updated as needed and reflect our consensus opinion based on May, July, and October observations. We recommend that this report be the only one posted on the Wildflower Foundation web since this report contains our most current observations and recommendations.

We identified 48 sites

- Enhancement – 23
- View only – 4
- New planting – 16
- Do not develop – 5

and at these sites we observed 66 native herbaceous species, 55 which were showy and 1 which was endemic.

(NOTE: Wildflower blooming times [as well as length of the blooming period] can be strongly affected by environmental conditions so what we observed blooming in May, July, and October 2009 might not be in bloom to the same degree in future years. Also, in sites with mixed species, the relative proportion of each species might vary in subsequent years.)

Details about each site are documented starting on page 6. Some specific conclusions that we wanted to highlight are as follows:

1. Lake Beresford Park, south trail – There are several sections of the trail bordered by wooden fence. Consider planting wildflowers behind the wooden fence in nonshady areas where weed growth is not dominant. In addition, along the chain link fence that delineates the Lake Beresford park property line, consider planting containerized plants of the showy vines *Lonicera sempervirens* and *Bignonia capreolata* in sunny areas, *Gelsemium sempervirens* in shady areas, and *Ipomoea cordatotrilobata* in all areas.

2. In October, the occurrence of typical showy, fall flowering species, like *Chrysopsis* spp., *Helianthus* spp. *Liatris* spp., and *Lobelia* spp. was very noticeably limited (even in the Merritt Island Refuge), despite the presence of appropriate habitat. While the limited extent of these species might simply be an anomaly, showy species suggestions for fall color are specifically noted for several Enhancement sites. Fall flowering species options are included for each of the New Planting sites.
3. The most common showy, fall flowering species was *Eragrostis spectabilis*, which was very widespread. NOTE: Also, very noticeably widespread (due to its seed head) was the low growing, nonnative grass, *Dactyloctenium aegyptium*. Its pervasiveness warrants consideration when formulating management practices.
4. A1A south of St. Augustine Beach

Based on mid-May and late July observations, this portion of the bike loop has the greatest potential for showy wildflower displays based on existing native wildflowers. *Chamaecrista fasciculata*, *Gaillardia pulchella*, *Mimosa strigillosa*, *Monarda punctata*, and *Helianthus debilis* were widespread along this entire segment in late July. Sites, excluding those in residential areas, where one or more species occur can be supplemented with seeds of these species. Moreover, we suggest that A1A from St. Augustine beach Site 21 south through Site 29 be offered as an alternative route of the bike loop that has no diversions onto side streets, etc. because of the number of existing wildflower populations, frequent views of the ocean, and cyclist safety (bike lanes or bike paths in this entire segment).

Gaillardia aristata

Gaillardia aristata was reported to have been planted along some portions of A1A (Sites 23 and 26). *Gaillardia aristata* is native to the United States but has only been reported to occur in the west and north. There are no reports of it occurring anywhere in the southeastern U.S. It's possible that *G. aristata* will or has hybridized with *G. pulchella* (both are parents of *G. x grandiflora*, a common cultivar).

We sampled achenes ("seeds") from several plants at Sites 23 to 26 since the two species differ in achene morphology, and growth habit and flowers can be similar. To the best of our knowledge, *G. aristata* was planted only at Sites 23 and 26, so we presumed that *Gaillardia* at Sites 24 and 25 was *G. pulchella*. All *Gaillardia* achenes at all sites were similar; plants at all sites also were similar in growth habit and floral characteristics. In addition, it was determined from a literature search that *G. aristata* has low salt tolerance. While all of this evidence suggests that *Gaillardia* at the sites along A1A is *G. pulchella*, the density and date of planting of the *Gaillardia* at Site 26 are not consistent with Site 26 plants being *G. pulchella*. The possibility of plants at Sites 23 and 26 being hybrids of *G. pulchella* and *G. aristata* cannot be ruled out. Further investigation is required.

5. On July 31, we observed numerous patches of native wildflowers along SR 3 in Merritt Island National Wildlife Refuge. Based on our May and July observations, we recommend that SR 3 remain part of the bike loop trail. Those currently

responsible for managing roadside vegetation appear use appropriate practices to manage native wildflower and grass populations.

6. In October, about 80% of the East Central Rail trail from Maytown Spur Road south to Titusville was accessible for surveying. Showy fall flowering species was very limited, despite the presence of appropriate habitat. A substantial portion of this section of the rail trail will not be suitable for establishing showy displays of native wildflowers and grasses because of the relatively narrow corridor combined with the proximity of the broadleaf canopy.
7. Species suggested as suitable for a site does not imply that all species listed should be planted at that site. The species selected for each site should be based on design principles, management considerations, flowering season, and availability of ecologically appropriate seeds or containerized plants. When purchasing seeds or plants, always base the purchase on scientific name, and always inquire as to the original source of seeds or plants (that is, the county and state). County and state information can be used to determine the ecoregion in which seeds or stock plants were collected. We recommend that seeds or plants purchased be derived from plant material that originated in appropriate ecoregions. For more information about ecoregions, see the U.S. EPA ecoregion maps at <http://www.epa.gov/wed/pages/ecoregions.htm>.
8. Off-road paved sites – Along much of the paved portions we noted a 3 to 5-ft strip along each side that is mowed for safety purposes. Sites where the mowed strip is bordered by subcanopy (shrubs/tall weeds) or trees are not suitable for native wildflowers, except possibly *Mimosa strigillosa*. This issue will need to be considered when paving other off-road portions of the loop (like the East Central Rail bed).
9. At Enhancement sites, management plans should favor showy native species, and secondarily, other native species.
10. *Imperata cylindrica* was widespread, especially along some of the railroad beds. This could be a significant problem when developing future segments of the trail as much of the undeveloped trail is former railroad bed.

Attachments

- ESRI-compliant shape files (easily imported into any standard GIS platform)
 - Site data; species data
 - Datum – WGS84; projection file (*.pri) included with each shape file suite
- Excel spreadsheets of site information
- Map – hard copy in poster size format, and in PDF format

Site

| | |
|------------|----------------------------|
| Number | 1 |
| Type | Enhancement |
| Season | Spring, summer |
| Location | Gemini Springs trail |
| Size | ~50 ft x 10 ft |
| Lat./long. | +28.8493045 -81.3149724 |
| Habitat | Ruderal |



Image: 5-13-09

Existing Species

| | |
|-------|---|
| Showy | <i>Mimosa strigillosa</i> |
| Other | <i>Phyla nodiflora</i> (inset) – growing along edge of pavement |

Management recommendation

Use management practices that will facilitate preservation and expansion of *Mimosa*, and secondarily *Phyla*. *Dactyloctenium aegyptium*, which was noticeably widespread in October (because it was flowering), should be considered when formulating management practices.

Site has been mowed too low since 5-13-09 to facilitate *Mimosa* sustainability; raise mowing height an additional 1.5 to 2".

Site

| | |
|------------|--|
| Number | 2 (A, B) |
| Type | Enhancement |
| Season | Summer, fall* |
| Location | Gemini Springs trail; just north of Site 3 |
| Size | ~700 ft long and quite deep; site may be 1 acre |
| Lat./long. | North end (B): +28.854215 -81.314865 South end (A): +28.852334 -81.314555 |
| Habitat | Ruderal at marsh edge |



Images: 7-30-09

Existing Species

| | |
|-------|--|
| Showy | <i>Hibiscus grandiflorus</i> (very large flowers), <i>Kosteletzkya virginica</i> (inset), <i>Rhynchospora colorata</i> |
|-------|--|

Management recommendation

Although *Hibiscus* and *Kosteletzkya* are co-existing well with competitive species like dog fennel, any management practice that reduces competition will facilitate expansion of *Hibiscus* and *Kosteletzkya*. This site can also be supplemented with containerized plants of these species. While *Kosteletzkya* is not currently listed as being produced by AFNN, it is easily propagated from seed.

*Showy species suggestions for fall color: *Liatris spicata*, *Helianthus angustifolius*

Site

| | |
|------------|---|
| Number | 3 |
| Type | Enhancement |
| Season | Fall |
| Location | Lake Beresford Park; southern terminus of trail |
| Size | ~50-75 ft x ~8-10 ft |
| Lat./long. | +28.952378 -81.333445 |
| Habitat | Ruderal; edge of hammock |



Image: 7-30-09

Existing Species

| | |
|-------|--|
| Showy | <i>Hamelia patens</i> (not shown; on west side); bed on east side had some native grasses, including <i>Muhlenbergia capillaris</i> , which were cut back between May and July |
|-------|--|

Management recommendation

Renovate bed and plant with containerized *Muhlenbergia capillaris* on 4-ft centers, and mulch with coarse pine bark mulch.

Species Suggestions

| | |
|-------|--------------------------------|
| Showy | <i>Muhlenbergia capillaris</i> |
|-------|--------------------------------|

Site

| | |
|------------|----------------------------------|
| Number | 4 |
| Type | New planting |
| Season | Spring, summer, fall |
| Location | Lake Beresford Park; south trail |
| Size | ~60-70 ft x ~6-8 ft |
| Lat./long. | +28.9782531 -81.3324005 |
| Habitat | Palm/oak hammock |



Image: 5-13-09

Species Suggestions

| | |
|-------|---|
| Showy | <i>Asclepias tuberosa</i> , <i>Berlandiera subacaulis</i> , <i>Carphephorus corymbosus</i> , <i>Chamaecrista fasciculata</i> , <i>Eragrostis spectabilis</i> , <i>Erythrina herbacea</i> , <i>Gaillardia pulchella</i> , <i>Liatris gracilis</i> , <i>Mimosa strigillosa</i> , <i>Monarda punctata</i> , <i>Penstemon multiflorus</i> , <i>Pityopsis graminifolia</i> , <i>Ruellia caroliniensis</i> , <i>Salvia coccinea</i> , <i>Salvia lyrata</i> , <i>Sorghastrum secundum</i> , <i>Tradescantia ohiensis</i> , <i>Vernonia angustifolia</i> , <i>Vernonia gigantea</i> |
| Notes | If <i>Gaillardia</i> is included use sparingly as it is aggressive. |

Management recommendation

Paspalum urvillei control needs to be considered in management plan.

Site

| | |
|------------|--|
| Number | 5 |
| Type | New planting |
| Season | Spring, summer, fall |
| Location | Lake Beresford Park; south trail |
| Size | Triangular-shaped site; ~150-200 ft ² |
| Lat./long. | +28.9890427 -81.3382286 |
| Habitat | Palm/oak hammock |



Image: 5-13-09

Species Suggestions

| | |
|-------|---|
| Showy | <i>Asclepias tuberosa</i> , <i>Berlandiera subacaulis</i> , <i>Carphephorus corymbosus</i> , <i>Chamaecrista fasciculata</i> , <i>Eragrostis spectabilis</i> , <i>Erythrina herbacea</i> , <i>Gaillardia pulchella</i> , <i>Liatris gracilis</i> , <i>Mimosa strigillosa</i> , <i>Monarda punctata</i> , <i>Penstemon multiflorus</i> , <i>Pityopsis graminifolia</i> , <i>Ruellia caroliniensis</i> , <i>Salvia coccinea</i> , <i>Salvia lyrata</i> , <i>Sorghastrum secundum</i> , <i>Tradescantia ohiensis</i> , <i>Vernonia angustifolia</i> , <i>Vernonia gigantea</i> |
| Notes | If <i>Gaillardia</i> is included use sparingly as it is aggressive. <i>Callicarpa americana</i> (showy late summer and fall berries) and <i>Aralia spinosa</i> , both desirable native woody species, occur along edge. |

Site

| | |
|------------|--|
| Number | 6 (A, B) |
| Type | New planting |
| Season | Spring, summer, fall |
| Location | Grand Ave. (Deland) |
| Size | 0.35 miles; ~6-8 ft wide strip between paved trail and Grand Ave. |
| Lat./long. | North end (B): +29.042872 -81.352830 South end (A): +29.0377669 -81.3528801 |
| Habitat | Ruderal |



Images: 5-13-09 (L, UR); 7-30-09 (LR)

Species Suggestions

| | |
|-------|---|
| Showy | <i>Asclepias tuberosa</i> , <i>Berlandiera subacaulis</i> , <i>Carphephorus corymbosus</i> , <i>Eragrostis spectabilis</i> , <i>Erythrina herbacea</i> , <i>Gaillardia pulchella</i> , <i>Liatris gracilis</i> , <i>Mimosa strigillosa</i> , <i>Monarda punctata</i> , <i>Penstemon multiflorus</i> , <i>Phlox drummondii</i> , <i>Pityopsis graminifolia</i> , <i>Ruellia caroliniensis</i> , <i>Salvia coccinea</i> , <i>Salvia lyrata</i> , <i>Sorghastrum secundum</i> , <i>Tradescantia ohiensis</i> , <i>Vernonia angustifolia</i> , <i>Vernonia gigantea</i> |
| Notes | Some very small populations of <i>Phlox drummondii</i> occur along this stretch. If using <i>Gaillardia</i> , restrict it to one end or the other as it is aggressive. |

Other Notes

North end is just south of Plymouth Ave; excessive weed growth north of "No Trucks" sign.

Site

| | |
|------------|--|
| Number | 7 (A, B) |
| Type | New planting |
| Season | Spring, summer, fall |
| Location | Grand Ave. – Highland Park Road to Glenwood community |
| Size | ~0.7 miles x ~6-8 ft wide strip between paved trail and Grand Ave. |
| Lat./long. | North end (B): +29.0657055 -81.3526516 South end (A): +29.0560300 -81.3527868 |
| Habitat | Ruderal |



Image: 5-13-09

Species Suggestions

| | |
|-------|---|
| Showy | <i>Asclepias tuberosa</i> , <i>Berlandiera subacaulis</i> , <i>Carphephorus corymbosus</i> , <i>Eragrostis spectabilis</i> , <i>Erythrina herbacea</i> , <i>Gaillardia pulchella</i> , <i>Liatris gracilis</i> , <i>Mimosa strigillosa</i> , <i>Monarda punctata</i> , <i>Penstemon multiflorus</i> , <i>Phlox drummondii</i> , <i>Pityopsis graminifolia</i> , <i>Ruellia caroliniensis</i> , <i>Salvia coccinea</i> , <i>Salvia lyrata</i> , <i>Sorghastrum secundum</i> , <i>Tradescantia ohiensis</i> , <i>Vernonia angustifolia</i> , <i>Vernonia gigantea</i> |
| Notes | Some very small populations of <i>Phyla nodiflora</i> occur along this stretch. If using <i>Gaillardia</i> , restrict it to one end or the other as it is aggressive. |

Site

| | |
|------------|--|
| Number | 8 |
| Type | Do not develop |
| Location | CR 3; east side; north of Deleon Springs State Park to bridge (bridge label = 0749092) |
| Size | ~ 1 mile; between railroad track and edge of turf |
| Lat./long. | +29.1481159 -81.3720951 |
| Habitat | Ruderal |



Image: 5-13-09

Existing Species

| | |
|----------|----------------------------|
| Invasive | <i>Imperata cylindrica</i> |
|----------|----------------------------|

Recommendation

Avoid

Site

| | |
|------------|------------------------------------|
| Number | 9 |
| Type | Enhancement |
| Season | Very late spring, summer, fall* |
| Location | CR 3; east side |
| Size | ~450 ft x 10 ft |
| Lat./long. | +29.204191 -81.443644 |
| Habitat | Ruderal |



Images: 7-30-09 (UL, R); 10-6-09 (LL)

Existing Species

| | |
|-------|---|
| Showy | <i>Andropogon</i> sp., <i>Coreopsis leavenworthii</i> , <i>Rhynchospora colorata</i> <i>Rudbeckia hirta</i> , <i>Sorghastrum secundum</i> (all probably naturally occurring) |
| Other | <i>Buchnera americana</i> , <i>Cyperus</i> sp., <i>Panicum hemitomon</i> , <i>Phyla nodiflora</i> (all naturally occurring) |

Management recommendation

For showiness, use management practices that will facilitate preservation and expansion of *Coreopsis* and *Rudbeckia*, and secondarily *Andropogon* and *Sorghastrum*.

*Showy species suggestions for fall color: *Liatris spicata*; *Helianthus angustifolius*

Site

| | |
|------------|----------------------------|
| Number | 10 |
| Type | Enhancement |
| Location | CR 3; east and west side |
| Season | Spring, fall* |
| Size | ~450 ft x 10 ft |
| Lat./long. | +29.2060596 -81.4458952 |
| Habitat | Ruderal |



Images: 5-13-09

Existing Species

Showy *Phlox drummondii* (probably naturally occurring)

Management recommendation

Use management practices that will facilitate preservation and expansion of *Phlox*.

*Showy species suggestions for fall color: *Chrysopsis mariana*, *Liatris gracilis*

Site

| | |
|------------|--|
| Number | 11 |
| Type | Enhancement |
| Season | Spring, fall* |
| Location | SR 17, west side; just south of Volusia CR 305 (just south of Volusia Co. Fire Services Sta. No. 43) |
| Size | ~250-300 ft x 8-10 ft |
| Lat./long. | +29.3132006 -81.4914059 |
| Habitat | Ruderal |



Image: 5-13-09

Existing Species

| | |
|-------|--|
| Showy | <i>Phlox drummondii</i> (probably naturally occurring); occasional <i>Tradescantia ohiensis</i> (probably naturally occurring; immediately adjacent to railroad) and <i>Heterotheca subaxillaris</i> (naturally occurring) |
| Other | <i>Phyla nodiflora</i> |

Management recommendation

Use management practices that will facilitate preservation and expansion of *Phlox* and *Tradescantia*, and secondarily *Heterotheca* (if fall color desired) and *Phyla*. Need to consider occurrence of *Merremia dissecta* (nonnative, potentially invasive species) when developing management plans.

*Showy species suggestions for fall color: *Chrysopsis mariana*, *Liatris gracilis*

Site

| | |
|------------|--|
| Number | 12 |
| Type | Enhancement |
| Season | Spring |
| Location | SR 17, west side; between railroad bed and SR 17 |
| Size | ~0.15 miles x 15 ft |
| Lat./long. | +29.3582715 -81.5049970 |
| Habitat | Ruderal |

**Existing Species**

Image: 5-13-09

| | |
|-------|---|
| Showy | <i>Phlox drummondii</i> (probably naturally occurring); occasional <i>Salvia lyrata</i> (naturally occurring) |
| Other | <i>Phyla nodiflora</i> (naturally occurring) along edge of pavement |

Management recommendation

Use management practices that will facilitate preservation and expansion of *Phlox* and *Salvia*, and secondarily *Phyla*. Avoid slope adjacent to railroad bed as weed competition is intense.

Site

| | |
|------------|---|
| Number | 13 |
| Type | View only |
| Season | Fall |
| Location | SR 17, east side; woodland edge beyond clear zone |
| Size | ~300 ft x 10 ft |
| Lat./long. | +29.4648299 -81.5254796 |
| Habitat | Ruderal; upland |

**Existing Species**

Images: 10-6-09

Showy *Helianthus floridanus* (naturally occurring); also occurred sporadically between Sites 13 and 14. NOTE: *Helianthus simulans*, (lower left image), which is not native, occurs in a wet site~2 miles north of Site 13, and on the west side of SR 17.

Management recommendation

Take no action to preserve or enhance species at this site as it occurs beyond the clear zone.

Site

| | |
|------------|--|
| Number | 14 (A, B) |
| Type | Enhancement |
| Season | Spring, summer, fall* |
| Location | SR 17, west side; Pomona Park; between sidewalk and SR 17 |
| Size | 1.7 miles (starting at Cow Catcher Lounge) x 8-20 ft |
| Lat./long. | North end (B): +29.5194147 -81.6231980 South end (A): +29.5027245 -81.6015027 |
| Habitat | Ruderal |



Images: 5-13-09 (ML, UR); 10-6-09 (MR, LL)

Species

| | |
|-------|---|
| Showy | Mixed population comprised mainly of <i>Gaillardia pulchella</i> , <i>Phlox drummondii</i> , <i>Coreopsis basalis</i> , <i>Eragrostis spectabilis</i> (naturally occurring) and <i>Tradescantia</i> sp. (probably <i>T. ohiensis</i>), with occasional <i>Asclepias tuberosa</i> |
| Notes | Species (except <i>Eragrostis</i> and <i>Tradescantia</i>) and extent suggest these species might have been planted. |

Management recommendation

1. Use management practices that will facilitate preservation and expansion of this mixed population.
2. In 2010, if *Gaillardia* is present avoid mowing it until late August at the earliest. (NOTE: Site was mowed too soon to facilitate preservation and expansion of *Gaillardia*. No wildflowers were present on 7-30-09).

*Showy species suggestion to enhance fall color: *Liatris gracilis*

Site

| | |
|------------|--|
| Number | 15 |
| Type | Do not develop |
| Location | SR 17, west side; between railroad bed and SR 17 |
| Size | ~0.1 mile x 10-15 ft |
| Lat./long. | +29.5375371 -81.6461525 |
| Habitat | Ruderal |



Image: 5-13-09

Existing Species

| | |
|----------|--|
| Showy | Mainly <i>Phlox drummondii</i> (probably naturally occurring) and <i>Lygodesmia aphylla</i> (naturally occurring); occasional naturally occurring <i>Berlandiera subacaulis</i> and <i>Tradescantia ohiensis</i> |
| Invasive | <i>Imperata cylindrica</i> along railroad bed |

Management recommendation

Take no action to preserve or enhance the native wildflower species at this site.

- This wildflower site could decline due to proximity of *Imperata cylindrica*.
- Developing into, or managing as, a wildflower site would be cost prohibitive

Site

Number 16
Type Do not develop
Location SR 17, east side; just south of CR 100
Size ~750 ft x 15-20 ft
Lat./long. +29.6032669
-81.5878450



Habitat Ruderal

Images: 5-13-09

Existing Species

Showy *Phlox drummondii* (probably naturally occurring)

Invasive *Imperata cylindrica*

Management recommendation

Take no action to preserve or enhance the *Phlox* at this site.

- This wildflower site could decline due to proximity of *Imperata cylindrica*.
- Developing into, or managing as, a wildflower site would be cost prohibitive.

Site

| | |
|------------|-------------------------------|
| Number | 17 |
| Type | New planting |
| Season | Spring, summer, fall |
| Location | SR 207; median |
| Size | 1-2 miles thru Spuds to CR 13 |
| Lat./long. | +29.720978 -81.487794 |
| Habitat | Ruderal |



Image : 7-30-09

Species Suggestions

| | |
|-------|--|
| Showy | <i>Berlandiera subacaulis</i> , <i>Coreopsis leavenworthii</i> (low areas only), <i>Eragrostis spectabilis</i> , <i>Gaillardia pulchella</i> , <i>Liatris gracilis</i> , <i>Pityopsis graminifolia</i> , <i>Salvia lyrata</i> , <i>Tradescantia ohiensis</i> |
| Notes | If using <i>Gaillardia</i> , restrict it to one end or the other as it is aggressive. |

Site

Number 18
Type New planting
Season Spring, summer, fall
Location "Rail Trail" trail head at SR 207
Size ~ 2 acres
Lat./long. +29.801016
-81.412778



Habitat Ruderal;
upland and
moist sites

Images: 7-30-09 (UL, ML, MR); 10-6-09 (LL, LR)

Species Suggestions

Showy *Asclepias tuberosa*, *Berlandiera subacaulis*, *Coreopsis leavenworthii* (low areas only), *Eragrostis spectabilis*, *Gaillardia pulchella*, *Helianthus angustifolius*, *Hibiscus coccineus*, *Hydrolea corymbosa* (wet areas only), *Liatris gracilis*, *Liatris spicata* (moist areas), *Muhlenbergia capillaris*, *Pityopsis graminifolia*, *Rudbeckia hirta*, *Salvia lyrata*, *Tradescantia ohiensis*

Notes If using *Gaillardia*, restrict it to small portions of the site as it is aggressive.

Other Notes

This site was classified as 'New planting' since only small, isolated pockets of native wildflowers naturally occur at this site: showy – *Coreopsis leavenworthii*, *Hydrolea corymbosa* (image – ML), *Pontederia cordata*, and *Thalia geniculata* (images – LL, LR); other – *Phyla nodiflora*. However, over 95% of the site is turf grass.

Site

| | |
|------------|--|
| Number | 19 (A, B) |
| Type | Enhancement |
| Season | Very late spring, summer, fall |
| Location | Rail Trail along SR 207; trail head (south end) to Vermont Ave. (north end) |
| Size | ~0.8 miles long; adjacent to drainage ditch (2-3 ft wide); both sides of trail |
| Lat./long. | North end (B): +29.815188 -81.403088 South end (A): +29.805258 -81.409362 |
| Habitat | Ruderal; moist |



Images: 7-30-09 (UL, UR); 10-6-09 (ML, LL, LR)

Existing Species

| | |
|-------|--|
| Showy | <i>Bidens alba</i> , <i>Hyptis alata</i> (LR), <i>Ludwigia octovalvis</i> (ML), <i>Mikania scandens</i> (LL), <i>Rudbeckia hirta</i> (widespread); also <i>Hypericum cistifolium</i> (showy, small native shrub; occurs on opposite bank of ditch) and <i>Teucrium canadense</i> |
| Other | <i>Phyla nodiflora</i> ; <i>Pluchea baccharis</i> |

Management recommendation

Use management practices that will facilitate preservation and expansion of *Hyptis*, *Mikania*, *Rudbeckia*, *Saccharum*, and *Teucrium*, and secondarily *Bidens*, *Phyla* and *Pluchea*. Management practices that favor *Ludwigia* could result in *Ludwigia* outcompeting smaller, herbaceous wildflowers.

Site

| | |
|------------|-----------------------------|
| Number | 20 |
| Type | Enhancement |
| Season | Very late spring, summer |
| Location | SR 207; median |
| Size | ~1 mile |
| Lat./long. | +29.860237 -81.349184 |



| | |
|---------|---------|
| Habitat | Ruderal |
|---------|---------|

Images: 7-30-09

Existing Species

| | |
|-------|--|
| Showy | <i>Gaillardia pulchella</i> (location and density suggest that <i>Gaillardia</i> was planted*) |
|-------|--|

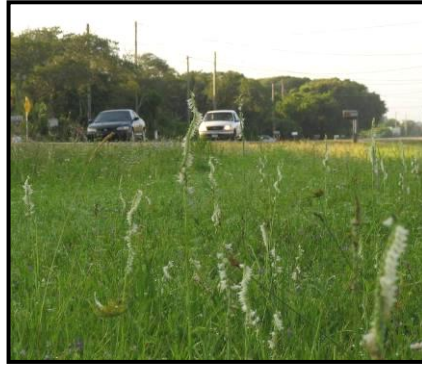
Management recommendation

Use management practices that will facilitate preservation and expansion of *Gaillardia*.

(NOTE: Site was mowed sometime between late July and early October; presence of *Gaillardia* was difficult to discern. *Possibly the median was planted with *Gaillardia* that was a selection from one of the national wildflower seed companies, or the nonnative *G. aristata*. *Dactyloctenium aegyptium* was widespread and frequently dense.)

Site

| | |
|------------|--|
| Number | 21 |
| Type | Enhancement |
| Season | Spring, summer, fall* |
| Location | A1A, just north of Palmetto Road in St. Aug. Beach (5495 A1A South, Saint Augustine, FL 32080) |
| Size | ~300 ft x 60 ft |
| Lat./long. | +29.7931431 -81.2618107 |
| Habitat | Ruderal |



Images: 5-13-09 (UL, UR, ML); 10-6-09 (LR)

Existing Species

| | |
|--------|--|
| Showy | <i>Acmella oppositifolia</i> , <i>Cirsium</i> sp., <i>Campanula floridana</i> (ML), <i>Coreopsis leavenworthii</i> (UR), <i>Erigeron quercifolius</i> , <i>Gaillardia pulchella</i> , <i>Pyrrhopappus carolinianus</i> , <i>Rhynchospora colorata</i> , <i>Sagittaria lancifolia</i> , <i>Salvia lyrata</i> , <i>Spiranthes vernalis</i> (variable forms; UL), <i>Teucrium canadense</i> , <i>Tradescantia</i> sp. |
| Others | <i>Gaura angustifolia</i> , <i>Phyla nodiflora</i> , <i>Ptilimnium capillaceum</i> , <i>Tephrosia</i> sp. |
| Notes | This site is composed of moist and dry portions, and is occupied by showy native species typical of such habitats. The area beyond the power poles appears to be private land, where most of the upland species occur. This site has the potential to be a "primo" wildflower site in terms of diversity with the cooperation of the private landowner. |

Management recommendation

Use management practices that will facilitate preservation and expansion of the showy species in the swale to the east of the power poles; west of the power poles is believed to be private land.

Density of turf in the swale (see image on lower right) means that enhancing the site with fall flowering species would need to be accomplished with containerized plants. Fall species and use of containerized material will need to be accounted for when developing a management plan.

*Species suggestions for fall color: *Liatris spicata*

Site

| | |
|------------|--|
| Number | 22 |
| Type | Enhancement |
| Season | Very late spring, summer |
| Location | A1A, west side; back slope adjacent to upscale development |
| Size | Plants scattered over ~0.1 mile x 15-20 ft |
| Lat./long. | +29.6907490 -81.2237886 |
| Habitat | Ruderal |



Images: 5-14-09 (LL); 7-31-09 (UR)

Existing Species

| | |
|-------|---|
| Showy | <i>Gaillardia pulchella</i> and <i>Helianthus debilis</i> ; both probably naturally occurring |
|-------|---|

Management recommendations

This site was mowed from edge of pavement to the fence line at least twice between mid-May and early October, which was too soon to facilitate optimal preservation and spread of *Gaillardia* and *Helianthus*; neither species was observed on 7-31-09 (Image UR), and only some small individuals of each species were observed on 10-7-09.

To facilitate preservation and spread of these species:

- Raise mowing height to 6".
- 2010 – If either species is present, avoid mowing after March 1, and until late August at the earliest.

Site

Number 23

Type Enhancement

Season Very late spring, summer, fall*

Location A1A; St. John's, Flagler County line at Marineland

Size 0.5 acres

Lat./long. +29.6714816
-81.2142258

Habitat Ruderal



Images: 5-14-09 (UL, UR); 7-31-09 (ML); 10-7-09 (LL)

Existing Species

Showy *Gaillardia* spp. – possibly a mix of *G. aristata* and naturally occurring *G. pulchella*; *Helianthus debilis* (planted); *Borrchia frutescens* (inset; naturally occurring) and *Panicum amarum*. See also Conclusion 4, page 4.

Notes Planted 1-4-2008; FWF Planting Grant P-02607 "A1A Scenic and Historic Coastal Byway". In addition to *G. aristata*, seed mix included *Coreopsis basalis*, *Coreopsis lanceolata*, *Rudbeckia hirta*, *Rudbeckia mollis*, *Solidago canadensis*, *Solidago stricta*, *Dalea pinnata*, *Ipomopsis rubra*, and *Phlox drummondii* [none, except *G. aristata* (?)], were observed on 5-14-09, 7-31-09, or 10-7-09.

Management recommendation

Until the *Gaillardia* can be positively identified, manage the site to facilitate preservation and spread of the *Helianthus*, *Borrchia* and *Panicum*; most of *Borrchia* is not in the mow zone).

Set mowing height at 6-8".

Monitor for other planted species (*R. hirta* and *C. lanceolata* probably are not sustainable).

*Appropriate early/mid fall color for this site can be enhanced by using management practices that favor *Helianthus*, *Gaillardia*, and, if it should occur, *Solidago sempervirens* (which naturally occurs along A1A, and is commercially available as containerized material).

Site

| | |
|------------|---|
| Number | 24 |
| Type | Enhancement |
| Season | Very late spring, summer, fall* |
| Location | Parking lot and adjacent land; east side of A1A, just south of Marineland |
| Size | ~1-1.5 acres |
| Lat./long. | +29.6674501 -81.2126573 |
| Habitat | Ruderal along A1A; back dune on areas adjacent to parking lot |



Existing Species

Images: 5-14-09

Showy *Gaillardia pulchella* and *Helianthus debilis* (probably naturally occurring)

Management recommendation

Use management practices that will facilitate preservation and expansion of *Gaillardia* and *Helianthus*; enhance populations of these species by reseeding. Enhance site with containerized plants of *Borrchia frutescens*.

*Appropriate early/mid fall color for this site can be enhanced by using management practices that favor *Helianthus*, *Gaillardia*, and, if it should occur, *Solidago sempervirens* (which naturally occurs along A1A, and is commercially available as containerized material).

Site

Number 25
Type Enhancement
Season Spring, summer
Location A1A, just south
of Site 24
Size ~150 ft x 60 ft
Lat./long. +29.6654219
-81.2121027



Habitat Ruderal

Images: 5-14-09 (UR); 7-31-09 (ML, LL, LR)

Existing Species

Showy *Mimosa strigillosa* and *Monarda punctata* (lower left), both naturally occurring, and *Gaillardia pulchella* (rare; probably naturally occurring)

Management recommendation

Use management practices that will facilitate preservation and expansion of *Mimosa*, *Monarda*, and *Gaillardia*.

Dactyloctenium aegyptium, which was pervasive in early October, will need to be considered when developing management practices.

NOTE: If walking on this site, beware of prickly pear (the small pads with their long spines break off easily and lodge in shoes and clothing) and sandspurs.

Site

Number 26

Type Enhancement

Season Spring, summer

Location A1A; median adjacent to Villages of Matanzas Shores

Size 1 mile

Lat./long. +29.6514264
-81.2071652

Habitat Ruderal



Images: 5-14-09 (UR); 7-31-09 (LL)

Existing Species

Showy *Gaillardia* spp. – possibly a mix of *G. aristata* and naturally occurring *G. pulchella*; *Helianthus debilis* (planted); see also Conclusion 4, page 4

Others *Phyla nodiflora* (naturally occurring)

Notes Planted 1-2-2008; FWF Planting Grant P-02607 "A1A Scenic and Historic Coastal Byway". In addition to *G. aristata*, seed mix included *Coreopsis lanceolata*, *Rudbeckia hirta* and *Phlox drummondii* (no *Coreopsis*, *Rudbeckia*, or *Phlox* were observed)

Management recommendation

Until the *Gaillardia* can be positively identified, manage the site to facilitate preservation and spread of the *Helianthus*.

Set mowing height at 6-8".

Gaillardia rare in October; other planted species not observed. While *P. drummondii* might be sustainable in this median, we recommend that any reseeding or replanting in this median be with species that commonly occur along A1A in this part of Florida, such as *G. pulchella*, *H. debilis* and *Mimosa strigillosa*.

Dactyloctenium aegyptium was widespread in October.

Site

| | |
|------------|---|
| Number | 27 |
| Type | Enhancement |
| Season | Very late spring, summer, fall* |
| Location | A1A; less than 0.5 miles north of Site 28; west side |
| Size | ~300 ft x 15-20 ft |
| Lat./long. | +29.56307 -81.172058 |
| Habitat | Ruderal |



Image: 7-31-09

Existing Species

| | |
|-------|---|
| Showy | <i>Andropogon</i> sp., <i>Chamaecrista fasciculata</i> , <i>Centrosema virginianum</i> (naturally occurring), <i>Coreopsis leavenworthii</i> , and <i>Gaillardia pulchella</i> ; all other species probably naturally occurring |
| Other | <i>Gaura angustifolia</i> ; <i>Phyla nodiflora</i> (both naturally occurring) |

Management recommendation

Use management practices that will facilitate preservation and expansion of *Andropogon*, *Chamaecrista*, *Coreopsis*, *Gaillardia*, and fall flowering species* used to enhance site; and secondarily *Centrosema*; consider enhancing with seeds or plants of *Helianthus debilis*, which occurs on east side of A1A.

*Suggested species to enhance fall color, which was minimal on October 7: *Conoclinium coelestinum*, *Liatris gracilis*

Site

| | |
|------------|--|
| Number | 28 |
| Type | Enhancement |
| Season | Very late spring, summer, fall* |
| Location | A1A, west side; beyond mow zone; just north of Varn Beach Park |
| Size | ~1 mile x 10-20 ft |
| Lat./long. | +29.5585312 -81.1663778 |
| Habitat | Ruderal |



Images: 5-14-09 (top); 7-31-09 (LR)

Existing Species

| | |
|-------|--|
| Showy | <i>Chamaecrista fasciculata</i> , <i>Gaillardia pulchella</i> , <i>Helianthus debilis</i> , <i>Monarda punctata</i> (all probably naturally occurring) |
|-------|--|

Management recommendation

Use management practices that will facilitate preservation and expansion of *Chamaecrista*, *Gaillardia*, *Helianthus*, and *Monarda*, as well as fall flowering species* used to enhance site

*Suggested species to enhance fall color, which was minimal on October 7: *Liatris gracilis*, *Solidago sempervirens*

Site

| | |
|------------|---|
| Number | 29 |
| Season | Very late spring, summer, fall*,** |
| Type | Enhancement |
| Location | A1A, west side; just north of High Bridge Road; ~02.5-0.5 miles north of lat./long. point below |
| Size | Long stretch (ft not estimated) that is 8-10 ft wide between bike path and A1A |
| Lat./long. | +29.4109122 -81.0952388 |
| Habitat | Ruderal |



Images: 5-14-09 (UL); 10-7-09 (LR)

Existing Species

Showy *Gaillardia pulchella*, *Helianthus debilis*, and *Mimosa strigillosa* (all probably naturally occurring)

*NOTE: On October 7, *Helianthus debilis* and *Solidago sempervirens* were flowering outside the mow zone (image LR).

Management recommendation

This site was mowed at least once between mid-May and late July, which was too soon to facilitate optimal preservation and spread of *Gaillardia* and *Helianthus*; neither species was observed on 7-31-09.

To facilitate preservation and spread of these species:

- Raise mowing height to 6".
- Remainder of 2009 – avoid mowing until late fall.
- **2010 – If either *Gaillardia* or *Helianthus* are present, avoid mowing after March 1 and until late August at the earliest, but for early/mid fall color, preferably not until November.

Site

| | |
|------------|---|
| Number | 30 |
| Type | Enhancement |
| Season | Spring |
| Location | Mango Tree Rd. (Edgewater); east side |
| Size | ~1000 ft ² |
| Lat./long. | +28.9832401 -80.9140451 |
| Habitat | Ruderal |



Image: 5-14-09

Existing Species

| | |
|-------|---|
| Showy | <i>Mimosa strigillosa</i> (naturally occurring) |
| Other | <i>Phyla nodiflora</i> |

Management recommendation

Use management practices that will facilitate preservation and expansion of *Mimosa*.

Site

| | |
|------------|--|
| Number | 31 |
| Type | New planting |
| Season | Spring, summer, fall |
| Location | Mango Tree Rd. (Edgewater); east side; just south of Site 30 |
| Size | ~0.75 mile x 10-15 ft |
| Lat./long. | +28.9808088 -80.9128999 |
| Habitat | Ruderal |



Image: 5-14-09

Species Suggestions

Showy *Asclepias tuberosa*, *Berlandiera subacaulis*, *Carphephorus corymbosus*, *Eragrostis spectabilis*, *Erythrina herbacea*, *Gaillardia pulchella*, *Liatris gracilis*, *Mimosa strigillosa*, *Penstemon multiflorus*, *Phlox drummondii*, *Pityopsis graminifolia*, *Ruellia caroliniensis*, *Salvia coccinea*, *Salvia lyrata*, *Sorghastrum secundum*, *Tradescantia ohimensis*; *Conoclinium coelestinum* *Coreopsis leavenworthii*, and *Helianthus angustifolius* in swale

Notes Some *Phyla nodiflora* adjacent to roadside. If *Gaillardia* is included use sparingly as it is aggressive.

Other Notes

On 7-31-09, some *Rhynchospora colorata*, *Pontederia cordata* and *Sagittaria lancifolia* were observed in the southern end of the swale but their limited extent precluded reclassifying this site as 'Enhancement'.

Site

| | |
|------------|--|
| Number | 32 |
| Type | New planting |
| Season | Spring, mid-summer |
| Location | US 1 median; starting just north of City Hall in Oak Hill City |
| Size | ~1.7 mile long; swale plus 3 ft on each side of swale |
| Lat./long. | +28.8531338 -80.8490036 |
| Habitat | Ruderal |



Image: 5-14-09

Species Suggestions

| | |
|-------|--------------------------------|
| Showy | <i>Coreopsis leavenworthii</i> |
|-------|--------------------------------|

Site

| | |
|------------|---|
| Number | 33 |
| Type | View only |
| Season | Spring, summer |
| Location | SR 3; Merritt Island National Wildlife Refuge |
| Size | 300+ ft x 5 ft |
| Lat./long. | +28.8135998 -80.8342371 |
| Habitat | Mesic coastal flatwoods |



Images: 5-14-09 (UL); 7-31-09 (LR)

Existing Species

Showy *Conoclinium coelestinum*, *Coreopsis leavenworthii*, *Kosteletzkya virginica*, *Lythrum alata* var. *lanceolatum* (lower right), *Pontederia cordata*, *Rhynchospora colorata* (most common species in May), and *Sagittaria lancifolia* (all species naturally occurring)

Management recommendation

Take no action to preserve or enhance species at this site as it is managed by the Refuge.

Between the end of July and early October, trees and shrubs were removed, which could affect future species composition and their relative abundance.

Site

| | |
|------------|---|
| Number | 34 |
| Season | Spring |
| Type | View only |
| Location | SR 3; south of haulover drawbridge; both sides; Merritt Island National Wildlife Refuge |
| Size | Plants scattered over ~0.5 acres |
| Lat./long. | +28.7230614 -80.7431905 |
| Habitat | Ruderal |



Image: 5-14-09

Existing Species

| | |
|-------|---|
| Showy | <i>Gaillardia pulchella</i> and occasional <i>Berlandiera subacaulis</i> (both naturally occurring); <i>Passiflora incarnata</i> (inset; naturally occurring; rare) |
|-------|---|

Other Notes

In summer, bikers should pedal slowly in this area because many wildflowers exist below the grass canopy.

In October, the extent of showy native wildflowers and grasses was extremely limited. Moreover, much of this site was occupied by the nonnative, invasive species, *Melinis repens*.

Management recommendation

Take no action to preserve or enhance species at this site as it is managed by the Refuge.

Site

Number 35
Type View only
Season Spring, summer
Location SR 3; Merritt
Island National
Wildlife Refuge
Size ~0.3 miles x 5-
8 ft (swale)
Lat./long. +28.6479033
-80.6995344

Habitat Ruderal



Images: 5-14-09 (UL; UL inset); 7-31-09 (LR)

Existing Species

Showy *Agalinis* sp., *Andropogon* sp., *Coreopsis leavenworthii* (UL), *Eragrostis spectabilis* (pavement edge only), *Polygala rugelii* (inset), *Rhexia mariana* (LR), *Rhynchospora colorata*, *Rudbeckia hirta*, *Sabatia stellaris*, *Sagittaria lancifolia* (all species naturally occurring)

In October, extent of showy native wildflowers was very limited (only occasional *Sagittaria*), partly due to the back slope having been mowed.

Other *Lachnanthes caroliana*

Management recommendation

Take no action to preserve or enhance this wildflower site as it is managed by the Refuge.

Site

| | |
|------------|--|
| Number | 36 |
| Type | New planting |
| Season | Spring, summer, fall |
| Location | US 1; Titusville, vicinity of Malinda Lane |
| Size | N/A |
| Lat./long. | +28.6224270 -80.8214574 |
| Habitat | Ruderal; mainly upland |



Image: 5-14-09

Species Suggestions

Showy *Asclepias tuberosa*, *Berlandiera subacaulis*, *Carphephorus corymbosus*, *Chamaecrista fasciculata*, *Chrysopsis subulata*, *Eragrostis spectabilis*, *Erythrina herbacea*, *Gaillardia pulchella*, *Helianthus debilis*, *Liatris gracilis*, *Liatris tenuifolia*, *Mimosa strigillosa*, *Monarda punctata*, *Muhlenbergia capillaris*, *Penstemon multiflorus*, *Pityopsis graminifolia*, *Ruellia caroliniensis*, *Salvia coccinea*, *Salvia lyrata*, *Solidago sempervirens*, *Sorghastrum secundum*, *Tradescantia ohiensis*

Notes This site is part of the future bike trail. The southern end of this trail is near Malinda Lane (see lat./long.) The picture above is near Parker Ave; it is typical of sites that could be planted with native wildflowers. If *Gaillardia* is included use sparingly as it is aggressive.

Areas that are immediately bordered by subcanopy are not suitable for planting wildflowers. Also, avoid planting wildflowers in areas immediately adjacent to residences.

Site

Number 37

Type New planting

Season Spring

Location Folsom Road;
Titusville;
starting at
lat./long. point
below and
proceeding
north (see also
Notes)

Size ~0.7 miles x 8-
10 ft

Lat./long. +28.6790687
-80.8554262

Habitat Ruderal



Image: 5-14-09

Species Suggestions

Showy *Phlox drummondii*

Notes Site width – starts ~3 ft from the old railroad bed (future bike trail) to the edge of the roadside. Did not recheck in July or October as it is our understanding that this site ultimately will not be part of the bike loop.

Site

| | |
|------------|--|
| Number | 38 |
| Type | Do not develop (at least temporarily*) |
| Location | East Central Rail Trail; Titusville to Maytown; Burkholm Rd. |
| Size | N/A |
| Lat./long. | +28.7170085 -80.8794339 |
| Habitat | Ruderal |



Image: 5-14-09

Management Recommendation

At this time, no portion of this section of the old railroad bed and future bike trail is suitable for establishing wildflowers as the subcanopy is too close to the trail.

*There is substantial occurrence of nonnative, invasive species (including (*Lantana camara* and *Schinus terebinthifolia*), which will need to be removed. After removal of nonnative, invasive species, the suitability of wildflowers on this portion of the trail can be re-examined.

Site

| | |
|------------|--|
| Number | 39 |
| Type | Do not develop |
| Location | East Central Rail Trail; Titusville to Maytown; Blounts Ridge Rd. just north of Aurantia Rd. |
| Size | N/A |
| Lat./long. | +28.7300785 -80.8894159 |
| Habitat | Ruderal |



Images: 10-7-09

Management Recommendation

There is substantial occurrence of nonnative, invasive species (*Dioscorea bulbifera* [UL], *Imperata cylindrica*, *Schinus terebinthifolia*, and *Urena lobata*), which will need to be removed. After removal of these nonnative, invasive species, the suitability of wildflowers on this portion of the trail can be re-examined. Rail bed north of this site is too narrow for wildflowers.

NOTE: Image (LL) shows native *Andropogon* sp. that occurs at this location.

Site

Number 40

Type Enhancement

Season Spring, summer, fall*

Location East Central Rail Trail

Size ~150 ft x 10-20 ft

Lat./long. +28.792239
-80.945639

Habitat Ruderal; moist to wet



Images: 7-31-09 (UL); 10-7-09 (LR)

Existing Species

Showy *Aletris lutea*, *Coreopsis leavenworthii*, *Eriocaulon decanquale*, *Polygala rugelii*, *Rhexia alifanus*, *Rhynchospora colorata*; *Bigelowia nudata* (LR) observed on east side of trail opposite Site 40

Other *Pluchea baccharis*

Management recommendation

Use management practices that will facilitate preservation and expansion of *Coreopsis*, *Polygala*, *Rhexia alifanus*, any species added for fall color, and secondarily *Aletris*, *Eriocaulon*, and *Rhynchospora*.

*Suggested species to provide fall color, which was nil on October 7: *Bigelowia nudata*, *Conoclinium coelestinum*, *Helianthus angustifolius*, *Liatris spicata*

Site

Number 41
Type Enhancement
Season Spring, summer, fall*
Location East Central Rail Trail
Size ~50 ft x 3-5 ft
Lat./long. + 28.795852
-80.949029
Habitat Bog

**Existing Species**

Showy *Eriocaulon decangulare*, *Pontederia cordata*
Other *Bacopa caroliniana* (UL), *Bacopa monnieri* (LR), *Oxypolis filiformis*,
Pluchea baccharis

Management recommendation

Use management practices that will facilitate preservation and expansion of *Eriocaulon*, *Pontederia*, and any species added to enhance fall color; enhance with seeds of *Coreopsis leavenworthii*.

*Suggested species to enhance fall color: *Bigelowia nudata*, *Conoclinium coelestinum*, *Helianthus angustifolius*, *Liatris spicata*

Site

Number 42

Type New planting

Season Spring, summer, fall

Location East Central Rail Trail at Maytown Spur Road; to be developed into trail head

Size ~2000-4000 ft²

Lat./long. +28.807446
-80.960138

Habitat Ruderal; mainly upland



Image: 7-31-09

Species Suggestions

Showy *Asclepias tuberosa*, *Berlandiera subacaulis*, *Carphephorus corymbosus*, *Chamaecrista fasciculata*, *Eragrostis spectabilis*, *Erythrina herbacea*, *Liatris gracilis*, *Mimosa strigillosa*, *Penstemon multiflorus*, *Pityopsis graminifolia*, *Ruellia caroliniensis*, *Salvia coccinea*, *Salvia lyrata*, *Sorghastrum secundum*, *Tradescantia ohiensis*

Site

Number 43 (A, B, C)

Type New planting

Season Spring, summer, fall

Location East Central Rail Trail adjacent to Maytown Road

Size ~1 mile

Lat./long. East end (A):
+28.822857
-80.984644

Center (B):
+28.8204851
-80.9963111

West end (C):
+28.821956
-81.001547

Habitat Disturbed uplands



Images: 5-14-09 (LR; near center); 7-31-09 (UL; near east end)

Species Suggestions

Showy *Asclepias tuberosa*, *Berlandiera subacaulis*, *Carphephorus corymbosus*, *Chamaecrista fasciculata*, *Eragrostis spectabilis*, *Erythrina herbacea*, *Gaillardia pulchella*, *Liatris gracilis*, *Mimosa strigillosa*, *Penstemon multiflorus*, *Pityopsis graminifolia*, *Ruellia caroliniensis*, *Salvia coccinea*, *Salvia lyrata*, *Sorghastrum secundum*, *Tradescantia ohiensis*

Notes Much of the railroad bed along Maytown Road is behind barbed wire fence. We were cautioned about unresolved property rights issues.

If *Gaillardia* is included use it sparingly as it is aggressive.

Site

| | |
|------------|----------------------------------|
| Number | 44 |
| Type | Enhancement |
| Season | Spring, summer, fall* |
| Location | East Central Rail Trail |
| Size | ~1000 ft ² |
| Lat./long. | +28.842424 -81.047614 |
| Habitat | Ruderal; slightly moist to moist |



Image: 7-31-09

Existing Species

| | |
|-------|---|
| Showy | <i>Coreopsis leavenworthii</i> , <i>Conoclinium coelestinum</i> , <i>Euthamia</i> sp., <i>Flaveria linearis</i> , <i>Hypericum</i> sp., <i>Rhynchospora colorata</i> (extent of all species is sporadic; all are naturally occurring) |
| Other | <i>Mecardonia acuminata</i> subsp. <i>peninsularis</i> (endemic; Volusia County is at the northern end of its range), <i>Pluchea baccharis</i> |

Management recommendation

Use management practices that will facilitate preservation and expansion of *Andropogon*, *Conoclinium*, *Coreopsis*, *Flaveria*, and *Mecardonia*, and secondarily, *Rhynchospora*; enhance with seeds/plants of *Conoclinium*, *Coreopsis*, and *Flaveria*

*Suggested species to enhance fall color: *Bigelovia nudata*, *Helianthus angustifolius*, *Liatris spicata*. While October wildflower color was nil, *Euthamia* (which had a substantial presence) had not yet flowered.

Site

| | |
|------------|--|
| Number | 45 |
| Type | New planting |
| Season | Spring, summer, fall |
| Location | East Central Rail Trail near junction of Gobblers Lodge Rd. and Maytown Rd.; to be developed into trail head |
| Size | ~500-1000 ft ² |
| Lat./long. | +28.84516 -81.060624 |
| Habitat | Ruderal; dry to moist (along edge) |



Image: 7-31-09

Species Suggestions

| | |
|-------|---|
| Showy | <i>Asclepias tuberosa</i> , <i>Berlandiera subacaulis</i> , <i>Carphephorus corymbosus</i> , <i>Chamaecrista fasciculata</i> , <i>Coreopsis leavenworthii</i> , <i>Eragrostis spectabilis</i> , <i>Erythrina herbacea</i> , <i>Liatris gracilis</i> , <i>Mimosa strigillosa</i> , <i>Penstemon multiflorus</i> , <i>Pityopsis graminifolia</i> , <i>Rudbeckia hirta</i> , <i>Ruellia caroliniensis</i> , <i>Salvia coccinea</i> , <i>Salvia lyrata</i> , <i>Sorghastrum secundum</i> , <i>Tradescantia ohiensis</i> |
|-------|---|

Site

| | |
|------------|--|
| Number | 46 |
| Type | New planting |
| Season | Spring, summer, fall |
| Location | East Central Rail Trail at junction of Maytown Rd. and SR 415 in Osteen; to be developed into trail head |
| Size | ~.25-0.5 acres |
| Lat./long. | +28.846266 -81.162272 |
| Habitat | Ruderal; dry |



Image: 7-31-09

Species Suggestions

| | |
|-------|--|
| Showy | <i>Asclepias tuberosa</i> , <i>Berlandiera subacaulis</i> , <i>Carphephorus corymbosus</i> , <i>Chamaecrista fasciculata</i> , <i>Eragrostis spectabilis</i> , <i>Erythrina herbacea</i> , <i>Liatris gracilis</i> , <i>Mimosa strigillosa</i> , <i>Penstemon multiflorus</i> , <i>Pityopsis graminifolia</i> , <i>Salvia coccinea</i> , <i>Salvia lyrata</i> , <i>Sorghastrum secundum</i> , <i>Tradescantia ohiensis</i> |
|-------|--|

Site

| | |
|------------|--|
| Number | 47 |
| Type | New planting |
| Season | Spring, summer, fall |
| Location | East Central Rail Trail; Edgewater; West Park Ave. at Old Mission Rd.; to be developed into trail head |
| Size | ~.25-0.5 acres |
| Lat./long. | +28.9797485 -80.9425785 |
| Habitat | Ruderal; dry |



Image: 10-7-09

Species Suggestions

| | |
|-------|--|
| Showy | <i>Asclepias tuberosa</i> , <i>Berlandiera subacaulis</i> , <i>Carphephorus corymbosus</i> , <i>Chamaecrista fasciculata</i> , <i>Eragrostis spectabilis</i> , <i>Erythrina herbacea</i> , <i>Liatris gracilis</i> , <i>Mimosa strigillosa</i> , <i>Penstemon multiflorus</i> , <i>Pityopsis graminifolia</i> , <i>Salvia coccinea</i> , <i>Salvia lyrata</i> , <i>Sorghastrum secundum</i> , <i>Tradescantia ohiensis</i> |
|-------|--|

Site

| | |
|------------|--|
| Number | 48 |
| Type | New planting |
| Season | Spring, summer, fall |
| Location | East Central Rail Trail; Edgewater; Cow Creek Road at SR 442.; to be developed into trail head |
| Size | ~0.25-0.5 acres |
| Lat./long. | +28.9506455 -80.945535 |
| Habitat | Ruderal; dry |



Image: 10-7-09

Species Suggestions

| | |
|-------|--|
| Showy | <i>Asclepias tuberosa</i> , <i>Berlandiera subacaulis</i> , <i>Carphephorus corymbosus</i> , <i>Chamaecrista fasciculata</i> , <i>Eragrostis spectabilis</i> , <i>Erythrina herbacea</i> , <i>Liatris gracilis</i> , <i>Mimosa strigillosa</i> , <i>Penstemon multiflorus</i> , <i>Pityopsis graminifolia</i> , <i>Salvia coccinea</i> , <i>Salvia lyrata</i> , <i>Sorghastrum secundum</i> , <i>Tradescantia ohiensis</i> |
|-------|--|

Table 1. Scientific and common names of species mentioned in this report. The common names are those listed by the Atlas of Florida Vascular Plants (<http://florida.plantatlas.usf.edu/>) as of June 5, 2009. Other common names are listed in parentheses. When purchasing seeds or plants, **always** request a plant by its scientific name. Form: WF = Wildflower; GR = Grass; SG = Sedge; SH=Showy shrub; STr = Small tree; Vn = Showy vine

| Species | Form | Common Name (s) |
|---------------------------------|------|--|
| <i>Native Species</i> | | |
| <i>Acmella oppositifolia</i> | WF | Oppositeleaf Spotflower |
| <i>Agalinis purpurea</i> | WF | Purple False Foxglove |
| <i>Agalinis</i> sp. | WF | False Foxglove |
| <i>Aletris lutea</i> | WF | Yellow Colicroot |
| <i>Aralia spinosa</i> | STr | Devil's Walkingstick |
| <i>Andropogon</i> sp. | GR | Bluestem |
| <i>Asclepias tuberosa</i> | WF | Butterfly Milkweed; Butterflyweed |
| <i>Bacopa caroliniana</i> | WF | Lemon Bacopa; Blue Waterrhysop |
| <i>Bacopa monnieri</i> | WF | Herb-of-Grace |
| <i>Berlandiera subacaulis</i> | WF | Florida Greeneyes |
| <i>Bidens alba</i> | WF | Beggarticks; Romerillo |
| <i>Bigelovia nudata</i> | WF | Pineland Rayless Goldenrod |
| <i>Bignonia capreolata</i> | Vn | Crossvine |
| <i>Borrchia frutescens</i> | WF | Bushy Seaside Oxeye |
| <i>Buchnera americana</i> | WF | American Bluehearts |
| <i>Callicarpa americana</i> | SH | American Beautyberry |
| <i>Campanula floridana</i> | WF | Florida Bellflower |
| <i>Carphephorus corymbosus</i> | WF | Coastalplain Chaffhead; Florida Paintbrush |
| <i>Centrosema virginianum</i> | Vn | Spurred Butterfly Pea |
| <i>Chamaecrista fasciculata</i> | WF | Partridge Pea |
| <i>Chrysopsis mariana</i> | WF | Maryland Goldenaster |
| <i>Chrysopsis</i> sp. | WF | Goldenaster |
| <i>Cirsium</i> sp. | WF | Thistle |
| <i>Conoclinium coelestinum</i> | WF | Blue Mistflower (Wild Ageratum) |

| | | |
|---|----|--|
| <i>Coreopsis basalis</i> | WF | Goldenmane Tickseed |
| <i>Coreopsis lanceolata</i> | WF | Lanceleaf Tickseed (Lanceleaf Coreopsis) |
| <i>Coreopsis leavenworthii</i> | WF | Leavenworth's Tickseed (Leavenworth's Coreopsis) |
| <i>Cyperus</i> sp. | SG | Sedge |
| <i>Dalea pinnata</i> | WF | Summer Farewell |
| <i>Eragrostis spectabilis</i> | GR | Purple Lovegrass |
| <i>Erigeron quercifolius</i> | WF | Oakleaf Fleabane |
| <i>Eriocaulon decangulare</i> | WF | Tenangle Pipewort |
| <i>Erythrina herbacea</i> | WF | Coralbean; Cherokee Bean |
| <i>Euthamia</i> sp. | WF | Flattop Goldenrod |
| <i>Flaveria linearis</i> | WF | Narrowleaf Yellowtops |
| <i>Gaillardia pulchella</i> | WF | Firewheel (Indian Blanket; Blanketflower) |
| <i>Gelsemium sempervirens</i> | Vn | Carolina Jessamine |
| <i>Gaura angustifolia</i> | WF | Southern Beeblossom |
| <i>Hamelia patens</i> | SH | Firebush |
| <i>Helianthus angustifolius</i> | WF | Narrowleaf Sunflower; Swamp Sunflower |
| <i>Helianthus debilis</i> | WF | East Coast Dune Sunflower (East Coast Beach Sunflower) |
| <i>Helianthus floridanus</i> | WF | Florida Sunflower |
| <i>Heterotheca subaxillaris</i> | WF | Camphorweed |
| <i>Hibiscus coccineus</i> | WF | Scarlet Rosemallow |
| <i>Hibiscus grandiflorus</i> | WF | Swamp Rosemallow |
| <i>Hydrolea corymbosa</i> | WF | Skyflower |
| <i>Hypericum</i> sp. | SH | St. John's-Wort |
| <i>Hypericum cistifolium</i> | SH | Roundpod St. John's-Wort |
| <i>Hyptis alata</i> | WF | Clustered Bushmint; Musky Mint |
| <i>Ipomoea cordatotrilobata</i> | VN | Tievine |
| <i>Ipomopsis rubra</i> | WF | Standing Cypress; Spanish Larkspur |
| <i>Kosteletzkya virginica</i> (= <i>K. pentacarpos</i>) | WF | Virginia Saltmarsh Mallow |
| <i>Lachnanthes carolina</i> | WF | Carolina Redroot |

| | | |
|---|----|---|
| <i>Liatris gracilis</i> | WF | Slender Gayfeather (Slender Blazing Star) |
| <i>Liatris spicata</i> | WF | Dense Gayfeather (Dense Blazing Star) |
| <i>Liatris tenuifolia</i> | WF | Shortleaf Gayfeather (Shortleaf Blazing Star) |
| <i>Lobelia</i> sp. | WF | Lobelia |
| <i>Lonicera sempervirens</i> | Vn | Coral Honeysuckle |
| <i>Ludwigia octovalvis</i> | SH | Mexican Primrosewillow |
| <i>Lygodesmia aphylla</i> | WF | Rose-Rush |
| <i>Lythrum alata</i> var. <i>lanceolatum</i> | WF | Winged Loosestrife |
| <i>Mecardonia acuminata</i> subsp. <i>peninsularis</i> | WF | Axillflower |
| <i>Mikania scandens</i> | VN | Climbing Hempvine |
| <i>Mimosa strigillosa</i> | WF | Powderpuff |
| <i>Monarda punctata</i> | WF | Spotted Beebalm |
| <i>Muhlenbergia capillaris</i> | GR | Hairawn Muhly (Purple Muhlygrass) |
| <i>Oxypolis filiformis</i> | WF | Water Cowbane |
| <i>Panicum hemitomon</i> | GR | Maidencane |
| <i>Panicum amarum</i> | GR | Bitter Panicgrass |
| <i>Passiflora incarnata</i> | WF | Purple Passionflower |
| <i>Penstemon multiflorus</i> | WF | Manyflower Beardtongue |
| <i>Phlox drummondii</i> | WF | Annual Phlox (Drummond's Phlox) |
| <i>Phyla nodiflora</i> | WF | Turkey Tangle Frogfruit; Capeweed (Frogfruit) |
| <i>Pityopsis graminifolia</i> | WF | Narrowleaf Silkgrass |
| <i>Pluchea baccharis</i> | WF | Rosy Camphorweed |
| <i>Polygala rugelii</i> | WF | Yellow Milkwort |
| <i>Pontederia cordata</i> | WF | Pickereelweed |
| <i>Ptilimnium capillaceum</i> | WF | Mock Bishopweed; Herbwilliam |
| <i>Pyrrhopappus carolinianus</i> | WF | Carolina Desertchicory (Carolina False Dandelion) |
| <i>Rhexia alifanus</i> | WF | Savannah Meadowbeauty |
| <i>Rhexia mariana</i> | WF | Pale Meadowbeauty; Maryland Meadowbeauty |
| <i>Rhynchospora colorata</i> | SG | Starrush Whitetop |
| <i>Rudbeckia hirta</i> | WF | Blackeyed Susan |

| | | |
|------------------------------|----|--------------------------------------|
| <i>Rudbeckia mollis</i> | WF | Softhair Coneflower |
| <i>Ruellia caroliniensis</i> | WF | Carolina Wild Petunia (Wild Petunia) |
| <i>Sabatia stellaris</i> | WF | Rose-of-Plymouth (Rosegentian) |
| <i>Saccharum giganteum</i> | GR | Sugarcane Plumegrass |
| <i>Sagittaria lancifolia</i> | WF | Bulltongue Arrowhead (Duck Potato) |
| <i>Salvia coccinea</i> | WF | Tropical Sage; Blood Sage |
| <i>Salvia lyrata</i> | WF | Lyreleaf Sage |
| <i>Solidago canadensis</i> | WF | Canada Goldenrod |
| <i>Solidago sempervirens</i> | WF | Seaside Goldenrod |
| <i>Solidago stricta</i> | WF | Wand Goldenrod |
| <i>Sorghastrum secundum</i> | GR | Lopsided Indiangrass |
| <i>Spiranthes vernalis</i> | WF | Spring Ladiestresses |
| <i>Teucrium canadense</i> | WF | Wood Sage; Canadian Germander |
| <i>Tephrosia</i> sp. | Vn | Hoarypea |
| <i>Thalia geniculata</i> | WF | Alligatorflag; Fireflag |
| <i>Tradescantia ohiensis</i> | WF | Ohio Spiderwort; Bluejacket |
| <i>Tradescantia</i> sp. | WF | Spiderwort |
| <i>Vernonia angustifolia</i> | WF | Tall Ironweed |
| <i>Vernonia gigantea</i> | WF | Giant Ironweed |

Nonnative, Invasive Species

| | | |
|--------------------------------|----|-----------------------|
| <i>Imperata cylindrica</i> | GR | Cogongrass |
| <i>Lantana camara</i> | SH | Lantana; Shrubverbena |
| <i>Melinis repens</i> | GR | Rose Natalgrass |
| <i>Schinus terebinthifolia</i> | SH | Brazilian Pepper |

Other Nonnative Species

| | | |
|---------------------------------|----|---|
| <i>Dactyloctenium aegyptium</i> | GR | Durban Crowfootgrass |
| <i>Gaillardia aristata</i> | WF | Common Gaillardia (native but not to Florida) |
| <i>Helianthus simulans</i> | WF | Muck Sunflower |

| | | |
|--------------------------|----|---|
| <i>Merremia dissecta</i> | Vn | Noyau Vine (on invasive species watch list) |
| <i>Paspalum urvillei</i> | GR | Vaseygrass |

Appendix – Anecdotal Observations

Information provided by local native plant experts/enthusiasts about native wildflowers that they have observed along the loop, or in the vicinity of the loop was limited. We expect that some people will respond over the next several weeks. That information can be incorporated into the fall survey report, or a summer survey report (if funded).

The anecdotal observations below are direct quotes so as to avoid any misinterpretation. Observation 1 was slightly edited for format only. Nonessential parts of emails were deleted from Observations 2 to 5. Observation 6 is an Excel spreadsheet provided by Michael Wright of FDOT's Maintenance District 5.

AnecObs1

Wild Flower Notes for the loop Bike ride of Central Florida

Preliminary note – In Palatka (Rt. 20) is Ravine Gardens State Park which is a bike ride through native and imported flowering plants and trees of Florida. It hosts native wild azaleas, Florida dogwood, magnolias, and Palatka hollies in a deepening craves of a natural spring feed ravine.

Start at the cross from PUTNAM County (Rt. 20 and 207) into SAINT JOHN'S County – The county line is active farm country, quickly you are in the small town of Hastings at the first traffic light is where County rd 13 joins Rt. 20 within a mile. County Rd 206 peels off 90 degrees to the right. You are now in Spuds. State Rd 207 will veer to the right at a northern angle and County Rd 13 will go straight. *In this complex maze of roads, you can note that the road sides close to the farms, have a sprinkling of COREOPSIS (yellow flat daisy flower with a yellow center), Indian Blanket-Blanket Flower GAILLARDIA, and SUN FLOWERS (yellow daisy flower with a dark brown center).* It is approximately 12 miles to you cross I-95 from the entrance of Saint Johns' County.

Pickereel (no blooms at this time), were in the swales East and West of I-95. This is a summer to early fall blue flower bloomer and found in a wet area. Gaillardia was in the divided island and very evident in all color ranges. Plants move to find areas that they prefer to grow in as apposed to areas where they were planted. The Gaillardia (Blanket Flower) has moved to heavy scattered areas in the grass lining the road way especially on the South side now of State Rd.207. This is a heavy traffic area and it is easier to note the bright heads of the Indian Blanket Flower in the grass lined road side.

You will be passing Palm Freddie's Nursery. Then there is a beautiful array of Southern Magnolias across from Target. Along the roadway on the South side are several clumps of Wild Carrots or Queen -Anne's Lace. Now you are in "The new Business district" of Saint Augustine and about to make a left onto US 1. On the right you are passing Oyster Bay Marina entering Saint Augustine and turning right at the light or East onto County Road 214 or King Street. On the left side of King St is Flagler College (Rest Rooms are in the Student center off Sevilla St and in the main building of the College.) The campus gardens were planted by Mr. Flagler for his hotel and are now maintained by the college.

You will be able to notice the large Kumquat tree in front of the library as you ride down King. In front of the Zorayda castle is a planting of IPOMOEA (sweet potato vine). The fore lawn of the Lightner Museum is a formal dwarf box holly "English Garden". Coontie Palms are in front of the Coronado Hotel; they are a low dwarf palm with a cone center. In the small court of the Trinity Episcopal Church is a grouping of sward fern. (The church has one, maybe two, windows designed by Louis Comfort Tiffany, a friend of Mr. Flagler).

At the end of King Street is a large center island park housing the "old Slave Auction Pavilion". The park contains Indian hawthorn, Phttoisposum, African Iris, sego palms, Queen palm, Resurrection fern (*Polypodium polypodioides*) at base and on the live oaks, Spanish Moss (*Tillandsia usneoides*)[a bromeliad] also on the live oaks, Sable Palm, liropee, (both green and variegated), Two citrus trees (one a honey bell orange), Red Cedar, Box Holly, East Palatka Holly, Azaleas', String Lilies. In potted cement planters were Coontie with large yellow raised cones (*Zamia*) crotons, sweet potato vines, Impatiens, Ti plants, Arrowheads, Hibiscus, Nendenia, Split Leaf Philodendron, Indian Backbone (Devils backbone), Verbena and Black Elephant Ear. Across from the park in the hanging baskets of the Galleria del Mar is Asparagus Fern.

You now pick up A1A in crossing the Matanzas River and The Saint Augustine inlet to the sea. One block down Anastasia Boulevard, you will be passing OSteins' on the right (West) and the plantings of Nearly Wild Roses. Leonard's Nursery is on the left or east side of A1A. The Alligator Farm is on the right and then you will be passing the St Augustine's Amphitheater followed shortly by the Southern Horticulture Nursery. Now at the large traffic light intersection of State Roar 312 and A1A, you should turn left or due East, (there is a road that veers to the left before the light, that also can be used.) You are now riding through the southern edge of Anastasia State Park. The woodlands on the right (South) contain Wax myrtle, Live Oak (*Quercus viriniana* var. geminate) and dwarf live oak (*Quercus virginina* var. minima), Bamboo, Scrub Palmetto (*Sabal etonia*), Red Cedars, Cabbage Palm (*Sabal palmentto*), Muscatine vines and a whole managed section [cut or shorten stems] of Cherokee Bean (*Erythrina herbacea*). In the grass road bed were more Blanket flowers (*Gaillardia*) and in the watery swell were Pickerel and Rose gentians (*Gentian*) [attractive flowers, petals are bright rose edges to white core, on a tall graceful stem with the small symmetrical, opposite leaves that by the top of the stalk have no stems]. Before you round the corner to turn South, you can see the tall Sea oats (*Uniola paniculata*) on the left at the height of the sand dunes.

Continuing on is the Saint Johns' County Pier, to the left and at the entrance are Seagrapes (*Coccoloba uvifera*), leaves round and leathery, currently small bush plants. There are rest room facilities here. Continue down "Old A1A/Beach Blvd until you con to a traffic light and turn left (south) onto A1A. A median will now divide North and South traffic in the median are junipers, yellow lantana, Blanket flowers. Along the planted condo complexes are Oleander (*Nerium oleander*), String lilies and Cycads. The divided high way ends and there is a period of bush lined highway containing Wax myrtles, red cedars, Live oaks and for color Blanket flower.

There is a traffic light at A1A and the junction of 206, Crescent Beach. To the south side of the light is a police Station and a access road to the beach. You can access

Crescent Park from this road. Turn in front of The Sunset Grill. The park offers rest room facilities, water, and covered picnic facilities. There is easy access to the beach with Sea oats, Railroad vine(*Iponmoea pea-caparae*)[pink morning glory like flower], Sea purslane (*Sesuvium portulacastrum*) and some mounds of Beach tea (*Croton punctatus*) along with Blanket flowers, Beach sunflowers (*Helianthus debilis*) and dollar weed. Proceeding down A1A, you will reach Fort Matanzas National Monument on the right (West). The park also offers rest room facilities and there is a park ranger that can arrange a tour of the local fauna that is kept free from invading non-native foliage. Tree borings of the large Live Oak in the picnic area dates the tree to about 150 years. Muscatine vine, Live oaks, Red cedars, Oleanders. Palmettos, Wax myrtles, Resurrection fern, Spanish moss and Red bays are part of the offerings. On the Ocean side of Fort Matanzas are yuccas and thistles. Back on A1A you will now come to the parking lot on the north-west side of the bridge that crosses the Matanzas's Inlet waterway at the entrance way road side are several Passionflower vines (*Passiflora* spp), Virginia creeper, White Daisy flower, Queen-Anne's lace and Wild Lupine (*Lupinus perennis*).

Rejoining A1A going South, look up to the right over the houses stands a tall Australian Pine (a different needle formation on the branches) this is one of the non natives that the park service is removing from their land. Continuing South will lead you to Flagler County, where just North of Marineland are sea oats on the height of the sand dunes on the East or Ocean side. There are rest room facilities at the gift shop on the left side and main entrance to the aquarium.

AnecObs2

...near St. Augustine on Hwy 312, just east of the bridge going to Anastasia Island. I have seen gallardia growing in the median.

AnecObs3

...there are wildflowers blooming on State Road 312 in St. Augustine, FL. These were planted in the median by FDOT.

AnecObs4

I have always been concerned about this stand of flowers as it is the only stand I am aware of in St. Johns County. Even though it is not directly on the trail, many bicyclists use ICW (Nine Mile Road) as a regular route (down US 1, across IGW, Right on 16, and north on 13, back to the city- or north from St. Augustine, across IGW, and left on 16 , back to St. A)). Of course, it is not time for them to bloom yet as they bloom in the fall and do not open until 4 PM. I thought if I mentioned them in advance, maybe you could fit them into your schedule. The Celestial Lily is named in the Florida Natural Areas Inventory.

The stand is located along both sides of International Golf Parkway, west of US 1 and East of the Scenic Roadway sign at the east end of Twelve Mile Swamp. The Road and Bridge Department is aware of where they are located and stop mowing the right of way at the end of July....

AnecObs5

A friend of ours showed us some fantastic photos that she had taken of one of her grandchildren in some stunning fields of blooming flowers in Deland some time ago. The memory of it clicked when I got your email. I doubt the site has blooms now but it might worth noting to check out for the next season. I believe that they were Black-eyed susan.

I have not myself visited the sight so all I have is the following directions to the fields from our friend: The Road is Stone between Plymouth and Hwy 92, down the street from the hospital and just passed the nursing homes. From what I understand there are some areas of Deland traveled by bicyclist so I hope this is helpful.

AnecObs6

WILDFLOWERS - DISTRICT FIVE

| WILDFLOWERS - DISTRICT FIVE | | | | | | | | | | | |
|-----------------------------|------------|---|---|---|---|-----|---|-----------------------|---------|---------|--|
| LOCATION | | | | | | | SPECIES | | | | NOTES |
| SR # | US HIGHWAY | E | W | N | S | MED | Name | Flowering Period | Planted | Natural | |
| A1A | | x | x | | | x | Gaillardia pulchella/Helianthus debilis | Summer, fall | x | x | Scattered areas of wildflowers throughout all of Flagler County with the exception of the area immediately north and south of SR 100. Heavier concentrations in the vicinity of Matanzas Shores and Marineland where plantings by DOT and contractor are performed each year |
| 5 | 1 | x | | | | | Coreopsis lancealota | Summer, fall | | x | Approx. a 6 to 7 tenth mile section beginning one mile north of the Brevard/Volusia County Line |
| 5 | 1 | | x | | | | Coreopsis lancealota | Summer, fall | | x | North of Center St. in Oak Hill along ditch line |
| 5 | 1 | x | x | | | | unknown (yellow w/green center) | current (summer) | | x | South of Edgewater between Omni Dr. and Packwood Dr. |
| 5 | 1 | | x | | | | Gaillardia pulchella | Summer, fall | | x | New Smyrna area, south of SR 44 along railroad tracks |
| 5 | 1 | x | | | | | Coreopsis lancealota | Summer, fall | | x | An area just north of Spruce Creek to Harbor Dr. |
| 15/600 | 17/92 | x | | | | | Phlox drummondii/Gaillardia Pulchella | Spring / Early Summer | x | | Planted in the SE section of SR 472 and 17/92 by DOT |
| 15 | 17 | x | x | | | x | Phlox drummondii, Gaillardia pulchella, Coreopsis lanceolata, Rudbeckia hirta | Spring, summer, fall | x | x | From Glenwood Rd. to the south end of Deleon Springs, a variety of naturally occurring and planted wildflowers with supplemental plantings yearly. |
| 15 | 17 | x | | | | | Phlox drummondii, coreopsis lanceolata | Spring, summer, fall | | x | Vicinity of DeLeon Springs elementary school |
| 15 | 17 | x | x | | | | Phlox drummondii, coreopsis lanceolata, rhynchospora latifolia | Spring, summer, fall | | x | North of DeLeon Springs curb and gutter to north of Lake Winona Road |
| 15 | 17 | x | x | | | | Coreopsis lancealota | Summer, fall | | x | From Dawson Brown Road to south of Pierson, various locations along shoulders and ditch lines |

WILDFLOWERS - DISTRICT FIVE

| LOCATION | | | SPECIES | | | NOTES |
|----------|----|-----|---|----------------------|---|---|
| 15 | 17 | x | Coreopsis lanceolata, rhynchospora latifolia, cosmos bipinnatus | Summer, fall | x | From Washington Avenue in Pierson north to Seville |
| 15 | 17 | x | Phlox drummondii, Rudbeckia hirta, Gaillardia Pulchella | Spring, summer, fall | x | North of Seville to Putnam County Line, in vicinity of the railroad tracks |
| A1A | | x x | Gaillardia Pulchella, Helianthus debilis | Summer, fall | x | Scattered locations on dunes and shoulders from Roberta Road north to the Volusia/Flagler County Line |