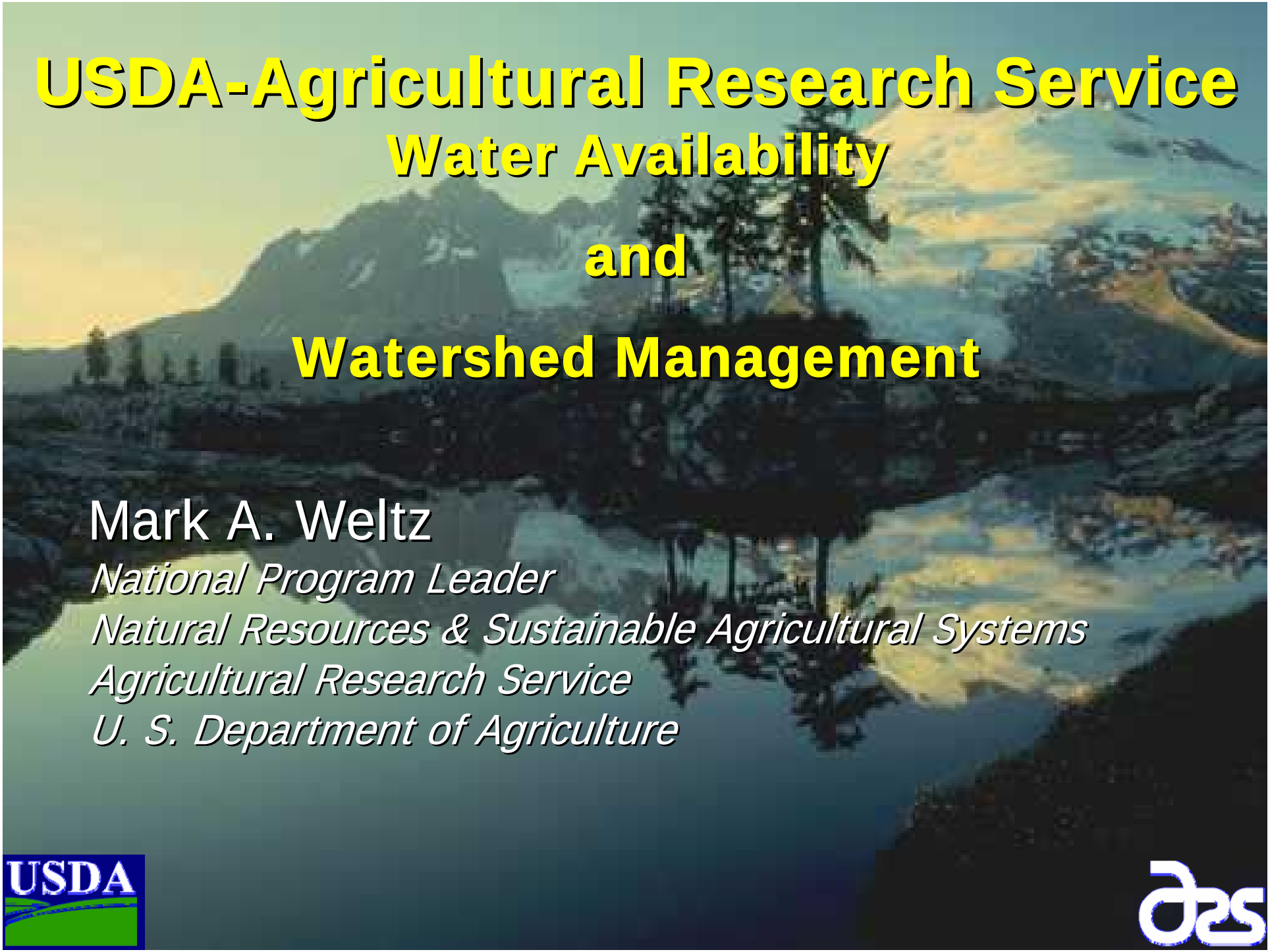


USDA-Agricultural Research Service

Water Availability

and

Watershed Management

Mark A. Weltz

National Program Leader

Natural Resources & Sustainable Agricultural Systems

Agricultural Research Service

U. S. Department of Agriculture

Water Availability & Watershed Management

Total 2006 ARS Budget for Water

Gross dollars: $63.7 million

Number of locations: 30

Number of scientists: 156

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 ($34.5 million)

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

Water Quantity ($29.2 million)

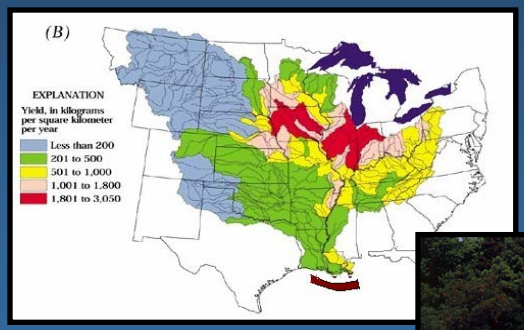
- Irrigation Water Management
- Watershed Management, Water Availability, and Ecosystem Restoration

Water Availability & Watershed Management Problem Areas

Water Quality

Concerns:

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



Water Availability & Watershed Management Problem Areas

Water Quality (continued)

Focus:

- develop technologies to reduce contaminant loading from surface runoff
- develop technologies to reduce contaminant loading from drained croplands
- develop technologies to quantify and predict the individual farm and net cumulative water and soil quality benefits at the watershed scale from implementing conservation practices.

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
- sustainable production systems

Water Availability & Watershed Management Problem Areas

Water Quantity (continued)

Focus:

- develop technology and production systems to conserve and effectively use water, nutrients, and energy
- develop technology to safely reuse degraded water
- develop sustainable bioenergy production systems

Water Availability & Watershed Management Problem Areas

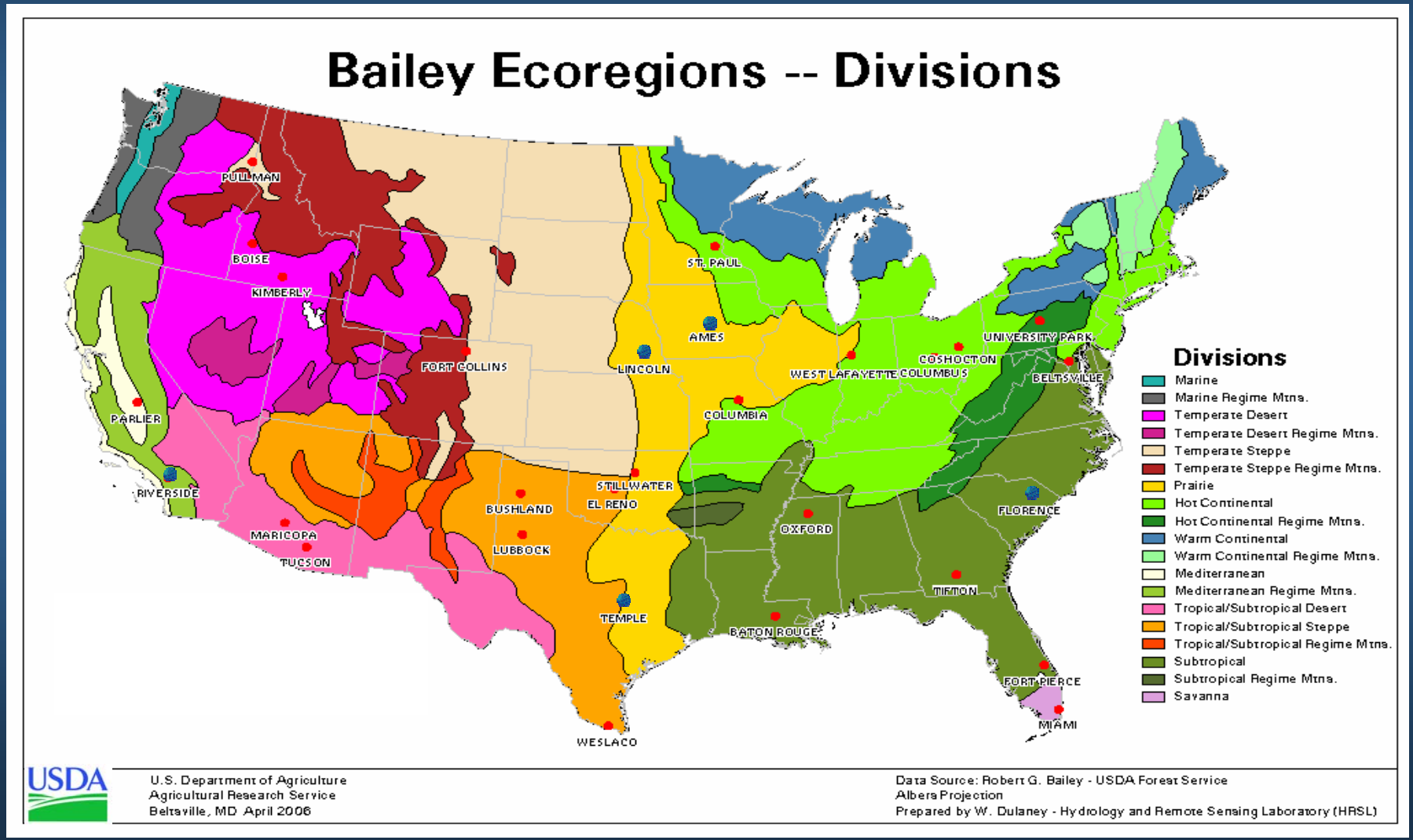
Water Quantity (continued)

Focus:

- develop technology to assess and mitigate the impact of drought on agricultural enterprises
- develop technology to accurately quantify and predict water supply & basin water budgets
- develop techniques to safely recharge aquifers using recycled water and urban runoff
- develop knowledge to understand ecosystem requirements and feedback mechanisms in agricultural landscapes

Water Availability & Watershed Management

Bioenergy Locations



Emerging National Research challenges

- Water Quantity - Drought
- Water Quality - Waste water reuse
- Bioenergy Production - Sustainability