

# Loss of open areas and a changing Albuquerque bosque and river

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Middle Rio Grande Endangered Species Collaborative Program  
2020 Science Symposium

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[WitnessingWatersheds.com](http://WitnessingWatersheds.com)

[PlatteBasinTimelapse.com](http://PlatteBasinTimelapse.com)





Platte River, Nebraska. *Photo: Platte Basin Timelapse*

# Research context

Describing change  
across 3 rivers with:

- Photography
- Sound
- GIS
- Data visualizations
- Storytelling





Gila River, NM. Photo: E. Brinley Buckley



Middle Rio Grande at Albuquerque. *Photo: E. Brinley Buckley*

# Objectives

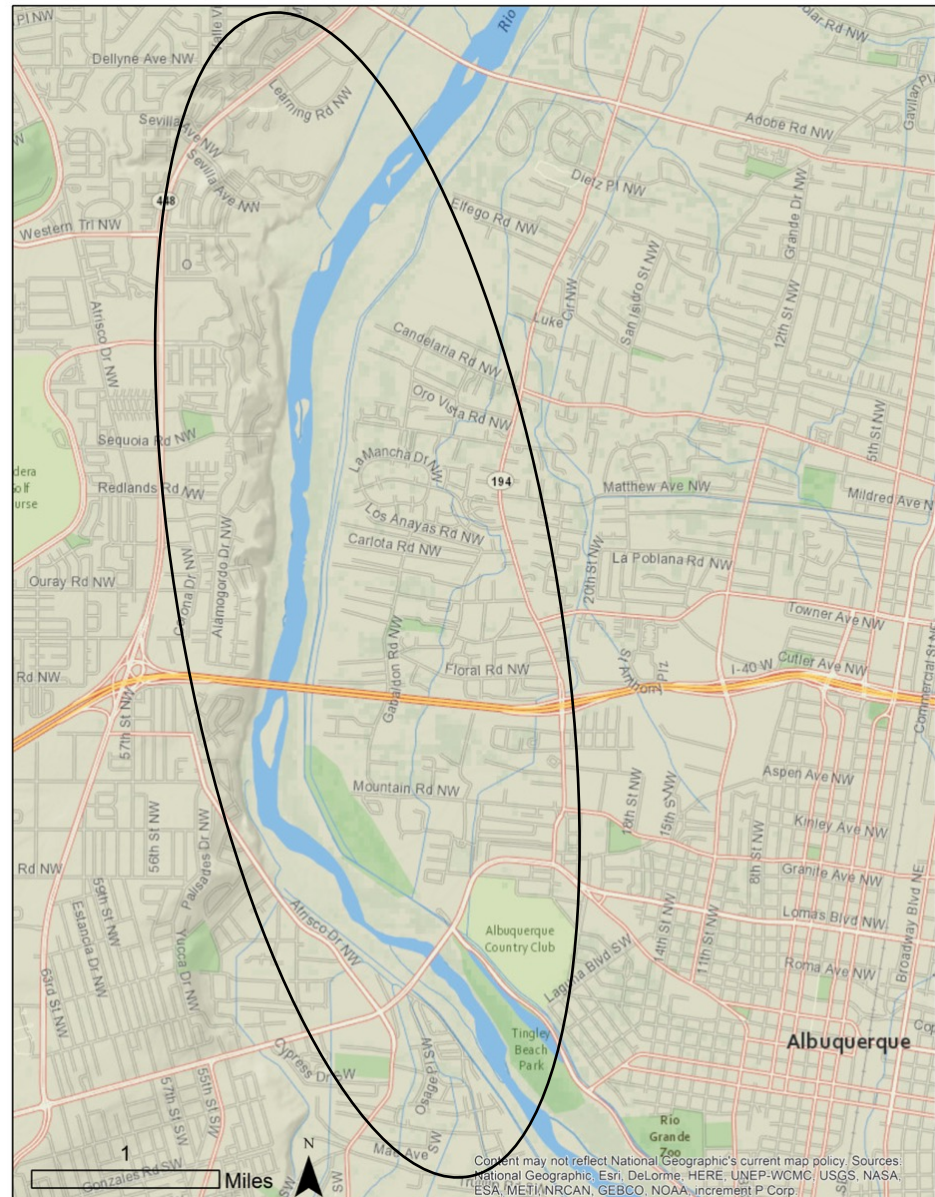
- Characterize landcover change since 1930s
- Highlight places where people interact with river
- Discuss importance of open areas for well-being



Middle Rio Grande. *Photo: M. Harner*

# Approach

- Studied MRG at Albuquerque
- Acquired historical photographs
  - Middle Rio Grande Conservancy District
  - UNM Earth Data Analysis Center
- Delineated landcover
  - River
  - Open
  - Built
- Re-located photo points



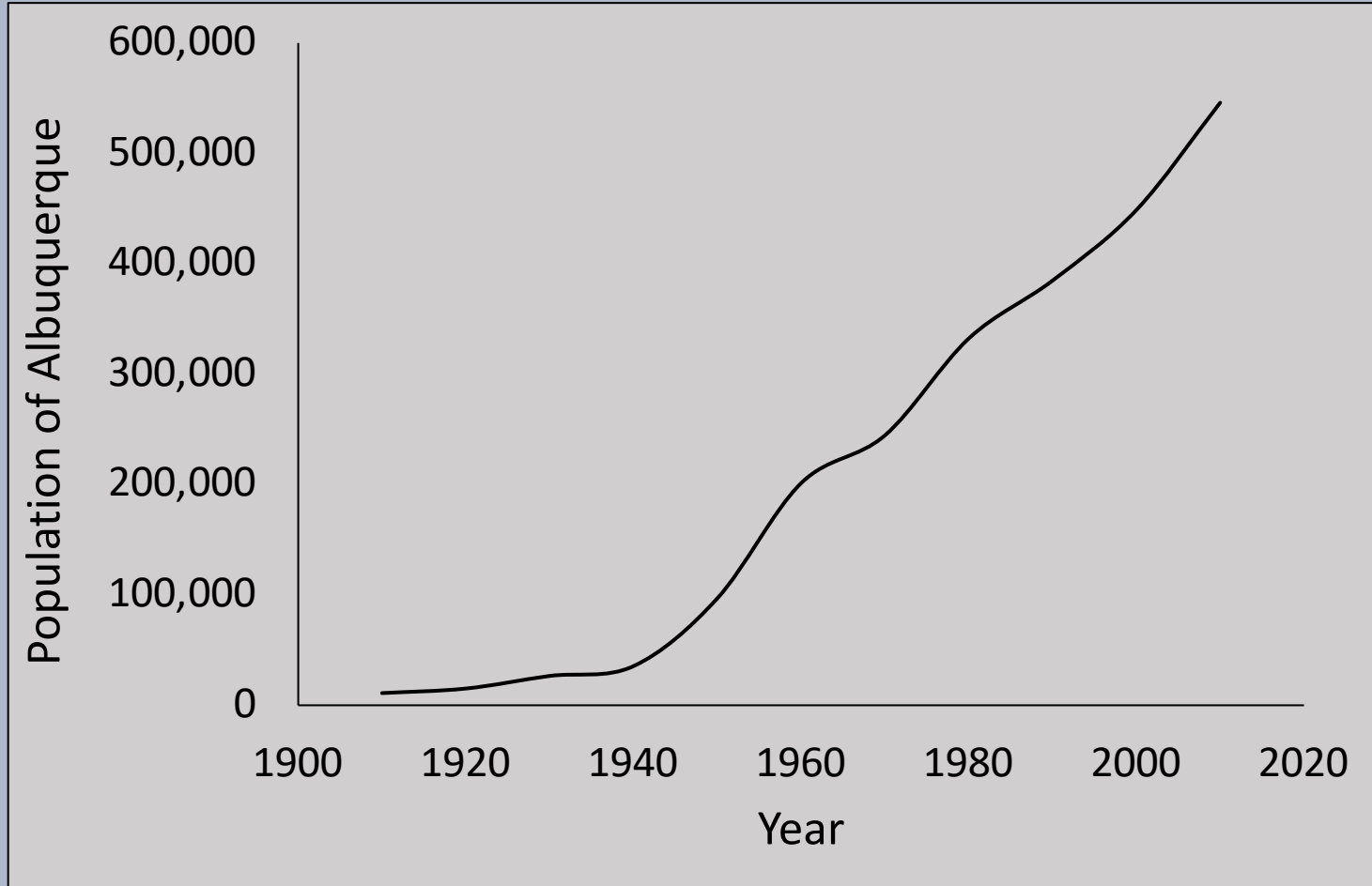


# Historical aerial photography

Year	Source	Date(s)
1935	SCS	Unknown
1955	ASCS/USDA	June 30
1959	USGS	November 6
1973	ASCS/USGS	May 29
2018	MRCOG	Feb 2 – May 9

*Image archive: UNM Earth Data Analysis Center*

# Population growth



*Data: U.S. Census Bureau*



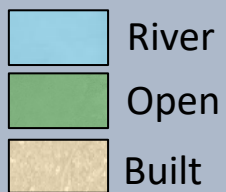
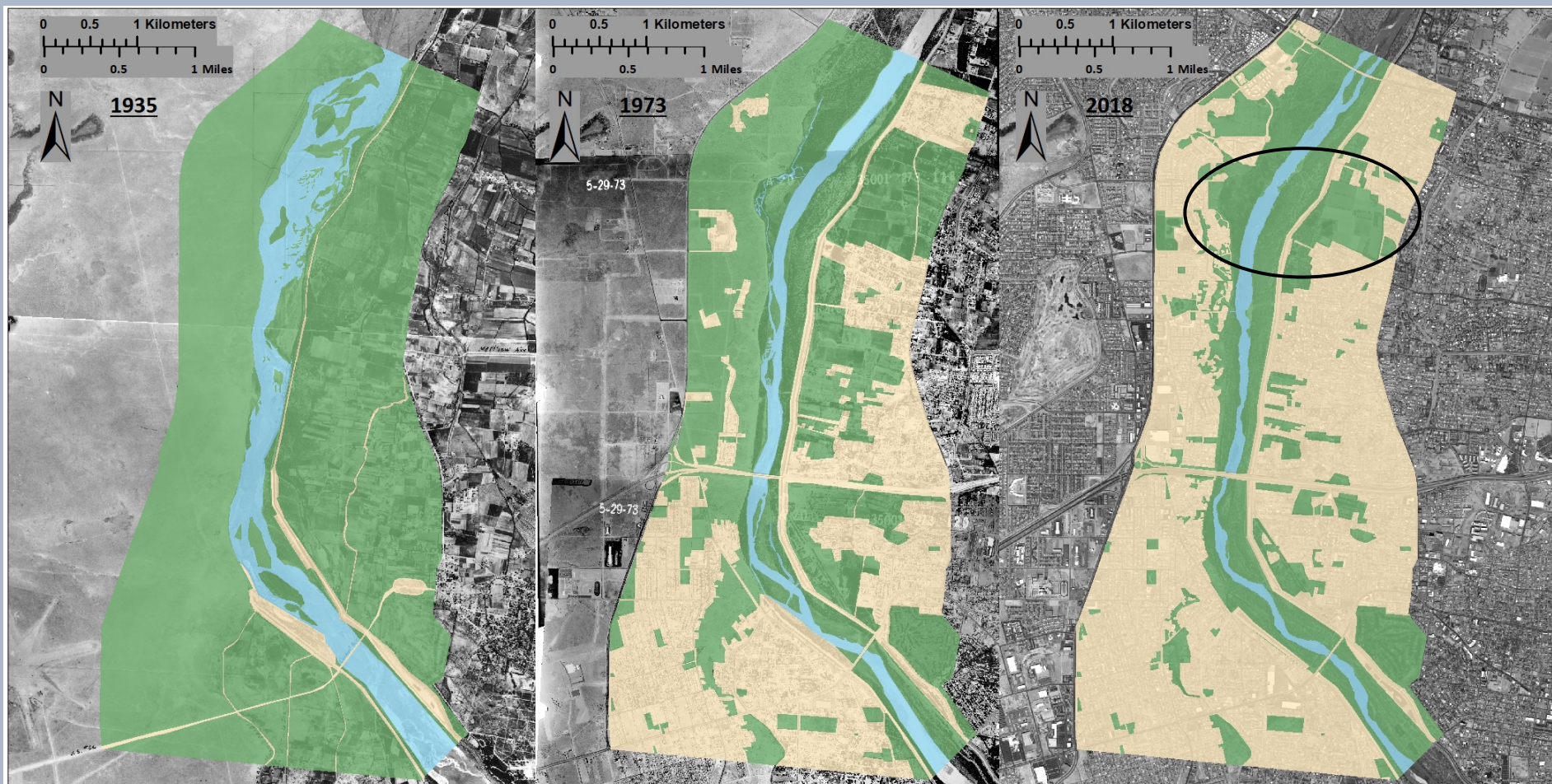
1935



2018

# Landcover classification

- River
  - Visible surface water in active channel(s)
- Open
  - Grassland, forest, scrub/shrub communities
  - Agricultural lands (may contain isolated houses, structures, and some roads)
  - Parks, recreational fields, golf courses, etc.
- Built
  - Housing developments
  - Major roads
  - Levees, drains, ditches, etc.

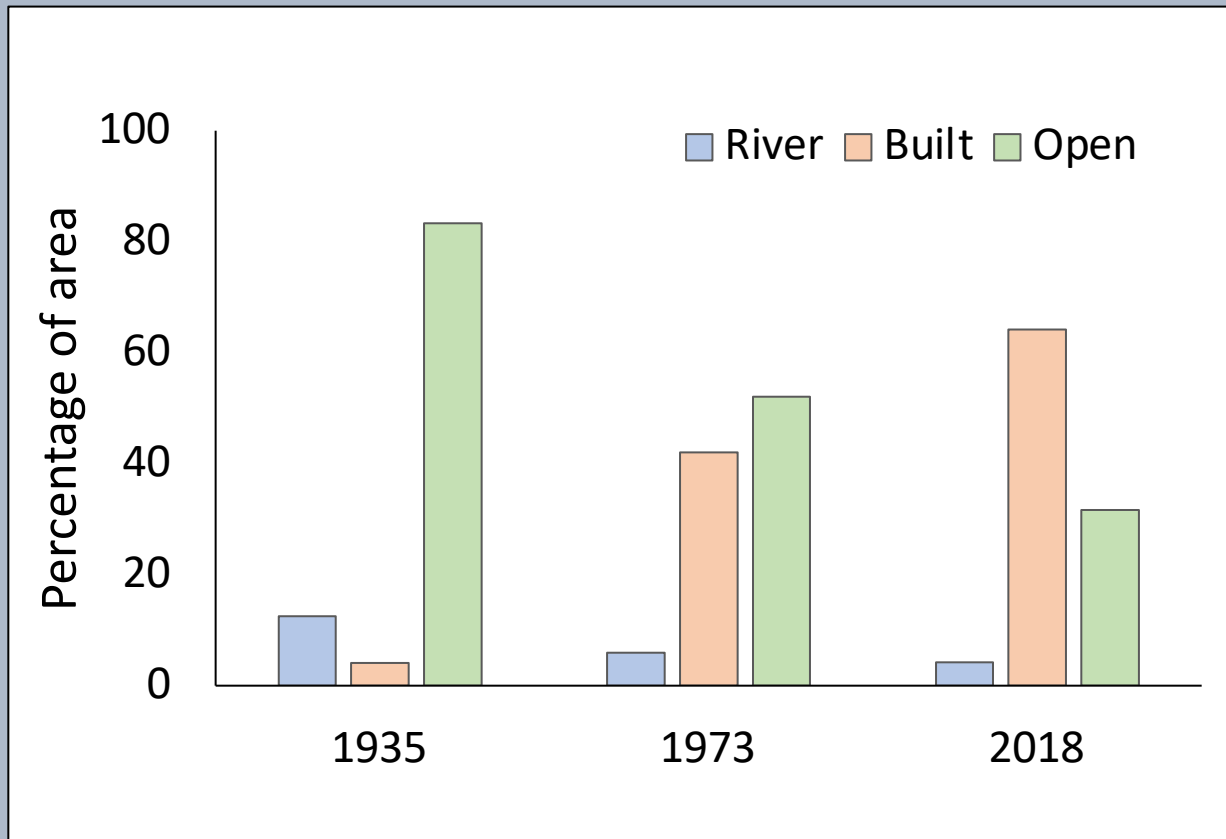


1935

1973

2018

# Transition from open to built areas



DRAGLINE NO. 112 →

RECLAIMED  
RIVER  
BED

ALBUQUERQUE RIVERSIDE  
DRAIN

DRAGLINE NO. 118 → AND  
OLD TOWN HIGHWAY BRIDGE LEVEE

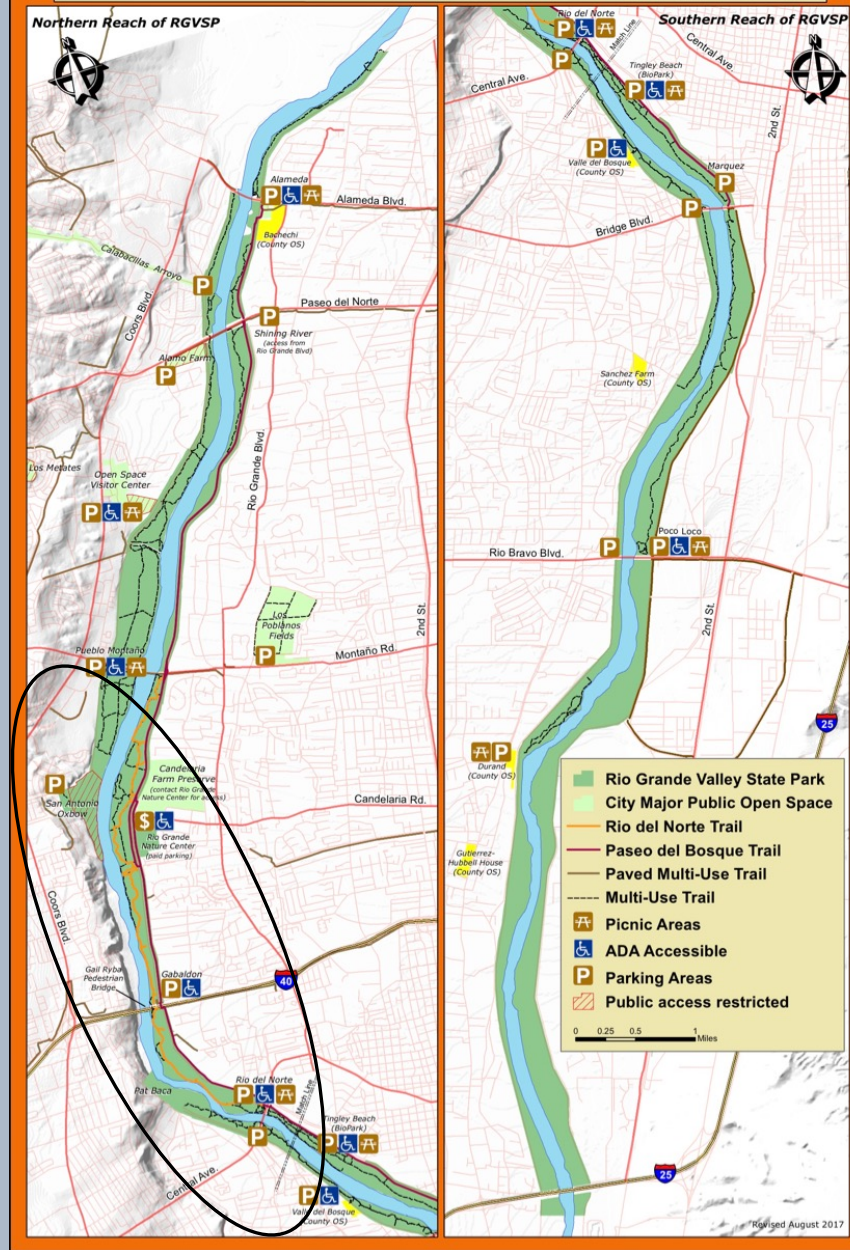
RIO GRANDE →



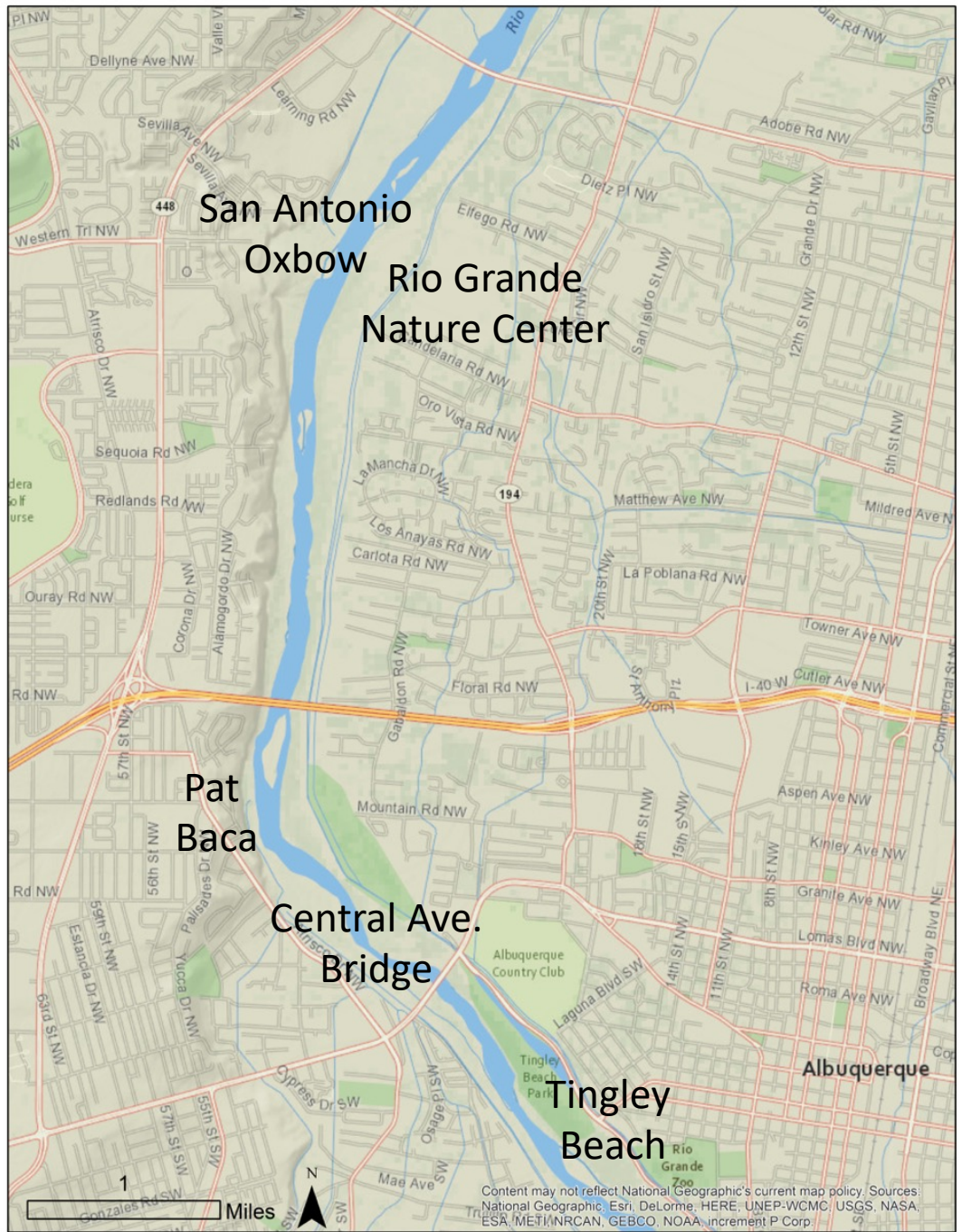
1952. Photo: Middle Rio Grande Conservancy District, NM. All Rights Reserved.



# Río Grande Valley State Park



<https://www.cabq.gov/parksandrecreation/open-space/lands/rio-grande-valley-state-park>



Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



San Antonio Oxbow Overlook. Photo: J. Fleck



1955



1959

Formation of oxbow wetland. *Harner et al. in progress*



Rio Grande Nature Center. *Photo: E. Brinley Buckley*



Rio Grande Nature Center. *Photo: E. Brinley Buckley*



*Photo: E. Brinley Buckley*



*Photo: E. Brinley Buckley*





*Photo: E. Brinley Buckley*





2019

Pat Baca Open Space  
*Photo: E. Brinley Buckley*



1933

*Photo: Courtesy MRG Conservancy  
District, NM. All Rights Reserved*



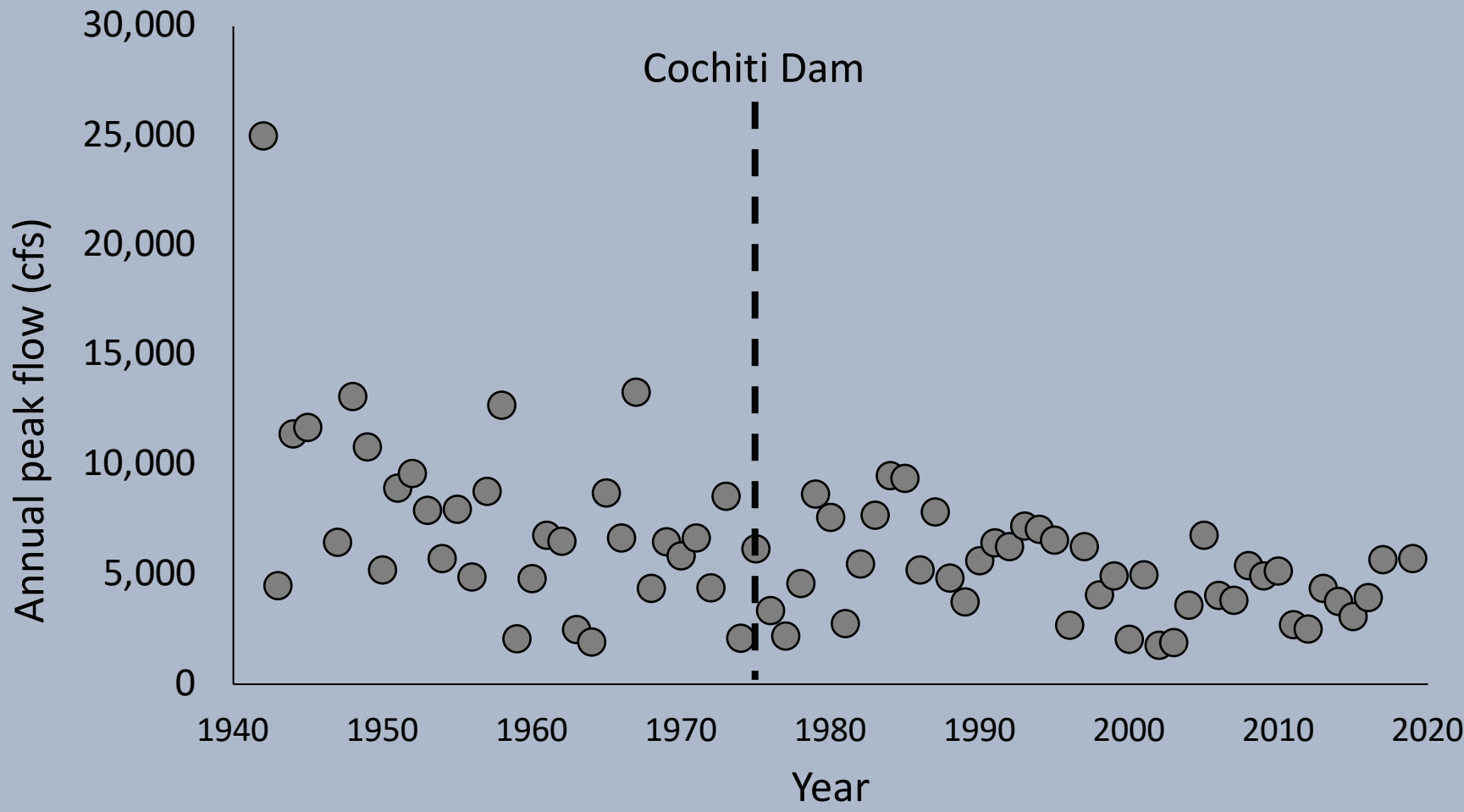
Central Avenue Bridge. Photo: J. Fleck



Central Avenue Bridge. Photo: J. Fleck



Dawn at Central Avenue Bridge. *Photo: J. Fleck*



Data: USGS 08330000 Rio Grande at Albuquerque, NM



1935



2018



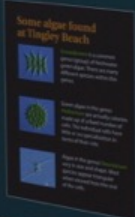


# Algae at Tingley Beach



The fishing ponds at Tingley Beach are managed as an ecosystem (a community of interacting living and nonliving parts). Algae are an important part of a healthy pond ecosystem. They serve as:

- a major producer of oxygen for other organisms
- a source of food, energy and shelter for other living things
- a user of nitrogen wastes, which helps keep the water healthy



## Nausea algae blooms at Tingley Beach

- Nausea algae blooms are caused by a combination of factors, including excess nutrients, warm water, and sunlight.
- Nausea algae blooms can cause irritation and other health problems in people who come into contact with the water.
- Nausea algae blooms can also cause irritation and other health problems in fish and other aquatic animals.

In spring, when there is more sunlight and extra waste built up from the winter, the pond's ecosystem becomes unbalanced and filamentous algae grow rapidly. Excess filaments form dense mats that look like wet wool. These mats can interfere with fishing.

When algae blooms, staff help return the ecosystem to a balanced state by:

- aeration (added at night when algae are not producing oxygen)
- reducing water levels so algae have less area to grow

This process takes time and is different from methods used to control algae in home aquariums, but it is healthier for the fish and for the anglers.

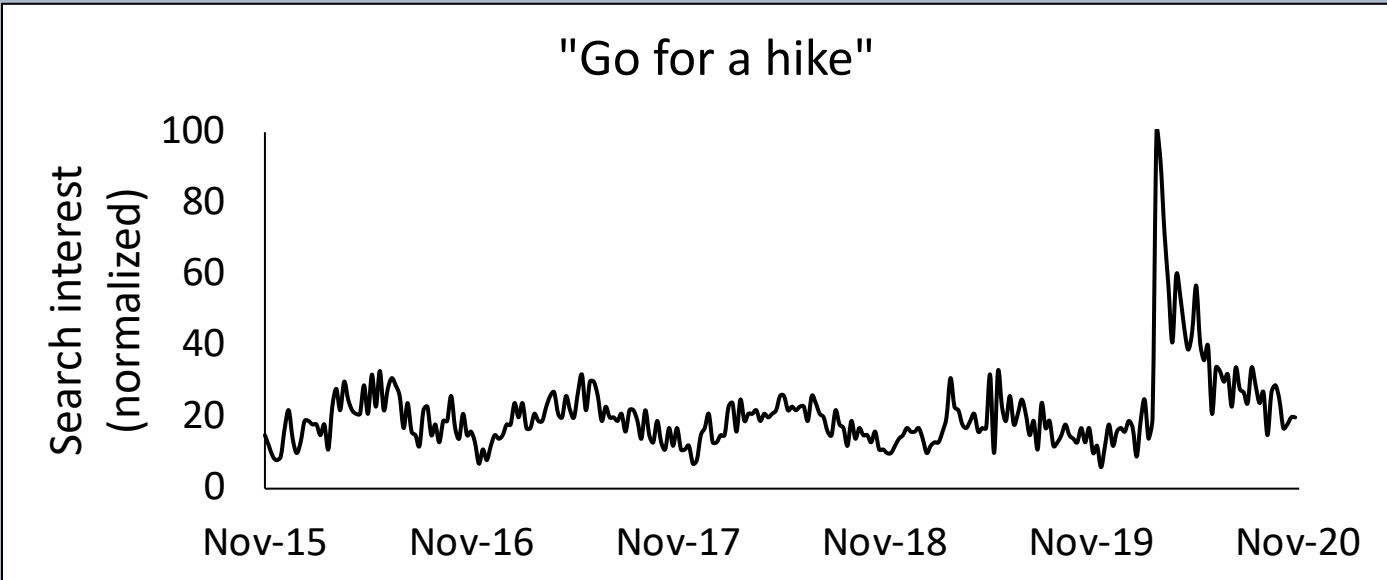
Tingley Beach recreational area. Photo: E. Brinley Buckley



Middle Rio Grande. Photo: E. Brinley Buckley

“COVID-19 crisis demonstrates the urgent  
need for urban greenspaces”

Kleinschroth and Kowarik 2020  
*Frontiers in Ecology and the Environment*





Pat Baca Open Space. *Photo: M. Harner*

# Thank you



PLATTE BASIN  
TIMELAPSE

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