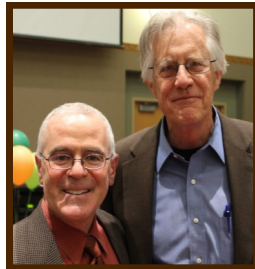




SPRING 2017 NEWSLETTER

Happy 20th Birthday BEMP!

Tuesday, March 7th marked a momentous night for BEMP; we hosted the 2017 Crawford Symposium and we celebrated our 20th Anniversary. In the last 20 years, we have grown from a small monitoring effort with only a few sites to the 32 BEMP sites we have today, stretching over 320 miles of the Rio Grande bosque. At this annual event held at UNM, we had an outstanding set of speakers ranging in age and experience from 6th grade students to professional scientists and conservationists.



Billy Handmaker—Head of Bosque School with
Keynote Speaker Bill deBuys

The night began with a vibrant poster session and presentations that covered topics from pharmaceutical and personal care products in the Rio Grande to genetic relatedness of porcupines in the bosque. Agency partners and fellow UNM scientists reflected on the importance of long term monitoring both retrospectively and as a way to understand and predict future ecological shifts.

Writer and conservationist Bill deBuys gave an inspirational and reflective keynote address about the early conversations that got monitoring started in the bosque and throughout the Middle Rio Grande. He discussed the complex political ecology that was at least as complex as the actual ecology of the bosque and noted that Cliff Crawford's effervescence was critical to the creation of BEMP as a monitoring effort.

As BEMP looks forward to the next 20 years (and beyond), we are excited to announce that we are in the beginning stages of a new campaign for a BEMP center of community engagement. BEMP has outgrown its current spaces and needs a new building and permanent home where we can continue to serve the community. Gary Goodman, of the Cebrin Goodman Youth, Leadership, and the Environment Project, noted that the political climate might seem daunting for environmental work at the moment. He called on those in the audience and in BEMP's greater community to help us with this exhilarating new building project to ensure that both science and BEMP have secure footing in the future. We are excited to move forward with the BEMP community's support on this building project and you can help make this a reality:

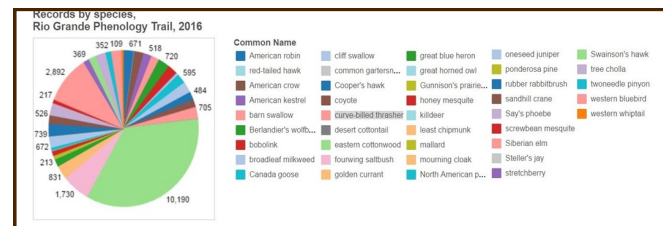
www.bemp.org/donate



Lisa Ellis—BEMP Co-Founder, Kim Eichhorst—BEMP Co-Director, &
Claudia Crawford

New Ways to Observe in the Bosque!

BEMP is proudly observing the bosque in a new way – through phenology. **Phenology** is the study of when and how plants and animals change based on the seasons. Some of the data we collect at BEMP, through a program called Nature's Notebook, helps us to understand the timing of bud



Species recorded in the Rio Grande Phenology Trail

bursts, leaf growth, flowering, migrating, nesting, etc. Initiated as a pilot project with Valle de Oro National Wildlife Refuge and the USA National Phenology Network in 2013, the Rio Grande Phenology Trail (RGPT) is a network of sites (including BEMP!) where observers conduct weekly monitoring on a suite of species including

Rio Grande cottonwood and Siberian elm. Bringing BEMP, Valle de Oro NWR, and the USA National Phenology Network together in collaboration means that we can gather even more data as we ask fine-tuned questions about the phenology of *bosque* species as well as large scale questions about ecosystem response to a changing climate.



Tallie Segel, RGPT Educator helping students monitor



Since she started with BEMP in the summer of 2016, Ruby Estrada, our BEMP South educator, has worked with over 1500 students and adults in Southern New Mexico. Her students hailed from 10 different schools in Dona Ana County including the Las Cruces Public Schools, the Gadsden Independent School District and Hatch Valley Public Schools. Ruby BEMP's classroom and field curriculum ment and its reach of the Rio Grande. BEMP South's home-base, serves as works with pre-K through high school tion, groundwater and phenology.



has tailored to southern New Mexico's environment Mesilla Valley Bosque State Park, Ruby's outdoor classroom where she students collecting data on vegeta-



Fall Field Tour 2016

The 2016 Fall Field Tour, an annual BEMP event, highlighted our newest BEMP site, Sandia, and our partnership with both the Pueblo of Sandia and the US Army Corps of Engineers (USACE). We visited different bosque restoration projects on the Pueblo, including successfully flooding terraces and a backwater channel. Frank Chaves of Sandia gave an overview of Pueblo history, cultural heritage, and the importance of the bosque and "Mother River". Danielle Galloway with USACE highlighted the projects at this Sandia site that have helped restore native vegetation and river function. This included information on the low tree and shrub survival rate in the burned area- the BEMP site was sited to monitor post-burn recovery- as well as the successful bank lowering and backwater areas. Steve Boberg, also with USACE, talked about the history of the river in that area and the impacts of river regulation: incision of the channel and sediment-starved waters that make efforts to restore river function in this area challenging.

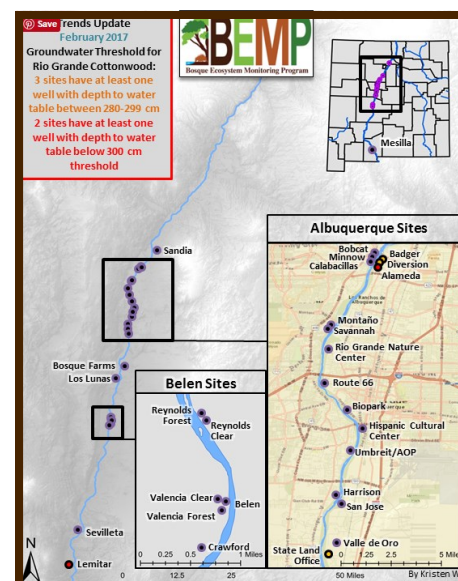


Mingling at the Sandia Pueblo bosque near the Sandia BEMP site.

Latest Data Trends

BEMP has begun posting monthly groundwater data updates on our website. Currently, we are highlighting sites where groundwater has dropped below three meters, which is the generally known maximum depth for cottonwood roots. In Feb. 2017, there were **two sites below this threshold**, Alameda (our oldest site), and Lemitar (our driest), as well as **three other sites within 20 centimeters of this threshold**: Badger, Diversion, and State Land Office. However in March 2017 high river flows brought up the water table and we witnessed overbank flooding at several sites, including Diversion.

We are currently working with our land manager partners to assess other ecological thresholds of interest and hope to begin posting other trends on a monthly or seasonal basis, such as groundwater thresholds for willow. Stay tuned and see more at <http://bemp.org/data-sets/>



Help Support



BEMP.org/donate

Upcoming BEMP Publications

- Vegetation response to control of invasive *Tamarix* in Southwestern US Rivers: a collaborative study including 416 sites by Gonzalez et al. **Accepted in Ecological Applications**
- Secondary invasions of noxious weeds promoted by management-related disturbance in riparian systems by Gonzalez et al. **In review in Biological Conservation**



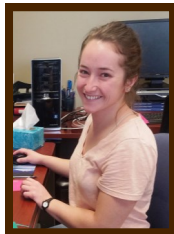
Tamarix spp.

Both of these papers focus on the impacts of saltcedar (tamarisk) treatments in riparian areas and the increase in exotic forbs following saltcedar treatment.



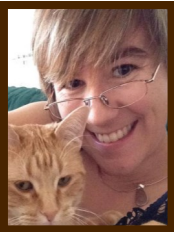
4000 Bosque School Rd NW
Albuquerque, NM 87120

New BEMP Staff in 2016



Keara Bixby

Keara Bixby is BEMP's Crawford Intern for the 2016-2017 school year. She is currently finishing her last semester at UNM where she majors in Biology with a focus in Conservation and a minor Sustainability. Overall, her favorite part about working for BEMP is interacting with younger BEMPers. She believes that their wild excitement about the outdoors, monitoring, and the bosque is truly uplifting. Keara can't wait to see what kind of changes these little scientists will make in the future with their skills and environmental passion fostered by the BEMP. You can find Keara at the UNM BEMP office or in the lab sorting lots and lots of leaf litter.



Rowan Converse

Rowan Converse is a proud BEMP student alum and is thrilled to return to the program as a staff ecologist. Rowan's long and varied involvement with BEMP has been a formative experience in her educational and professional life. She began monitoring with BEMP as a sixth grader, and interned with BEMP during summers throughout college. After graduating, Rowan joined BEMP as a staff biologist and primarily worked on original research using BEMP data. She was the primary author of BEMP's first publication, which examined the structure of BEMP's relationship with land managers, the impact of the program's data on public policy, and how it could provide a model for citizen science programs looking to have their data used to inform public policy. In her new role as a BEMP ecologist at UNM, Rowan helps to manage the program's vast datasets and facilitates research using BEMP data.

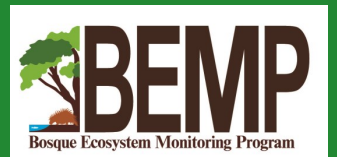


Tallie Segel

Tallie Segel joined the team as the Rio Grande Phenology Trail Educator and Biologist. The position is a collaboration between BEMP, Valle de Oro National Wildlife Refuge and the National Phenology Network. Tallie is originally from Albuquerque, and over the past 12 years, she has found many different opportunities to work as an environmental educator, teaching in residential environmental education programs, working in natural history interpretation, leading wilderness expeditions, and coordinating outreach and community-based education projects. At BEMP she coordinates the Rio Grande Phenology Trail and helps set up phenological monitoring at BEMP sites and partner schools.

Thank you to our supporters!

Albuquerque Bernalillo County Water Authority ~ Bernalillo County Open Space ~ Bosque School ~ EPA ~ Greater Rio Grande Watershed Alliance ~ Goodman Family ~ McKee/Crawford Foundation ~ Middle Rio Grande Conservancy District ~ Middle Rio Grande Stormwater Quality Team (AMAFCA; Bernalillo County; City of Albuquerque; CUIDAD Soil & Water Conservation District; NM Dept. of Transportation; SSCAFCA & the Town of Bernalillo) ~ National Science Foundation's Schoolyard Education Program at UNM's Sevilleta Long Term Ecological Research Site ~ New Mexico Association of Soil & Water Conservation Districts ~ New Mexico State Parks ~ The Nature Conservancy ~ U.S. Army Corps of Engineers ~ U.S. Bureau of Reclamation ~ USDA Forest Service ~ US Fish and Wildlife Service ~ Valencia Soil and Water Conservation District



Mission

Science, education, and stewardship of the Rio Grande and its watershed through long-term, hands-on student research of ecosystem response and function to inform public policy.