



National Wildlife Federation®  
**CAMPUS**  
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**University of North Florida  
Jacksonville, Florida  
Spring 2008, Waste Reduction**

**BACKGROUND**

**Campus Profile**

The University of North Florida (UNF) is a state university located seven miles west of the Atlantic Ocean and 12 miles southeast of the urban core of Jacksonville, Florida, on the St. Johns River. Established in 1972, UNF has grown to serve more than 16,000 undergraduate and graduate students. It is also home to a diverse range of plant and animal communities, including gopher tortoises and their commensals, which flourish in second-growth forests, recovering tree farms and wetlands surrounding the academic campus. More than 500 acres of the larger campus are protected as a bird sanctuary. As part of the U.S. Department of the Interior's National Recreation Trails system since 1977, this protected area features five miles of nature trails.

In 2004, UNF founded the Environmental Center, under Dr. Ray Bowman's leadership, with the mission of developing and fostering multidisciplinary environmental education and research and with an executive board representing all five of the university's colleges. In addition to sponsoring Garbage on the Green (described below), the Environmental Center continues to support the Environmental Crisis Resolution Exercise and is actively involved in creating and expanding degree programs, mapping and taking an inventory of natural areas at UNF and elsewhere in the region, facilitating multidisciplinary team-teaching projects and funding seed grants and research on a broad range of environmental topics.

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**GOALS AND ACCOMPLISHMENTS**

**Goals**

Approximately 135 undergraduate students participated in Garbage on the Green, a waste characterization study at the University of North Florida (UNF). The purpose of the study was to identify and quantify the types and sources of materials in UNF's solid waste stream. Findings from the study were used to generate new strategies for improving campus waste-management and recycling programs. An inviting and almost festive atmosphere was also created with food, entertainment, exhibitors to provide environmental education and an art contest where the medium was recycled materials.

### **Accomplishments**

Three waste-assessment approaches were used initially with each providing different strengths: Facility walkthroughs were performed; a records examination was conducted; and a waste stream audit was conducted. The waste stream audit was the main focus of Garbage on the Green.

Within a 24-hour period, 144 bags of material were collected from the three target locations: the food court, the academic buildings and a residence hall. The UNF waste stream is made up of the things that faculty, staff and students commonly use and then throw away: paper, food packaging and plastic beverage containers. There were 120 bags from trash containers and 24 bags from recycling containers. The food court area generated the most trash bags (51 partially and completely full bags). Collectively the bags weighed 853 pounds (0.43 tons) and had a volume of 7,133 gallons (41.1 cubic yards). Most of the campus waste stream consisted of paper products, nearly 40 percent by weight (335 pounds) and 30 percent by volume (840 gallons). Mixed paper made up approximately two-thirds of the paper waste, while the more marketable white office paper made up only a quarter. The second largest portion of the waste stream came from bulky food packaging items, accounting for 17 percent by weight (149 pounds) and 28 percent by volume (780 gallons). Plastic beverage containers (plastics #1 and #2) made up the third largest segment, which amounted to 13 percent by weight (111 pounds) and 15 percent by volume (420 gallons).

Paper made up the largest portion of waste generated, and 38 percent (127 pounds) of it was diverted from the landfill (i.e., recycled/recovered). Forty-one percent of the plastic beverage containers, mostly from soft drink and water bottles, were recovered. The recovery of metal cans and glass bottles was 23 percent (3.7 pounds) and 17 percent (5.2 pounds), respectively. Overall, the diversion rate at UNF appeared to be about 21 percent.

The content of the waste stream differed by location. Waste generated in the academic buildings contained mostly paper waste—about two-thirds. Nearly half of the waste generated at the food court area consisted of food packaging and compostable materials; and 60 percent of the waste generated at one residence hall contained plastic beverage containers, food packaging and trash (i.e., nonrecyclable/non-compostable items). Overall, the highest recovery rates were achieved at the academic buildings through a paper recycling program that is used mostly by faculty and staff. The residence hall and food court area had the lowest recovery rates (15 percent and 8 percent, respectively).

As a result of the waste stream audit and Garbage on the Green event, the existing recycling programs on UNF's campus were clarified and enhanced. UNF increased the number of outdoor recycling containers, thereby increasing the collection of beverage bottles and cans. Our physical facilities department improved the process to document recycling efforts and increase campus-wide awareness. New containers were put in place to provide a more attractive recycling experience and to allow for promotion via advertising. One distinction was that a fair job was being done with paper recycling, but that we needed to address the student population more. Lastly, this successful program laid a good foundation for future programs.

## **Challenges and Responses**

Prior to the event, the three methodologies of facility walkthroughs, records examination and waste sorts together identified areas requiring improvement in our recycling efforts. These methodologies identified significant challenges in the existing program and how its baseline information was recorded. Challenges in recordkeeping issues were one specific target area.

Prior to the event, the selection of buildings from which the waste would come had to be evaluated to ensure a representative sampling. Most colleges and universities have similar core functions so this could be repeated elsewhere to represent the key areas based on their functional aspects: mixed academics, outdoor food court and residence hall. The time of year and day of the week must also be considered to ensure that sufficient materials can be collected.

During the event, trying to supervise the large number of student volunteers (135) was difficult, while still trying to maintain environmental health and safety standards. The Garbage on the Green team worked closely with Environmental Health and Safety staff and our general counsel to ensure compliance with safe procedures. Student “surrogates” filled a key role in the ability to supervise these student volunteers, which enabled good communication and cooperation.

## **ENGAGEMENT AND SUPPORT**

### **Leaders and Supporters**

A great deal of collaboration between UNF students, staff, faculty and community environmental leaders was involved. Initially, letters of support were garnered from Ray Bowman, director, UNF Environmental Center; Sarah Boren, The Green Team Project; Andy Fairbanks, Collegiate Committee Chair, Recycle Florida Today; Aaron Gottlieb, owner, Native Sun Natural Foods Market; John M. Shellhorn, Clean It Up/Green It Up, City of Jacksonville; and Brian Wormwood, assistant director, Physical Plant, University of Central Florida. The letters were submitted to our university president, John Delaney, who wholeheartedly endorsed the first Garbage on the Green event. The U.S. Environmental Protection Agency and Harvard University’s annual waste assessment projects provided practical information, forms and procedures in the development of our event.

### **Funding and Resources**

The study was funded by the Environmental Center and supported by the university’s physical facilities staff and administration, the city of Jacksonville and a diverse group of regional public and private organizations. The total costs associated with production of Garbage on the Green, including in-kind donations, was approximately \$14,000.

### **Community Outreach and Education**

Organizations were invited to participate with demonstrations and interactive booths that provided education on environmental issues. Some of those entities accepted donations of items that could be reused and recycled. Free food and entertainment were provided. Since the event was free and open to the public and publicly advertised, environmental partnerships were formed with exhibitors.

### **Campus Climate Action: Your School’s Carbon Footprint**

Recycling and waste reduction has a very direct link to the decrease in greenhouse gas emissions. The event advocated recycling which potentially had an impact on increased recycling on campus. The data from the waste audit will be calculated using greenhouse-gas equivalency calculators, where pounds of paper can be translated into reductions in global warming.

Our Garbage on the Green event brought focus to the pressing need for our society to use resources more wisely, including material resources and energy. The connection between material reuse and conservation of energy is instinctual among students, even if manufacturing technology and common business practices have not quite caught up with this ideal in all areas. The university aspires to graduate the next generation of environmentally literate society leaders. Climate change and the influence of materials recycling on it are excellent departure points for our young citizens to be actively engaged.

### **CLOSING COMMENT**

Overall, our Garbage on the Green event was, from a practical standpoint, conducted to develop baselines for the amount of garbage recycling, to determine any areas for improvement in our university's existing recycling program and draw in students, faculty, staff and members of the general public toward environmental education. UNF is one of the few schools that has actually used the three waste assessment approaches to identify gaps and knowledge when dealing with collegiate solid waste management and recycling. These three approaches were used to plan the waste stream audit. The recently reported national average for collegiate recycling is near 30 percent. UNF's Garbage on the Green, albeit a relatively new program with no educational component, exhibited 21 percent as a result of its efforts, which is considered highly successful. According to steering committee members of the National Recycling Coalition's College and University Recycling Council, this Garbage on the Green event was one of the largest collegiate waste stream audits done on a campus. It very well may have been the largest viewer-based audit since we had between 2,000 and 3,000 students observing that portion of the event. Numerous colleges have replicated the event since 2007, validating that Garbage on the Green is itself sustainable.

Lastly, an additional positive outcome was that the UNF Environmental Center was recognized with a 2007 Award of Excellence during JaxPride Week for Garbage on the Green. We were also able to present our accomplishments at a state conference dealing with recycling and waste management and at the National Recycling Coalition annual conference.