



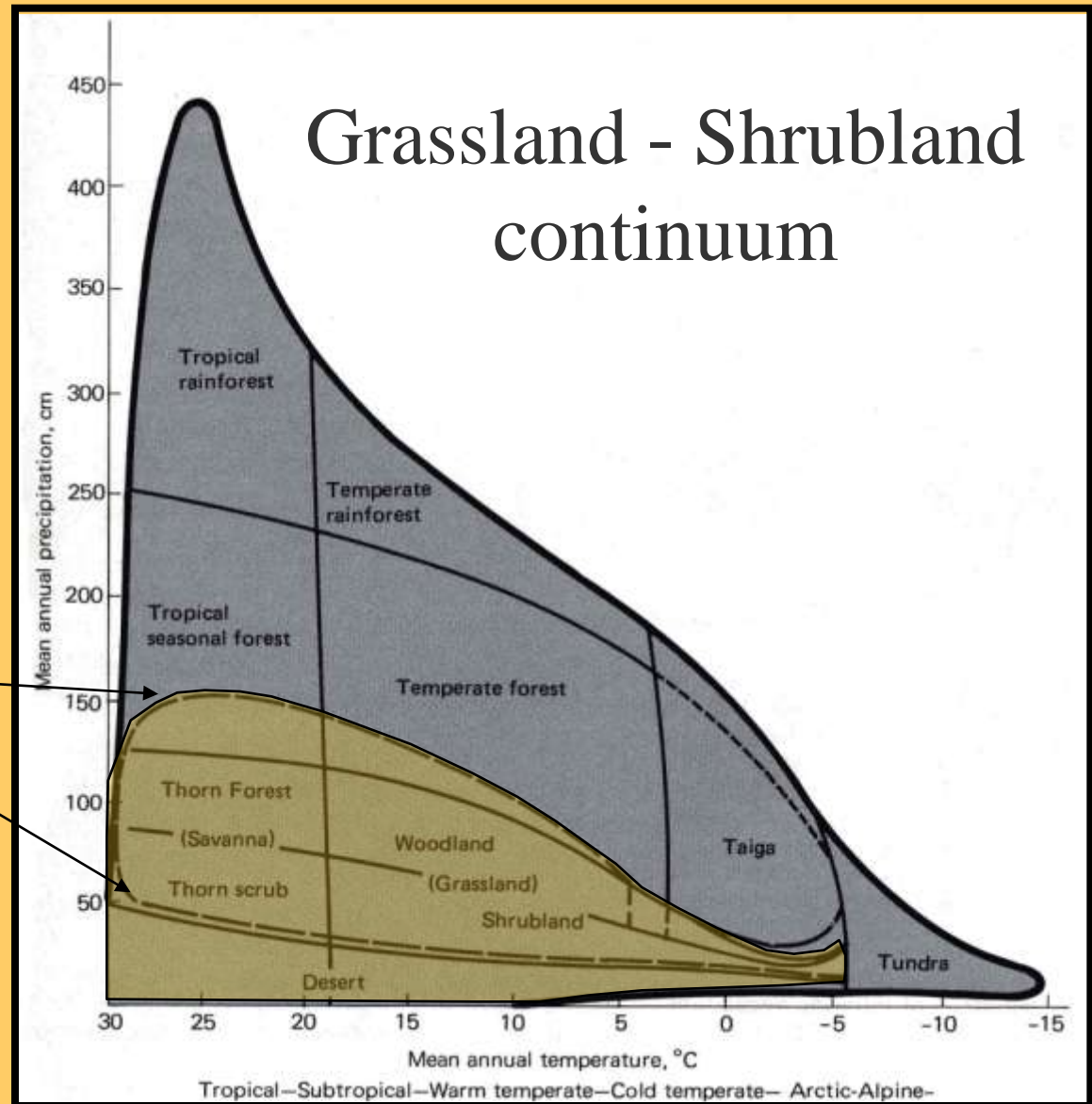
**Avian communities in the
grassland – shrubland continuum:
conservation and management
issues, and an example.**

C. Craig Farquhar, Wildlife Division



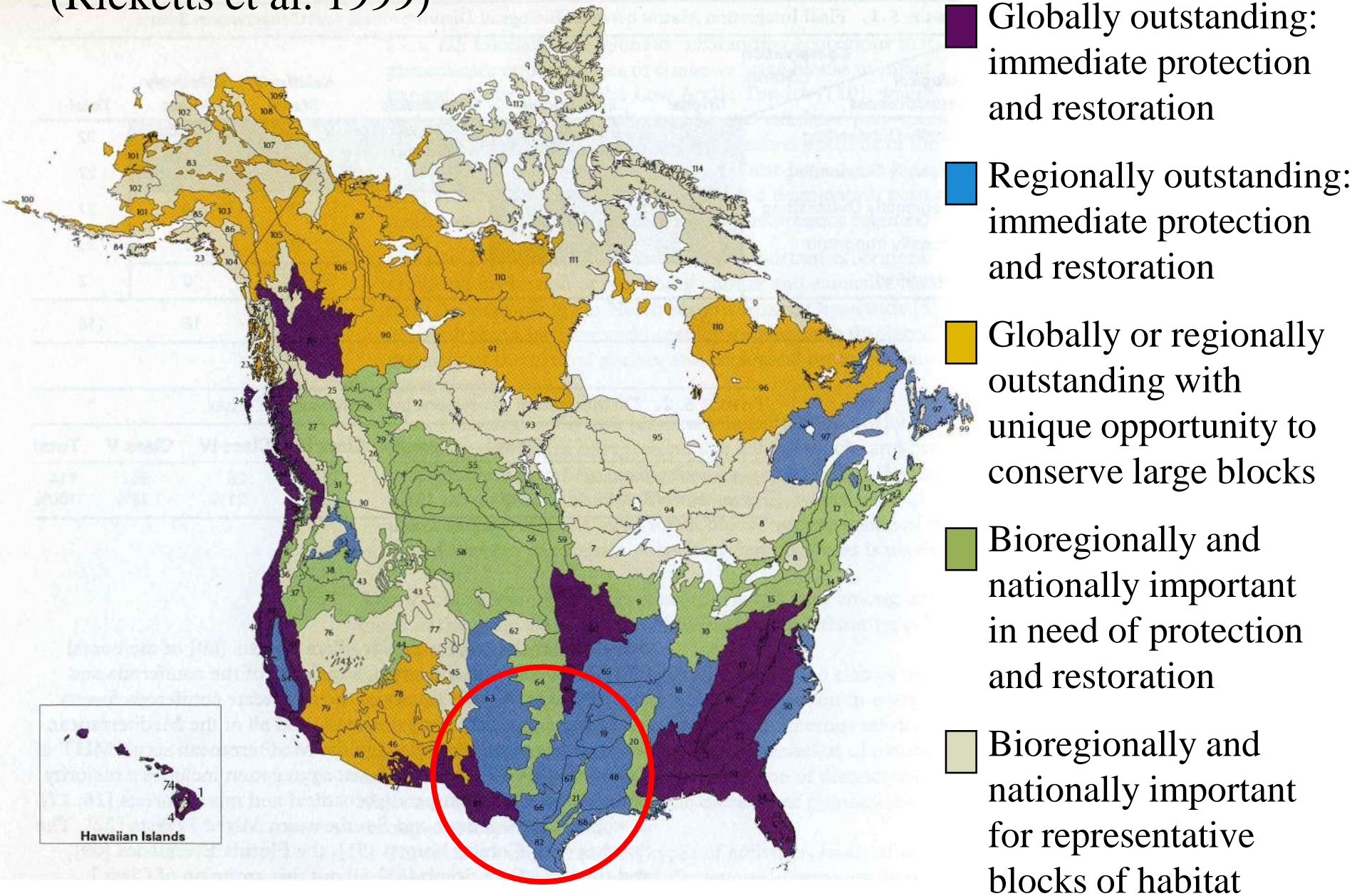
Vegetation communities distributed according to temperature and precipitation gradients

Dashed line:
bounds determined
by soils and fire
frequency

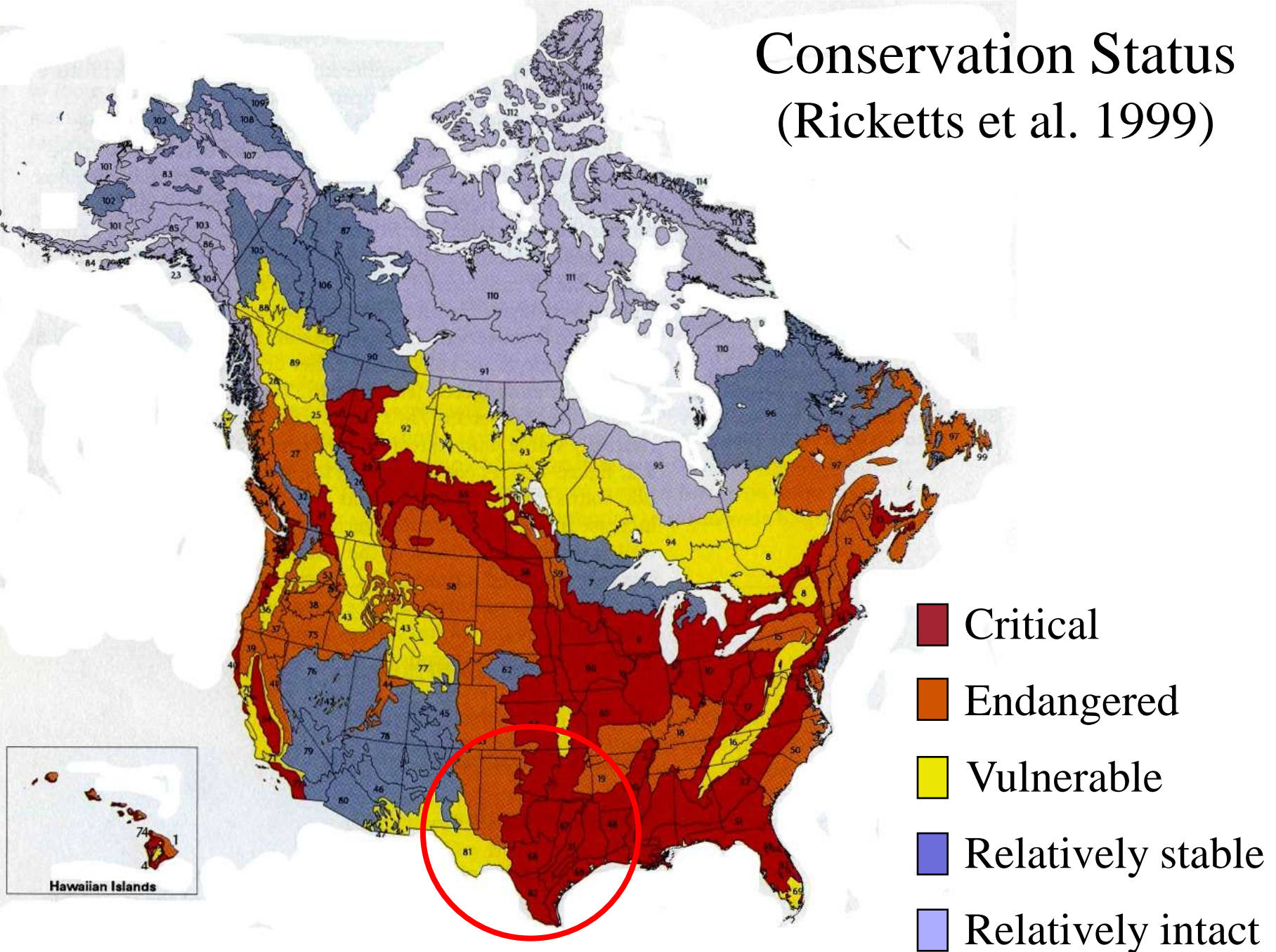


Conservation classes and recommended action

(Ricketts et al. 1999)

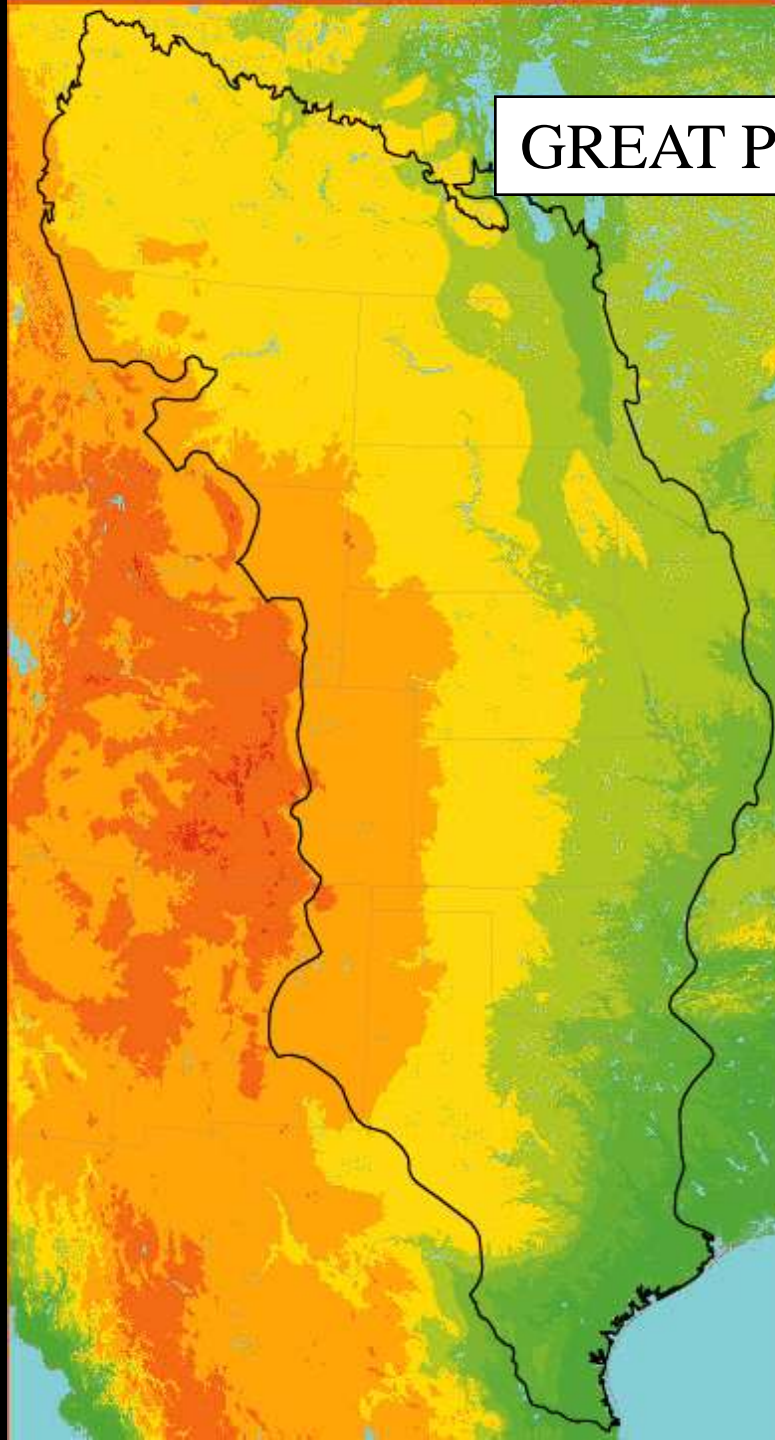


Conservation Status (Ricketts et al. 1999)

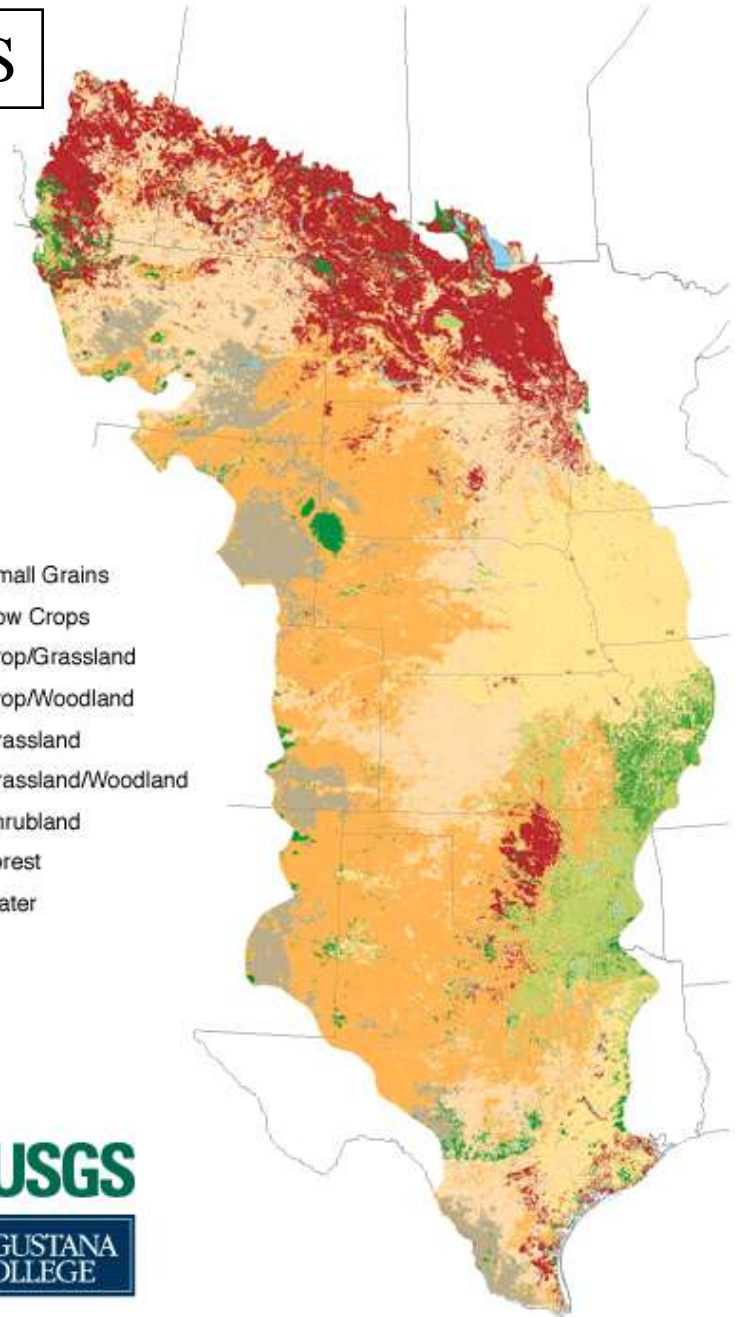


Land Cover in Great Plains Potential Grasslands

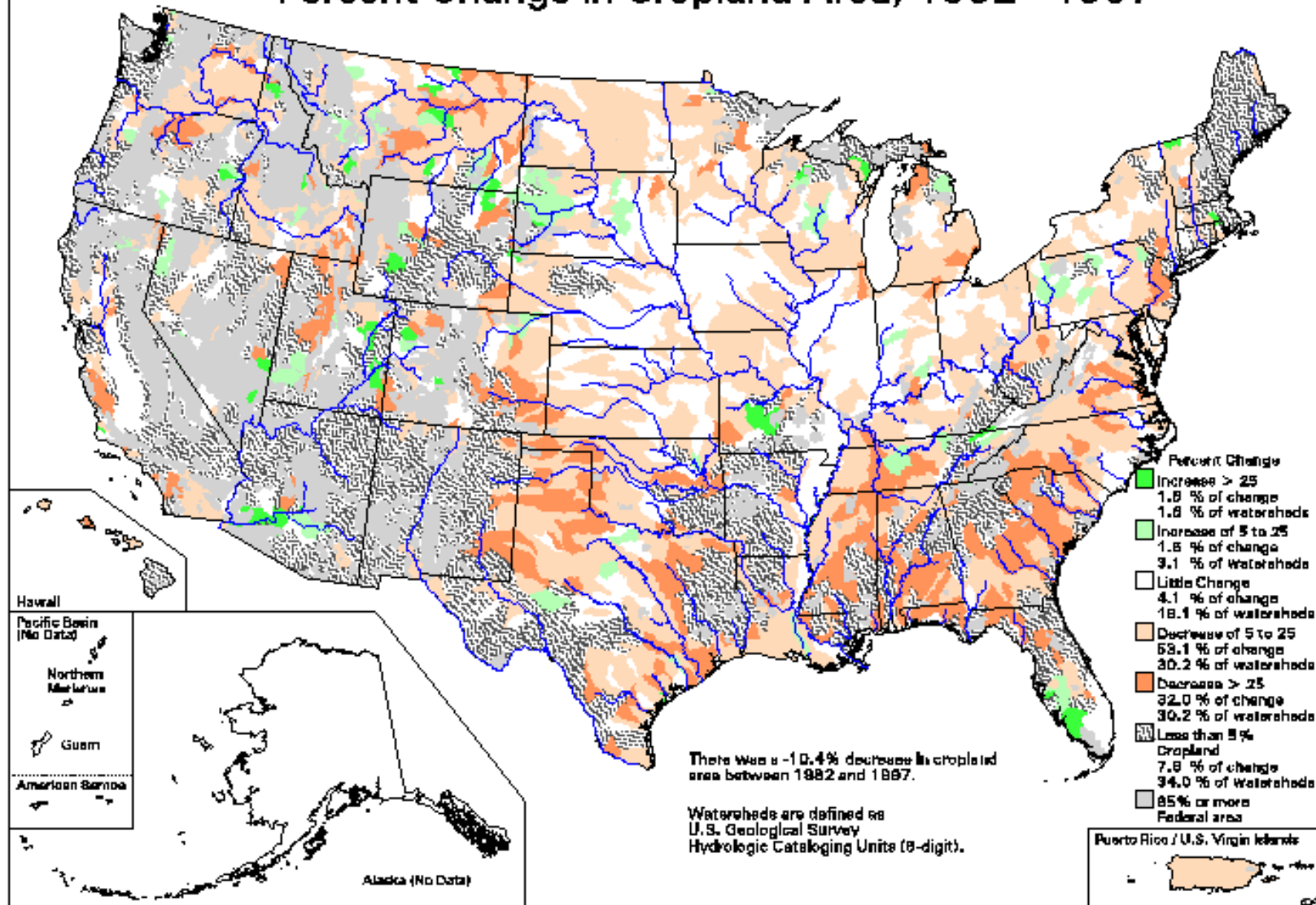
GREAT PLAINS



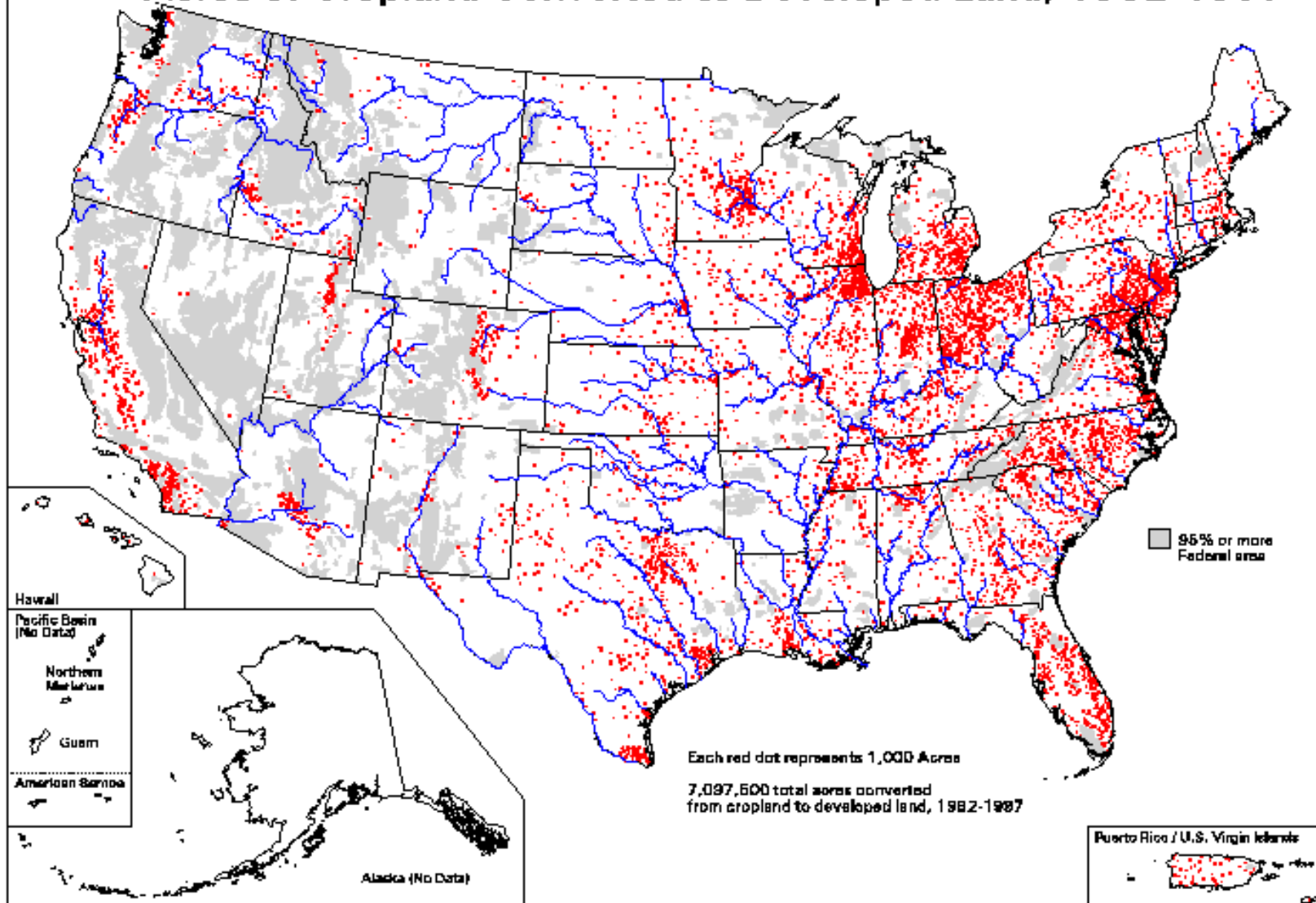
- Small Grains
- Row Crops
- Crop/Grassland
- Crop/Woodland
- Grassland
- Grassland/Woodland
- Shrubland
- Forest
- Water



Percent Change in Cropland Area, 1982 - 1997



Acres of Cropland Converted to Developed Land, 1982-1997

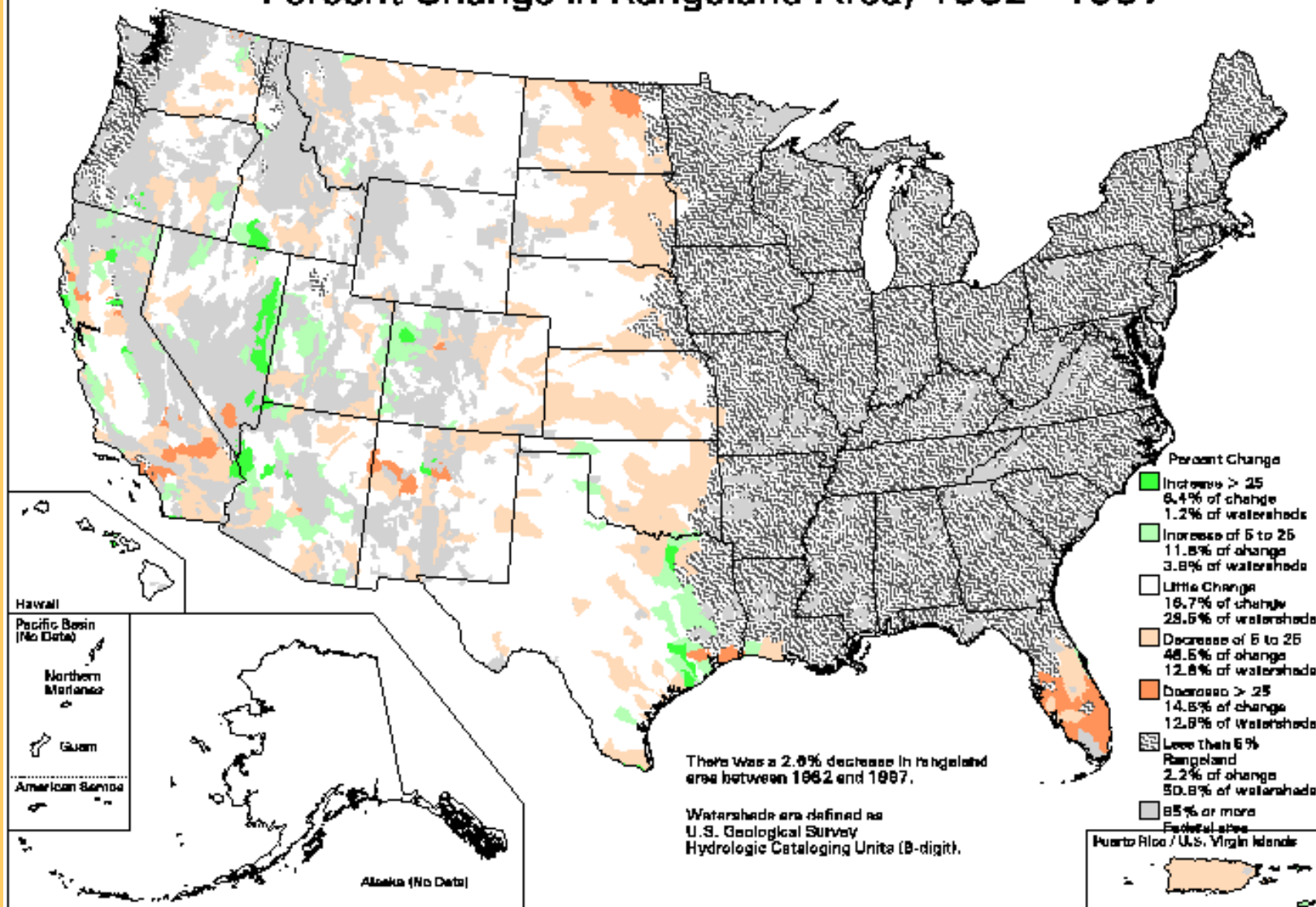


U.S. Department of Agriculture
Natural Resource Conservation Service
Resource Assessment Division
Washington DC January 2001

Map ID: m5261
For proper interpretation, see Explanation
of Analysis for this map at our web site. Search
for "USDA\$OTL" to locate our map index.

Data Source: 1987 National Resources Inventory
Revised December 2000

Percent Change in Rangeland Area, 1982 - 1997

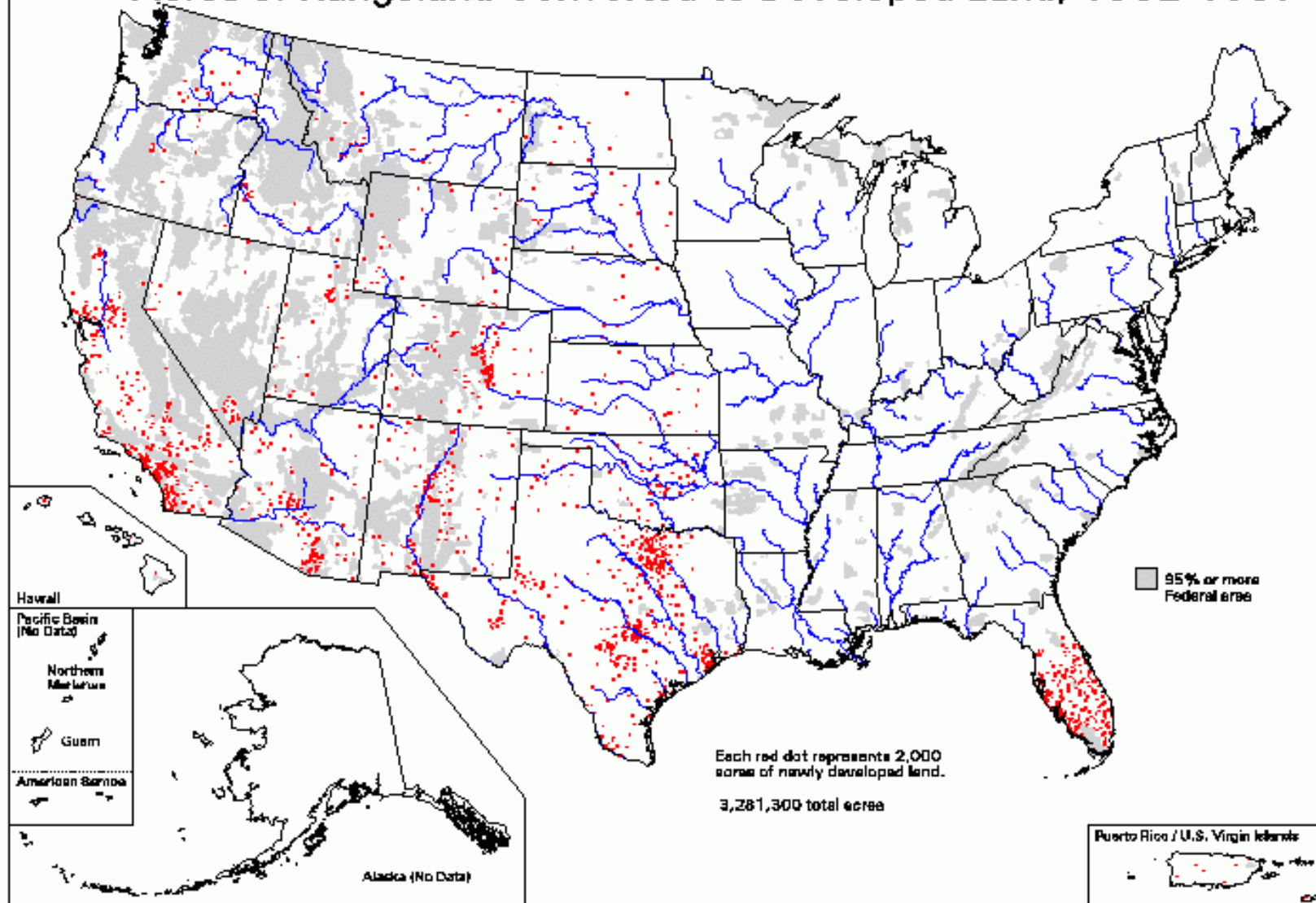


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Resource Assessment Division
Washington DC December 2001

Map ID: m8019
For proper interpretation, see Explanation of Analysis for this map at our web site. Search for "USDASOTL" to locate our map index.

Data Source: 1997 National Resource Inventory
Revised December 2000

Acres of Rangeland Converted to Developed Land, 1982-1997

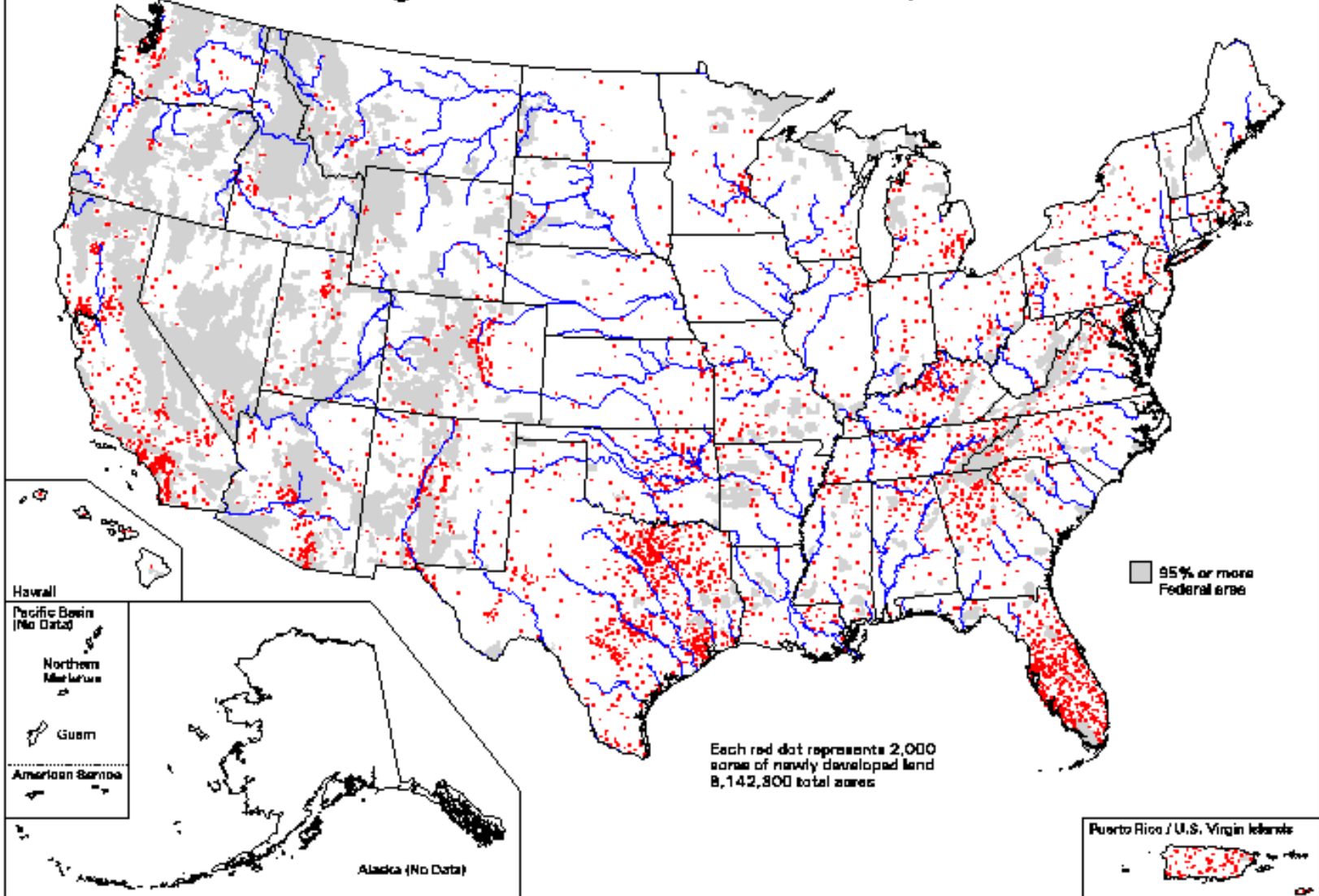


U.S. Department of Agriculture
Natural Resources Conservation Service
Resource Assessment Division
Washington DC January 2001

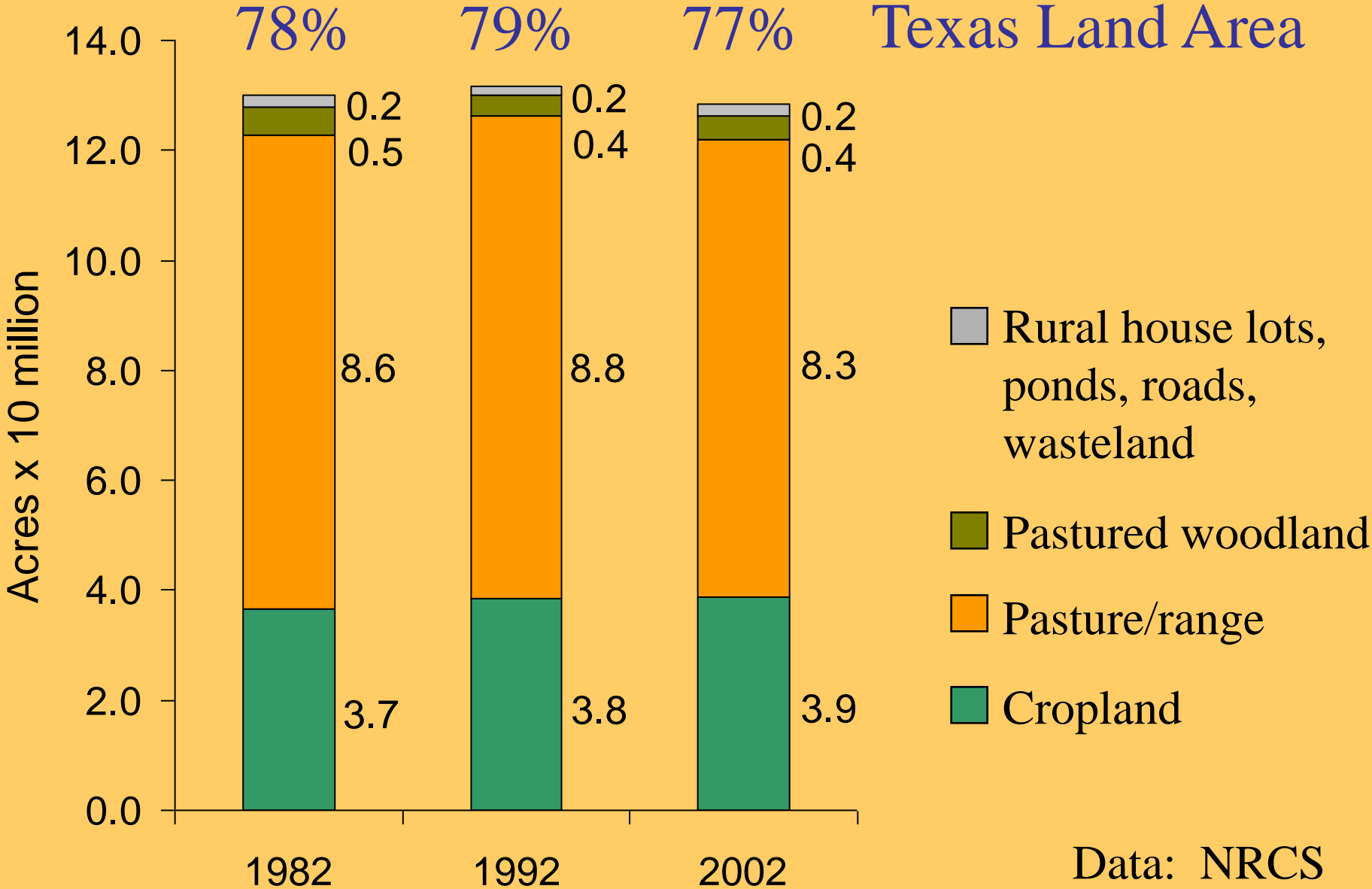
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For proper interpretation, see Explanation
of Analysis for this map at our web site. Search
for "USDASOTL" to locate our map index.

Data Source: 1987 National Resources Inventory
Revised December 2000

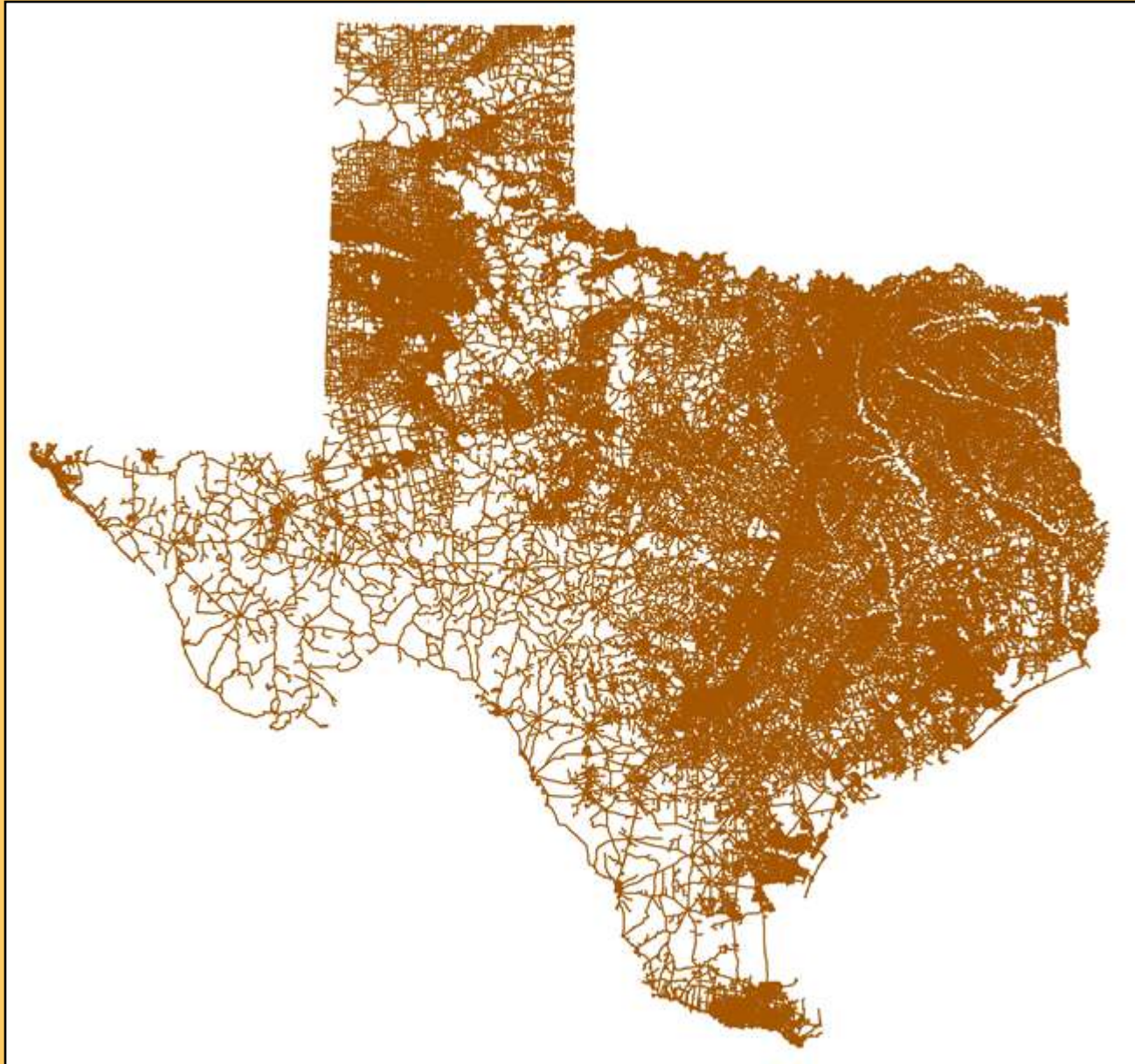
Acres of Grazing Land Converted to Developed Land, 1982-1997



Proportion of land in Texas converted to agricultural uses

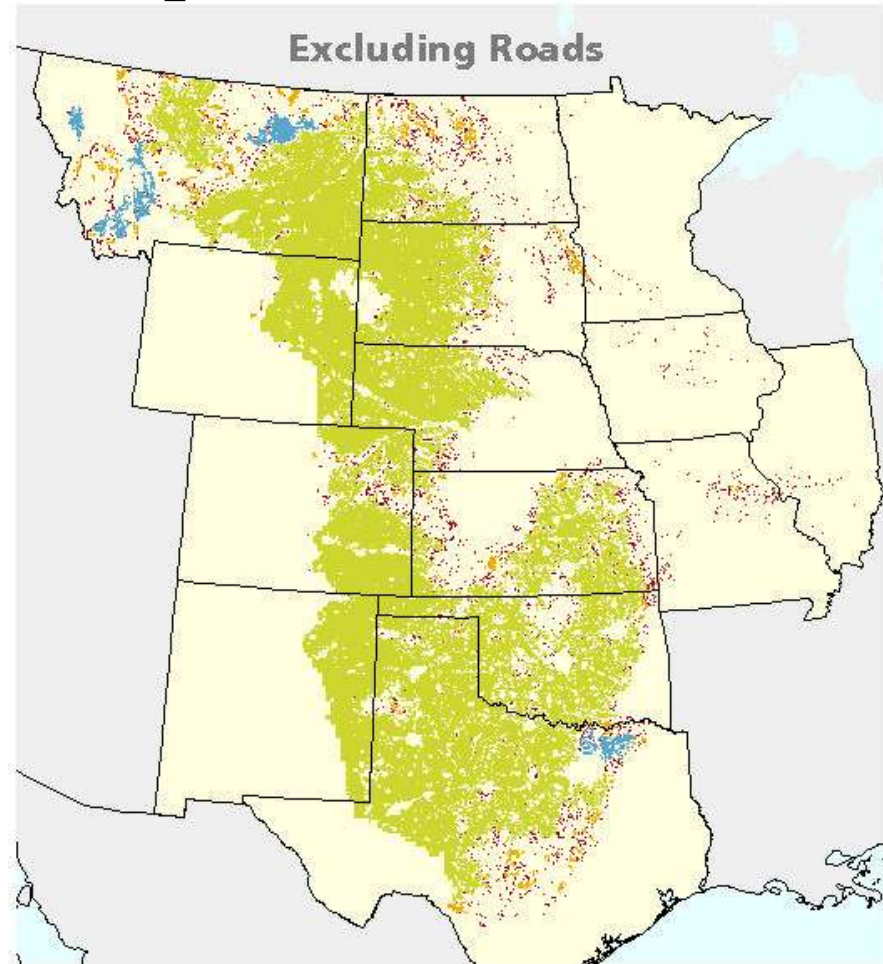


Fragmentation: roads in Texas, not included are railroads, fencerows, Utilities rights-of-way (electric and gas), wind farm footprints)

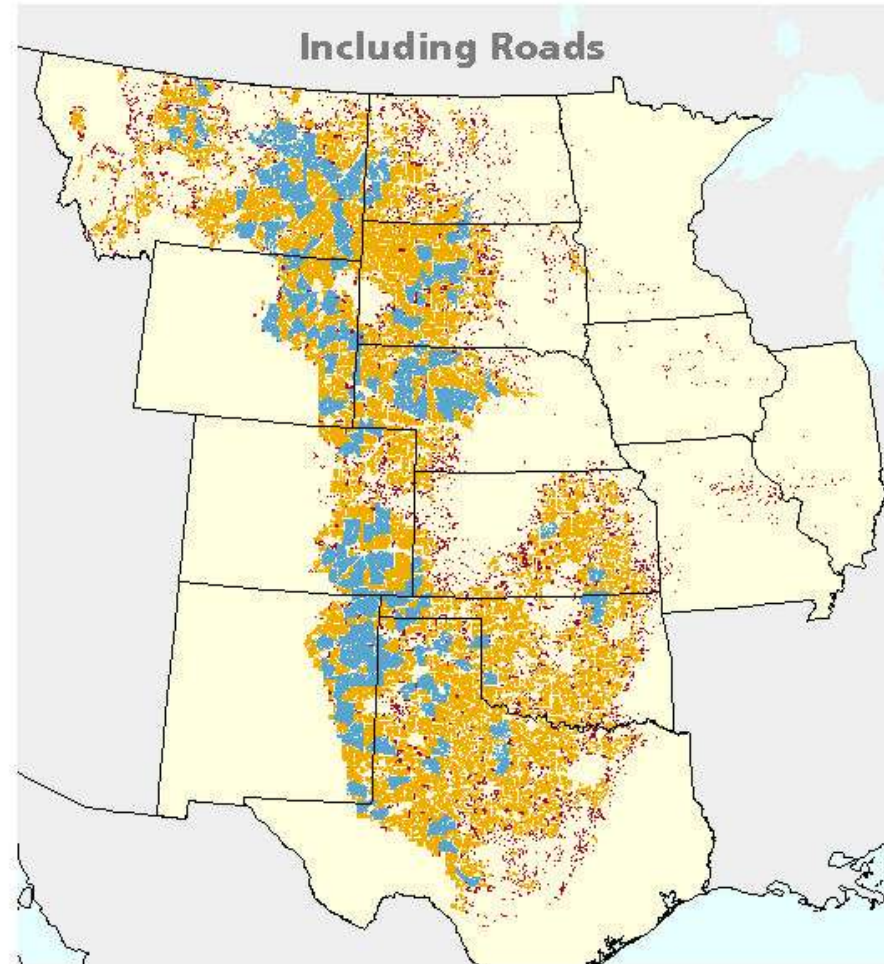


Grassland fragmentation due to permanent and seasonal roads in the Great Plains

Excluding Roads



Including Roads



90 % of habitat blocks
> 10,000 km² in area.

70% of the blocks < 100 - 1,000 km²
none are greater than 10,000 km²

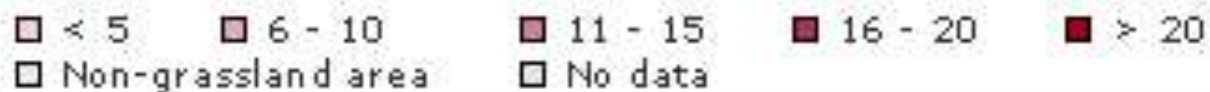
White and Vanasselt (2000)

Pervasive Plant Invaders

Figure 2: Nonnative Plant Species in North American Grasslands



Percent nonnative plant species:

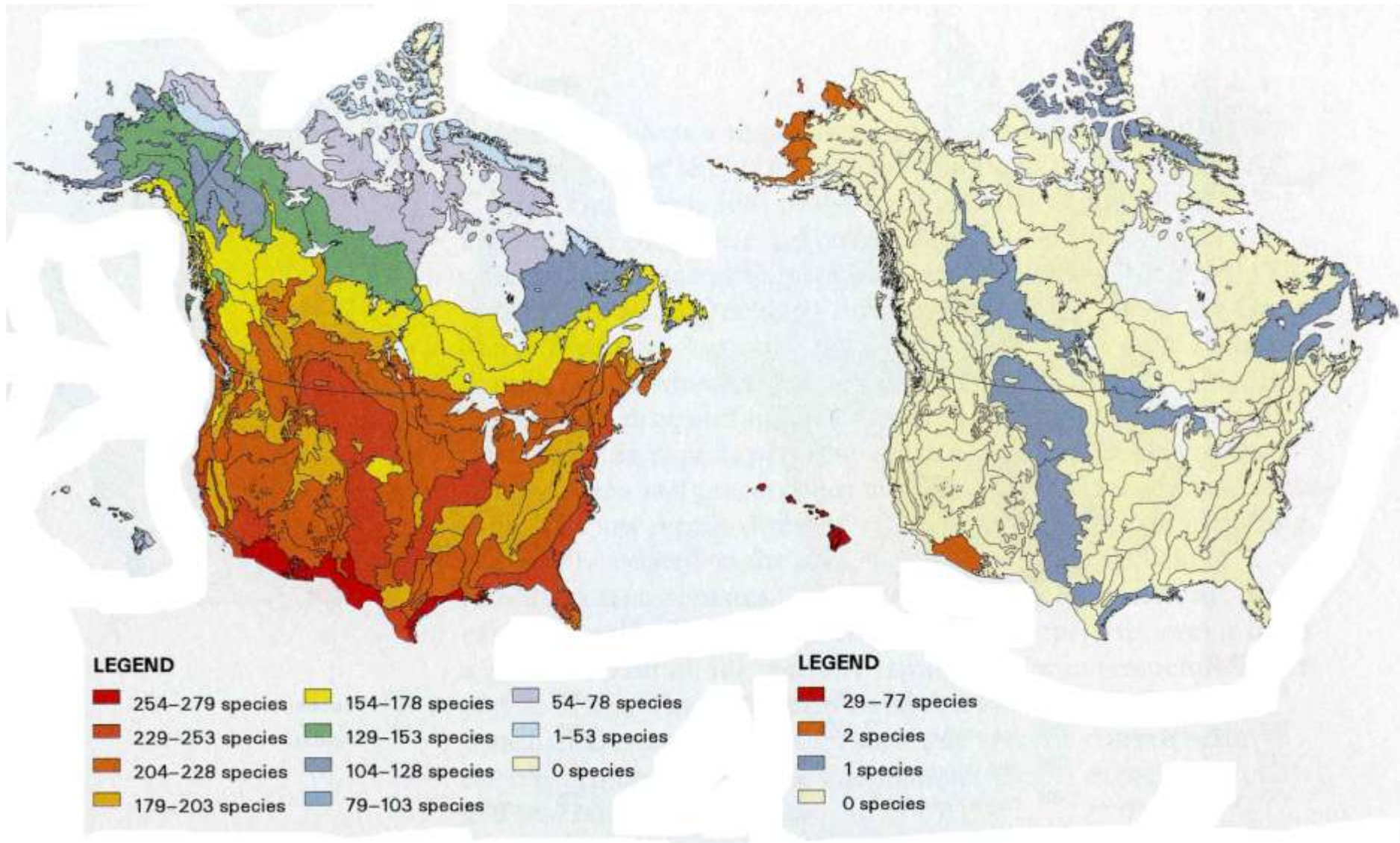


Source: Ricketts et al., 1997; WWF-US, 1999.

Projection: Interrupted Goode's Homolosine

Bird Richness

Bird Endemism



Ricketts et al. (1999)

Main Conservation Issues for Grassland – Shrubland birds:

Habitat elimination, fragmentation and degradation:

- Agriculture
 - Overgrazing,
 - Early haying (destroys nests)
 - Conversion to cropland,
 - Herbicides and other agrochemicals,
 - Over-fertilization.
- Poor range management
 - Fire suppression (grasslands),
 - Erosion,
 - Planting of exotics and invasives,
- Urban, suburban and transportation development.

Habitat Fragmentation can lead to:

- genetically isolated and reduced animal populations
 - inbreeding,
 - genetic drift,
 - extinction;
- lower diversity in successional stages;
- decreased probability of species recolonization
 - populations become sinks;
- greater edge area, leading to:
 - lower nest success
 - higher predation
 - brood parasitism.

2004 Partners in Flight North American Landbird Conservation Plan

TEXAS Grassland – shrubland species - 57%

Multiple causes for concern across entire range:

(low numbers, narrow distribution, high threats, declining)

Lesser Prairie Chicken

Black-capped Vireo

Bachman's Sparrow

Henslow's Sparrow

2004 Partners in Flight North American Landbird Conservation Plan

TEXAS Grassland – shrubland species - 52%

Moderately abundant or widespread with declines
or high threats:

Scaled Quail

Swainson's Hawk

Short-eared Owl

Rufous Hummingbird

Southwestern Willow Flycatcher

Bell's Vireo

Spargue's Pipit

Prairie Warbler

Brewer's Sparrow

Baird's Sparrow

Harris's Sparrow

Varied Bunting

Painted Bunting

Dickcissel

2004 Partners in Flight North American Landbird Conservation Plan

TEXAS Grassland – shrubland species - 56%

Restricted distribution or low population size:

Montezuma Quail

Nelson's Sharp-tailed Sparrow

Elf Owl

Seaside Sparrow

Gray Vireo

Smith's Longspur

Black-chinned Sparrow

Audubon's Oriole

Conservation Strategies

- **Conservation planning at the regional level**
 - Cooperatively managing all habitats on a landscape or regional level to maintain diversity of bird communities.
 - De-emphasize maximizing numbers of bird species at each site
 - Within context of larger regional goals, individual sites should be managed for a site-adapted suites of birds,
 - Le Conte's Sparrows and Sedge Wrens in sedge meadow habitats.
 - Painted Buntings and Black-capped Vireos in arid scrub.

Conservation Strategies

- **Encourage involvement of diverse groups of natural resource professionals**
 - range managers,
 - game and nongame biologists,
 - botanists,
 - soil conservationists,
 - agronomists,
 - farmers and ranchers.