



Giselle Piburn and daughter Amelie



**Join Us at Bosque School for the BEMP Student Congress April 28th!**

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BOSQUE ECOSYSTEM MONITORING PROGRAM

# Stewardship Quarterly

## Ohkay Owingeh Community School

Giselle Piburn and 24 students from the Ohkay Owingeh Community School have the pleasure of monitoring a very unique BEMP site in San Juan (Ohkay Owingeh) Pueblo. Every Thursday for the last five years Giselle has traveled to the Ohkay Owingeh Community School from her home in Santa Fe. She is employed by La Calandria, a small environmental consulting company (owned by David Morgan) that specializes in ecological restoration. Through his consulting firm, Mr. Morgan did some post-fire clearing and chipping, cottonwood and willow pole planting, and wetland construction in an area of bosque located near Ohkay Owingeh Community School. He then contacted Cliff Crawford, and they decided to establish a BEMP site to monitor changes that occur as a result of the restoration.

What makes this site unique are the floods and fires that occur there. The northwestern end of the site lies in a wetland, which is periodically flooded by Rio Grande water conveyed overland from several miles upstream. The site has relatively few large, old cottonwoods that survived two recent fires (one since the site was installed in 2001). These cottonwoods, together with a highly diverse plant understory that includes some wetland vegetation, con-

tribute greatly to the uniqueness of the site.

Giselle regularly takes two groups of six students from the 6<sup>th</sup>, 7<sup>th</sup> or 8<sup>th</sup> grades to the site. She calls it her "classroom on foot." In addition to collecting BEMP monthly monitoring data, she and her students participate in activities in the Bosque Education Guide, play environmental games, learn about the ecology of the bosque, and go for walks along the Rio Grande.

At the 2005 BEMP Student Congress the Ohkay Owingeh students presented a three-



7th graders from Ohkay Owingeh Community School walking through their BEMP site

dimensional model of the Rio Grande that represented the river before dams and other flood-control measures were implemented. In 2004 they produced a card game that teaches about the monitoring and ecology of the bosque. BEMP has a set of these cards available for use.

Currently, Giselle is looking for funding to increase community involvement in BEMP, and to have a member of the pueblo or nearby communities take over her work.

## Christian LeJeune To Receive Zirzow Award

The Zirzow Scholarship Award is granted by the National Association of Environmental Professionals (NAEP) on an annual basis to outstanding students studying in the field of environmental science. Dr. Cliff Crawford recommended Christian LeJeune, BEMP's outreach educator, for this honor based upon Christian's extensive environmental education activities and his work in environmental science as it relates to hydrology and to monitoring the health of the Rio Grande watershed. Christian is currently working on two Masters degrees at UNM – one in the Water Resource Program (Hydroscience track) and one in the Community and Regional Planning Program (Natural Resources track). The award will be presented to Christian at the Awards Luncheon on Wednesday, April 26 as part of the NAEP's annual conference to be held in Albuquerque from April 23-26, 2006.

## Bosque Ecosystem Monitoring Program

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### Funders

- Middle Rio Grande Bosque Initiative/U.S. Fish and Wildlife Service
- National Science Foundation's Schoolyard Education Program at UNM's Sevilleta Long Term Ecological Research site
- Bosque School
- Seven Bar Foundation
- Good Samaritan Foundation
- PNM Foundation Classroom Innovation Grant
- Albuquerque Community Foundation
- Middle Rio Grande Conservancy District
- U.S. Army Corps of Engineers Bosque Restoration Program
- New Mexico Association of Conservation Districts
- Messengers of Healing Winds Foundation
- U.S. Bureau of Reclamation
- McKee/Crawford Foundation
- Educational Foundation of America

## Incorporating GIS and GPS into BEMP

What are GIS and GPS? Geographic Information System (GIS) is a way to map information about a region or a landscape, while global positioning systems (GPS) are devices that receive satellite data to pinpoint a location on the Earth's surface. BEMP is starting to incorporate these technologies into our monitoring program. GIS allows us to map out sites relative to their setting within a landscape. We use GPS to obtain latitudinal and longitudinal coordinates for objects within each site, such as wells and vegetation plots. With this information we can plot such objects onto satellite and/or aerial imagery. We can therefore create maps of BEMP sites to present to agencies that are doing clearing and other work in and around our sites. In the near future, many wells will be surveyed using GPS to determine their exact elevation. This will allow us to determine the directional flow of groundwater within each site.

BEMP and Bosque School are working on a project to determine porcupine home ranges. Students and teachers locate radio collared porcupines with GPS devices on a weekly basis. These locations will be put into a GIS program that will map out where porcupines travel during a set period of time.

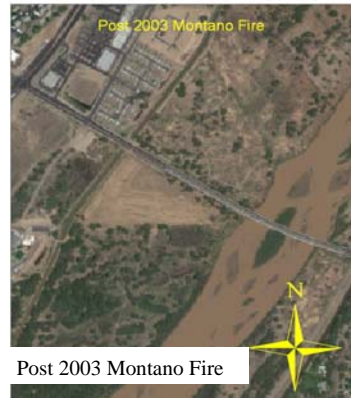
The bosque is continually changing due to fires, manual clearing, and flooding. Using GIS imagery, we can view changes at our sites over time. The images to the right show how the 2003 Montano fire dramatically changed the vegetation structure in this part of the bosque.



Okhay Owingeh students looking for aquatic insects



Pre 2003 Montano Fire



Post 2003 Montano Fire

### Participating School and Student Groups

APS School on Wheels  
Bandelier Elementary  
Belen High School  
Bosque School  
Cottonwood Valley Charter School  
Creative Education Preparatory Institute  
Dolores Gonzales Elementary  
East Mountain High School  
Harrison Middle School  
High Desert Home School  
Holy Ghost  
Hubert H. Humphrey Middle School  
Horizon Academy West  
Jimmy Carter Middle School  
John F Kennedy Middle School  
La Cueva High School  
Los Lunas Elementary  
Los Ranchos  
Monta Vista Elementary  
Montezuma Elementary  
Okhay Owingeh Community School  
Pueblo of Santa Ana  
Rio Grande Elementary  
Sandia High School  
Sierra Vista  
South Valley Academy  
Wingate Elementary  
Tohatchi High School  
Tohatchi Middle School  
Washington Middle School  
Wingate Elementary  
Zia Middle School

## Bring BEMP Into The Classroom

In an effort to incorporate environmental education in curriculums of schools that participate in BEMP, we are posting educational activities on our website. These activities are designed to enrich students' experiences in the field and help students and teachers use and understand the BEMP data they collect. BEMP's website currently includes Spanish translations for some Bosque Education Guide activities, an activity to familiarize students with a BEMP site layout

called "Paper BEMP Site", and an activity that illustrates changes in the bosque and river called "Rio Grande Timeline." More activities will be posted in the near future, including more sections of the Bosque Education Guide in Spanish. If you have any BEMP-related activities that we can post on the website, please send them to Jen Schuetz at [jschuetz@sevilleta.unm.edu](mailto:jschuetz@sevilleta.unm.edu).

### Our Mission

The mission of the Bosque Ecosystem Monitoring Program (BEMP) is collaborative long-term ecological monitoring of key abiotic and biotic processes and characteristics to promote continued education, understanding, and stewardship of the riparian ecosystem to scientists, teachers, students, policy makers and the public.