Completion of Project Goals

Goal 1: *Develop training workshops to educate faculty and students to establish wildflower beds on the campuses of BCC.*

PowerPoint, Figure 1, which was developed as part of the workshop presentations to faculty and staff, winter of 2007, was revised to accommodate the data findings compiled for the interim report. These findings showed a consistently lower score for one of the test questions at posttest levels. A modified version of the PowerPoint presentation was presented to forty-five students during August – November 2008. The results of the statistical analysis applied to the pre- and posttest data is given in the next section of the report.

Over sixty students participated in planting and maintaining wildflower beds on North, Central, and South Campuses. Twenty-eight species of native wildflowers have been planted on Broward College’s campuses.

*Figure 1: Opening Slide of PowerPoint Presentation by Dr. Peggy Green*
Goal 2: *Erect educational signs by the flowerbeds to create a teaching landscape.*

Signs to identify various wildflower species were purchased and erected on North, Central and South Campuses. The signs were not only helpful as they directed campus faculty, staff and students on the campuses to the various wildflower beds and wildflowers, native to South Florida; the wildflower beds were also used as instructional visual aids for environmental science, botany, and biology courses that incorporated wildflowers into class projects. Table 1 shows a list of all of the signs erected.

<p>| TABLE 1: Number of Wildflower Signs |
|-----------------|-----------------|-----------------|</p>
<table>
<thead>
<tr>
<th>CENTRAL</th>
<th>SOUTH</th>
<th>NORTH</th>
<th>TOTAL</th>
<th>FIRST LINE</th>
<th>SECOND LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>Asclepias tuberosa</td>
<td>Butterfly-weed</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>Bidens mitis</td>
<td>Small Fruit Beggar’s Tick</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>Borrichia frutescens</td>
<td>Sea Ox-eye</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>Conoclinium coelestinum</td>
<td>Mist Flower</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>Coreopsis lanceolata</td>
<td>Tickseed</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>Coreopsis leavenworthii</td>
<td>Tickseed</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>Dyschoriste oblongifolia</td>
<td>Blue Twin Flower</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>Eragrostis spectabilis</td>
<td>Purple Love Grass</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>Flaveria linearis</td>
<td>Coastal Plain Yellowtop</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>Flaveria trinervia</td>
<td>Clustered Yellowtop</td>
</tr>
<tr>
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<td>2</td>
<td>3</td>
<td>7</td>
<td>Gaillardia pulchella</td>
<td>Blanket Flower</td>
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<tr>
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<td>1</td>
<td>2</td>
<td>5</td>
<td>Helianthus debilis</td>
<td>Beach Sunflower</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>Ipomopsis rubra</td>
<td>Standing Cypress</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>Liatris gracilis</td>
<td>Slender Gayfeather</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>Liatris spicata</td>
<td>Blazing Star</td>
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<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>Lonicera sempervirens</td>
<td>Coral Honeysuckle</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>Mimosa strigillosa</td>
<td>Sensitive Plant</td>
</tr>
<tr>
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<td>0</td>
<td>1</td>
<td>3</td>
<td>Monarda punctata</td>
<td>Spotted Beebalm</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>Muhlenbergia capillaries</td>
<td>Mist Grass</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>Passiflora suberosa</td>
<td>Passion Flower</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>Rudbeckia hirta</td>
<td>Black-eyed Susan</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>Ruellia caroliniensis</td>
<td>Wild petunia</td>
</tr>
</tbody>
</table>
Figure 2. Wildflower Sign erected on North, South and Central Campuses

Goal 3: **Organize Wildflower Week to bring the community and college together to learn the value of wildflowers**

Much of this goal was completed and reported during the first half of the wildflower grant period.

**Contests.** Additionally, wildflower photography and art contests were held in November 2008. Students created pieces of art based on native South Florida wildflowers. For inspiration, they used beds of wildflowers which were planted on North, Central and South Campuses. Permitted media were pencil, conte, charcoal, watercolor, colored pencils & pastels. For the photography contest, students photographed the native wildflowers on the campuses and submitted their entries to the contest coordinator.
There were thirty art and photography student entries that were submitted college wide. First Place Winners received a 3-credit Broward College scholarship; Second Place Winners received a $100 Broward College Bookstore voucher; Third Place Winners received a $50 Broward College Bookstore voucher (there was a tie for third place, and an additional third place voucher of $50 was added). A college wide jury of art and science faculty coordinated by the North Campus Leadership team selected the winners.

Figure 3. First Place Photography Contest Winner, 2008

Figure 4. First Place Art Contest Winner, 2008
Innovative Practices. On South Campus the hill-side farming approach technique was used on two test plots. An open trench was designed around the wildflower beds and packed with organic mulch. This was an attempt to retain moisture in the sand and promote the quick germination of seeds. There was a 100% germination rate in both of the beds. A local grant opportunity has afforded South Campus the opportunity to build a covered outdoor structure which will allow various wildflower plants to serve as an outdoor research laboratory.

Broward College plans to continue to expand wildflower beds and continue Wildflower Week celebrations each spring to celebrate student creative works inspired by the wildflowers.

Goal 4: Educate elementary school children by creating wildflower beds at their schools and bringing them to BCC to study wildflowers.

The wildflower plantings were included in the campus field trips given to over 150 5th graders who attended the Science for Kids Program held on North Campus. This program brought children from schools to the campus for a day of science activities to increase their interest in science in a college setting. The diversity of the student body, and learning from professors, provided a positive experience to students. The wildflowers in the butterfly garden were not only enjoyed outside, but flowers were examined under dissecting microscopes. Each of the schools received several packets of wildflowers to plant at their school.

Joyce King, the Central Campus student coordinator of wildflower stewards, developed a presentation and supply kit for student wildflower stewards who visited area preschool, elementary, and middle schools and conducted hands on activities with them. Several student wildflower reports summarized the number of schools where hands-on activities were held, the number of students at each presentation, and photos of the children.

Sample student comments include:

- “I have enjoyed working on these projects.... Something I would not have done on my own busy schedule.”
“I am much more aware of nature and the outdoors.”
“After we cleared out the weeds, we loosened the soil with shovels, hoes and vermiculite.... Finally we were able to begin planting our seeds and seedlings. These were transplanted from a tray to the ground.”
“So much is involved in preparing our wildflower garden for a sustainable and healthy life.”
“I learned how to lightly place the seeds just under the soil and then cover the area with mulch. We were given the Coreopsis, which is the State Wildflower. Despite the manual labor, it was gratifying to undertake the assignment.”

Goal 5: Launch a website to share the BCC wildflower project and resources.

During the late summer and early fall, Carolina Paredes, the site webmaster, worked with Karen Peruzzi from the college Information Technology Department to create the Broward College Wildflower Website (http://www.broward.edu/wildflower). It includes: 1) a main page (overview of the project with photos of past events plus a link to the Wildflower Map developed for Central Campus by the research librarians); 2) student creative works (the best of the student poems, posters, photographs, and art work) inspired by the wildflowers; 3) Wildflower Resources (including links to websites like the Florida Wildflower Foundation, the Lady Bird Johnson Wildflower Center, IFAS publications on wildflowers, Wildflower License Plate information); 4) Class projects (examples of classes across the curriculum incorporating wildflowers into class projects- i.e. the North Campus honors HELIX class created a wildflower garden to develop team work and leave a legacy to the campus) 5) Announcement of events (contests, programs, planting and maintenance of flowerbeds, workshops, etc.).

Goal 6: Encourage wildflower planting throughout Broward County by disseminating seed packets and information at community events.

Wildflower packets continue to be disseminated at college functions such as Campus Sustainability Day, Wildflower Week, Earth Day, Student Life functions, and community events. This fall, Dr. Genevieve Chung developed a pamphlet on South Florida wildflowers which was printed for distribution at community and campus events and posted as a PDF file on the wildflower website.

Goal 7: Publicize the project internally, in the local community, within the state and with other colleges nationwide.

This fall a feature article appeared in the October issue of the Observer. One of the Endowed Teaching Chairs honored at a gala in November this year, Dr. Genevieve Chung, highlighted her work on our Wildflower Project in the videotape of her accomplishments that was shown to community and college personnel in attendance. Dr. Peggy Green was on the program of the Association for the Advancement of Sustainability in Higher Education to give a presentation at their Conference in November 2008. Unfortunately, due to illness, she had to cancel her presentation at this conference. We hope to present the wildflower project at a future conference.
Data Analysis

Analysis of wildflower workshops given in March and April 2008 (Phase I) and August - November (Phase II):

The college wide wildflower workshops were successful as measured by a pre- and posttest administered to students and faculty during January-April (phase I) and August -November (phase II). Pre- and posttest scores of a total of 61 students (N=61) for phase I were significant as calculated by a one-tail T-Test (7.69E-15). Student mean scores were 44% and 76% on the pre- and posttest respectively.

Faculty (N=16) scores on the pre- and posttest (phase I) were also significant, however, because of low N, the T-Test results of 0.013555278 may or may not be considered. Faculty mean scores were 61% and 80% on the pre- and posttest respectively. Figure 3 compares student and faculty pre- and posttest scores.

During June of 2008, individual student and faculty test scores were analyzed to determine trends. As mentioned above, the original PowerPoint presentation was then modified to address these findings. It focused on additional content which may be a contributing factor to the higher mean posttest scores in phase II.

Forty-five students participated in workshops during the latter half of 2008 (phase II) totaling 106 students for the year. Figure 4 results compare higher student posttest scores (84%) over the pre-test scores (49%) as well as higher student posttest scores between phases I and II using individual samples. Pre- and posttest scores of a total of 45 students (N=45) for phase II were significant at 5.05E-10. The number of participating phase II faculty was too small to measure.
Figure 7- Comparison of Student Pre-Post Test Scores (Phases I and II)

**Annual Expenditures**

**Award received:** $25,000

**Grant Funded:**

- **Personnel Expenses:** $6,202.53
- **Operating Expenses:** $16,625.08

**Total Expenses:** $22,827.61

**Positive Balance:** $2,172.39

**Broward College In Kind Budget:**

- **Personnel Expenses:** $4,715.00
- **Operating Expenses:** $17,469.00

**Total Expenses:** $22,184.00

In-kind operating expenses included:

- **BC Wildflower Special Projects Funding:** $4,715.00
- **The Student Affairs Office** funded 3-credit scholarships to award to winners of the photography & art contests .................................................................$ 550
- **The BC Bookstore** donated two $100 bookstore vouchers for the second place winners of the two wildflower contests.....$ 200
- **BC North Campus** provided a reassigned time for the lead Wildflower educator (to provide time in her schedule to plan and carry out the grant activities) ......................................................$ 2,130
Information Technology Staff provided staff time to create Web announcement for the wildflower project activities and Support for the development of the BC wildflower website And train the student webmaster........................................ $ 3,789

Use of campus facilities for workshops........................................ $ 1,575
Grant-related travel between campuses........................................ $ 225
Grounds crew support (three campuses)....................................... $ 9,000

Total for all in-kind contributions ............$ 22,184

In addition, 120+ hours of staff time and faculty & student volunteer hours include:
• Dean of Academic Affairs, Dr Monica Ramirez on North Campus who completed the statistical analysis of workshop data collected and assisted in final grant report
• Faculty and students (planting and maintaining wildflower beds and planting seeds)
• Campus Lead Educators who exceeded their supplements by 50%

The positive balance is due to additional in-kind funding. We are therefore seeking the opportunity with the remaining Wildflower Grant funds to purchase additional seedlings and seeds for next year’s program as well as fund administrative assistance in the amount of $600.00 for two assistants who have donated time to support Dr. Green in her absence.

Please advise if you will grant us permission to spend the remaining funds in the amount of $2172.39. Also, please give us a specific date for when this amount needs to be spent.

Concluding Remarks

Broward College is very proud to have been selected to receive this grant from the State of Florida Wildflower Council and Florida Wildflower Foundation. While accomplishing the goals of the grant, our college and our community have benefited greatly. We intend to continue to expand our wildflower beds, and determine the best method for seeding plots of native wildflowers in South Florida. We are also interested in working with the University of Florida Extension Service to develop a source of local ecotype seeds that will enhance the success of our plantings. Thank you for giving us the opportunity to enhance our native landscaping with wildflowers.