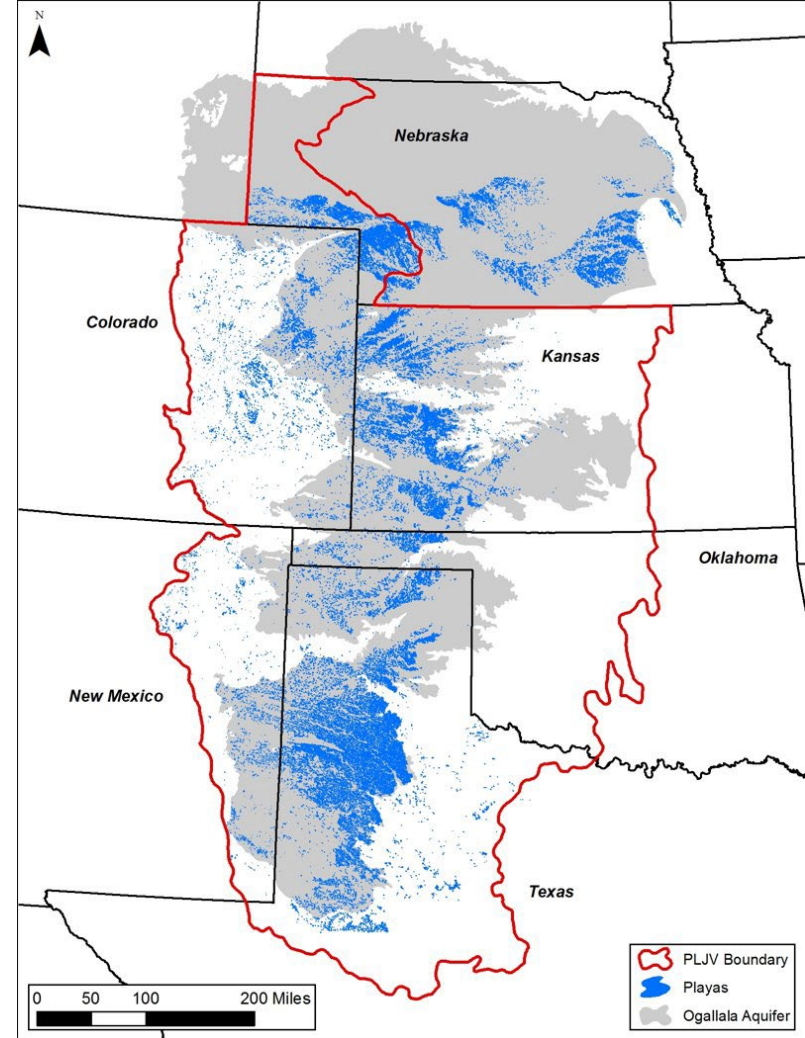


State Association of Kansas Watersheds Topeka, 2024



OUR WORK AT PLJV

- Conserve playas, prairies and landscapes of the western Great Plains through partnerships for the benefit of birds, other wildlife, and people.
- Find and execute partner-based solutions to conservation challenges.



PLJV MANAGEMENT BOARD





Photo Courtesy of Louise Ehmke



**Your relevance starts the very moment
you start solving [other] people's
problems. —Topsy Gift**

PLAYAS

- Small, temporary recharge wetlands, frequently dry.
- Collect rainfall and runoff from watersheds of various sizes with no inflow/outflow
- Sit above the water table
- Hydric floor supports infiltration, then retention.



HEALTHY PLAYA

- Intact playa basin
- Excess sediment removed
- No pits, trenches, roads or other modifications
- Native grass buffer to trap sediment while allowing water in
- Goes through natural wet-dry cycles



TEND TO BE SMALL

The smallest playas are less than 1 acre, and the largest playas are greater than 300 acres, with an average size of ~7.3 acres. 33% of playas are less than 1 acre.



THERE ARE A LOT OF THEM 80,000+

State	Number	Average Size (Ac)	Range (Ac)
Colorado *	8,047	5.5	0.01 - 248
Kansas	22,045	3.7	0.08 - 464
Nebraska	21,900	1.2	0.01 - 79.5
New Mexico *	2,231	14.3	0.04 - 612
Oklahoma *	2,886	4.7	0.01 - 600
Texas	23,041	17.0	0.01 - 841

*Playas were mapped using mostly SSURGO and LANDSAT data; thus these figures tend to omit many small playas compared with National Wetland Inventory data used in other states (NE, KS, TX).

PLAYA CONSERVATION CHALLENGES

- ✓ Almost entirely on private lands
- ✓ Many have lost function due to pits, ditching, diversions and sedimentation.
- ✓ Development from oil, gas and wind threaten playa wildlife benefits.
- ✓ Programs to conserve playas not compatible with landowner goals.
- ✓ Permanent conservation opportunities not well-known.
- ✓ Lack of understanding of playa function and benefits.
- ✓ Perceived regulatory constraints.

PLAYA BENEFITS

- **Biodiversity Hotspots**
Species richness for plants, amphibians, and birds can be 300% greater than in grasslands without playas
- **Additional Water Quantity**
Groundwater recharge is 10 - 1,000x greater under playas than the surrounding upland
- **Higher Quality Water**
Grass buffers around playas trap sediment and filter contaminants from the water
- **Floodwater Storage**
Playas can assist with flood water retention and storage
- **Carbon Sequestration**
Healthy playas store carbon
- **Recreation**
Playas provide opportunities for hunting, wildlife viewing, and scenery

PLAYAS ARE KEYSTONE ECOSYSTEMS

- Species: 185 birds, 350 plants, 37 mammals, 13 amphibians
- Migratory stopover habitat in the Central Flyway
- Critically important for waterfowl, shorebirds and waterbirds



FLOODWATER STORAGE

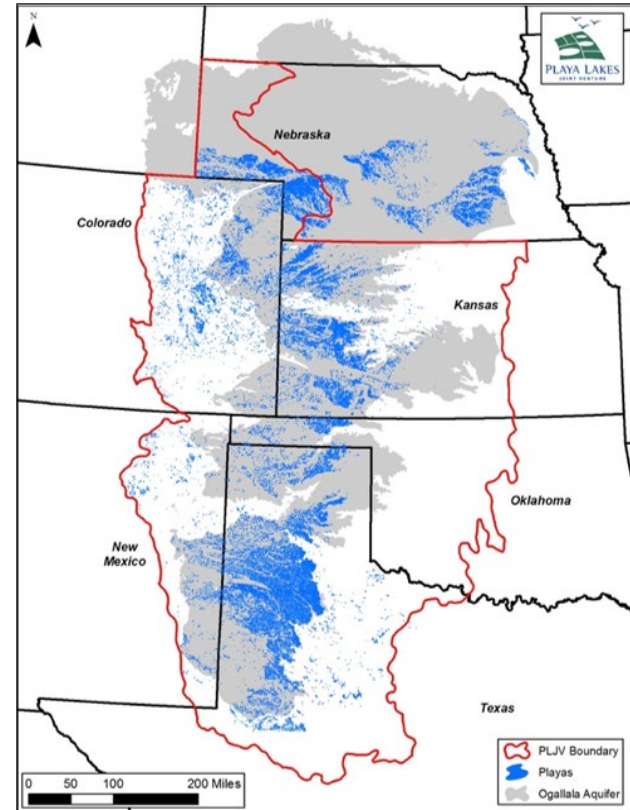


RECREATION

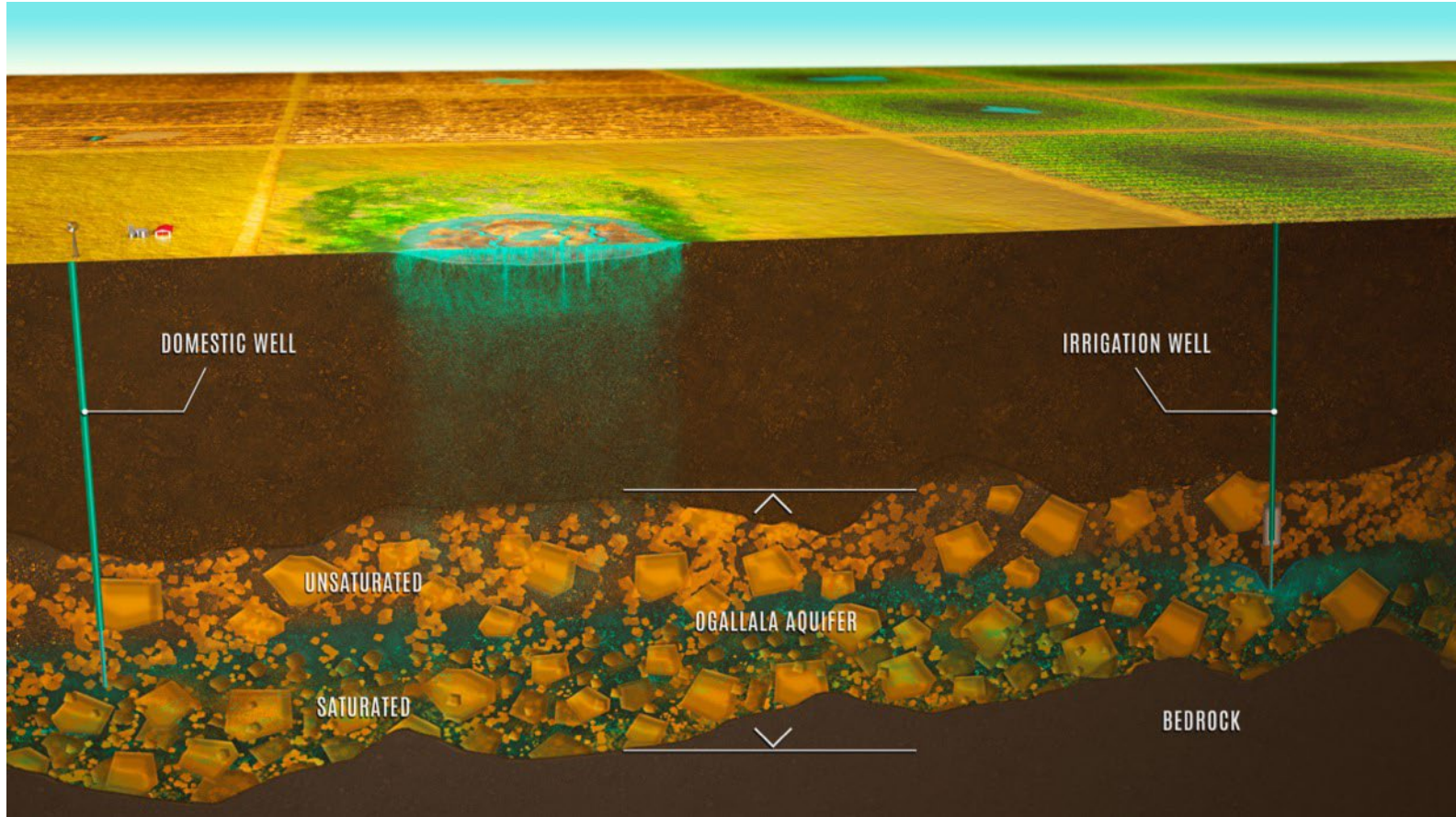


OGALLALA AQUIFER

- One of the largest aquifers in the world, underlying 174,000 sq miles.
- Yields about 30% of the groundwater used for irrigation in the U.S.
- Playas are the primary source of recharge for the aquifer.



RECHARGE THROUGH PLAYAS



RECHARGE PATHWAYS

PROFILE OF AQUIFER RECHARGE IN AN IDEALIZED PLAYA IN THE SOUTHERN HIGH PLAINS, USA

RAIN

RUNOFF

PLAYA PERMEABILITY
INCREASES

WATER

CLAY
LAYER

RECHARGE
VIA FISSURES
IN CLAY

RECHARGE
ALONG
PLANT ROOTS
IN CLAY

RECHARGE
VIA PLAYA
EDGE

AQUIFER

MAIN RECHARGE ROUTE



2015 PLAYA RECHARGE SUMMIT

- Consensus group
- Determine messaging about playas and recharge
- 14 hydrologists, scientists, and communicators
- A day and a half of discussions
- **OUTCOME:** 5 vetted communication messages



PLAYA SUMMIT – REFINED MESSAGES

- ❑ Playas are a major source of recharge to the High Plains (Ogallala) Aquifer.
- ❑ Playas recharge ~3 inches/year (average)
- ❑ Not enough to offset irrigation, but enough to support low-water use (e.g., dryland) and grazing operations and can support municipal water supplies.
- ❑ Healthy Playas w/buffers provide clean water, remove suspended contaminants, remove dissolve chemicals (nitrogen, pesticides, etc.)

RECHARGE IS A CONTINUOUS PROCESS

Time to recharge is highly variable and dependent on depth to aquifer

Shallowest	~100 ft	~200 ft	Deepest
Months to Years	Years to Decades	Decades	Up to a Century

3" / year

average recharge rate
across a 4-acre playa

326,000 gallons

~1 acre feet of water

2 years of water

for a family of 4



What do landowners think about playas?

2006 Landowner Survey

We asked – 1,800 farmers and ranchers in the PLJV region what they thought about playas, wildlife and conservation

26% responded

2006 LANDOWNER SURVEY

LANDOWNERS WITH PLAYAS

- 68% said playas are an overall positive feature
- 25% said playas are an overall negative feature

ALL LANDOWNERS

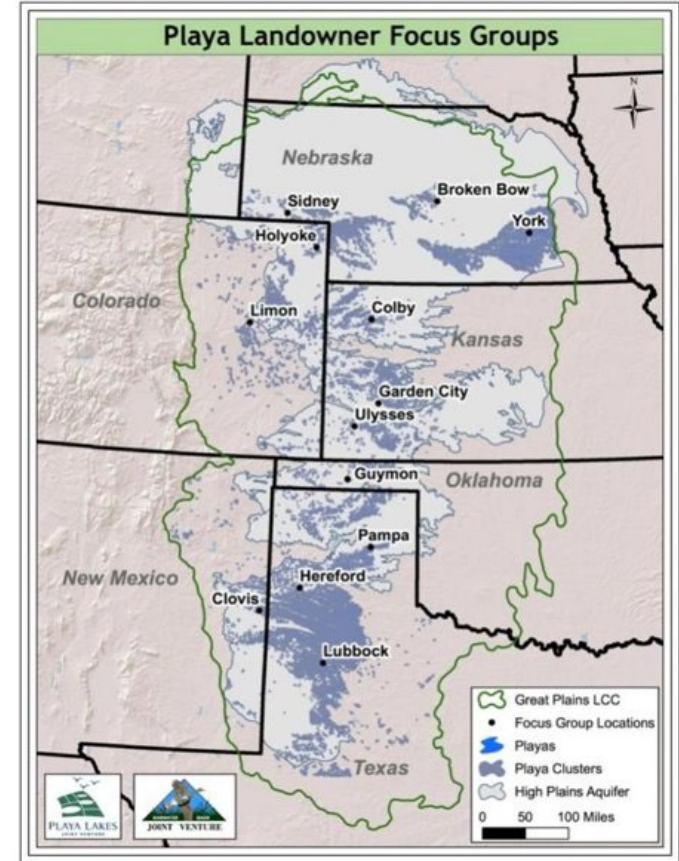
- 50% didn't know whether or not playas recharged the aquifer
- Supported "more conservation than now" only for the Ogallala Aquifer

Want more conservation efforts?

- Ogallala Aquifer (+)
- Conservation Reserve Program
- Native grasslands
- Playas
- Farm ponds
- Reservoirs/lakes
- River corridors
- Wetlands
- Hunted wildlife species
- Non-hunted wildlife species
- Sand sage prairie
- Threatened and endangered species
- Prairie dogs (-)

2013 FOCUS GROUPS

- Conducted 13 focus groups across six states
- Talked with farmers and ranchers who have playas on their property
- Held in areas with large playa clusters

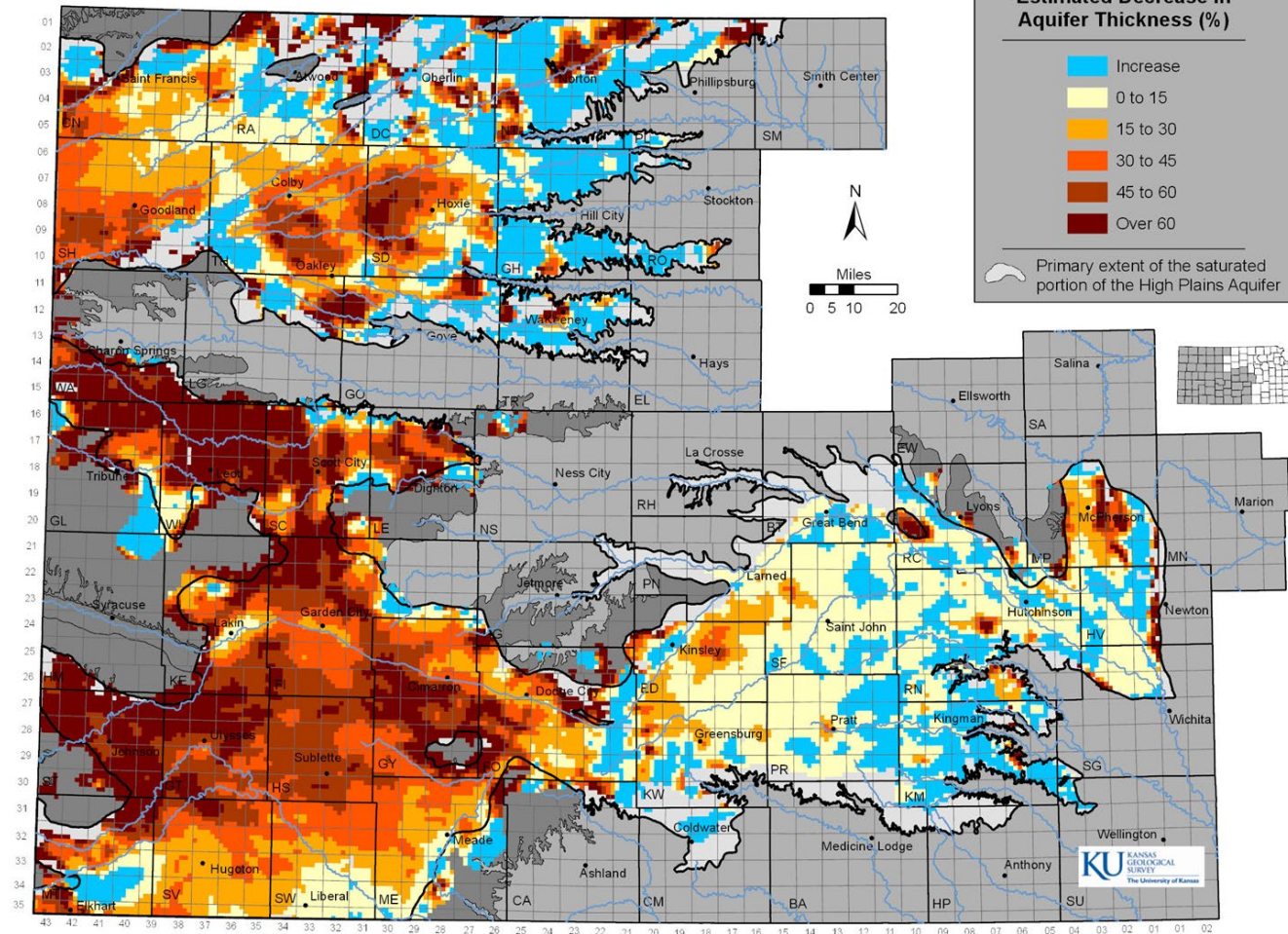


2013 LANDOWNER FOCUS GROUPS

- Amount of recharge is not significant/enough
- Majority would conserve playas if convinced of aquifer benefit
- Need more information... from a credible source
- Let us decide value our land and contributions



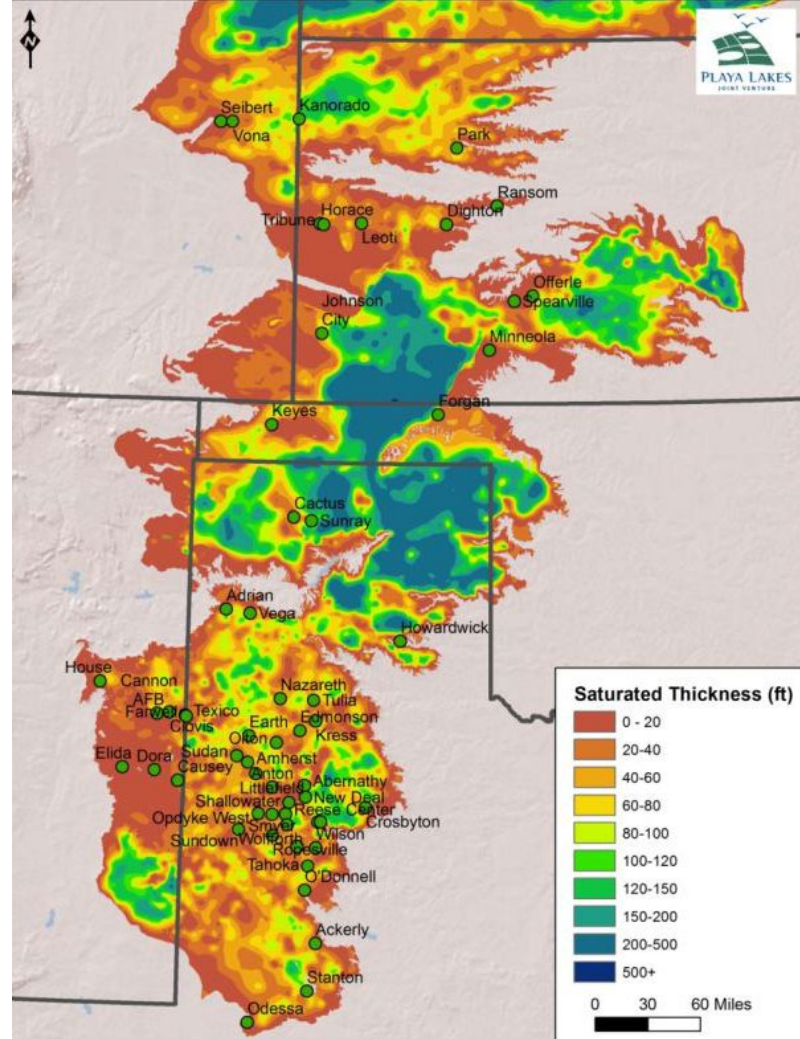
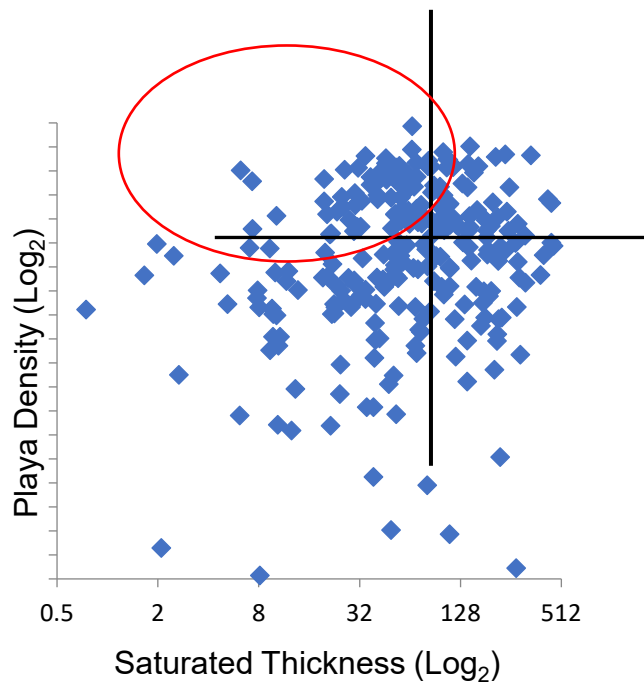
Percent Change in Saturated Thickness, Predevelopment to Average 2017-2019, Kansas High Plains Aquifer



Aquifer Status

"The map"

56 TOWNS WITH 30' OR LESS OF WATER



3" / year

average recharge rate
across a 4-acre playa

326,000 gallons

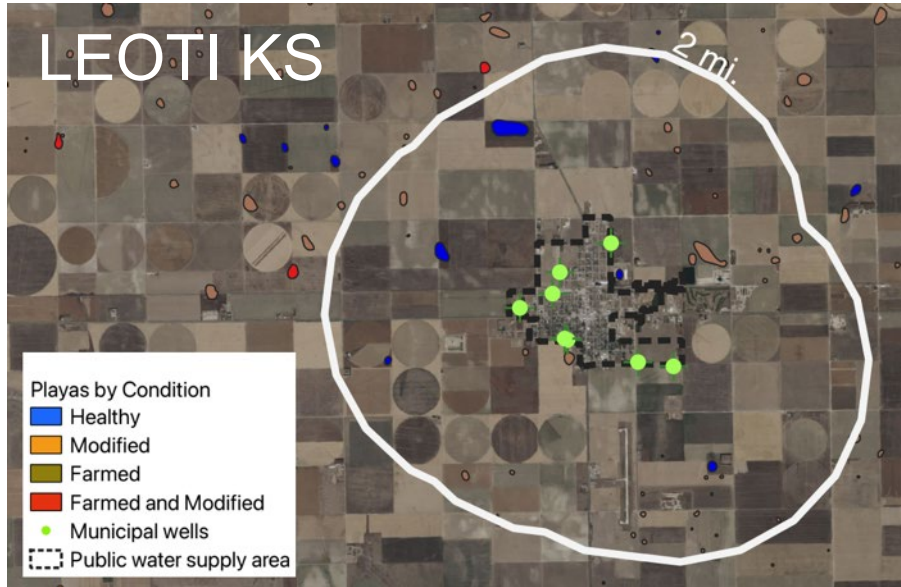
~1 acre feet of water

2 years of water

for a family of 4



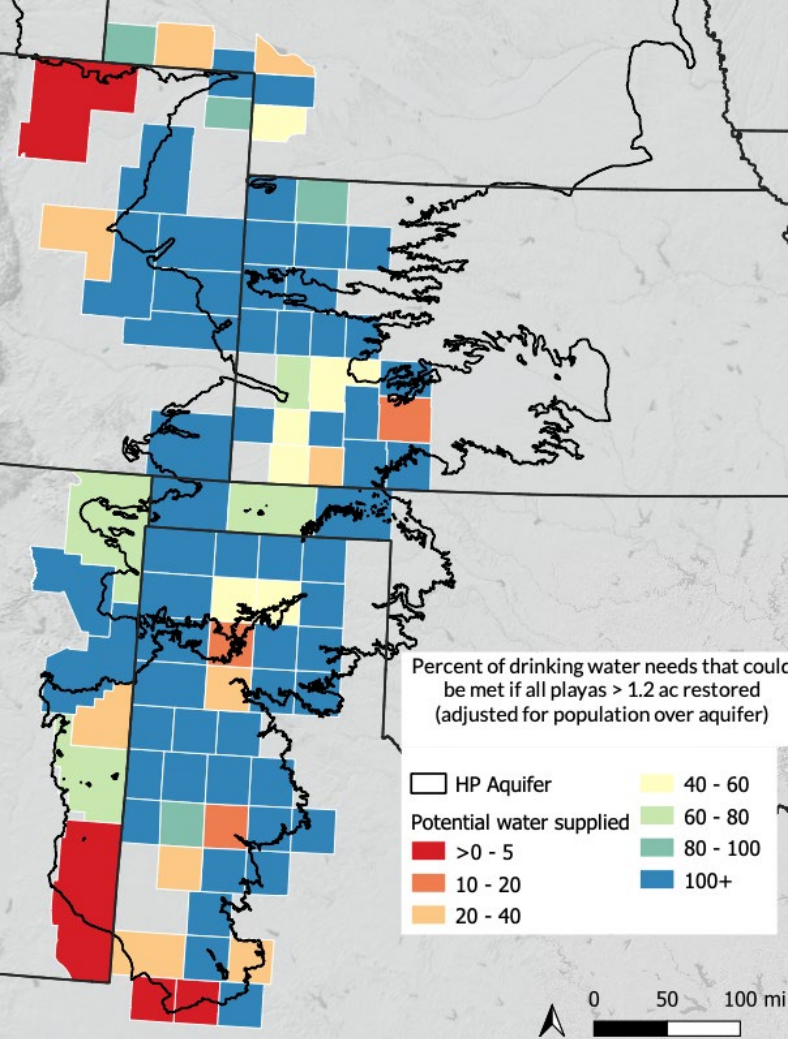
PLAYAS NEAR TOWN WELLS



- 39 ac.-ft. of recharge per year
- 12,700,000 gallons of water per year
- Enough water for 13% of town's population for a year
- Restorations needed to keep this going

	Healthy	Farmed	Total	Added Via Restoration
Playa Acres	63.2	93	156.2	43.9
Average Size (Acres)	9.0	2.4	3.4	n/a
Ac-ft of Recharge	15.8	23.3	39.1	11.0
Drinking Water for # People	172	253.1	425.1	119.5
Percentage of Population	12	17.7	29.7	8.4

PLAYAS RELEVANCE TO PEOPLE



- Map shows % of drinking water that could be provided if playas are restored
- Playas could provide most or all drinking water needs in the majority of counties in our region

INCORPORATING PLAYAS INTO YOUR WATER PLAN

- Consider remaining aquifer level and number of playas around town
- Different for each town and community
- Variety of approaches and processes
- Partnership is key



GRANTS & FUNDING

CLOVIS, NEW MEXICO

- Resilient Communities, NFWF/Wells Fargo (\$250,000)
- New Mexico Department of Game & Fish (\$750,000)
- NRCS (\$360,000)
- Readiness/Environmental Protection Integration, DOD (\$2.6M)
- Regional Conservation Partnership Program, NRCS (\$6.9M)

LEOTI & TRIBUNE, KANSAS

- Climate Adaptation Fund, Wildlife Conservation Society (\$250,000)
- Regional Conservation Partnership Program, NRCS (\$1.4M with \$1.5M match)
- Cooperative Conservation Grant Agreement, NRCS (\$457,000)

WATER POTENTIAL FROM PLAYAS

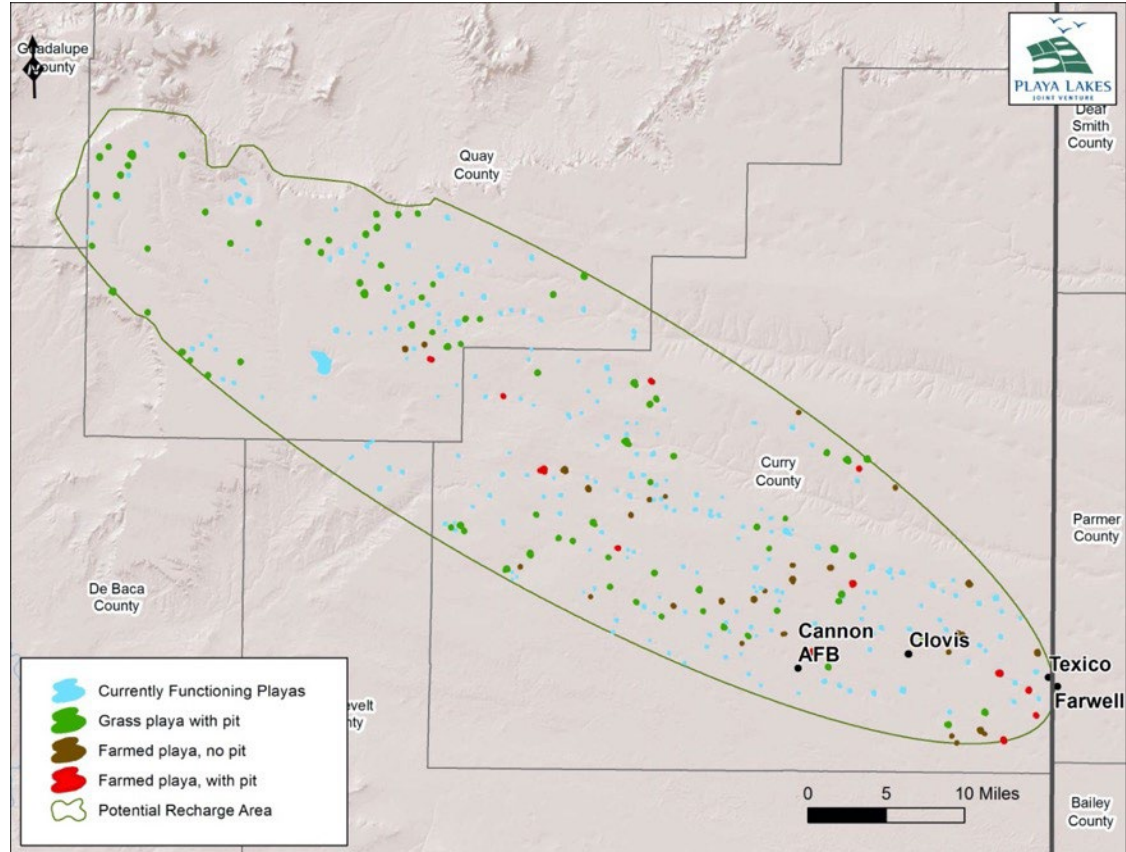
TODAY

- 2,752 functional playa-acres recharge about 225 million gallons (15% of municipal use)

FUTURE

- 4,137 functional playa-acres recharge about 337 million gallons (23% of municipal use)

= 8% INCREASE

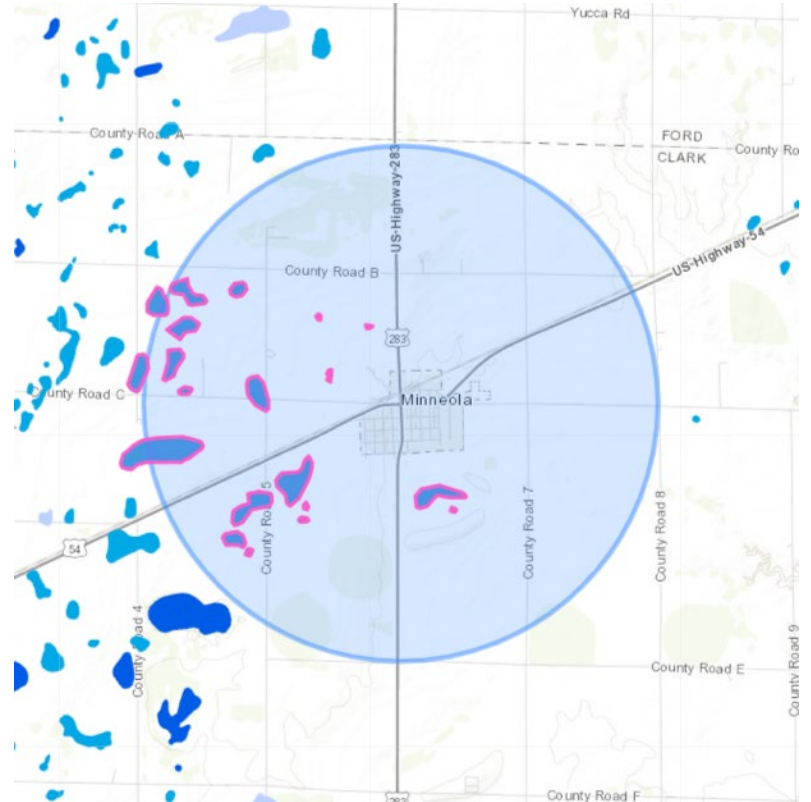


PLAYA RECHARGE ESTIMATOR

2 miles around Minneola, KS

- ~22,097,000 gallons
- ~68 ac-ft
- Enough water for 66% of town's population for an entire year
- Playa restoration needed to keep this going

PlayaEstimators.com



IN THE FUTURE, THIS LOOKS LIKE...

- Producers willing to restore and conserve playas for the benefit of themselves, their communities and wildlife
- Communities increasingly understanding the role playas play in recharging the aquifer
- A program that works for people and wildlife that is properly incentivized, flexible and targeted
- Community members playing an active role in ensuring water is everyone's future

We probably spend too much time and energy
making our challenges relevant. —unknown JVC



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