



United States Department of Agriculture
Natural Resources Conservation Service

Helping People Help the Land

CEAP-Wetlands Backgrounder

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CEAP — Building the Science Base for Conservation

Science-based conservation is the key to managing agricultural landscapes for environmental quality.

The Conservation Effects Assessment Project (CEAP) is a multi-agency effort to quantify the environmental benefits of conservation practices and develop the science base for managing the agricultural landscape for environmental quality. Project findings will guide USDA conservation policy and program development and help farmers and ranchers make informed conservation choices.

The three principal components of CEAP—the national assessment, the watershed assessment studies, and the bibliographies and literature reviews—contribute to the building and evolution of the science base for conservation.

Wetlands

The goal of CEAP-Wetlands is to develop a broad collaborative foundation that facilitates the production and delivery of scientific data, results, and information. Findings will routinely inform conservation decisions affecting wetland ecosystems and the services they provide, particularly focusing on the effects and effectiveness of USDA conservation practices and Farm Bill conservation programs on ecosystem services provided by wetlands in agricultural landscapes.

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Conservation Effects Assessment Project The High Plains Regional Assessment

The dominant wetland system in the High Plains is made up of shallow depressions called playas. Given the intensive agriculture in this region, USDA conservation practices are especially prominent and therefore have a substantial influence on playas.

Scope

The major services provided by playas and examined in this study include biodiversity conservation, floodwater storage, biomass accumulation, contaminant filtration, and groundwater recharge. Because accumulation of sediment is a major threat to playa services in this intensively cultivated landscape, these services are being evaluated relative to this stressor.

To determine the effects of conservation practices on relevant services, the High Plains study includes 300 playas: 100 with cropland watersheds; 100 with conservation practice watersheds (primarily practices within the Conservation Reserve Program [CRP] and Wetlands Reserve Program); and 100 with native grassland watersheds, which are considered the reference or base condition.

Biodiversity conservation is being examined relative to plant community composition of natives/exotics and annuals/perennials. Transects are conducted twice a year in the playas selected for that year to account for species turnover and hydrologic variability. Amphibians are being sampled intensively in a subset of playas and in a companion study with the National Science Foundation in the three land-use treatments noted above.

Biomass of extant vegetation is being determined in a subset of playas using clipped plots in the two dominant communities of each playa. Hydrology of playas within the three land-use types is being evaluated relative to the influence of practices on floodwater storage and the amount of potential watershed runoff into playas. These data are being collected in conjunction with a U.S. Environmental Protection Agency project. Contaminants in sediments are also being examined in all CEAP playas.

In addition, a subset of playas is being examined for direct aquifer recharge estimates, with groundwater levels being examined within the Southern High Plains to determine the influence of CRP on water withdrawal and recharge over the entire landscape. Thirty playas, divided equally among the three land uses, have been instrumented with temperature probes and advanced weather stations to examine direct recharge through playas. These data are being examined in conjunction with the U.S. Department of Agriculture Ogallala Initiative. Groundwater data have also been obtained from water districts to allow examination of water levels under different land uses.

Status of Analysis

Data for the first field season have been collected. Data on flora, amphibian, sediment, and biomass will be examined during the off season. Analysis of groundwater data is farther along and has already demonstrated higher groundwater levels under CRP land than under adjacent cropland.

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