The Conservation Effects Assessment Project (CEAP): Intro for NWQMC

Portland, OR
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For more information on CEAP or CEAP Watershed Studies, contact:
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Original Goals of CEAP (2003)

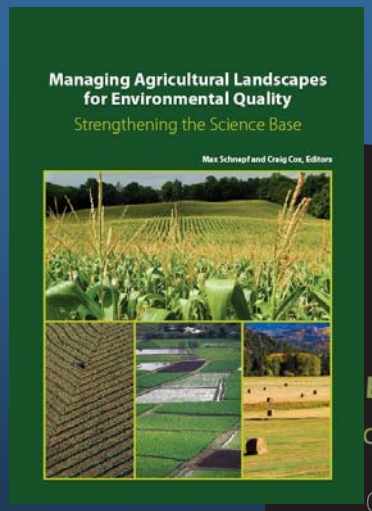
- Quantify and establish the scientific understanding of the effects of conservation practices at the watershed scale, and

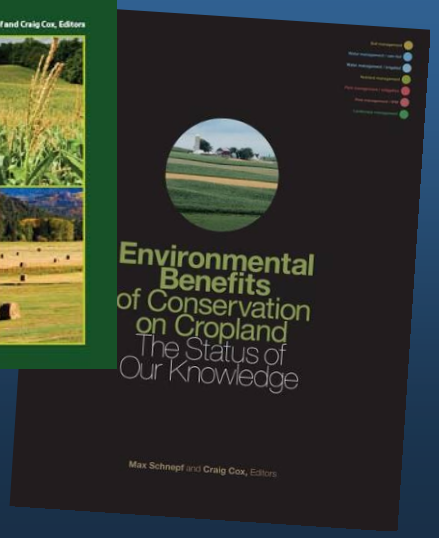
- Estimate conservation effects and benefits at regional and national scales

Duriancik, et al., 2008, JSWC Vol. 63, No. 6, pp.185A-197A.

Activities within CEAP

- Bibliographies and Literature Reviews
  - http://www.nal.usda.gov/wqic/ceap/index.shtml
- National / Regional Assessments
  - Cropland
  - Grazing Lands
  - Wetlands
  - Wildlife
- Watershed Assessment Studies





CEAP Partnerships

- CEAP Steering Committee
  - USDA Natural Resources Conservation Service
  - USDA Agricultural Research Service
  - USDA Cooperative State Research, Education, and Extension Service
  - USDA Farm Service Agency
  - USDA National Agricultural Library
  - USDA Economic Research Service
  - U.S. Forest Service
  - U.S. Environmental Protection Agency
  - U.S. Geological Survey
  - Bureau of Land Management
  - National Oceanic and Atmospheric Administration
- Other partners: LGUs, SWCS, TNC, NatureServe, AFWA, ESA…

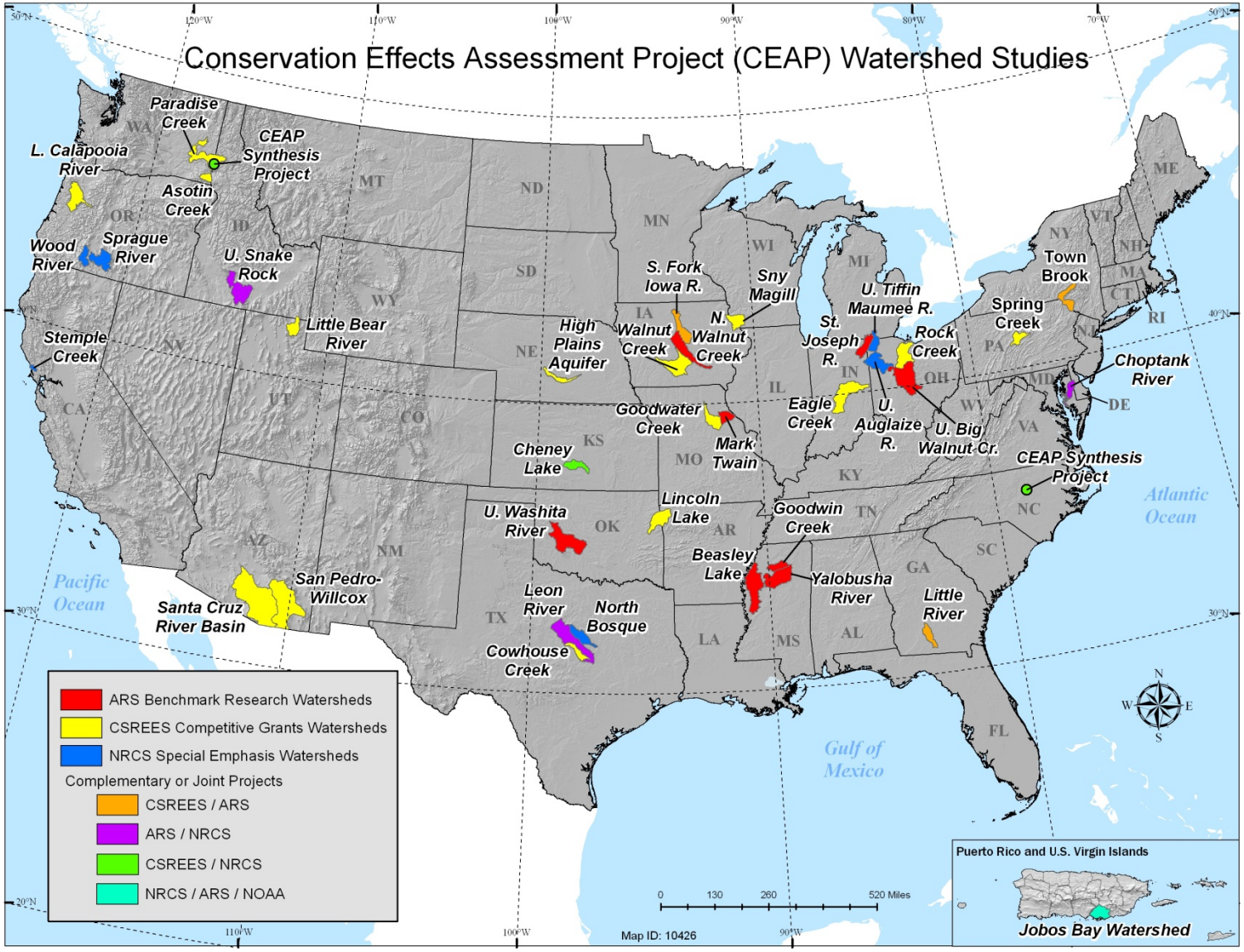
Goals of the Watershed Studies:

- quantify the measurable effects of conservation practices at the watershed scale
  - in-depth, initially retrospective analyses
- enhance understanding of conservation effects in the biophysical setting of a watershed

Partnerships Essential in CEAP Watershed Studies:

- 41 CEAP Watershed Studies right now

- 14 ARS Benchmark CEAP Watersheds
- 16 CSREES CEAP Watersheds
  - 2 national CEAP Synthesis Studies
- 11 NRCS Special Emphasis CEAP Watersheds


Conservation Effects Assessment Project (CEAP) Watershed Studies
Paradise Creek
CEAP Synthesis Project
L. Calapooia River
Asotin Creek
Wood River
Sprague River
U. Snake Rock
Little Bear River
Stemple Creek
S. Fork Iowa R.
Sny Magill
U. Tiffin Maumee R.
Town Brook
Spring Creek
Rock Creek
St. Joseph R.
N. Walnut Creek
Walnut Creek
High Plains Aquifer
Choptank River
Eagle Creek
U. Auglaize R.
U. Big Walnut Cr.
Goodwater Creek
Mark Twain
Cheney Lake
CEAP Synthesis Project
Lincoln Lake
U. Washita River
Goodwin Creek
Beasley Lake
Yalobusha River
Little River
San Pedro-Willcox
Santa Cruz River Basin
Leon River
North Bosque
Cowhouse Creek
Atlantic Ocean
Pacific Ocean
Gulf of Mexico
ARS Benchmark Research Watersheds
CSREES Competitive Grants Watersheds
NRCS Special Emphasis Watersheds
Complementary or Joint Projects
CSREES / ARS
ARS / NRCS
CSREES / NRCS
NRCS / ARS / NOAA
0 130 260 520 Miles
Map ID: 10426
Puerto Rico and U.S. Virgin Islands
Jobos Bay Watershed

CEAP Vision for the Future

- **The vision for CEAP** is enhanced natural resources and healthier ecosystems through more effective conservation and better management of agricultural landscapes.

Maresch, et al., 2008, JSWC Vol. 63, No. 6, pp. 198A-203A

Goal for the Future of CEAP

- **Developing and applying knowledge to improve conservation effectiveness**
  - Practice design and effectiveness
  - Program design and implementation
  - Conservation planning to address environmental goals

Upcoming Workshops

- Science to Solutions
  - December 9-11, 2009, Des Moines, IA
  - USGS, USDA (NRCS/CEAP), EPA organized by SWCS
- Managing Ag Landscapes for Environmental Quality II
  - April 28-30, 2010, Denver, CO
  - CEAP sponsored
- CSREES National Water Conference
  - February 21-25, 2010, Hilton Head, South Carolina

USDA-Agricultural Research Service

Water Availability And Watershed Management National Program

Jean L. Steiner, Lab Director,
Grazing Land Research, El Reno, OK
Greg Wilson, IT Systems Analyst
Office of the Chief Information Officer
Agricultural Research Service
U. S. Department of Agriculture
p://www.ars.usda.gov/research/programs.htm

Water Availability & Watershed Management

Vision

Integrated, Effective and Safe Water Resource Management

Mission

- To conduct fundamental and applied research on the processes that control water availability and quality for the health and economic growth of the American people
- To develop new and improved technologies for managing the Nation's agricultural water resources

Water Availability & Watershed Management Problem Areas

Water Quality

- Drainage Water Management
- Water Quality Protection Systems
- Integrated Erosion and Sedimentation
- Effectiveness of Conservation Practices

Water Quantity

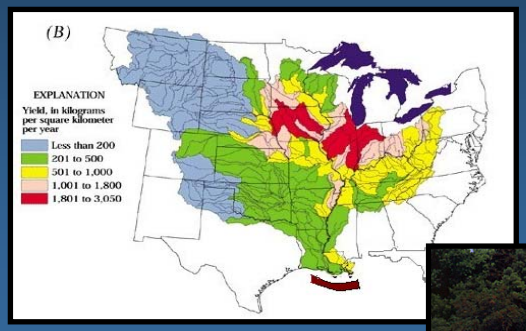
- Irrigation Water Management
- Watershed Management, Water Availability, and Ecosystem Restoration

Water Availability & Watershed Management Problem Areas

Water Quality

-Concerns:

- nitrate
- phosphorus
- sediment
- pathogens
- salinity
- toxic trace elements
- farmaceuticals
- emerging containments

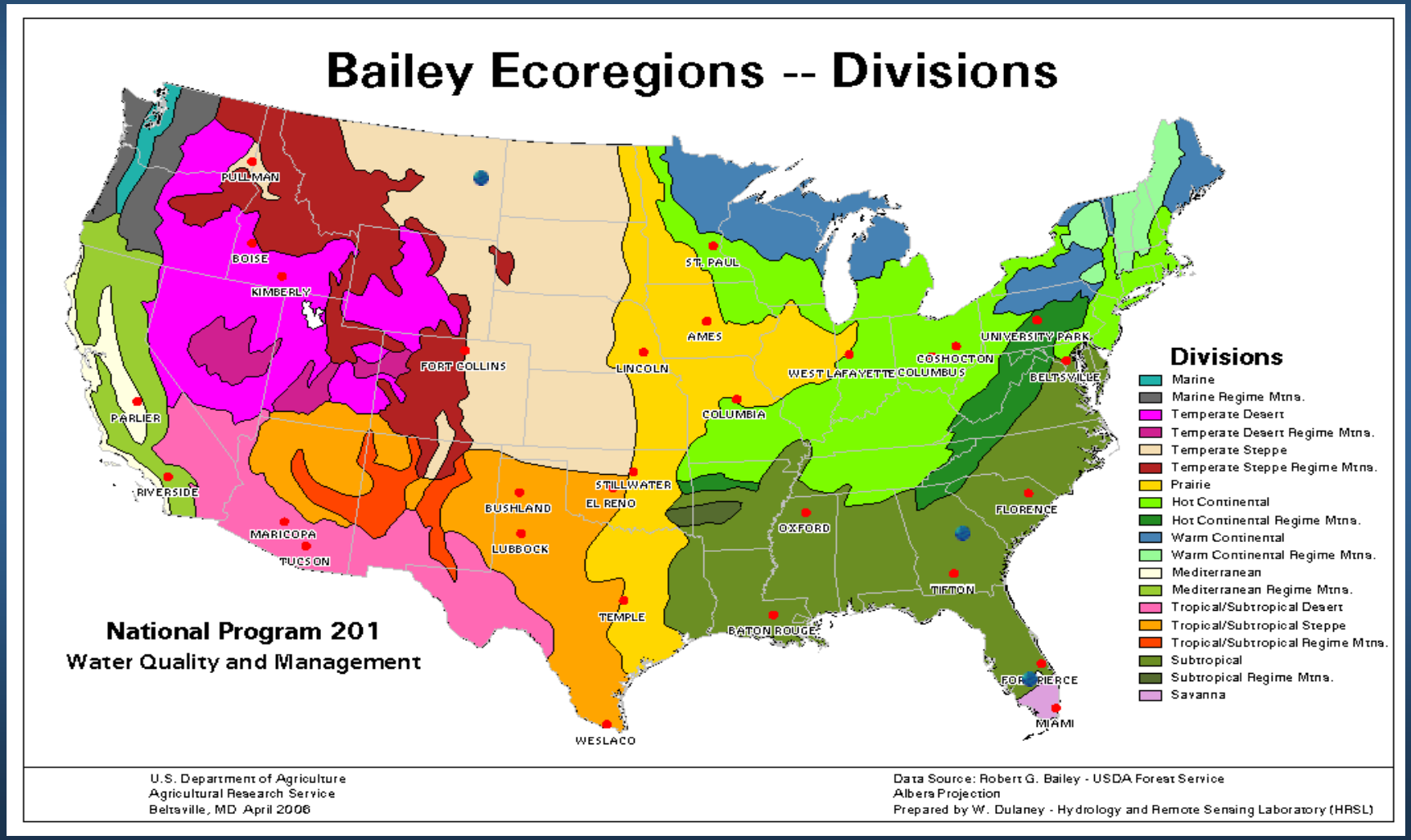


Water Availability & Watershed Management Problem Areas

Water Quantity – Concerns:

- drought
- water availability & delivery
- in-stream flow requirements
- dam safety & flood prevention
- irrigation efficiency
- soil erosion
- stream corridor restoration

Water Availability & Watershed Management



STEWARDS Data System

- **Functional Requirements for STEWARDS:**
  - **Organize diverse long term watershed data to preserve for future research**
  - **Improve availability to research community**
    - **See: http://arsagsoftware.ars.usda.gov/stewards/**

STEWARDS Data System

- **Technical Requirements for STEWARDS:**
  - **Design spatial, temporal, and thematic data base**
  - **Design descriptive files or meta data system**
  - **Develop software interface for the public and research communities**

- **STEWARDS Contacts:**
  - **Greg Wilson – greg.wilson@ars.usda.gov, 301 504 1058**
  - **David James – david.james@ars.usda.gov, 515 294 6858**

ARS' Approach to Building Data System

- Partnership. The STEWARDS team included: Researchers, GIS specialists, software developers, data managers, IT project managers
- Project management. Requirements, design, design reviews/evaluation, development, testing, implementation, training.

Our Solution… The Core of STEWARDS

- Meta Data, a description of the measurements to give context and understanding for future research and analysis
- STEWARDS is integrated based on meta data
  - Space – where the data are measured
  - Methods – how the data are measured
  - Time – when the data are measured

Further Development of ARS Data management

- Model interfaces – SWAT, …
- Including other ARS water system data such as MSEA, Hydrolab, other CEAP's (with EPA, USGS, others?)
- GRACEnet air quality data system (with EPA?)
- REAP – Renewable Energy Assessment Project (with DOE)
- General long term research data

Further Development of ARS Data management – cont.

- Science team to direct efforts
- Building partnerships of research and IT
- Building processes to address IT requirements for future research, including funding

Questions??

- Learn. In everything, learn.