CLARK, LINCOLN, AND WHITE PINE COUNTIES GROUNDWATER DEVELOPMENT PROJECT EIS

WATER RESOURCES TECHNICAL REVIEW
MEETING 1 – BASELINE DATA
June 23-24, 2005

VEGETATION MAPPING

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Vegetation Mapping

Objectives

- Present a brief overview of the mapping efforts by SNWA in 2004
- Provide a summary of past mapping efforts and available data sets
- Briefly discuss types of base maps and imagery available

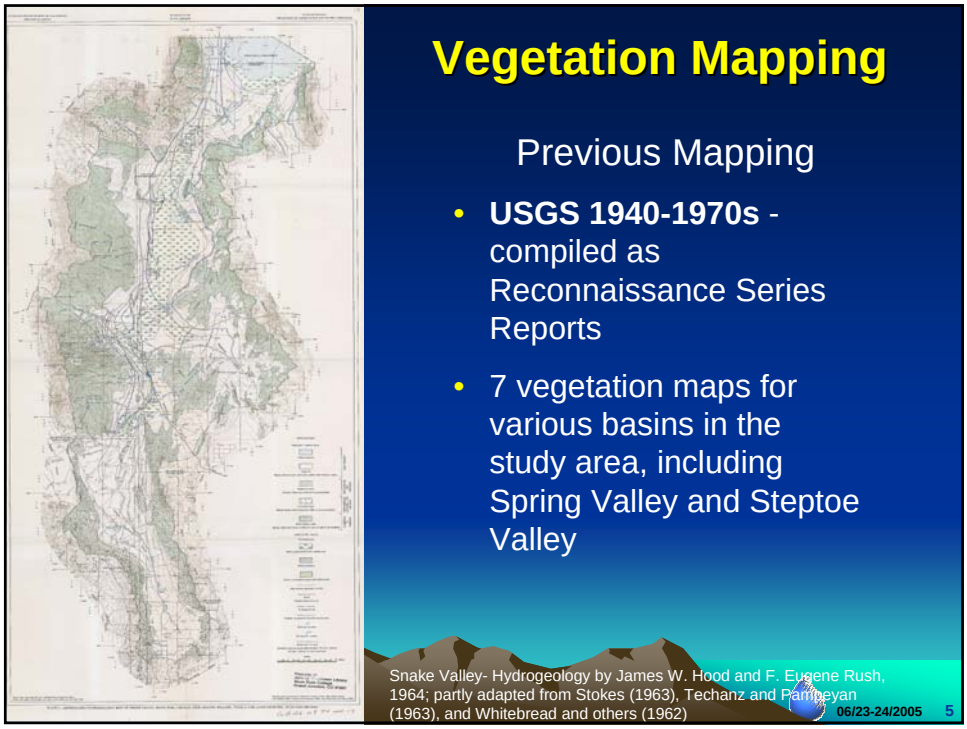
Vegetation Mapping

Phreatophytes = “plants that habitually grow where they can send their roots down to the water table or the capillary fringe immediately overlying the water table and are then able to obtain a perennial and secure supply of water”- O. Meinzer (1927)

Phreatophytes

- Main phreatophytic species are greasewood, rabbitbrush, and saltgrass which occur within the valley floor as well as riparian plant assemblages such as willows and salt cedar

Intermountain Herbarium


Vegetation Mapping
Previous Mapping
• USGS 1940-1970s - compiled as Reconnaissance Series Reports
• 7 vegetation maps for various basins in the study area, including Spring Valley and Steptoe Valley
Snake Valley- Hydrogeology by James W. Hood and F. Eugene Rush, 1964; partly adapted from Stokes (1963), Techanz and Panteyan (1963), and Whitebread and others (1962)
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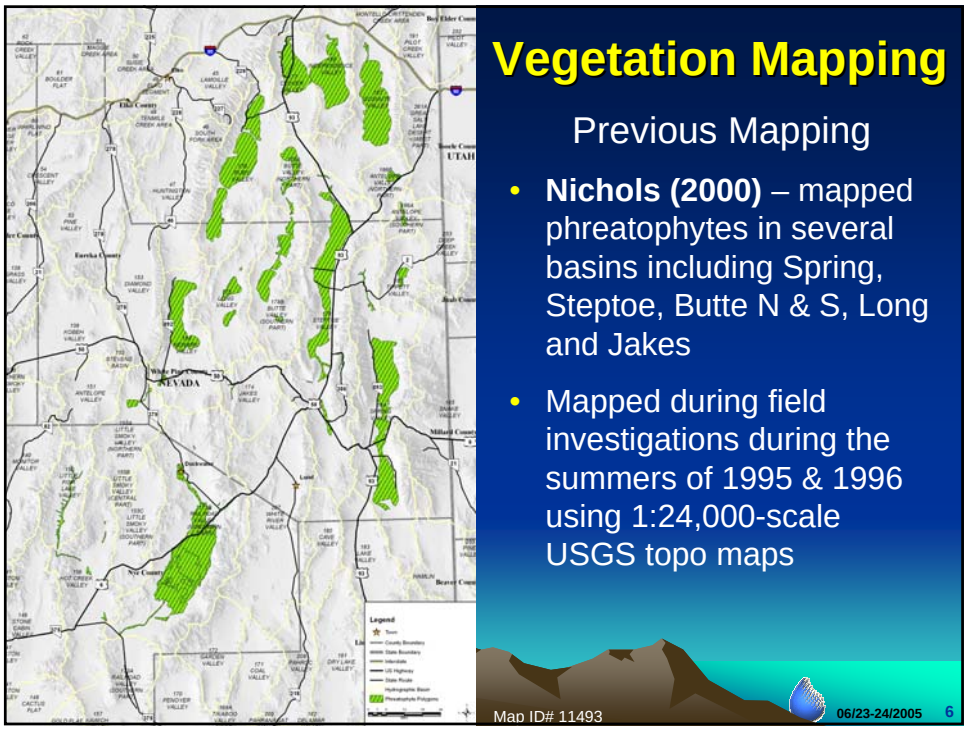
Vegetation Mapping
Previous Mapping
• Nichols (2000) – mapped phreatophytes in several basins including Spring, Steptoe, Butte N & S, Long and Jakes
• Mapped during field investigations during the summers of 1995 & 1996 using 1:24,000-scale USGS topo maps
Map ID# 11493
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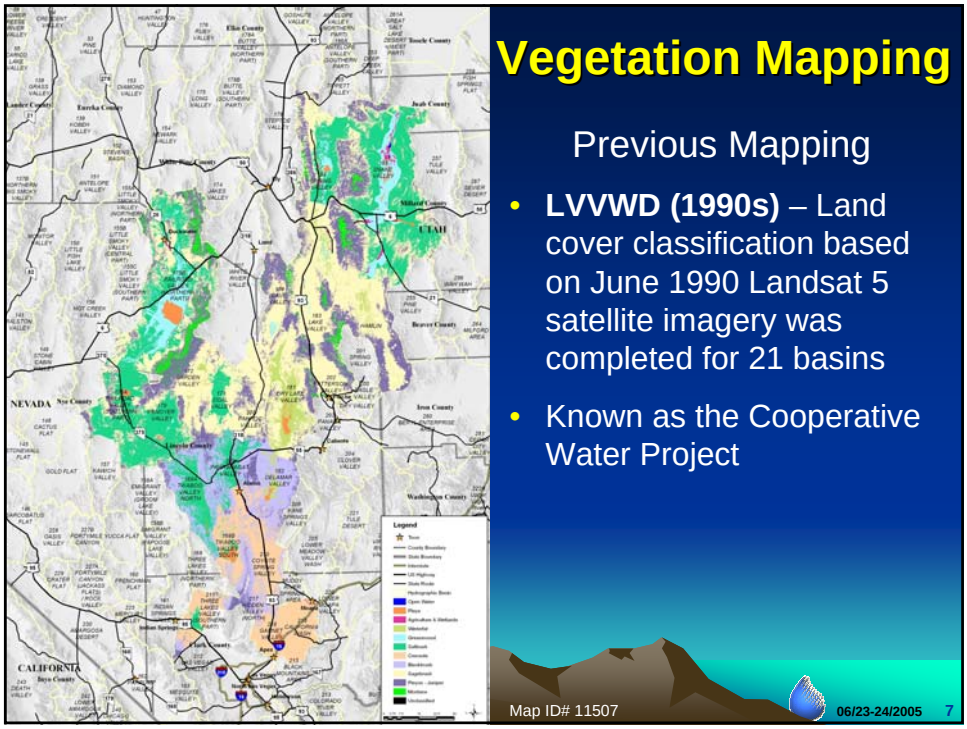
Vegetation Mapping
Previous Mapping
• LVVWD (1990s) – Land cover classification based on June 1990 Landsat 5 satellite imagery was completed for 21 basins
• Known as the Cooperative Water Project
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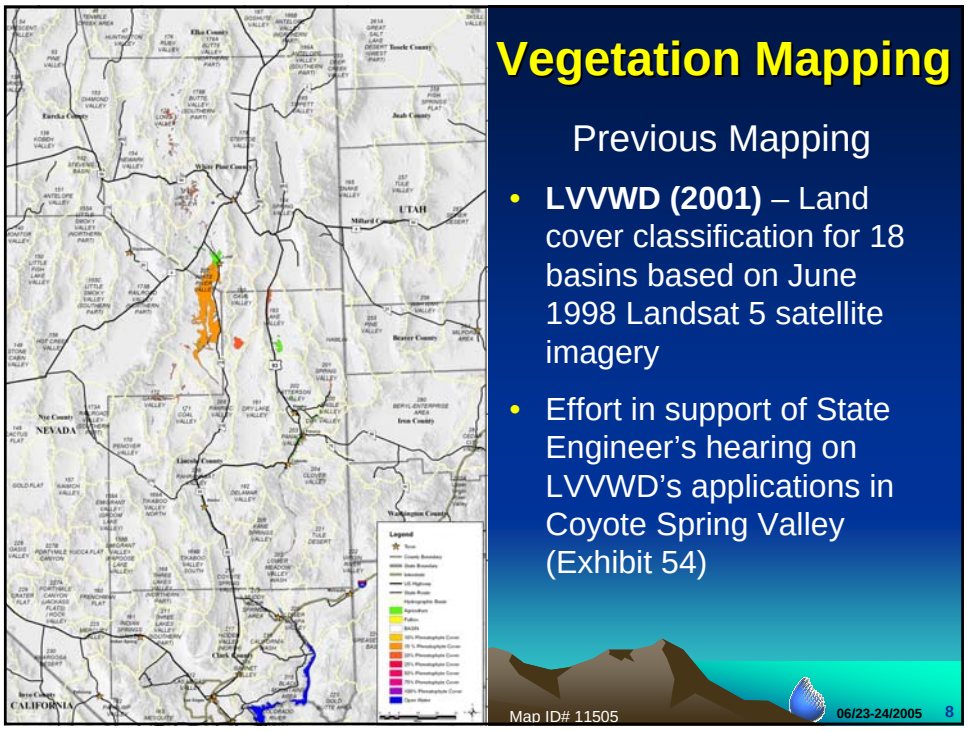
Vegetation Mapping
Previous Mapping
• LVVWD (2001) – Land cover classification for 18 basins based on June 1998 Landsat 5 satellite imagery
• Effort in support of State Engineer's hearing on LVVWD's applications in Coyote Spring Valley (Exhibit 54)
Map ID# 11505
06/23-24/2005
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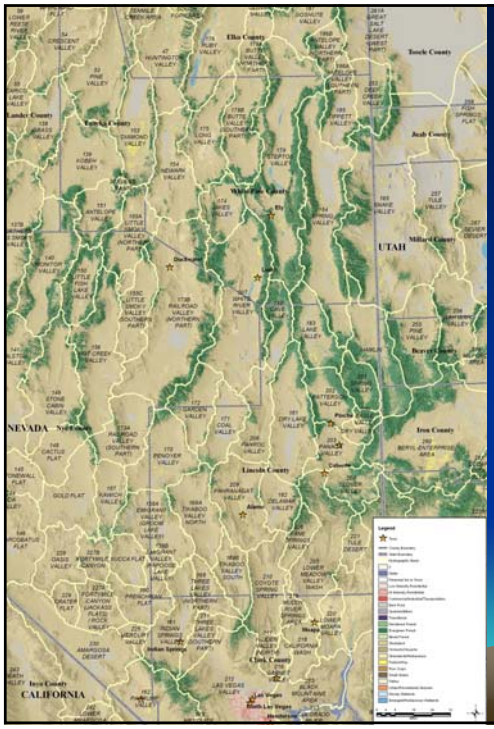


Vegetation Mapping

Additional Vegetation Datasets

- **USGS National Land Cover Data (NLCD)**
- Derived in the 1990s from Landsat 5 imagery
- 21-class land cover classification applied across the US

Map ID# 11495

Vegetation Mapping

Additional Vegetation Datasets

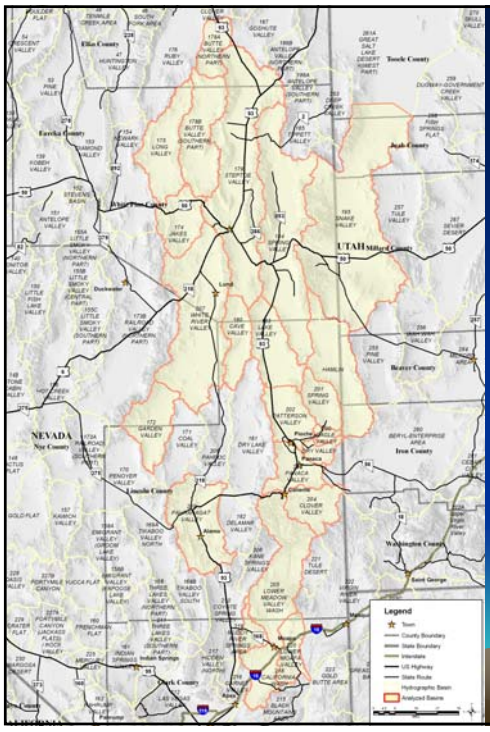
- **USGS Southwest Regional Gap Analysis (SWReGap)**
- Mapping and biodiversity assessment of AZ, CO, NV, NM, UT
- 80 classes derived from seasonal Landsat 7 imagery for years 1999-2001

Map ID# 11498

Vegetation Mapping Data

Types of base maps/imagery

- **USGS 100K topographic maps** – 36 that cover the basins where SNWA mapped
- **Digital Ortho Quarter Quads (DOQQs)** – 1 meter black and white aerial photography flown in 1994
- **Landsat 7 satellite imagery** – 7 scenes cover interest area for June and July 2002



SNWA 2004

- 24 basins
- Ground-truthing datasets of previous mapping efforts, where available in the area
- Used GIS data and physical features to confirm and refine boundaries
- Plant cover and density information was collected along defined transects to further refine boundaries

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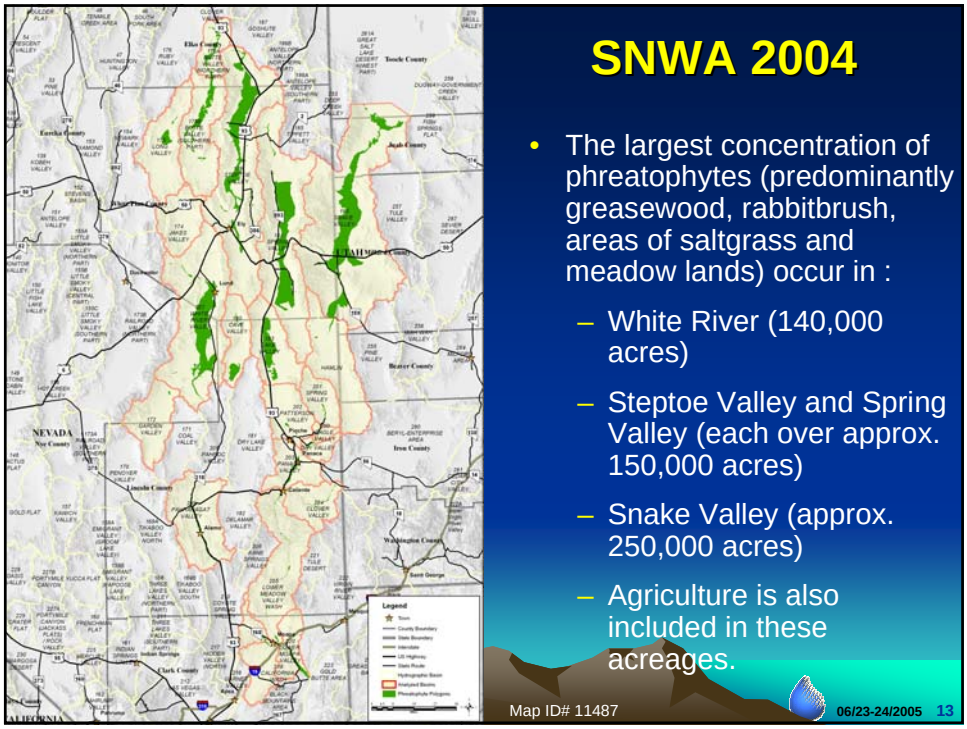
SNWA 2004
The largest concentration of phreatophytes (predominantly greasewood, rabbitbrush, areas of saltgrass and meadow lands) occur in :
White River (140,000 acres)
Steptoe Valley and Spring Valley (each over approx. 150,000 acres)
Snake Valley (approx. 250,000 acres)
Agriculture is also included in these acreages.
Map ID# 11487
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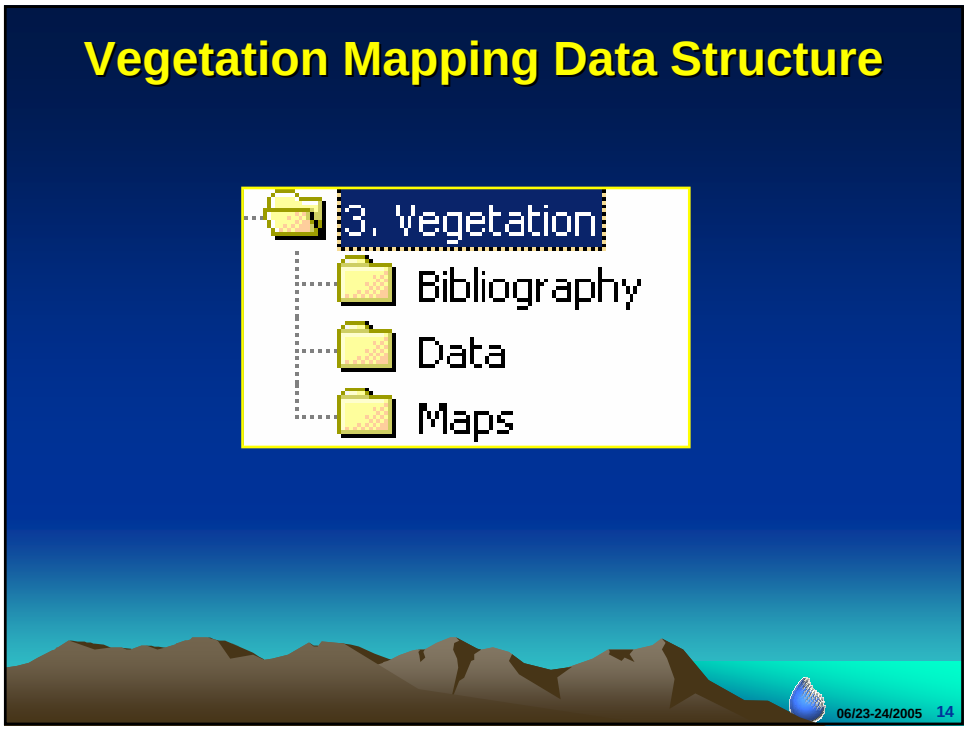
Vegetation Mapping Data Structure
3. Vegetation
Bibliography
Data
Maps
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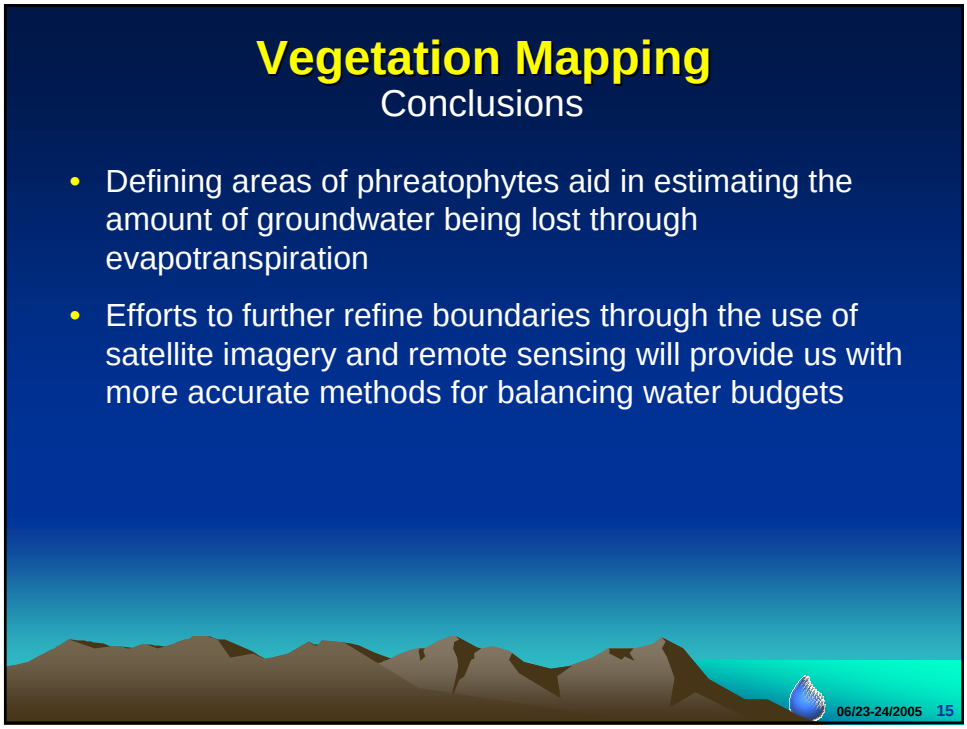
Vegetation Mapping
Conclusions
• Defining areas of phreatophytes aid in estimating the amount of groundwater being lost through evapotranspiration
• Efforts to further refine boundaries through the use of satellite imagery and remote sensing will provide us with more accurate methods for balancing water budgets
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