

Updates to PS4-2 Pumping GMA-13 and Williamson County

Presented to GMA-12
March 17, 2026

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Overview

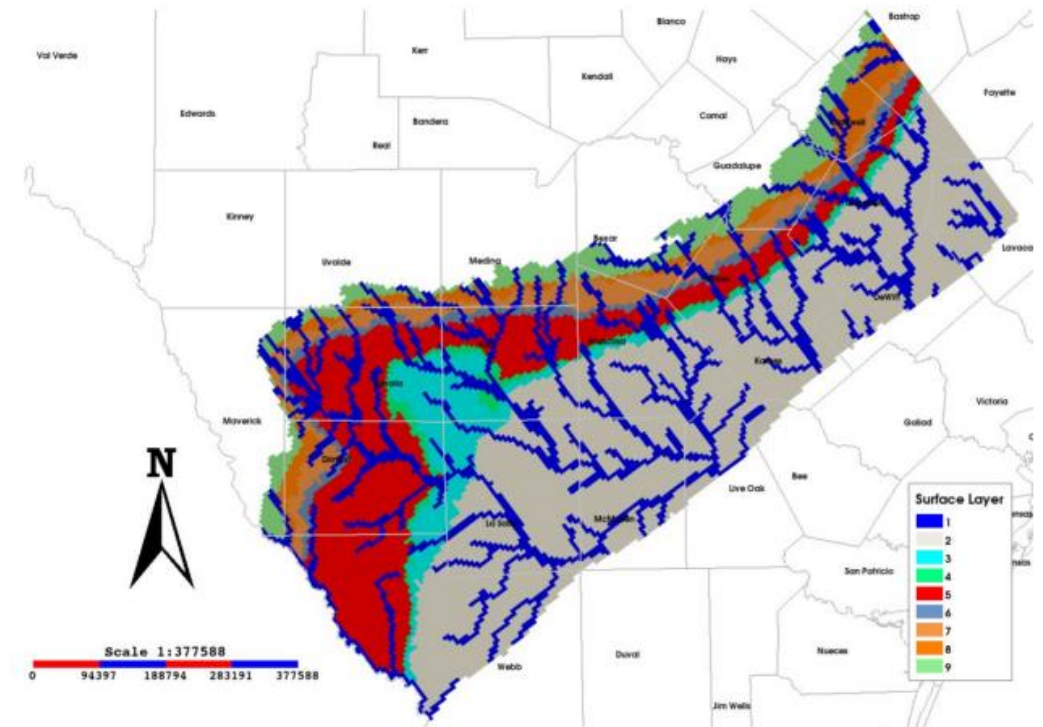
- Obtained GMA-13 pumping
 - Southern Carrizo Groundwater Availability Model
 - *GMA 13 Model (2025 Version)*
 - Recently updated by Bill Hutchison and published by TWDB
 - Previous GMA 13 Model (GMA13_2019_001)
- Obtained Williamson County pumping from local model
 - *Numerical Model of the Hydrogeology of Williamson County*
 - Model created by Spheros and KT Groundwater
 - Currently in draft

Model Comparison (GMA-13)

- Counties considered:
 - Caldwell, Gonzales, Guadalupe, Karnes, Wilson
- Predictive period from 2018-2080
- Layer mismatch:
 - Carrizo and Upper Wilcox combined in GMA-13
 - Carrizo and Calvert Bluff separated in GMA-12
 - Pumping greater than 27.4 acft/yr put into Carrizo, else into Calvert Bluff

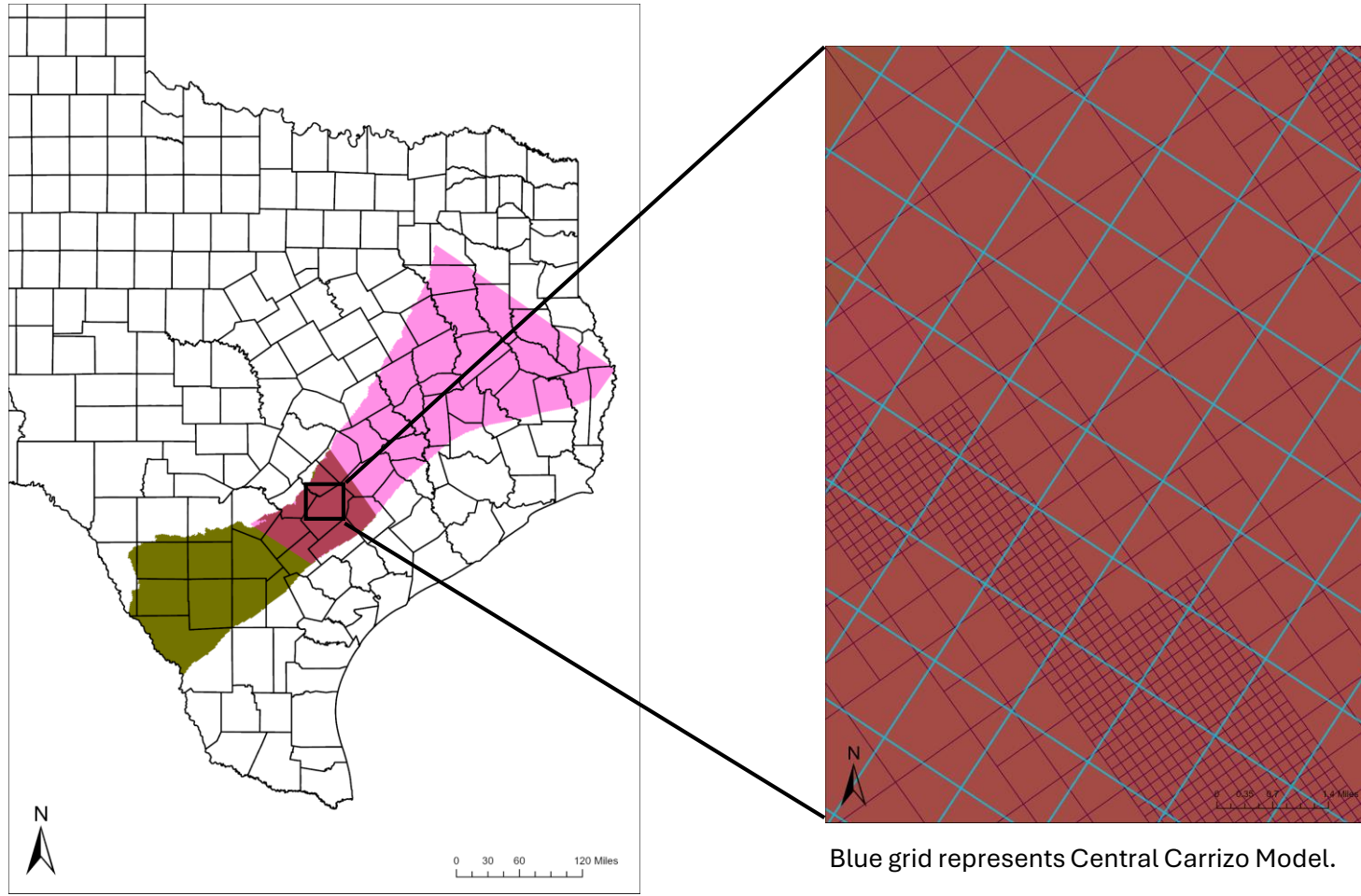
Table 1. Model Layer Numbers and Stratigraphic Units

Layer Number	Hydrostratigraphic Unit
1	Quaternary Alluvium
2	Overlying or Younger Units
3	Sparta Aquifer
4	Weches Aquitard
5	Queen City Aquifer
6	Reklaw Aquitard
7	Carrizo and Upper Wilcox Aquifers
8	Middle Wilcox Aquifer
9	Lower Wilcox Aquifer



From Hutchison, 2025

Spatial Comparison (GMA-13)



Model Grid Mapping Method

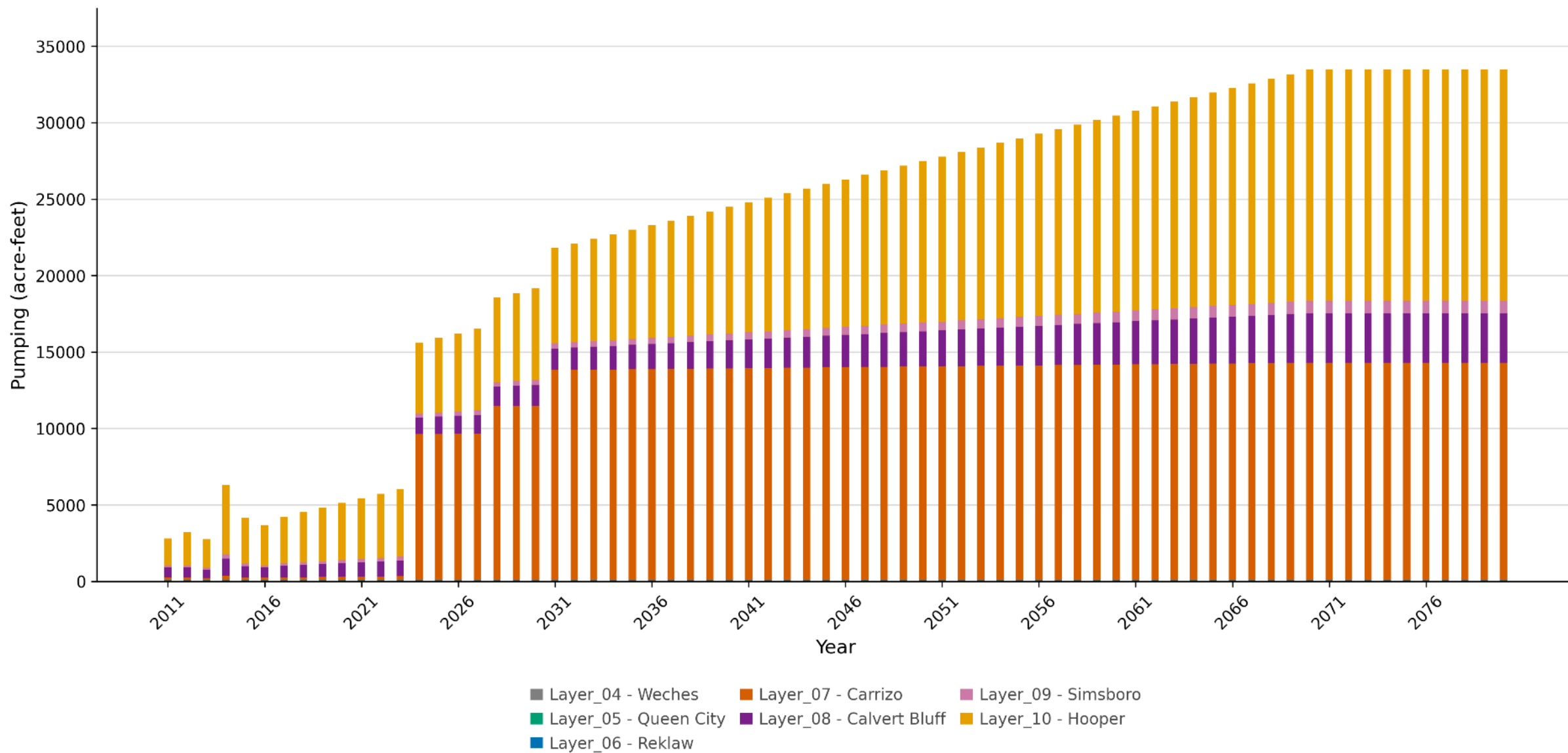
- Loaded and aligned Central and Southern Carrizo-Wilcox model grids
- Used a pairwise polygon intersection between grids
- Mapped all overlapping Southern cells to each Central cell
- Preserved the overlap areas to support area-weighted pumping allocations

Combination of GMA13 Model Runs

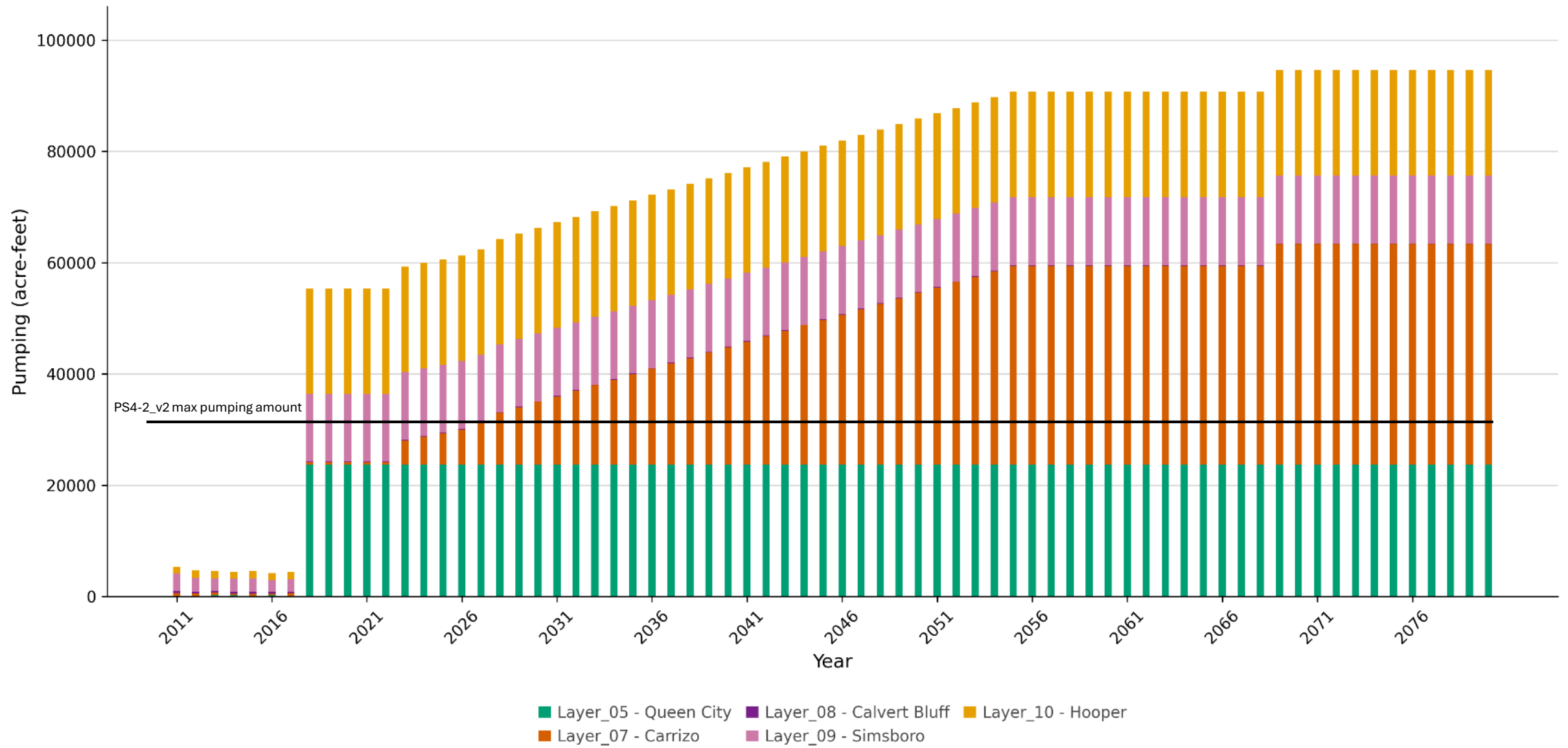
- Pull pumping from GMA13_2019_001 model run for years 2018-2080.
- Pumping from GMA13-2025 model run for years 2011-2017

GMA13_2019_001	GMA13-2025	PS4-2
1 – Sparta	3 – Sparta	3 – Sparta
2 – Weches	4 – Weches	4 – Weches
3 – Queen City	5 – Queen City	5 – Queen City
4 – Reklaw	6 – Reklaw	6 – Reklaw
5 – Carrizo	7 – Carrizo/Upper Wilcox	7 – Carrizo
6 – Upper Wilcox	8 – Middle Wilcox	8 – Calvert Bluff
7 – Middle Wilcox	9 – Lower Wilcox	9 – Simsboro
8 – Lower Wilcox		10 – Hooper

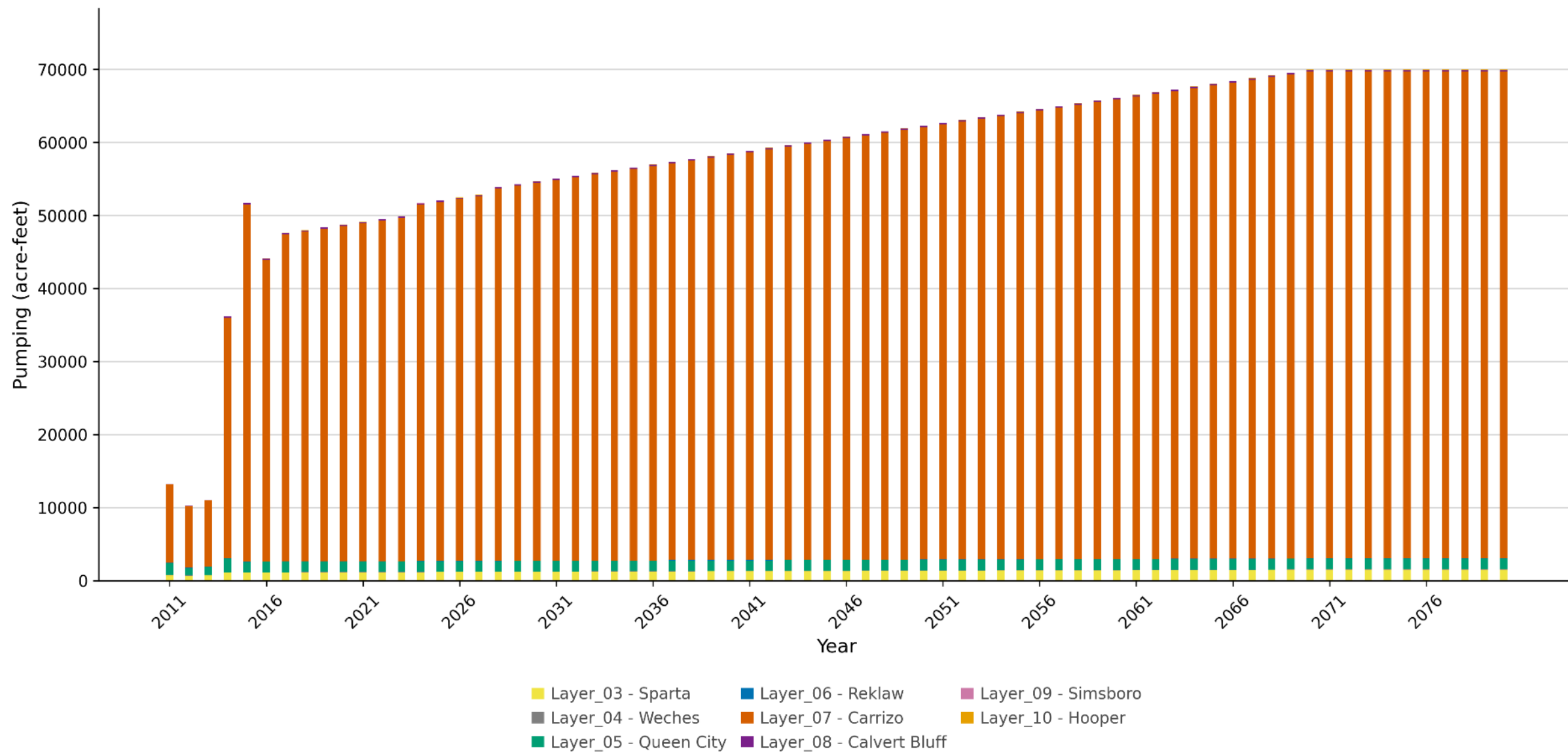
CALDWELL COUNTY - Groundwater Pumping by Aquifer (PS4-2_v2)



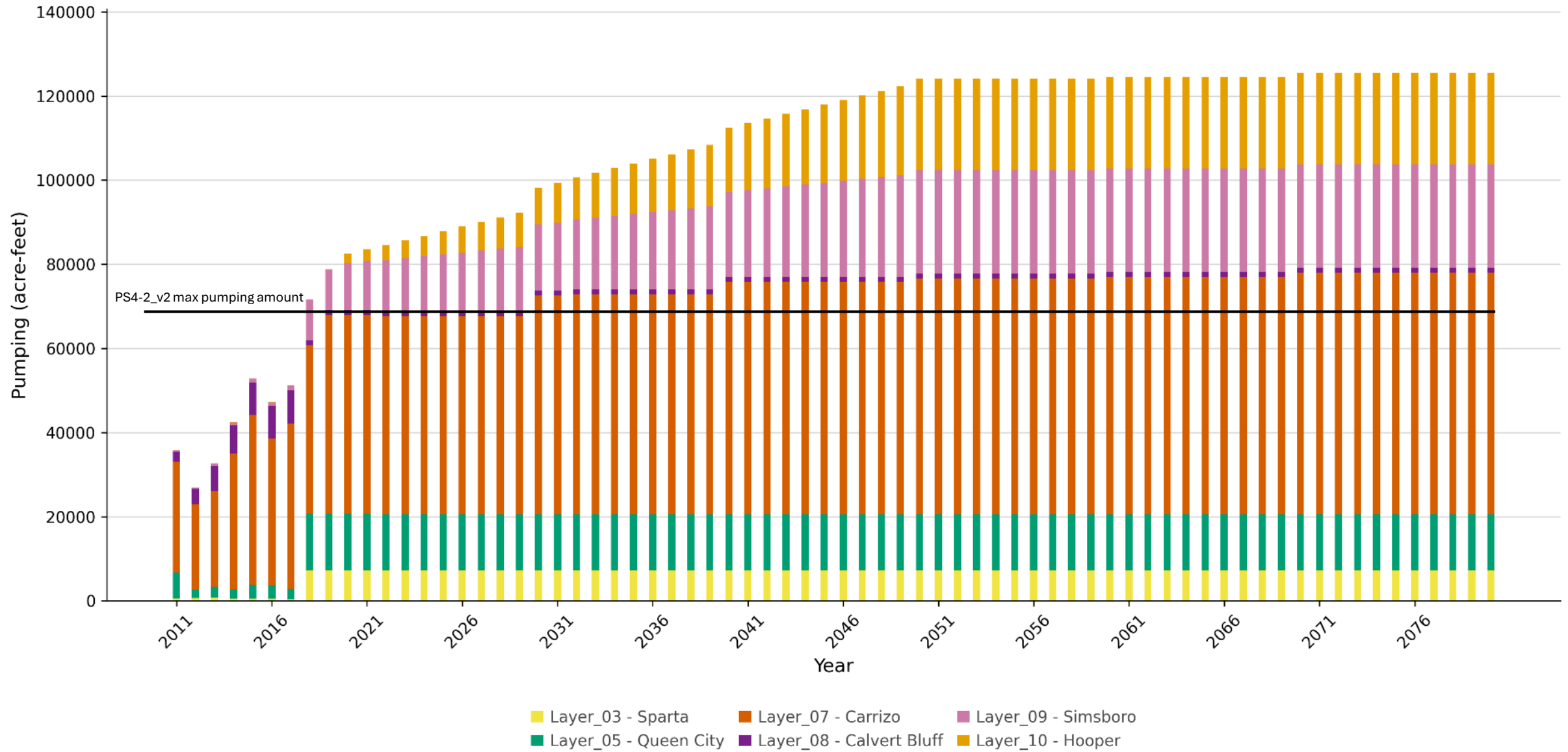
CALDWELL COUNTY - Groundwater Pumping by Aquifer (PS4-2_v2_gma13)



GONZALES COUNTY - Groundwater Pumping by Aquifer (PS4-2_v2)

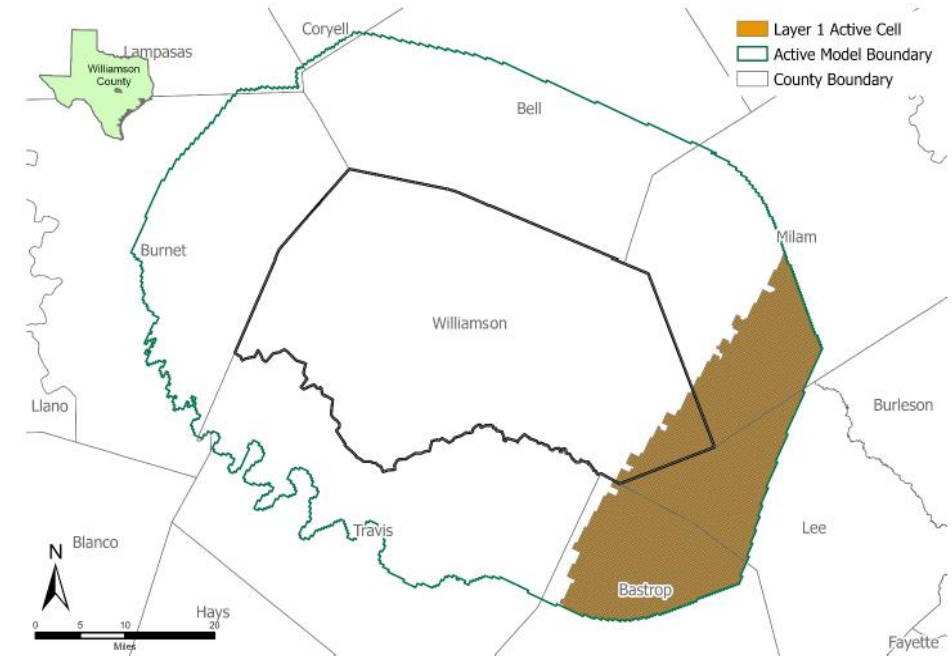
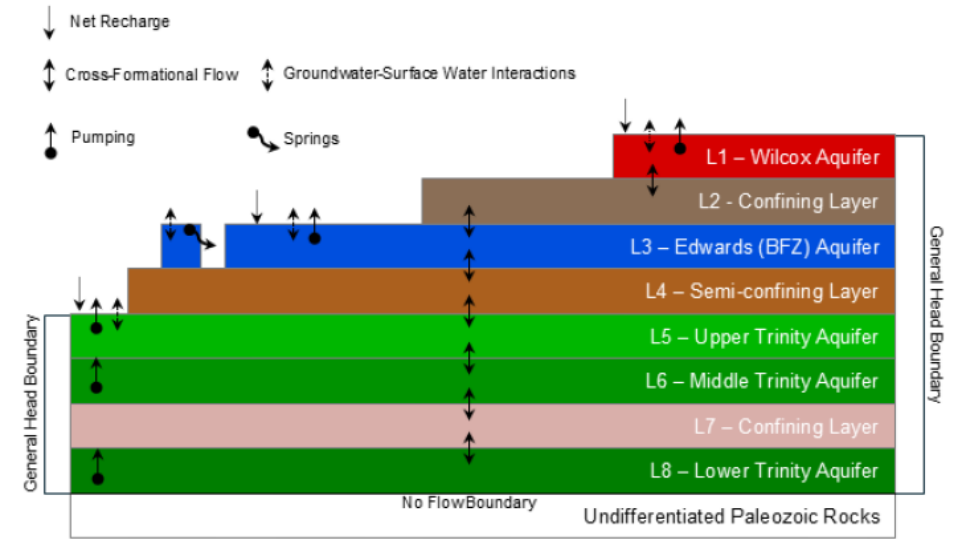


GONZALES COUNTY - Groundwater Pumping by Aquifer (PS4-2_v2_gma13)



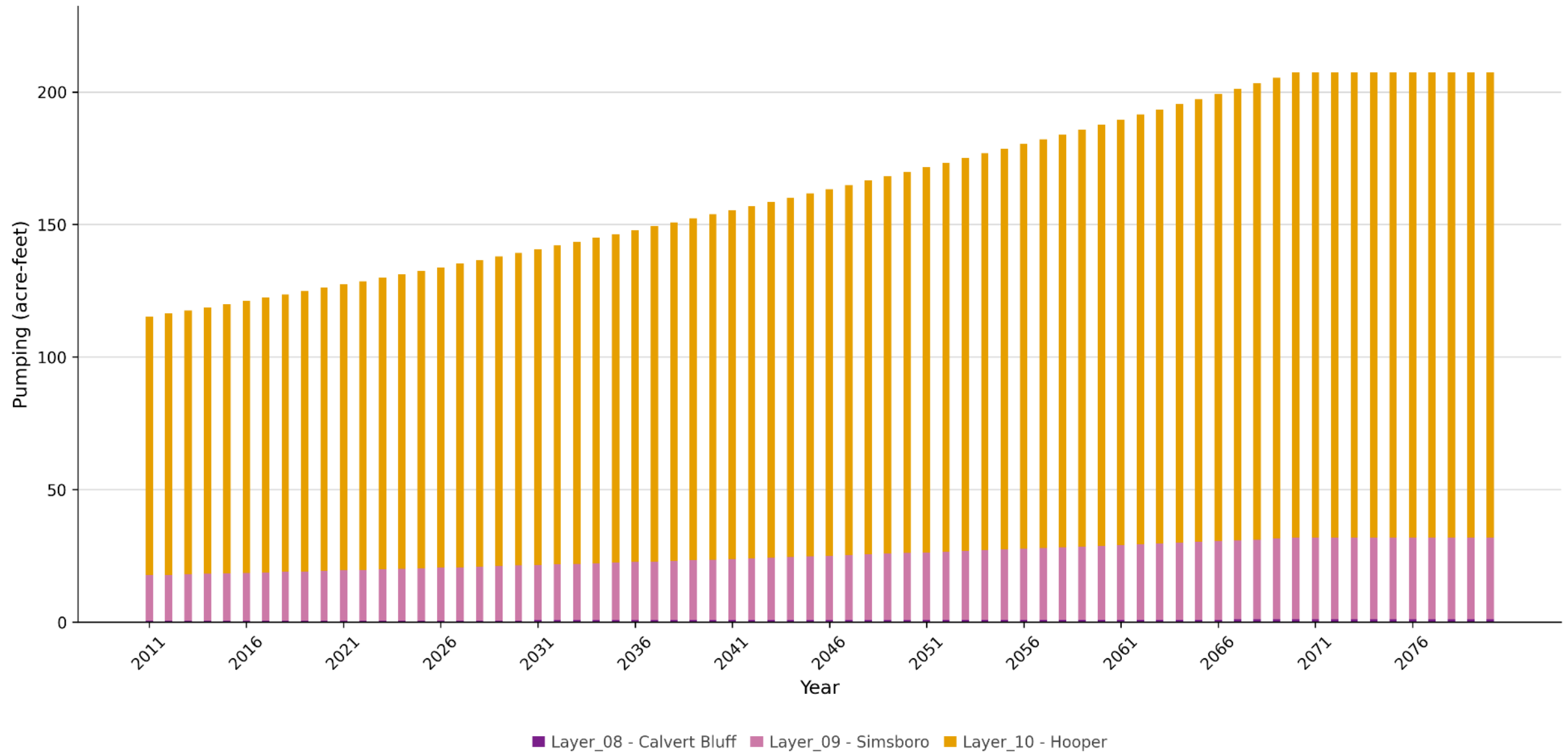
Model Comparison (Williamson Co.)

- Predictive period from 2021
- Layer mismatch:
 - Wilcox formations not distinguished in Wilco. model
 - Simsboro and Hooper separated in GMA-12
 - Pumping assigned to "outcrop" or Hooper layer

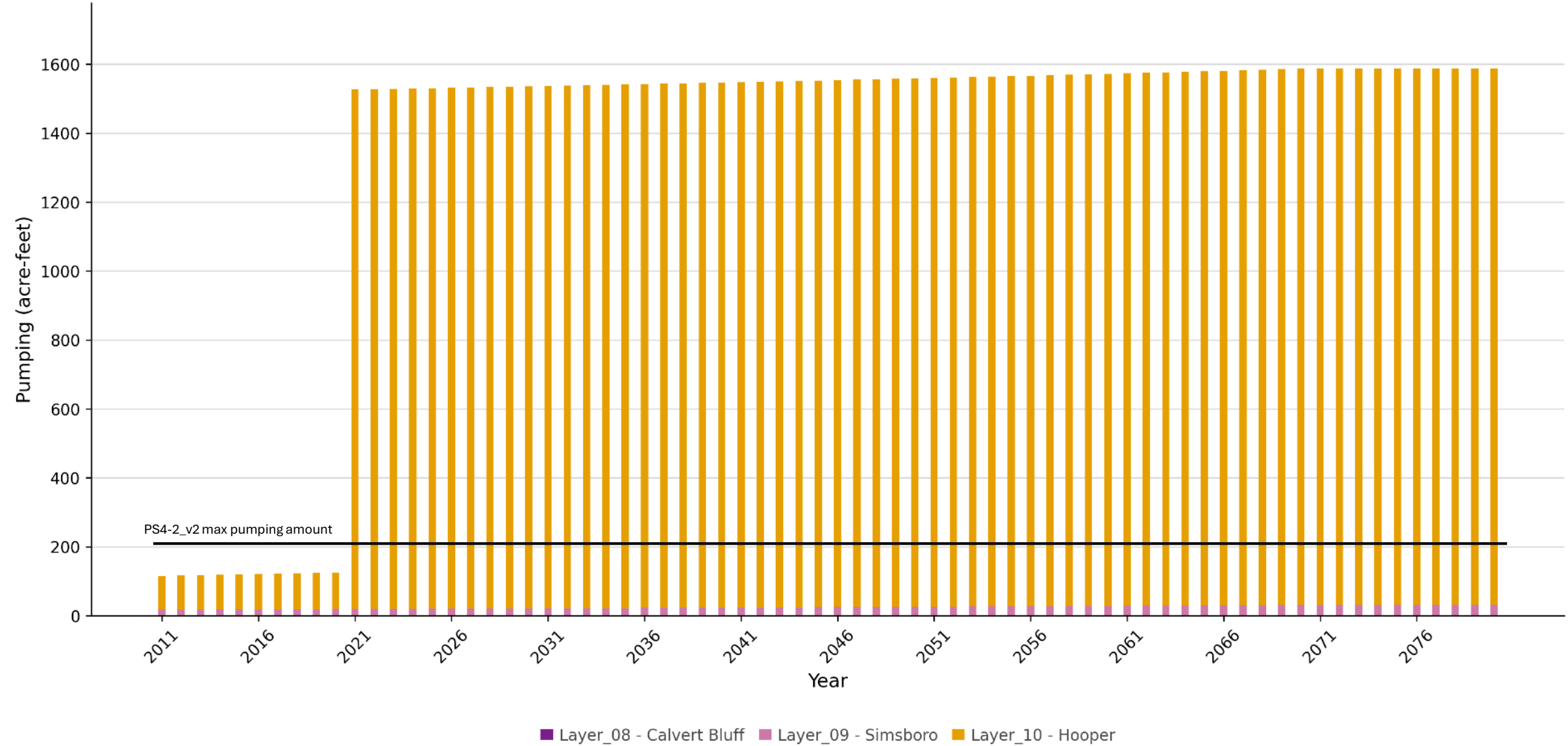


From Miller and others, 2025

WILLIAMSON COUNTY - Groundwater Pumping by Aquifer (PS4-2_v2)

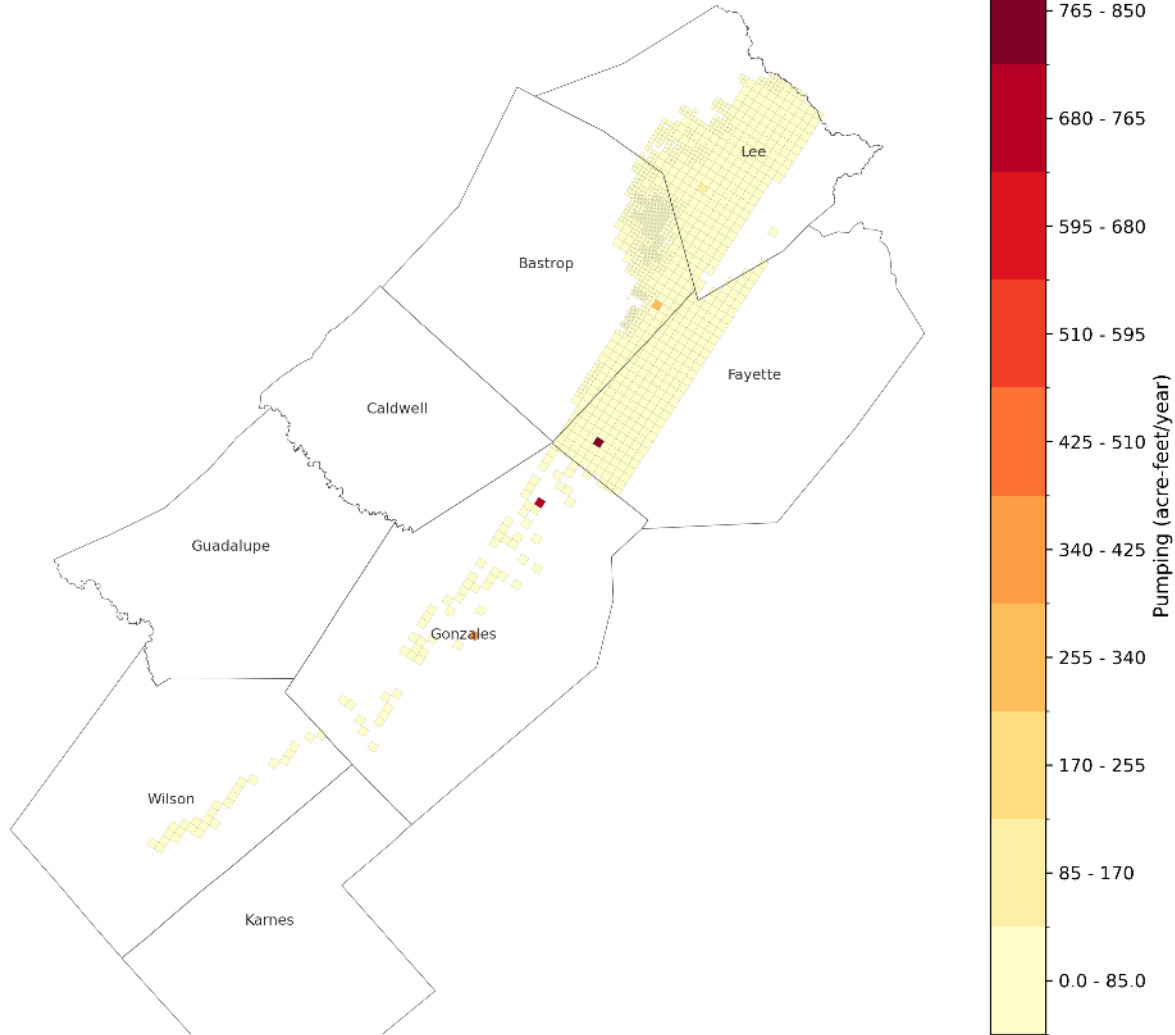


WILLIAMSON COUNTY - Groundwater Pumping by Aquifer (PS4-2_v2_gma13)



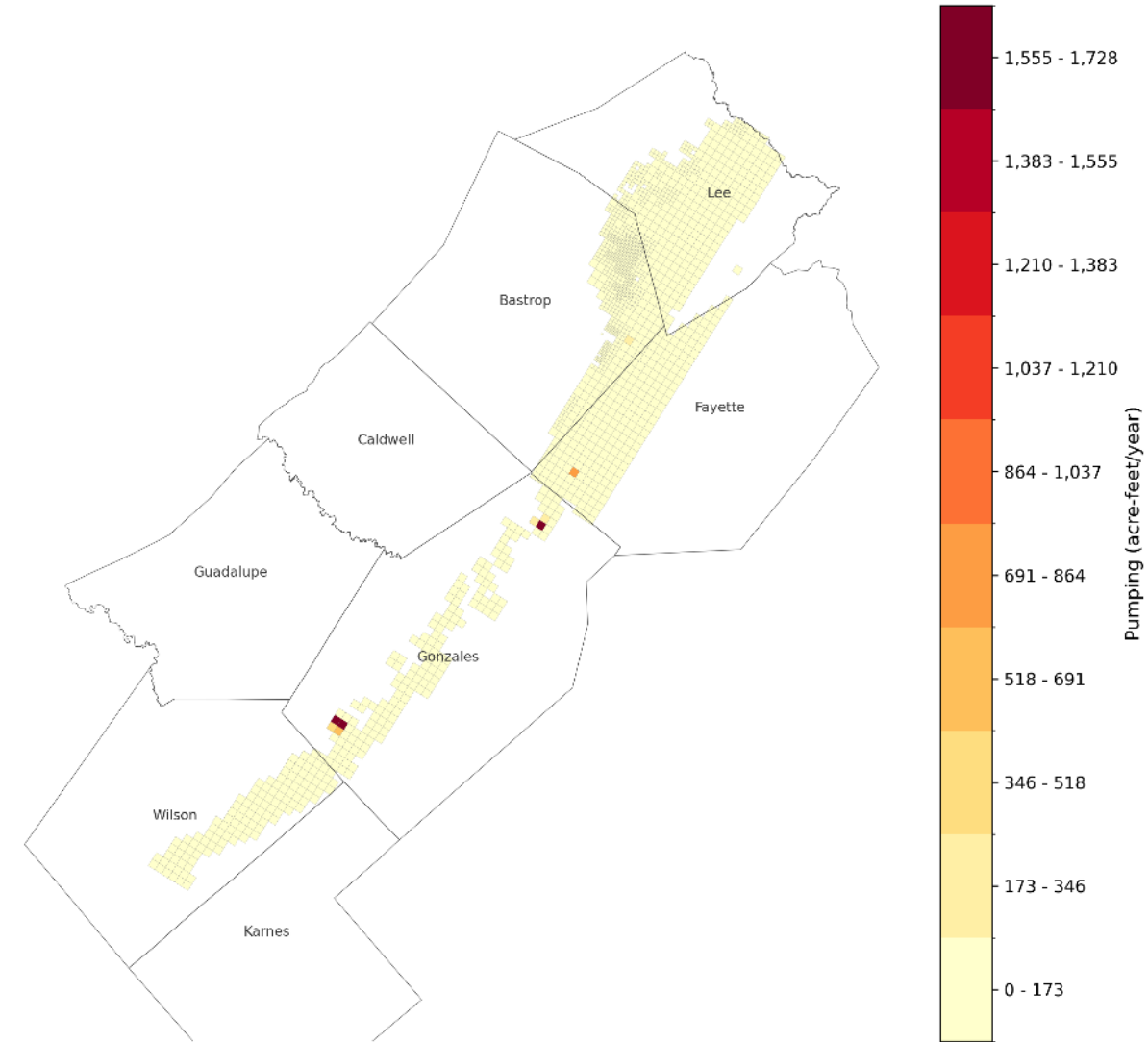
PS4-2_v2

3 - Sparta Pumping in 2080



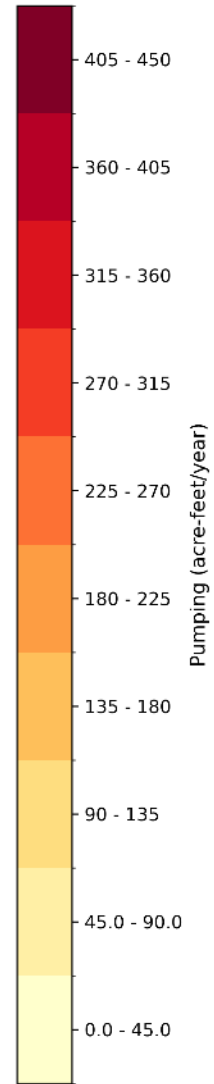
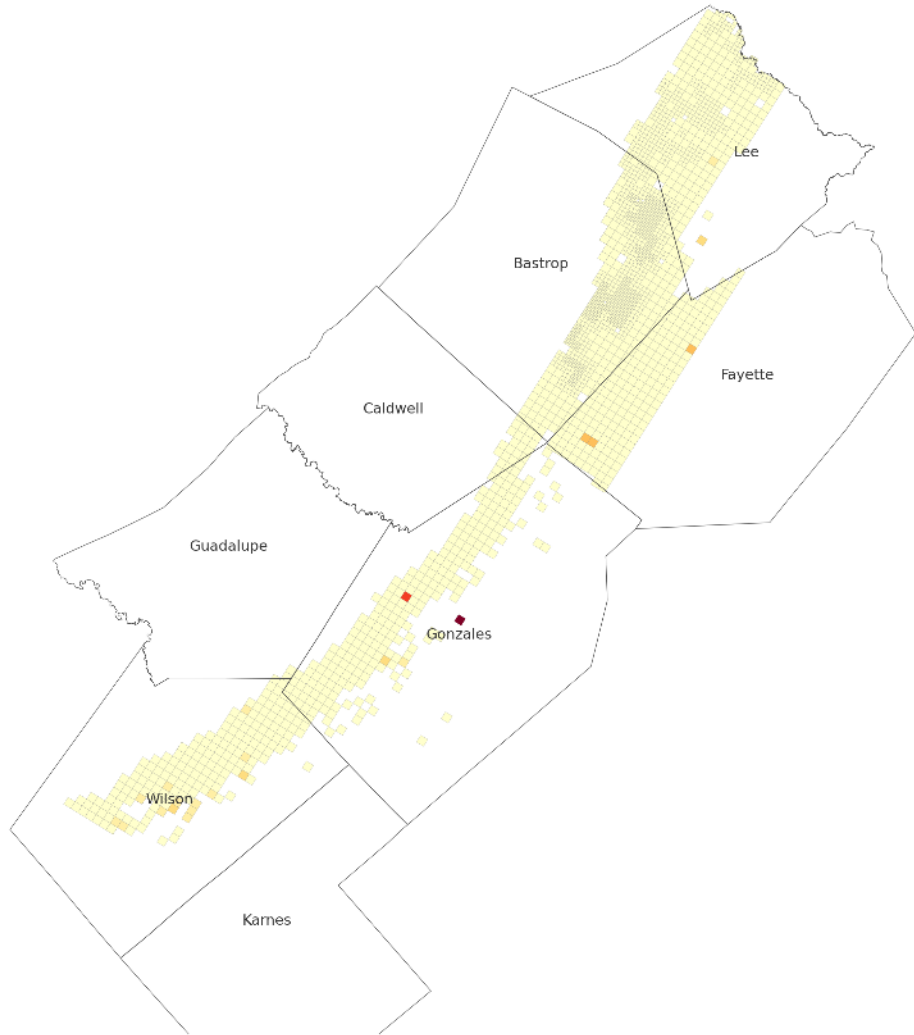
PS4-2_v2_gma13

3 - Sparta Pumping in 2080



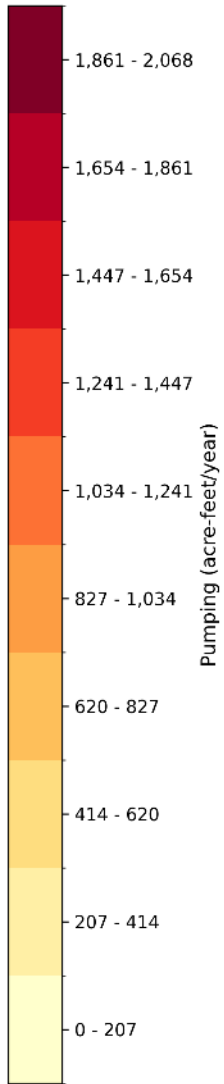
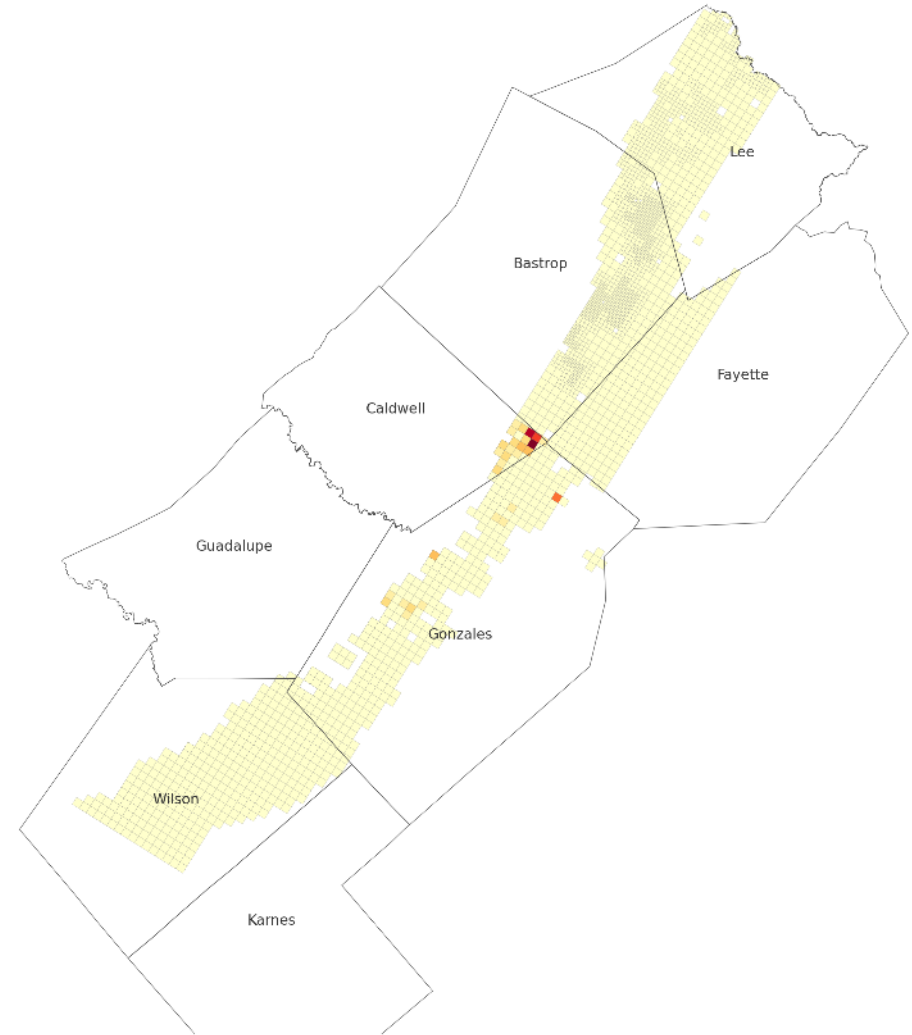
PS4-2_v2

5 - Queen City Pumping in 2080



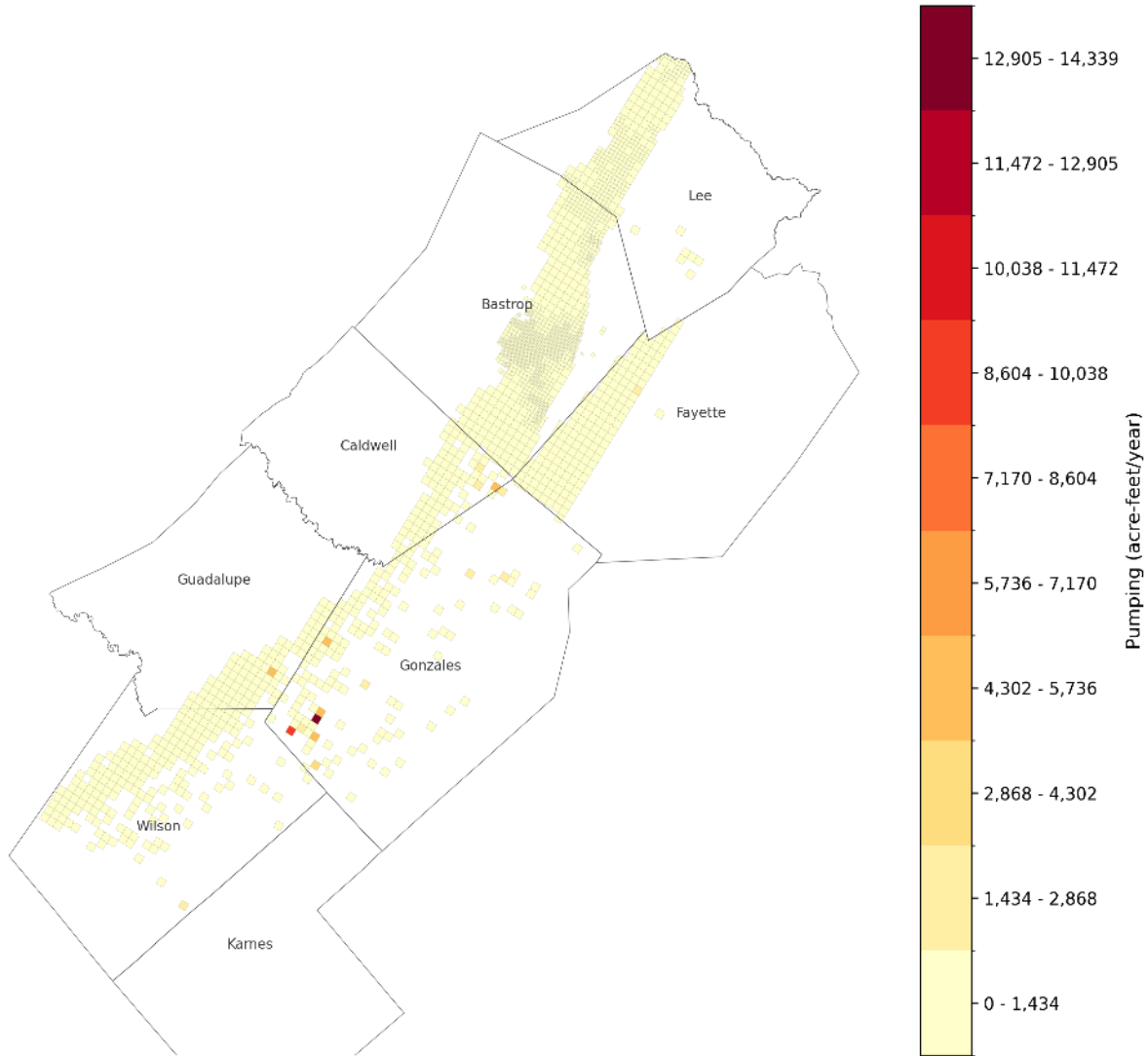
PS4-2_v2_gma13

5 - Queen City Pumping in 2080



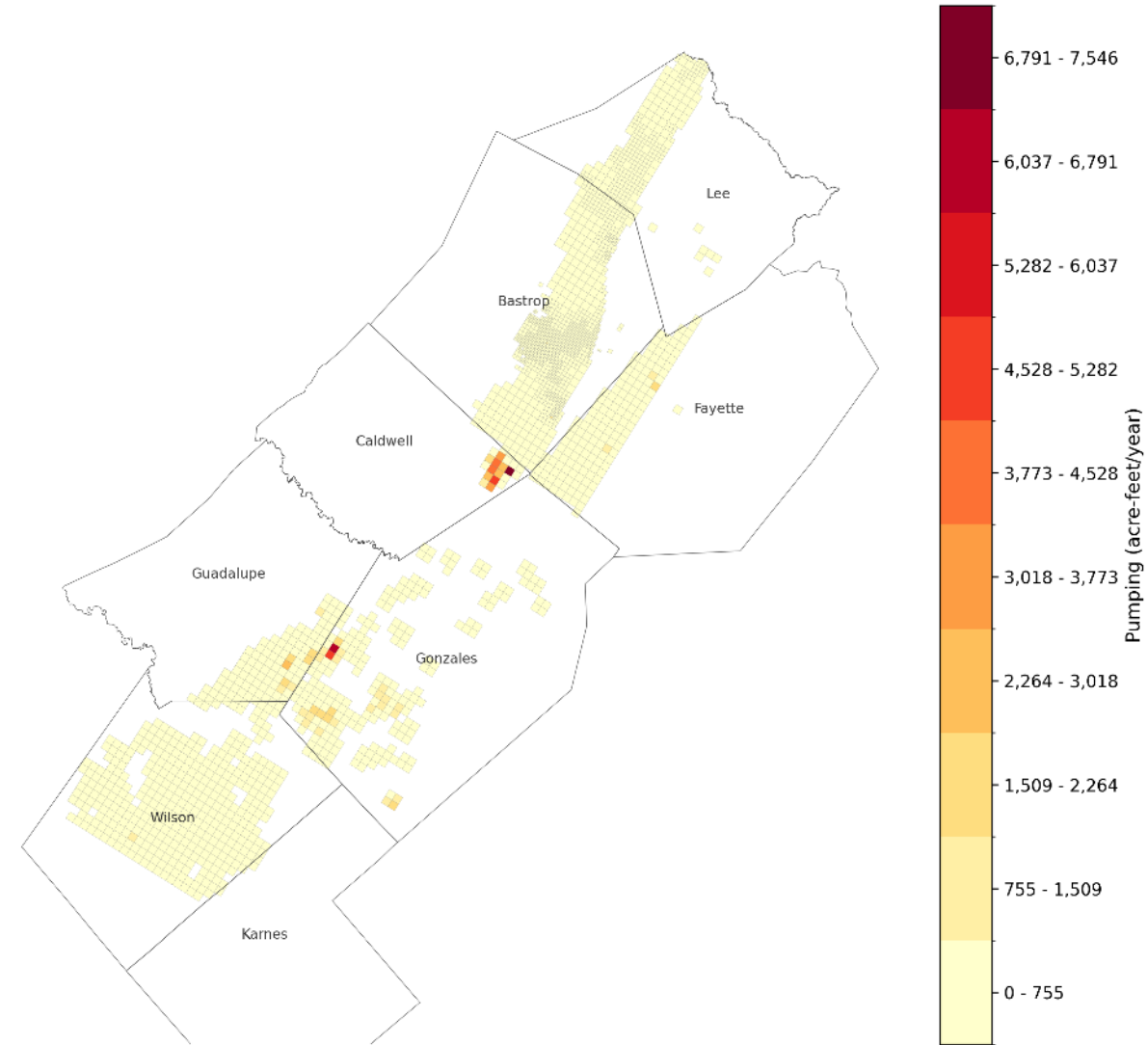
PS4-2_v2

7 - Carrizo Pumping in 2080



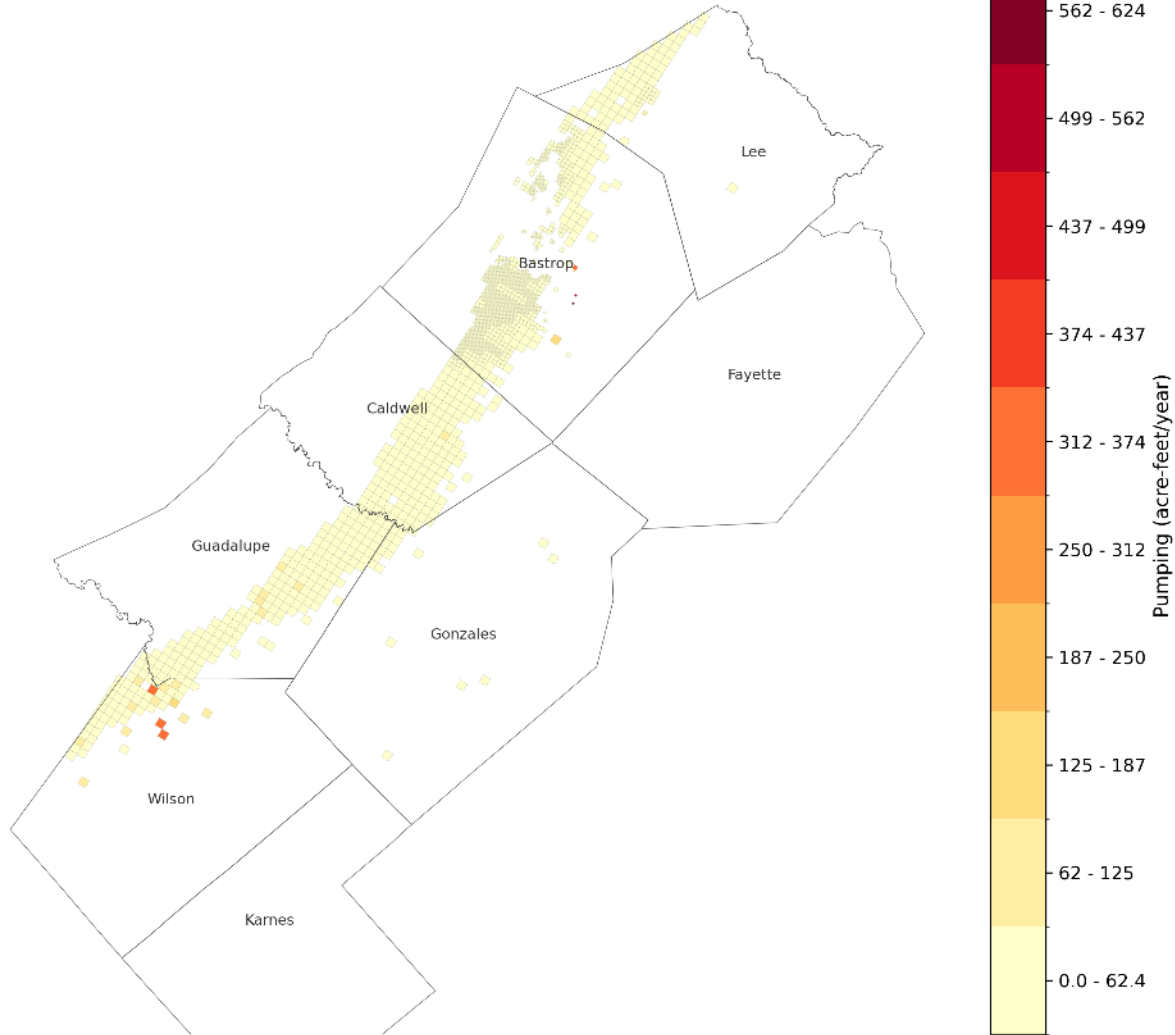
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7 - Carrizo Pumping in 2080



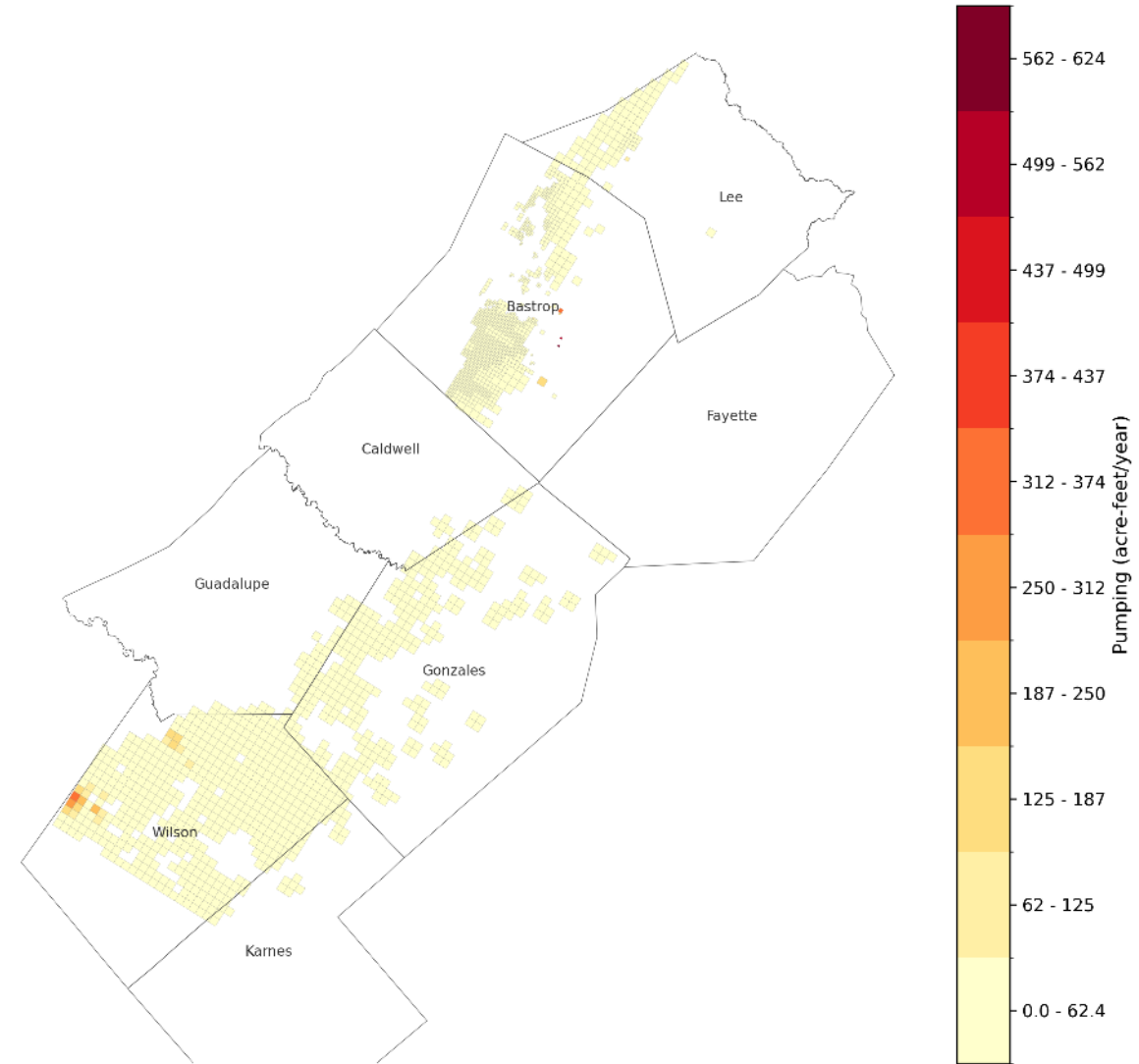
PS4-2_v2

8 - Calvert Bluff Pumping in 2080



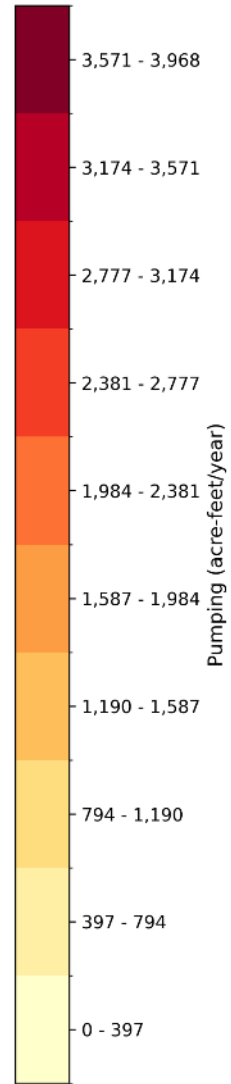
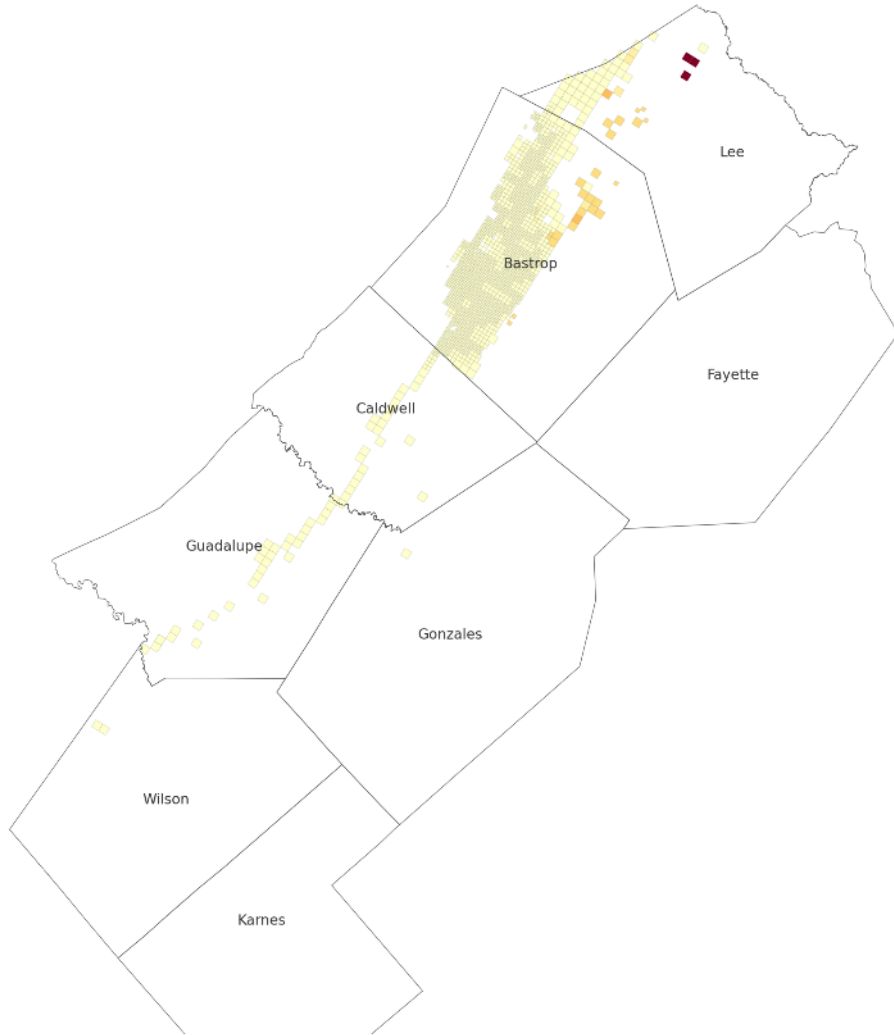
PS4-2_v2_gma13

8 - Calvert Bluff Pumping in 2080



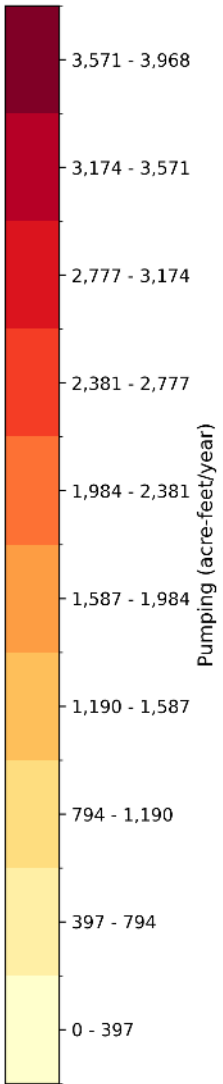
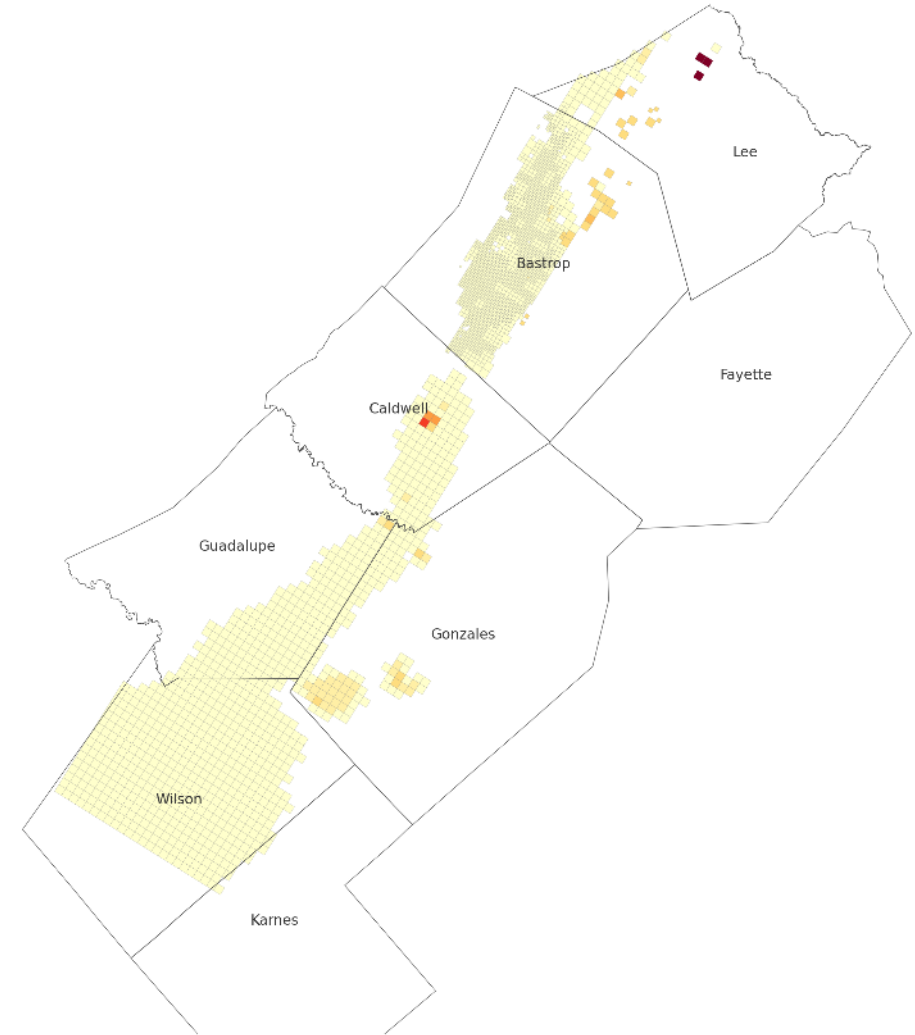
PS4-2_v2

9 - Simsboro Pumping in 2080



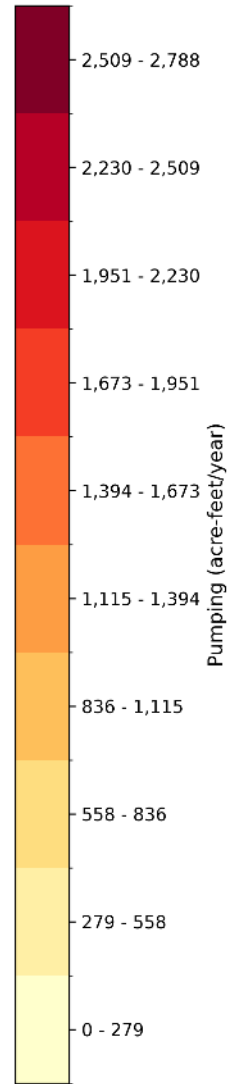
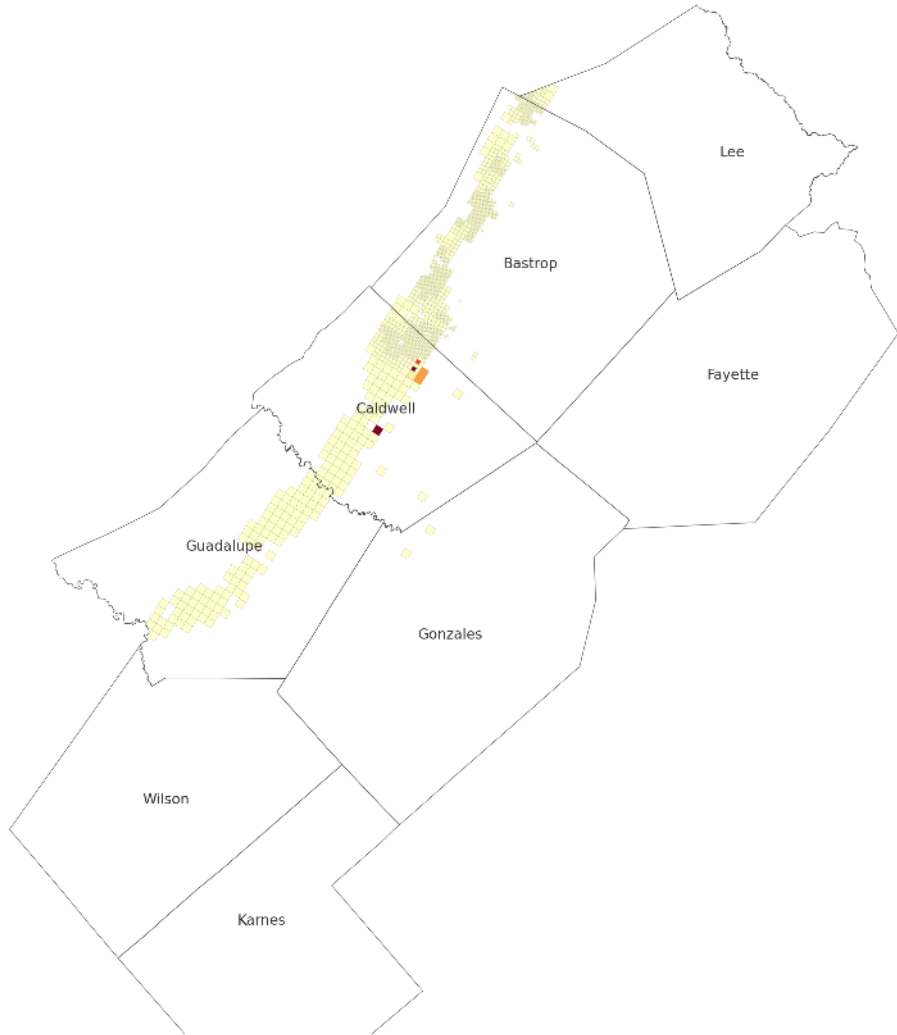
PS4-2_v2_gma13

9 - Simsboro Pumping in 2080



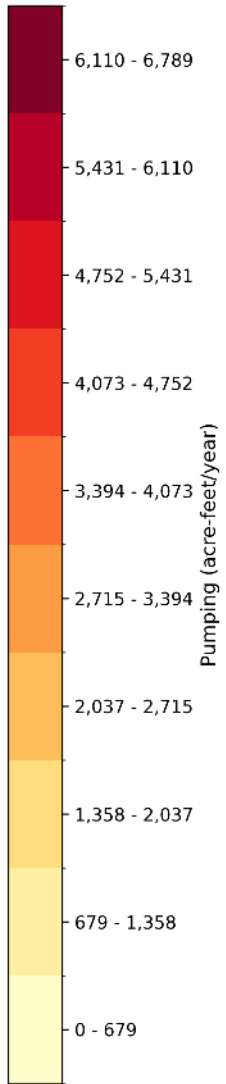
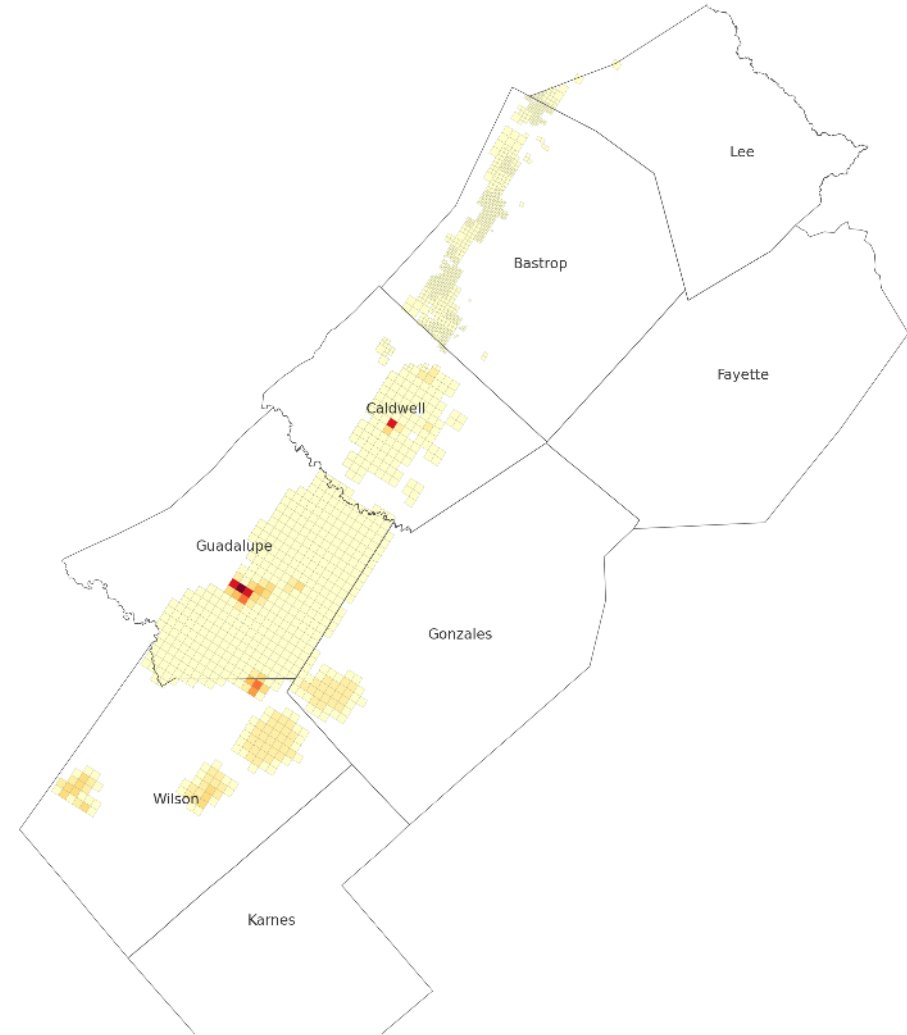
PS4-2_v2

10 - Hooper Pumping in 2080



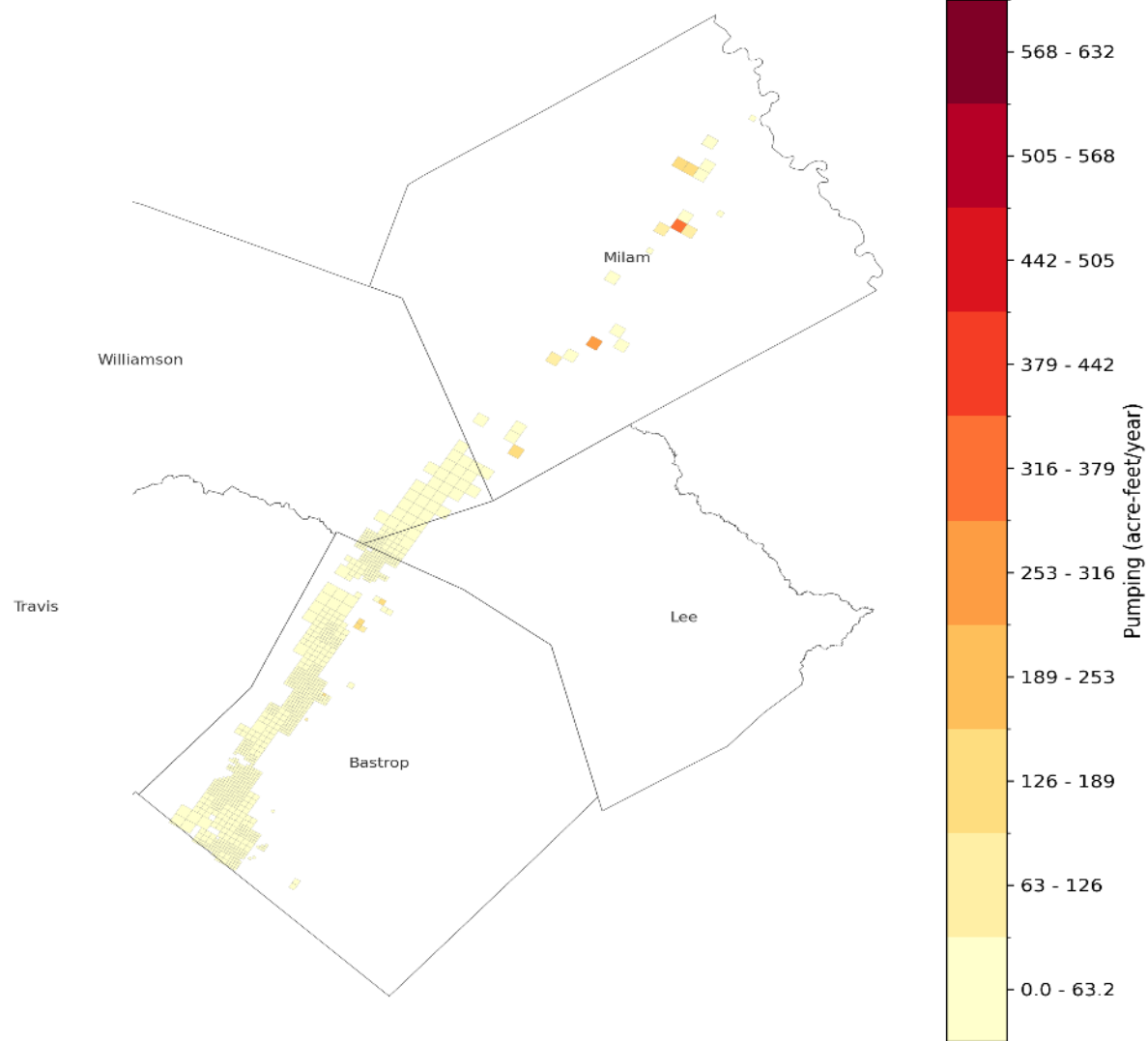
PS4-2_v2_gma13

10 - Hooper Pumping in 2080



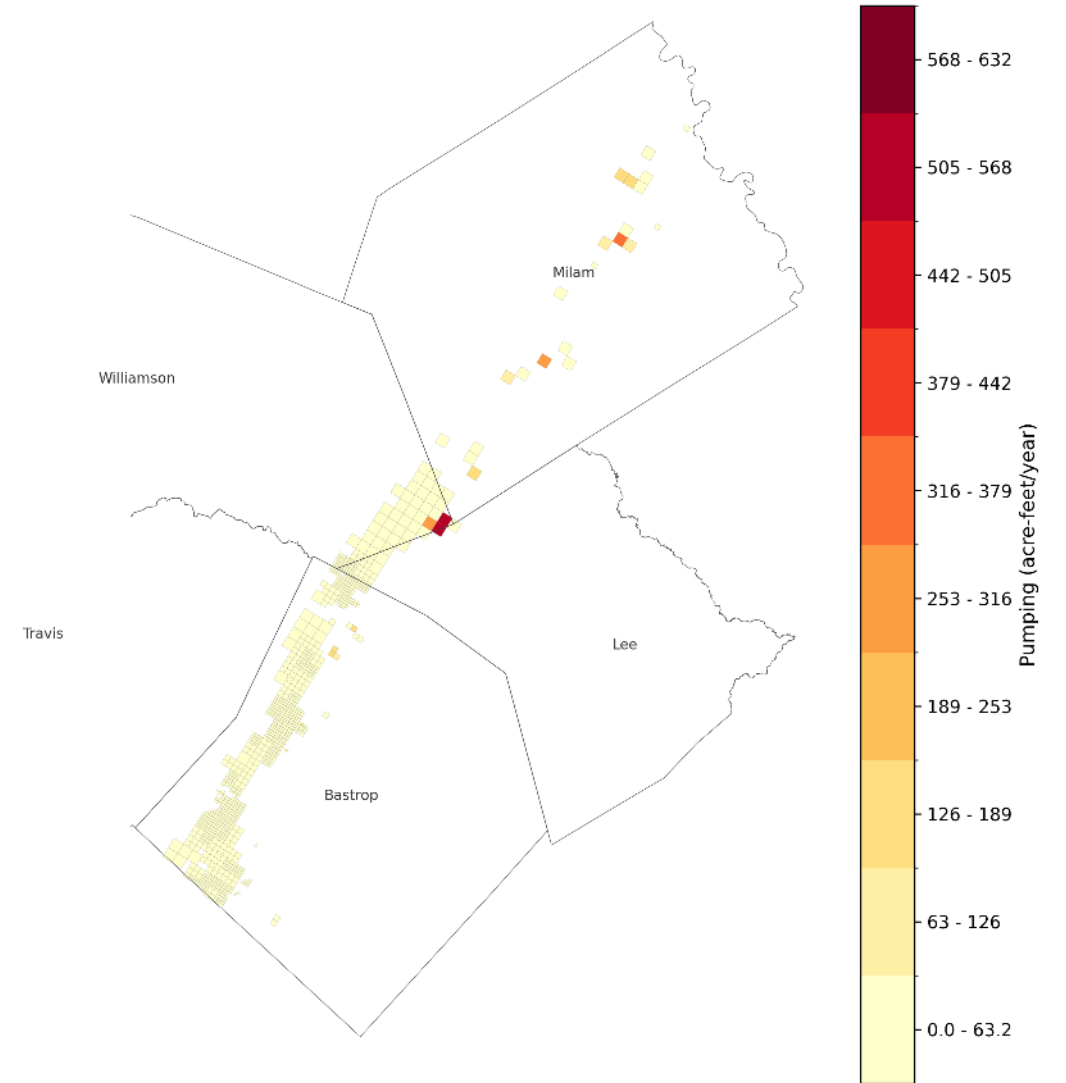
PS4-2_v2

10 - Hooper Pumping in 2080



PS4-2_v2_gma13

10 - Hooper Pumping in 2080



Summary

- Pumping in GMA-12 area not altered from PS4-2 file
- Pumping from GMA13-2025 replaces pumping from 2011 to 2017, GMA13_2019_001 replaces pumping from 2018 to 2080
 - Caldwell, Gonzales, Guadalupe, Karnes, and Wilson counties only
 - Not yet updated for current planning cycle
- Pumping from local model replaces pumping from 2021 onward for Williamson County