

Water Resources Advisory Panel Updates Priorities

By Rachael Herpel, Outreach and Education Specialist, UNL Water Center

The University of Nebraska–Lincoln’s Water Resources Advisory Panel (WRAP) met Sept. 16 for updates on three projects developed in response to WRAP’s research priorities.

UNL’s Erkan Istanbuluoglu and Durelle Scott described how they selected a large aquatic site with a dense infestation of invasive species (i.e., *Phragmites australis*) for their study of riparian vegetation impacts on water quantity, quality, and stream ecology.

Site selection was challenging because the mainstem of the Republican River has undergone vast herbicide treatments; however, a wetland site that mimics the river was found roughly 600 meters north of it.

Instruments were deployed and tested for accuracy between March 20 and April 27. In early May they were installed at the site. Normal 10-foot towers had to be extended to 20 feet to be taller than the *Phragmites* being studied. Water quality monitoring equipment was also installed at three locations.

After collecting baseline data, *Phragmites* will be removed and evapotranspiration monitoring continued. UNL researchers are working with Christopher Kucharik at University of Wisconsin-Madison to use the Integrated BIosphere Simulator (IBIS) to conduct the modeling portion of this project.

UNL’s Suat Irmak described how the Bowen ratio energy balance system (BREBS) is being used to measure evaporative losses from plants from different surfaces in Nebraska. The project is working to establish a large scale and comprehensive surface energy flux measurement network for as many surfaces as possible, making it the largest of its kind in the nation.

The project goal is to make NU a leader in the evapotranspiration and surface energy flux measurement and modeling. Additional federal funds are being sought for the project.

Surfaces where BREBSs have been installed include: irrigated and dryland corn, irrigated seed corn, irrigated and dryland soybeans, irrigated grassland, dryland grassland, dryland winter wheat/Sudan grass rotation (this field will be planted to switch grass to measure surface energy fluxes, crop coefficients, and actual water use and water efficiency of switch grass).

Additional systems have been installed on disk tilled and no-till soybean/corn rotation on 80 acres of center pivot irrigated fields side-by-side with same plant variety, same soil type, same irrigation system and irrigation management, same planting date and depth, same herbicide, pesticide, and insecticide management.

Another BREBS is being installed to measure evaporative losses for *Phragmites* /cottonwood/willow mixed plant community in the Platte River near Central City.

UNL's Ron Yoder described the Center Pivot Water Conservation Project. This grew out of a meeting between four major pivot manufacturers, Lindsay, Reinke, T-L and Valmont, and Governor Heineman in 2006. Manufacturers wanted to be part of the solution to Nebraska's water management issues.

At the suggestion of then Nebraska Department of Natural Resources director Ann Bleed, UNL researchers began meeting bi-monthly with them to discuss issues. From these discussions came a project proposal, which was funded, by NET, manufacturers, NDNR, and UNL beginning this year.

Project coordinator is UNL extension educator Chuck Burr, Holdrege, who is working with UNL engineers to develop materials for a three-level education program. Materials will be reviewed in November and the irrigator training meetings will be held from December to February 2009. These meetings will be promoted through pivot dealer networks, reaching an audience that has not been reached through previous extension programming.

The meeting ended with WRAP concluding that the existing list of water research priorities, developed nearly two years ago, needs updating. A subcommittee was formed to update the list.

Current WRAP members are: Ann Bleed, P.E. and former director NDNR; Mark Brohman, Nebraska Environmental Trust; Brian Dunnigan, NDNR; Eugene Glock, Cedar Bell Farms; Frank Kwapnioski, Nebraska Public Power District; John Miyoshi, Lower Platte North NRD; Marian Langan, Audubon Nebraska; Mike Linder, Nebraska Department of Environmental Quality; Kirk Nelson, Nebraska Game and Parks Commission; Jerry Obrist, City of Lincoln Water System; Lee Orton, Nebraska Well Drillers Association; Jay Rempe, Nebraska Farm Bureau Federation; Ed Schrock, farmer and former state senator; Dennis Strauch, Pathfinder Irrigation District; and Dayle Williamson, Office of Senator Ben Nelson.