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

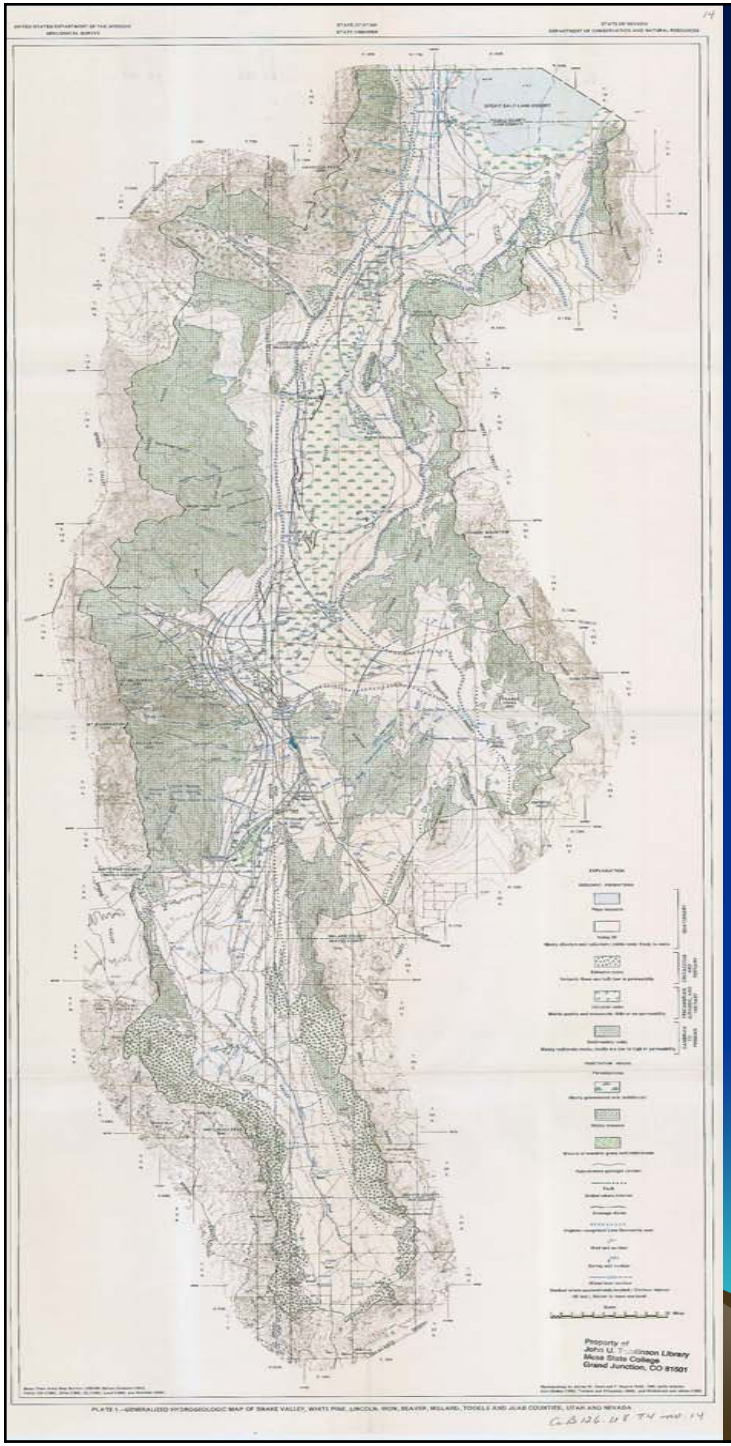
- Present a brief overview of the mapping efforts by SNWA in 2004
- Provide a summary of past mapping efforts and available data sets
- Briefly discuss types of base maps and imagery available

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

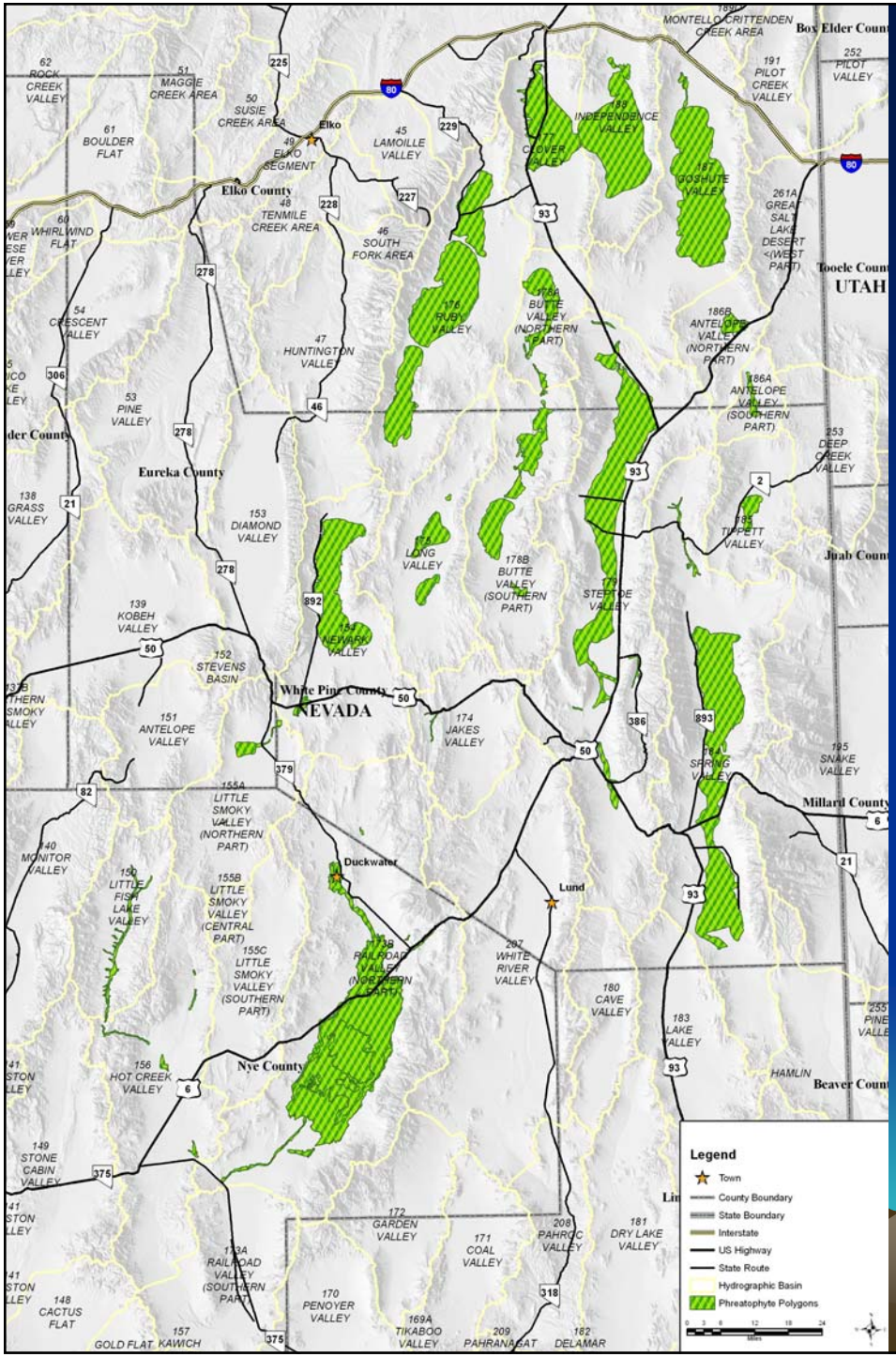


Vegetation Mapping

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 Pamperyan (1963), and Whitebread and others (1962)



Vegetation Mapping

Previous Mapping

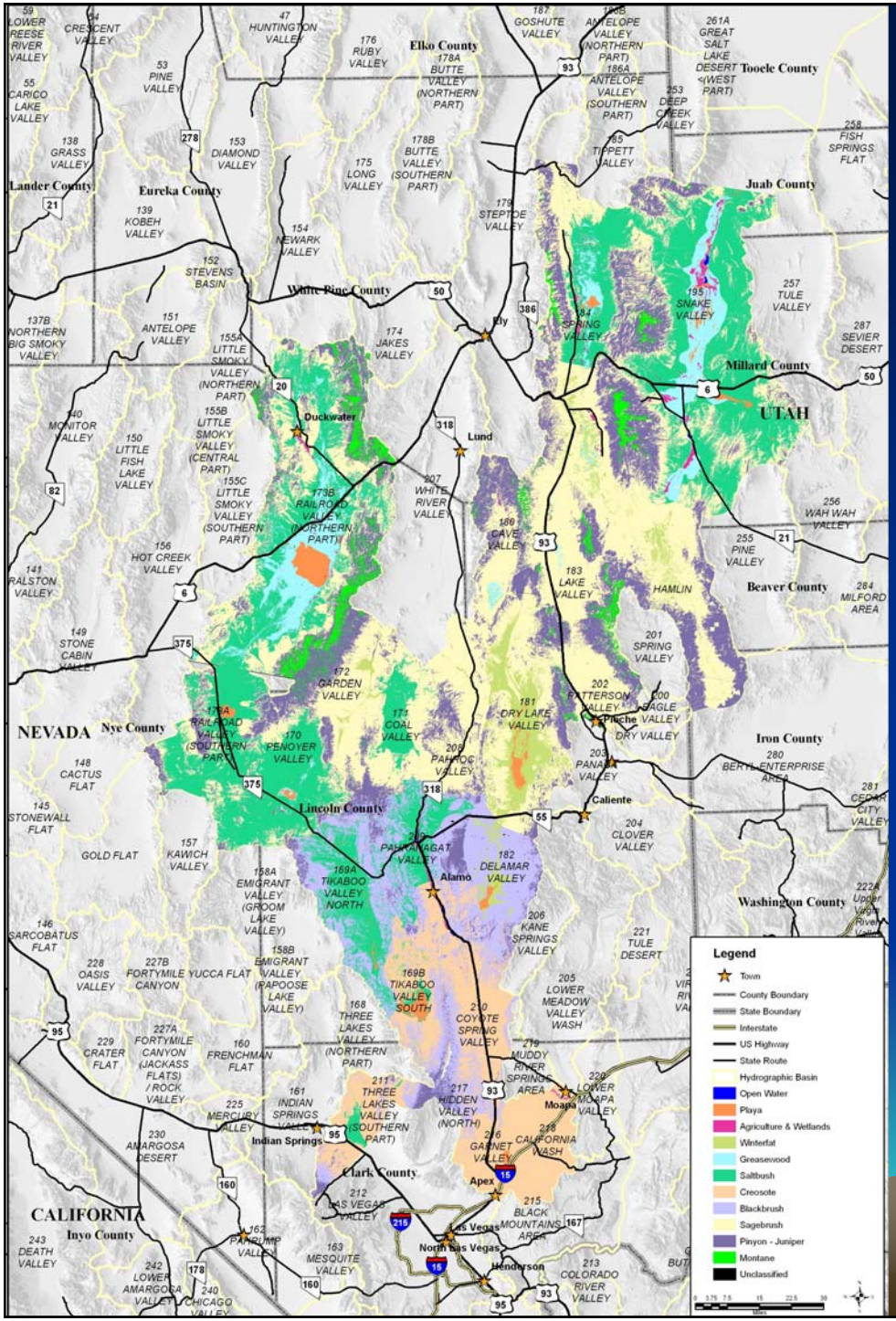
- **Nichols (2000)** – mapped phreatophytes in several basins including Spring, Steptoe, Butte N & S, Long and Jakes
- Mapped during field investigations during the summers of 1995 & 1996 using 1:24,000-scale USGS topo maps

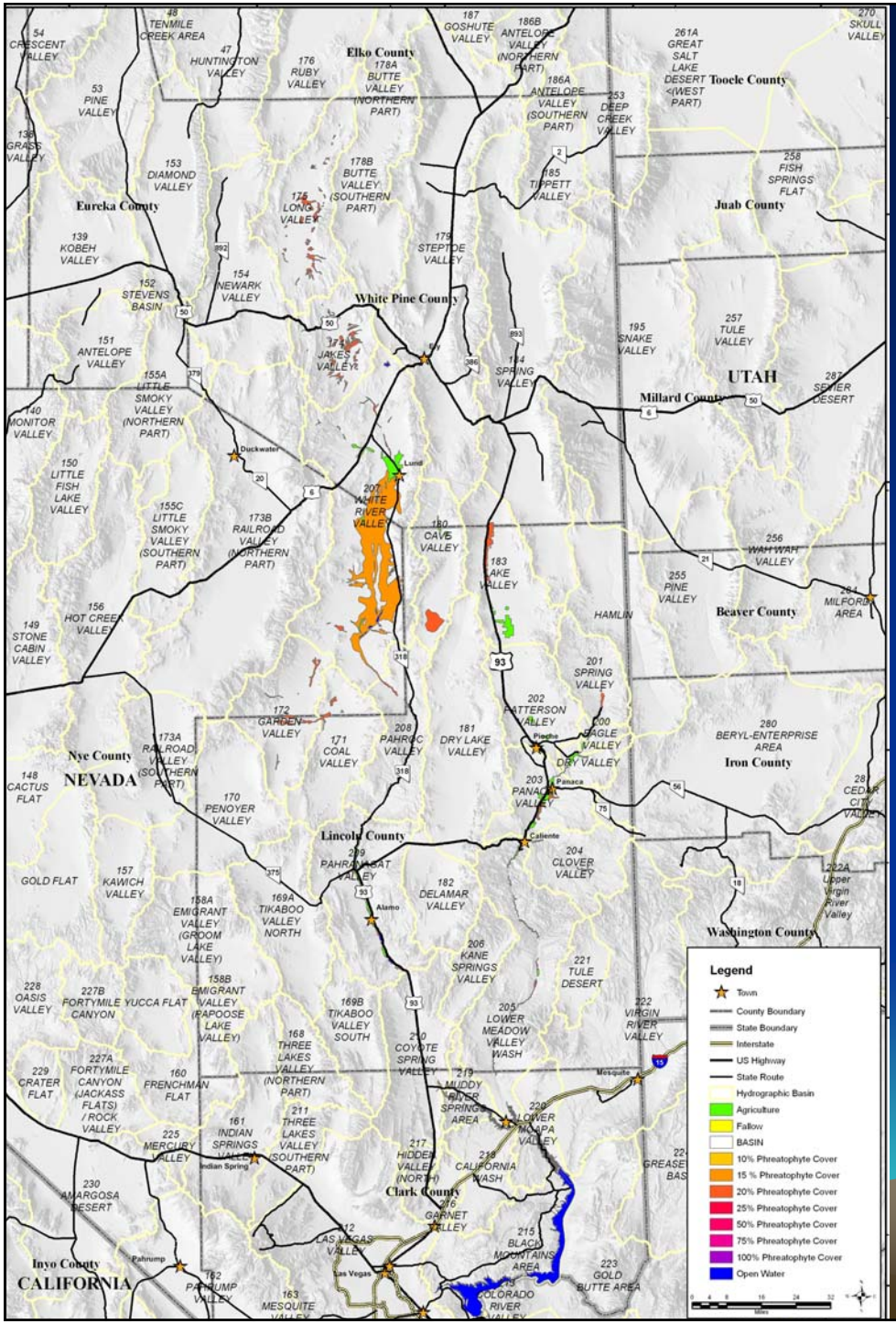
Map ID# 11493

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





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)

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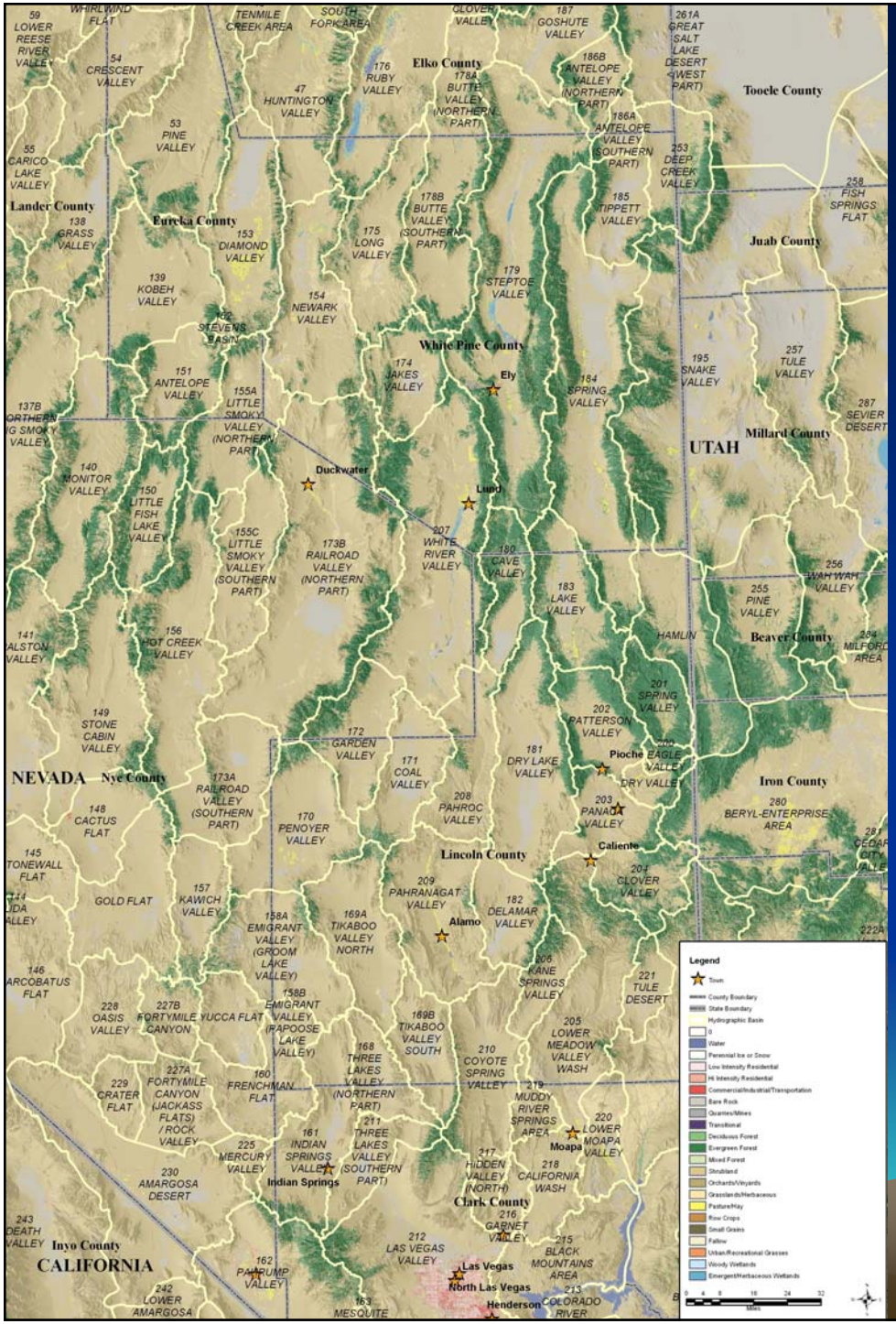


Vegetation Mapping

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

Vegetation Mapping

Additional Vegetation Datasets

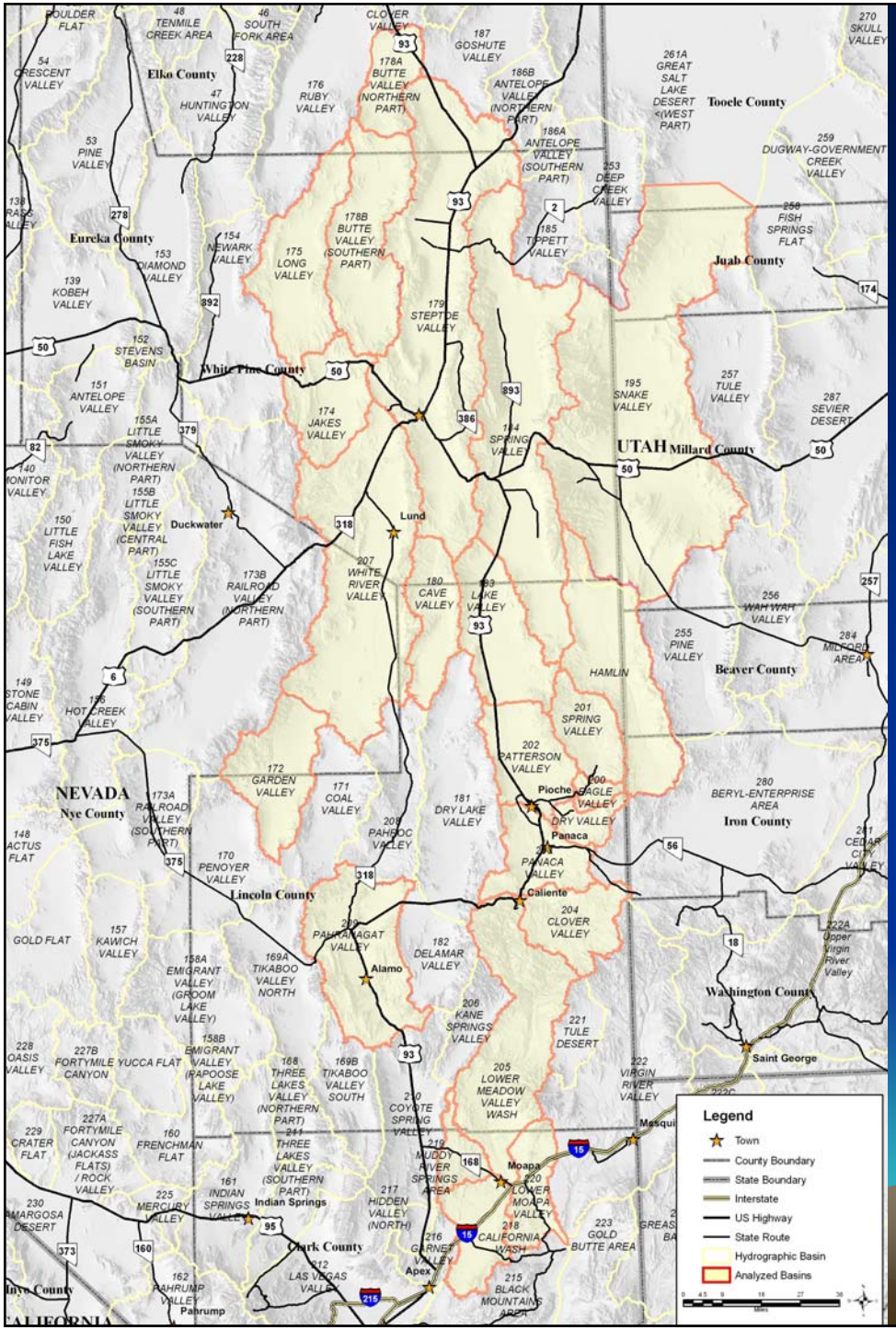
- **USGS Southwest Regional Gap Analysis (SWReGap)**
- Mapping and biodiversity assessment of AZ, CO, NV, NM, UT
- 80 classes derived from seasonal Landsat 7 imagery for years 1999-2001

Map ID# 11498

Vegetation Mapping Data

Types of base maps/imagery

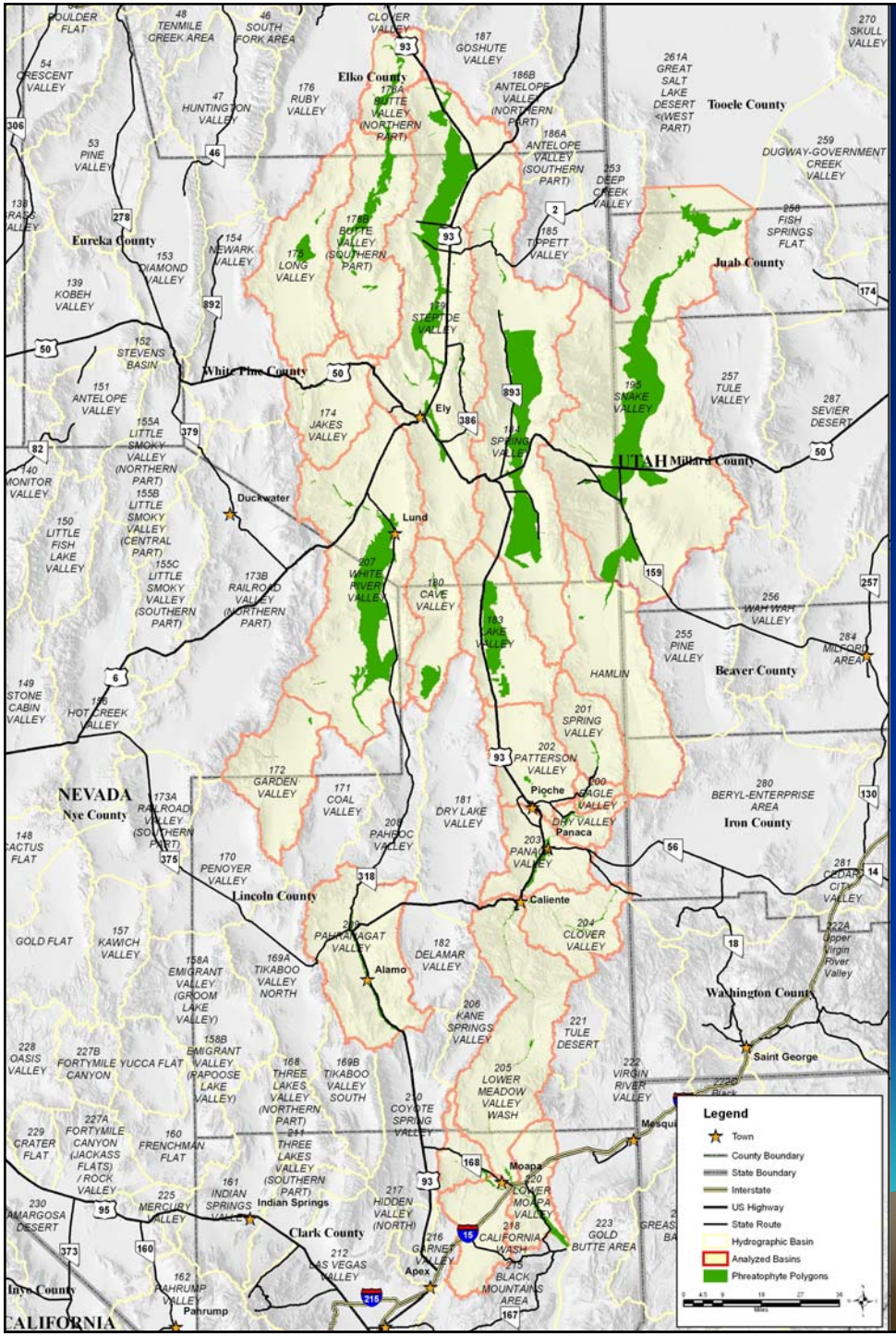
- **USGS 100K topographic maps** – 36 that cover the basins where SNWA mapped
- **Digital Ortho Quarter Quads (DOQQs)** – 1 meter black and white aerial photography flown in 1994
- **Landsat 7 satellite imagery** – 7 scenes cover interest area for June and July 2002



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

Map ID# 11485

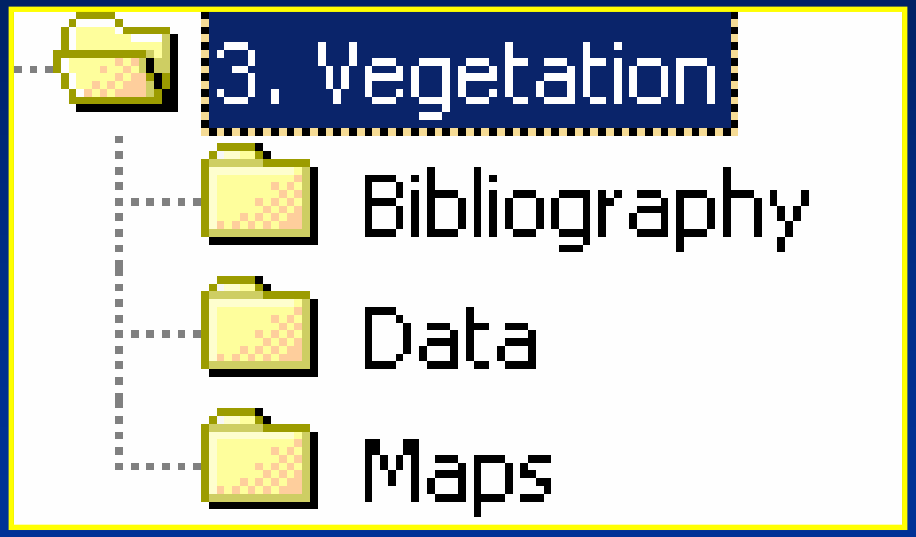


SNWA 2004

- 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

Vegetation Mapping Data Structure



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