Carson River Floodplain Protection Progress Map, 2014

A project of the River Corridor Working Group of the CRC

by Steve Lewis and John Cobourn
University of Nevada Cooperative Extension

Premise

"Protect the natural functions and benefits of floodplain lands" – Suggested Action #6, Carson River Regional Floodplain Management Plan of 2008.

Keeping structures out of harm's way is recognized as the best, most cost-effective way to prevent flood damage and deaths.

Looking east across the Carson Valley Golf Course in the floodplain of South Gardnerville, NV, January 1997 (Hwy 395 at top)

Floodplain Ecosystem Services

Retaining undeveloped natural floodplains:

- Reduces flood damages
- Improves water quality
- Habitat is provided
- Stored flood water recharges groundwater
- Preserves historical land uses and natural beauty
- Is less costly than restoring later or building flood control structures that can eventually fail

Walla Walla River in Washington:

Building levees to straighten a channel is like trying to put a river in a straight jacket

This is NOT just an issue of flooding:

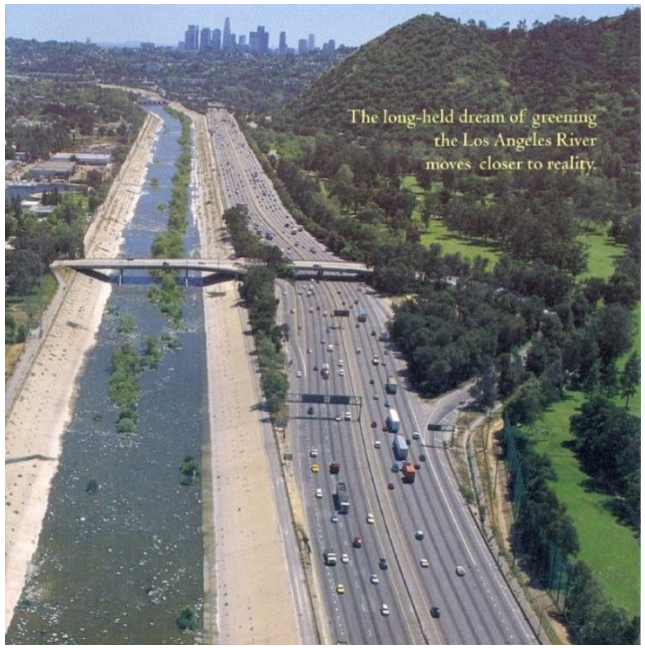
Living River Approach

Keep the floodplain undeveloped, so it can provide its natural functions. – Suggested Action #1, Carson River Regional Floodplain Management Plan of 2008

Vs.

Serial Engineering

Building levees encourages development in floodplains, but levees fail, and neighborhoods are unsafe. Eventually, the river is put in a concrete channel, like in LA.

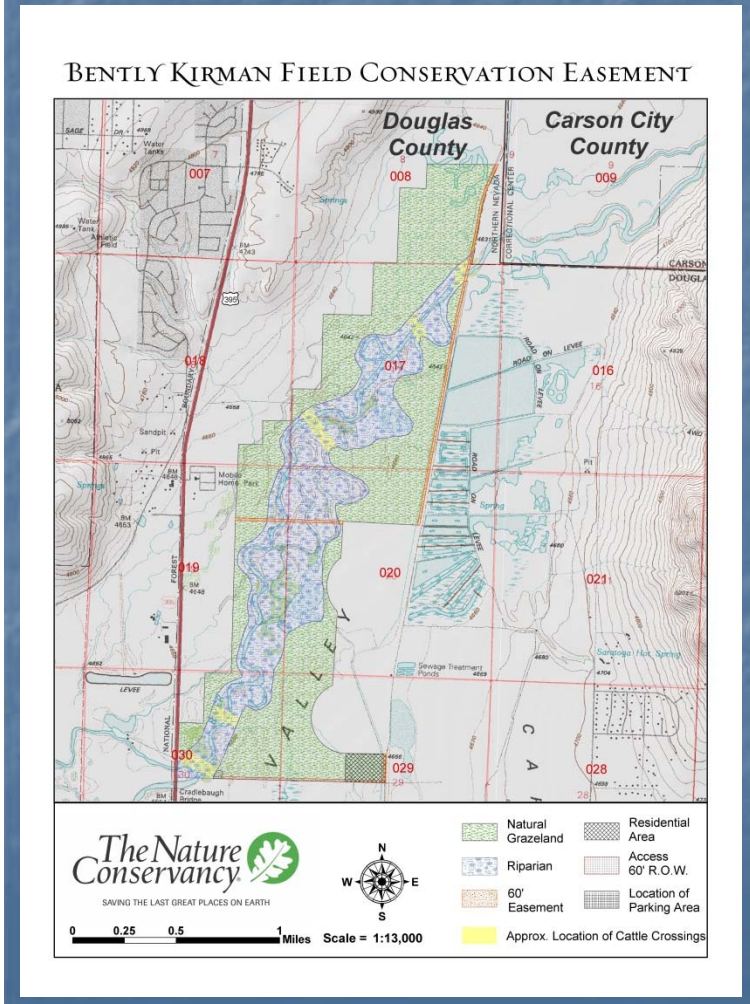


Which future do we want for the Carson River?

It is important to inspire the public with the Floodplain Protection Goal

- Floodplain may get wider over time.
- Flood insurance rates are going up.
- Information about USGS's Arkstorm
- Flood Awareness Week, Nov 10-15, 2014
- Presentations to groups
- River Wranglers, Project WET, etc.
- The Floodplain Protection Progress Map
- We will revise the map every few years

Suggested Action #7 of the Regional Floodplain Management Plan: Retain lands that provide floodplain storage and maintain or restore connection of river with floodplain through land acquisition, conservation easements, local open space programs...and other protection methods.



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This map is being created by members of the Carson River Coalition, with technical assistance from Eric Schmidt, Supervisor of the Douglas County GIS Division:

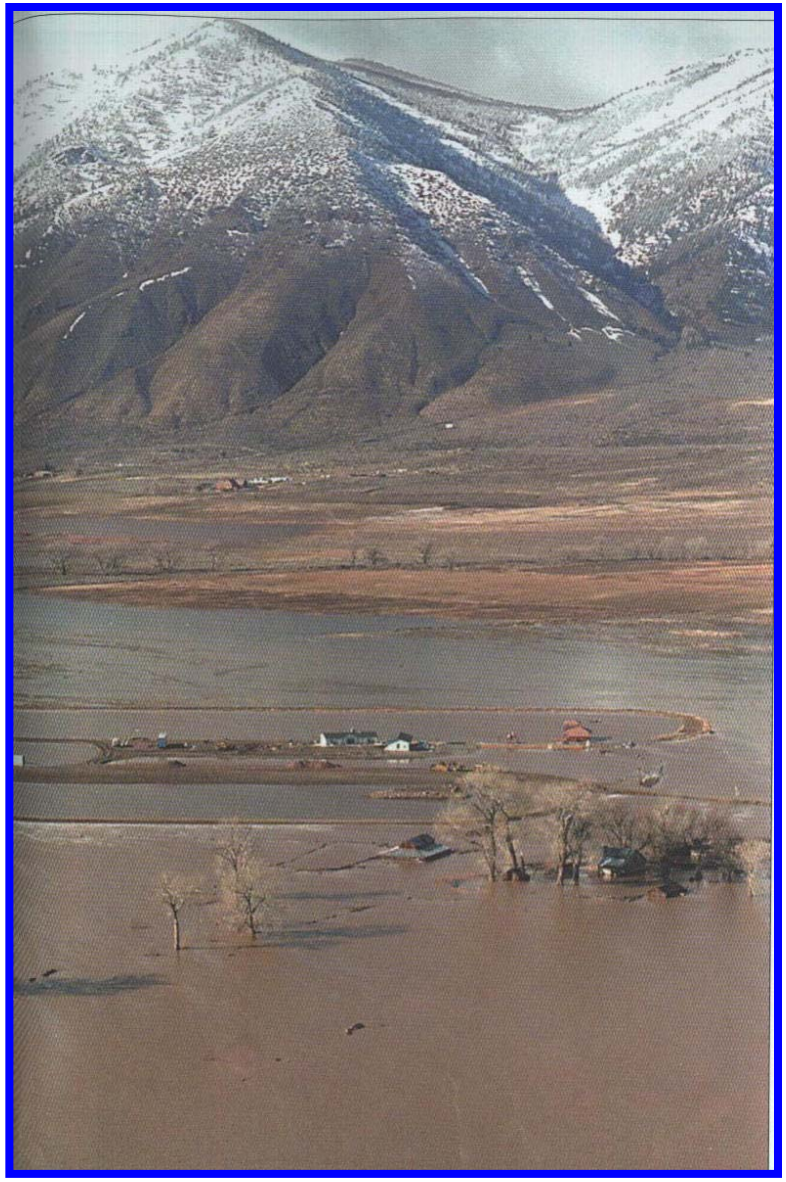
Steve Lewis, John Cobourn, University of Nevada Cooperative Extension
Eric Schmidt, Douglas County Geographic Information System
Robb Fellows, Carson City
Rob Loveberg, Lyon County
Mimi Moss & Erik Nilssen, Douglas County
Ann Bollinger, Dominique Etchegoyhen, Duane Petite, Rich Wilkinson

Study Extent

- Carson River Watershed

- Three Counties
- Douglas,
- Carson City,
- Lyon

- 100-year Floodplain



Study Objectives

- Calculate the 100-year floodplain acres in each county and collectively
- Calculate the "protected" 100-year floodplain acres in each county and collectively
- Determine the percentage of "protected" floodplain compared to total floodplain acres
- Establish these data as benchmarks to be used to compare with future research and land use changes on the Carson River floodplains

Definitions

100-year floodplain

Data (Sources):

2013 A-Series Flood Zones (FEMA, DFIRM)

1997 Flood Extents (NV Bureau of Mines & Geology)

Protected lands

"Protected" refers to land that is publically owned and not likely to be developed (planned for permanent open space and parks) and lands that are privately owned with a conservation easement.

Protected Lands

<u>Permanent Open Space</u>

- Lands with a conservation easement as part of the Douglas County TDR program
- Lands with a conservation easement purchased by an agency, non-profit, or donated by an owner
- Lands within the FEMA “Floodway”

<u>Publically Owned Open Space</u>

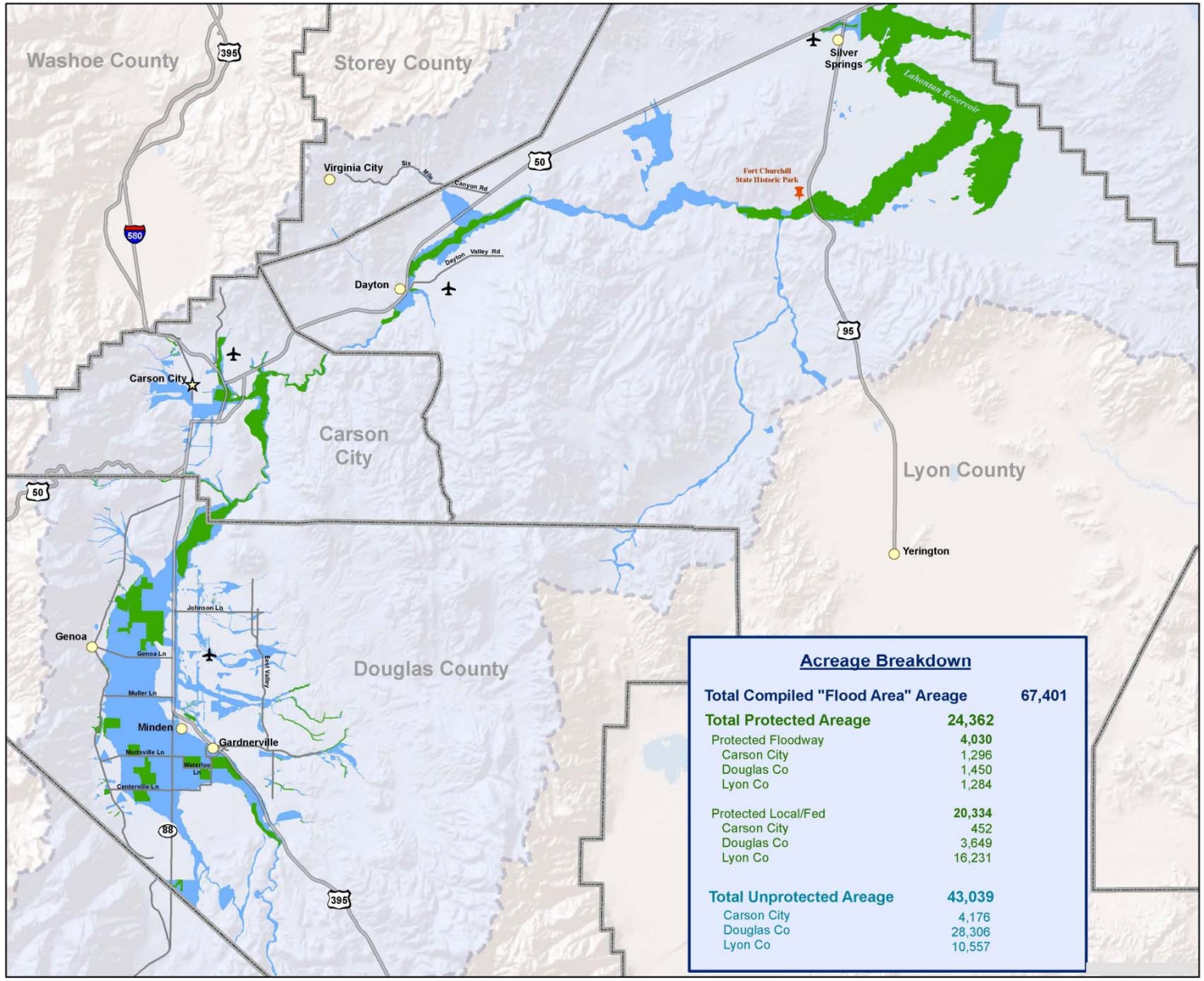
- State owned open space or parks
- County owned open space or parks
- City owned open space or parks
- GID managed open space or parks

<u>Privately Owned Open Space</u>

- HOA common area

Carson River Flood Plain Study

Northern Nevada Quad Counties



Acreage Breakdown

Total Compiled "Flood Area" Areage	**67,401**
Total Protected Areage	**24,362**
Protected Floodway	**4,030**
Carson City	1,296
Douglas Co	1,450
Lyon Co	1,284
Protected Local/Fed	**20,334**
Carson City	452
Douglas Co	3,649
Lyon Co	16,231
Total Unprotected Areage	**43,039**
Carson City	4,176
Douglas Co	28,306
Lyon Co	10,557

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Map Elements

- Quad County Boundaries
- Compiled Flood Area
- Protected Lands
- Carson River Watershed

0 2.5 5 10 Miles

Data Sources:
County Boundaries: US Bureau of the Census
Carson River Watershed Boundary: US Geological Survey

DOUGLAS COUNTY GIS

The data contained herein has been compiled on a geographic information system (GIS) for the use of Douglas County. The data does not represent survey delineation and should not be construed as a replacement for the authoritative source, plat maps, deeds, resurveys, etc. No liability is assumed by Douglas County as to the sufficiency or accuracy of the data.

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100-year Floodplain

(Carson, Douglas, Lyon Counties in the Carson River Watershed)

Carson	5,924 acres
Douglas	33,405
Lyon	28,073
Total	67,401

Carson City

(in the Carson River Watershed)

Total 100-year Floodplain	5,924 acres	
Protected Floodway	1,296	22%
Protected Other	452	8%
Unprotected	4,176	70%

Douglas County

(in the Carson River Watershed)

Total 100-year Floodplain	33,405 acres	
Protected Floodway	1,450	4%
Protected Other	3,649	11%
Unprotected	28,306	85%

Lyon County

(in the Carson River Watershed)

Total 100-year Floodplain	28,072 acres	
Protected Floodway	1,284	4%
Protected Other	16,231	58%
Unprotected	10,557	38%

Study Area

(in the Carson River Watershed)

Total 100-year Floodplain	67,401 acres	
Protected Floodway	4,030	6%
Protected Other	20,332	30%
Unprotected	43,039	64%

Study Limitations

FEMA delineations will be changing

Some of the FEMA Zone A series are on tributaries above the valley bottom when we are primarily interested in riverine – less repeatability if we arbitrarily cut these off

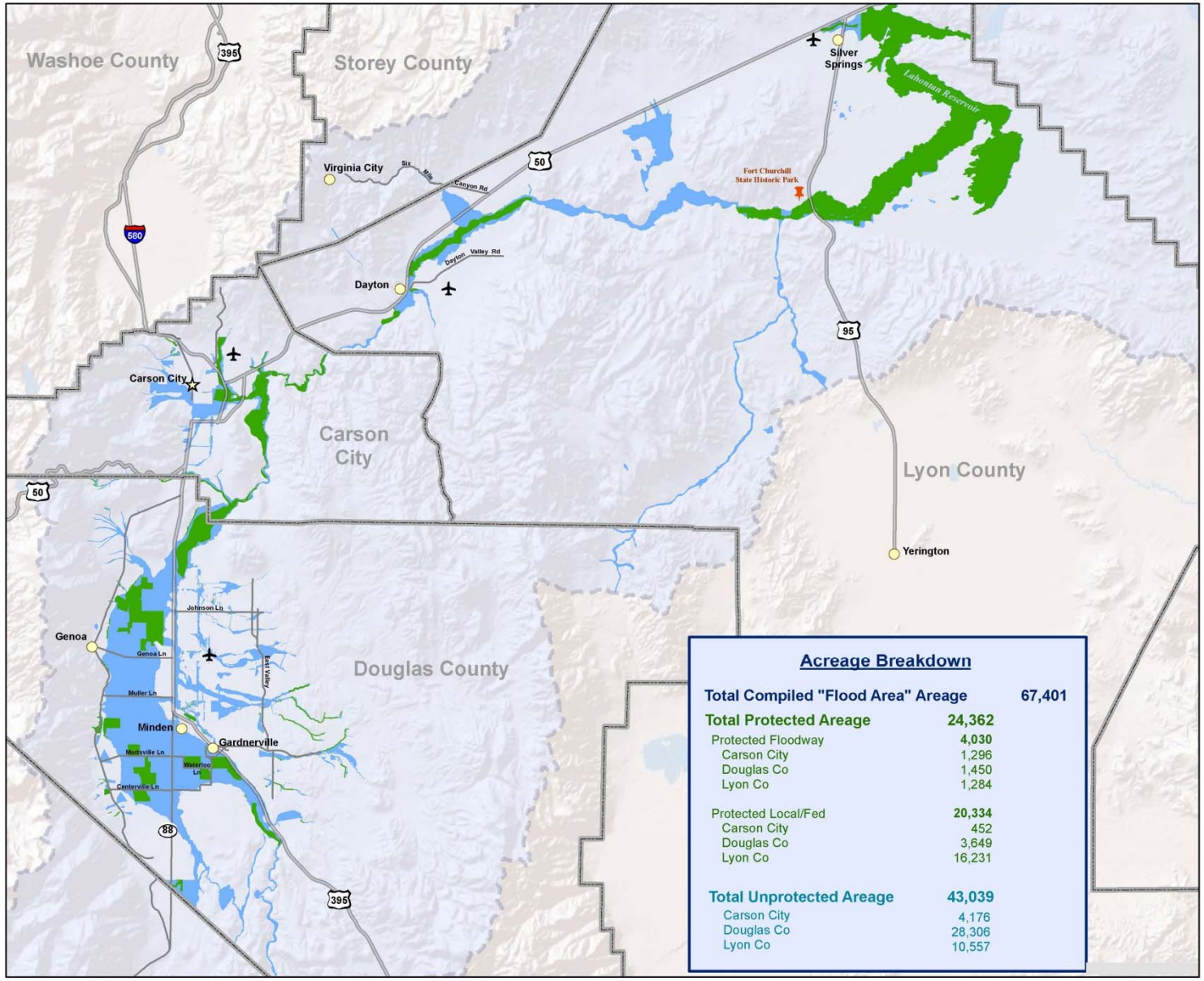
“Protection” is a continuum. Where should we draw the line? Golf courses, floodway, Lake Lahontan lands under water, other designations?

Identifying protected parcels is a tedious job – some parcels may have slipped through the cracks

Relative inventory rather than absolute

Carson River Flood Plain Study

Northern Nevada Quad Counties



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