

Treasure Valley Water Level Maps

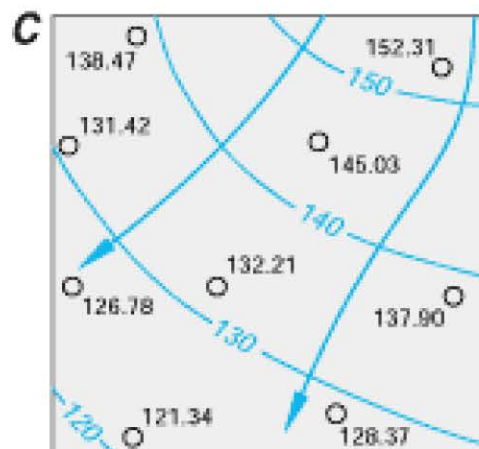
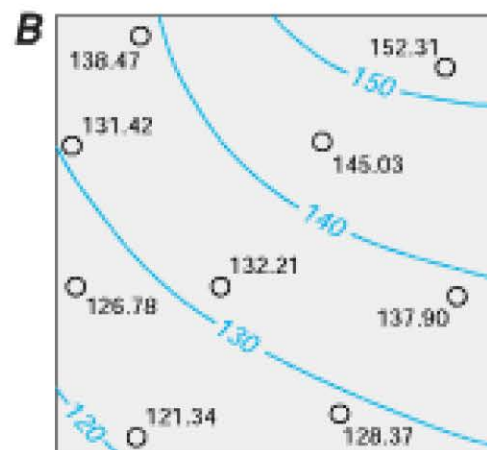
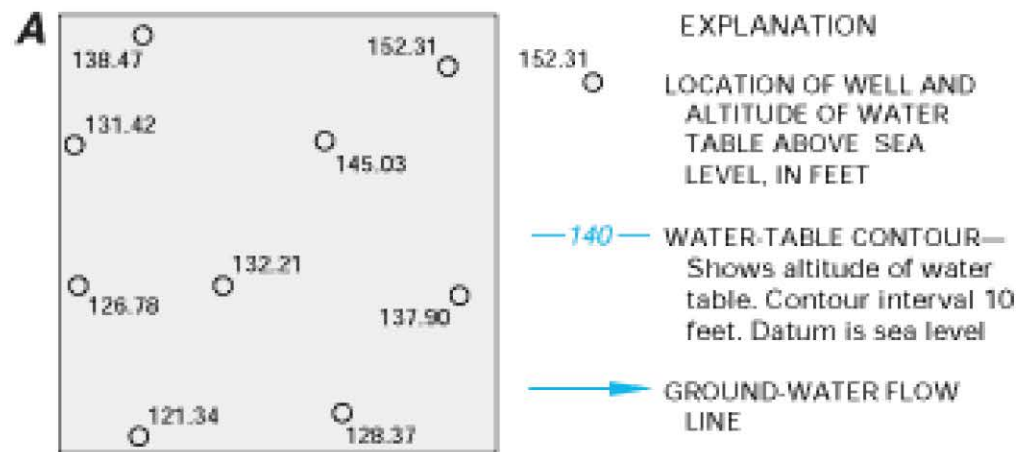
Presented by Alex Moody

TV MTAC Dec. 3rd, 2020

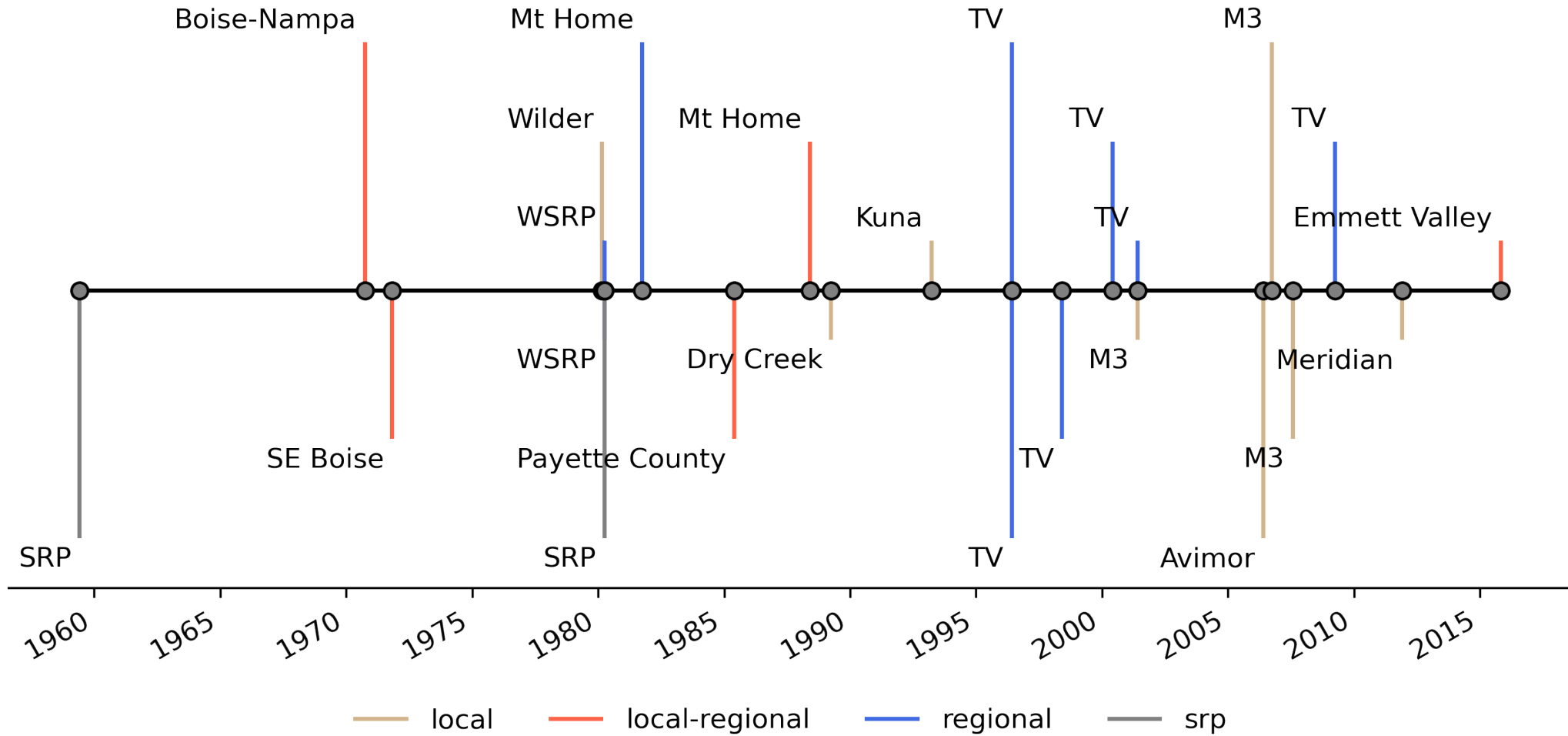


Ground water level mapping

- Approximation of water table/potentiometric surface
 - horizontal ground water flow direction (perpendicular to equipotentials)
 - hydraulic gradient
- Snapshot in time: Must use roughly simultaneous measurements
 - Levels respond to varying discharge/recharge patterns
- Data
 - Water levels, well altitudes
 - Elevations of hydrologically connected surface water features



Timeline of prior contouring work



Dion, 1972



EXPLANATION

— 2480 —

Water-level contour
Shows altitude of the water table in shallow aquifers, Oct. 1970
Dashed where approximately located
Contour interval 20 feet
Datum is mean sea level

○ Observation well

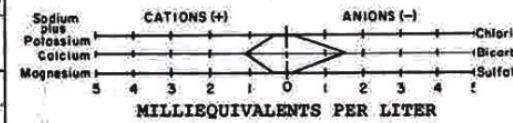
● 4N-1W-3500ft
Well with long-term hydrograph and well number (see fig. 14)

● 4N-1E-4bbcl
Well with standard chemical analysis, Aug. 1970 and well number

A—A'
Line of hydrogeologic section (see figs. 10, 11 and 12)

▲ Location of selected discharge (drain) measurement

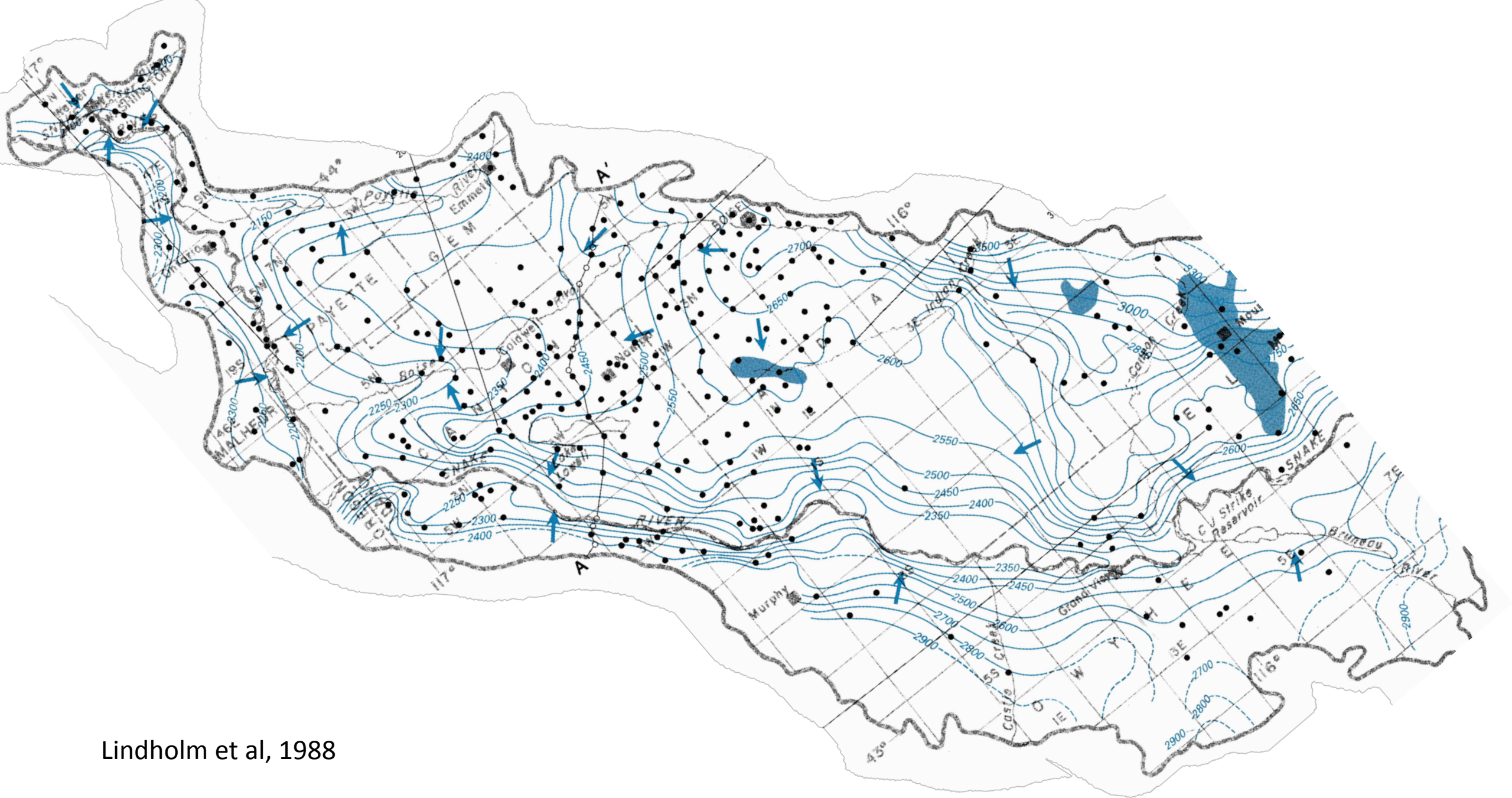
Pattern diagram



○ Deep well used for geologic control only

← Arrow indicates general direction of groundwater flow

Base modified from Idaho Department of Highways County maps. 0 1 2 3 4 5 Miles



Lindholm et al, 1988

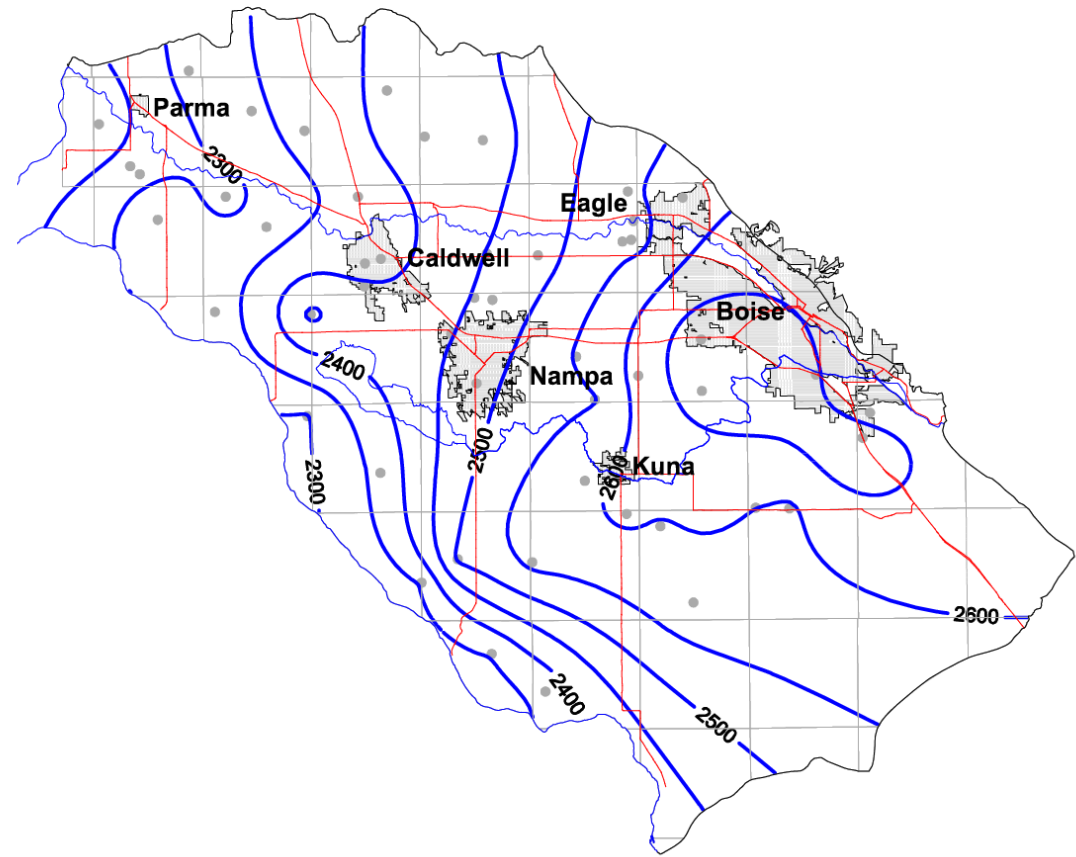
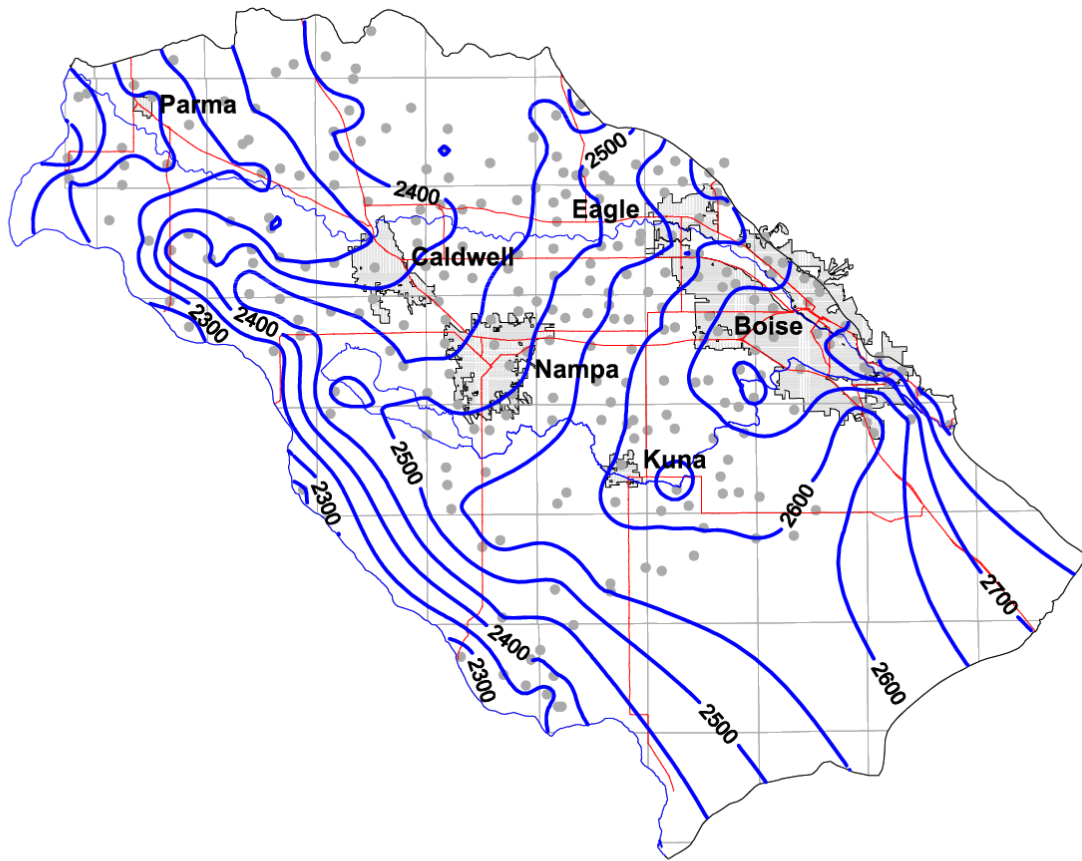
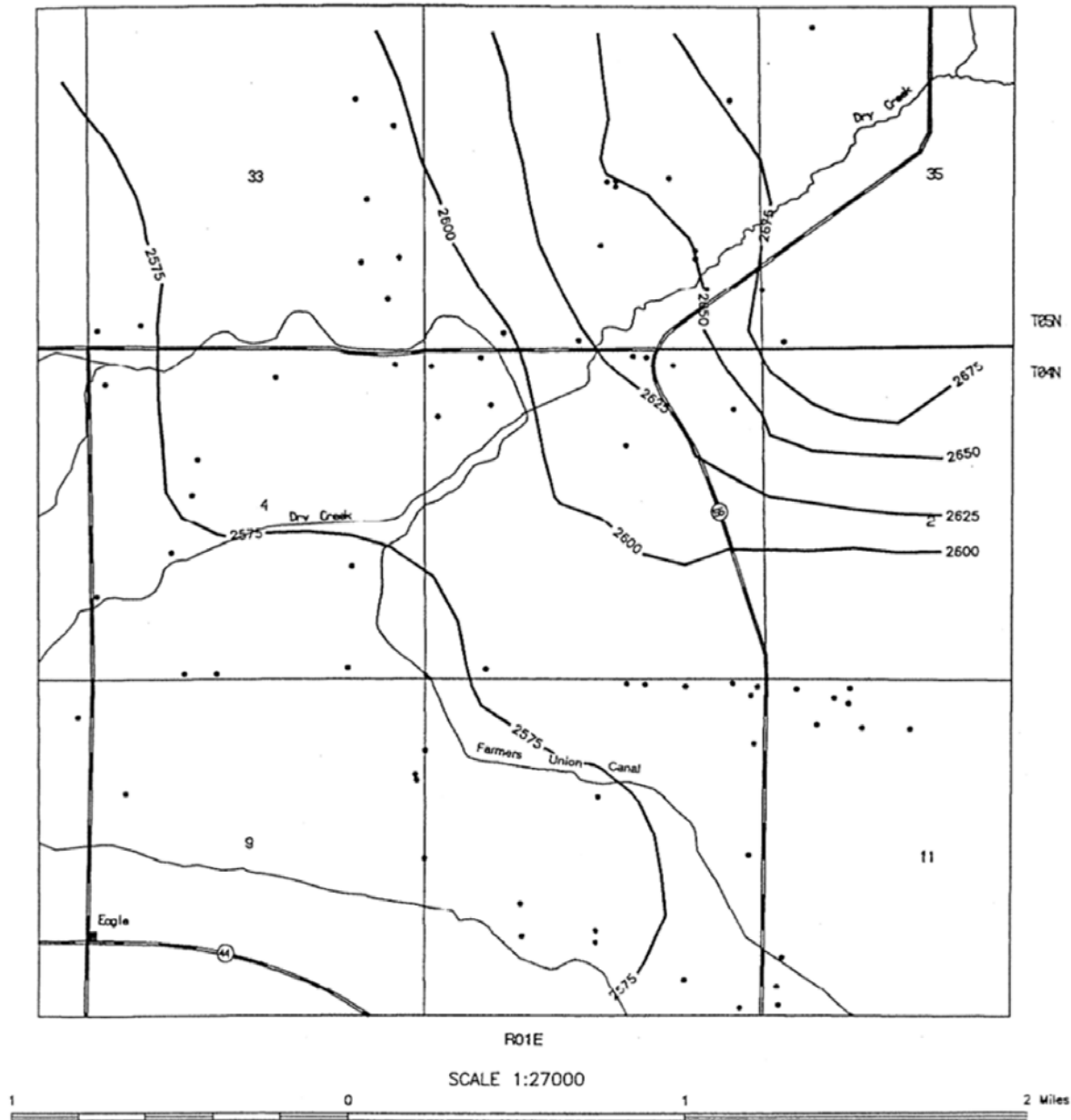


Figure E-7: Spring 1998, shallow zone (259 wells).

Figure E-8: Spring 1998, intermediate zone (50 wells).

DRY CREEK AREA



Baker, 1991

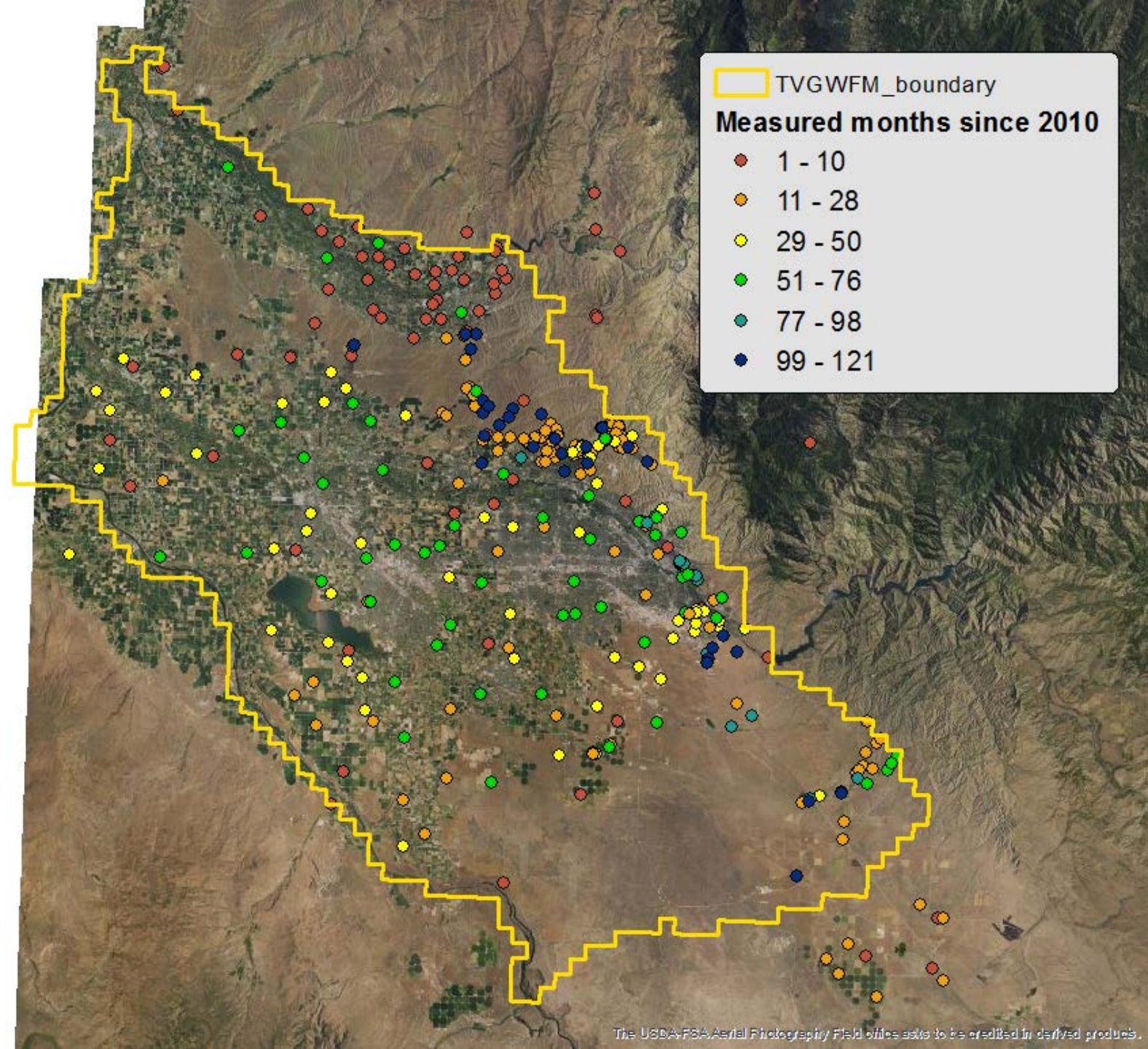
Figure 8. GENERALIZED POTENTIOMETRIC SURFACE MAP, SPRING 1989

Creating updated water level maps

- Frequency: how many and when
- Layering (shallow, shallow – deep, according to model layers): well construction
- Purpose

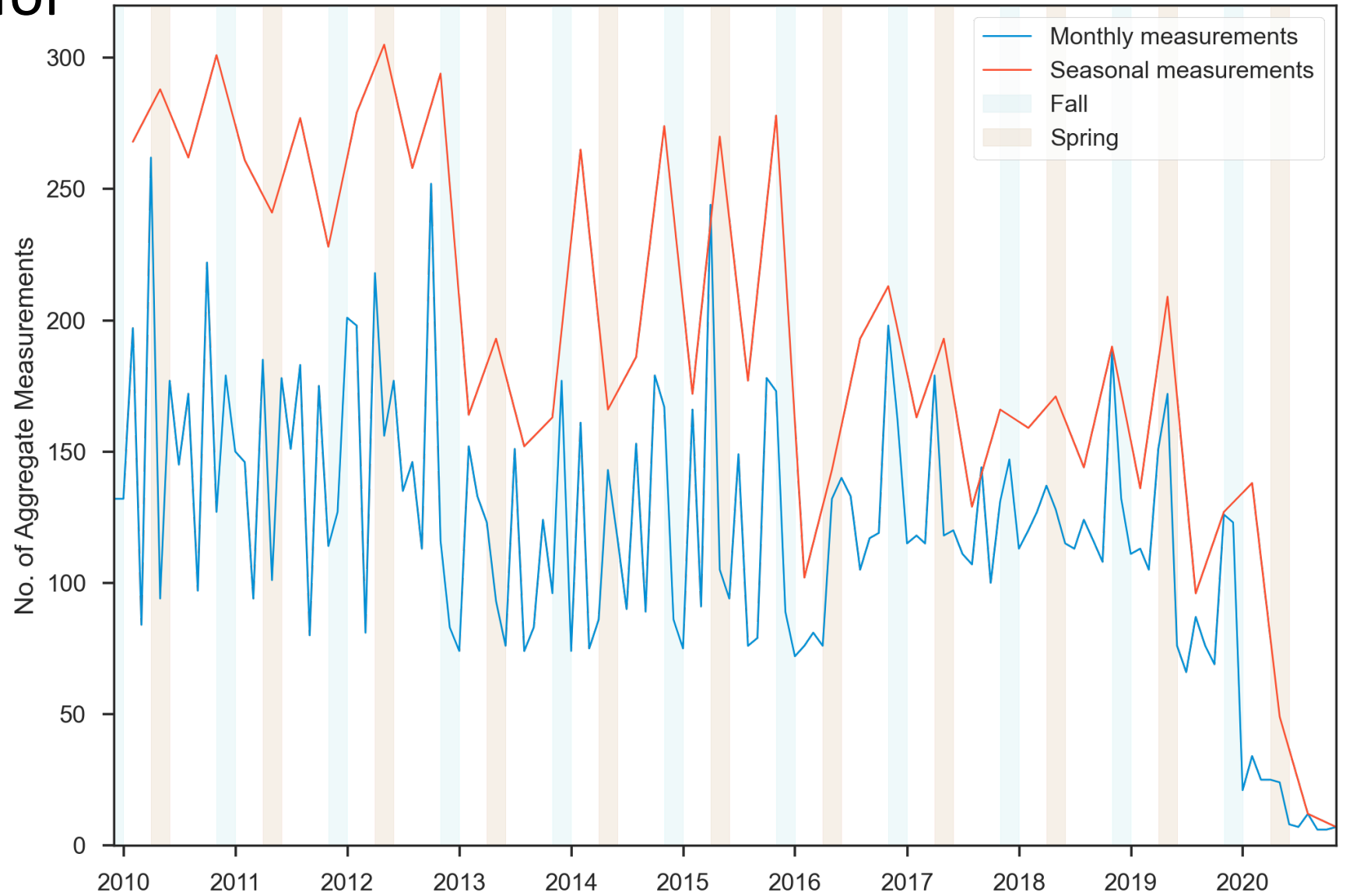
Recent TV Data for Contouring

- 409 wells measured since 2010
- 144 transducers (2x daily measurements)
- Some large spatial gaps



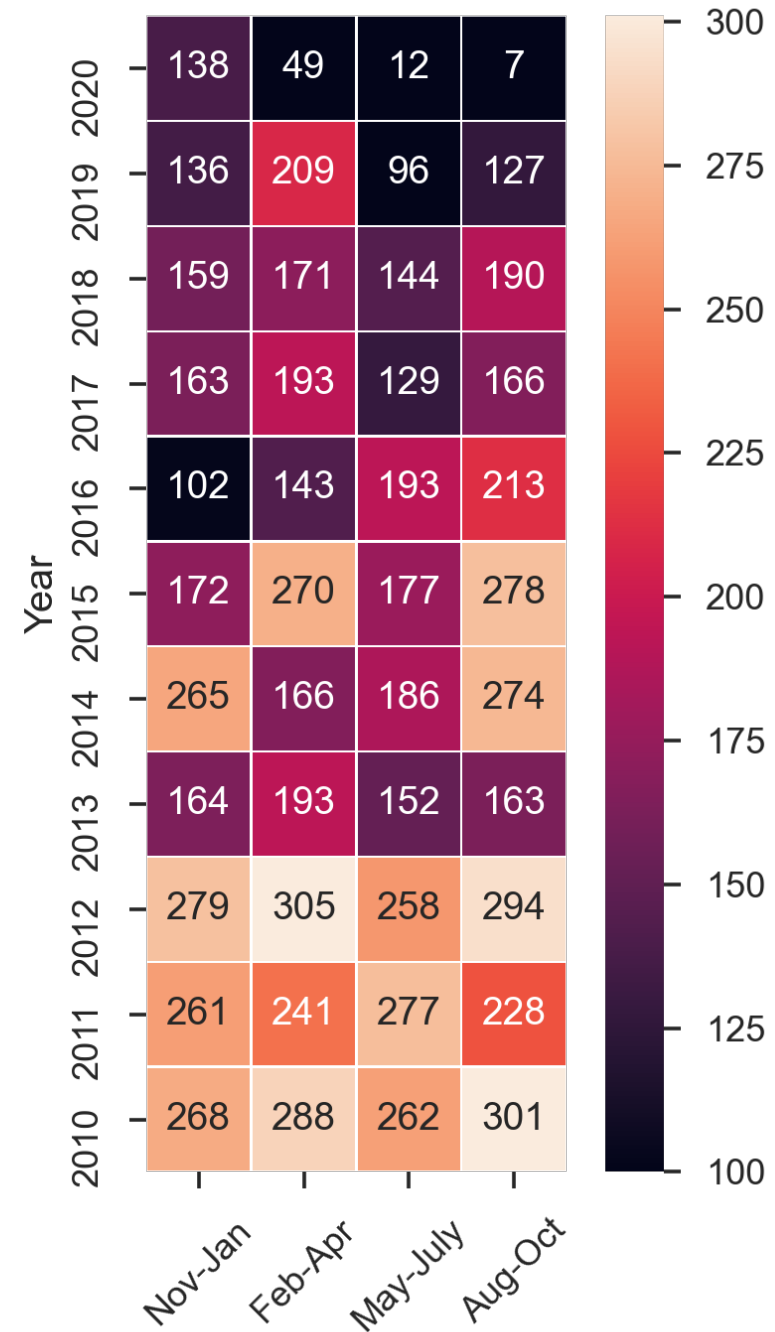
Recent TV Data for Contouring

- Measurements occur year round
- Try to target time with minimal pumping influence (late fall, early spring)



Recent TV Data for Contouring

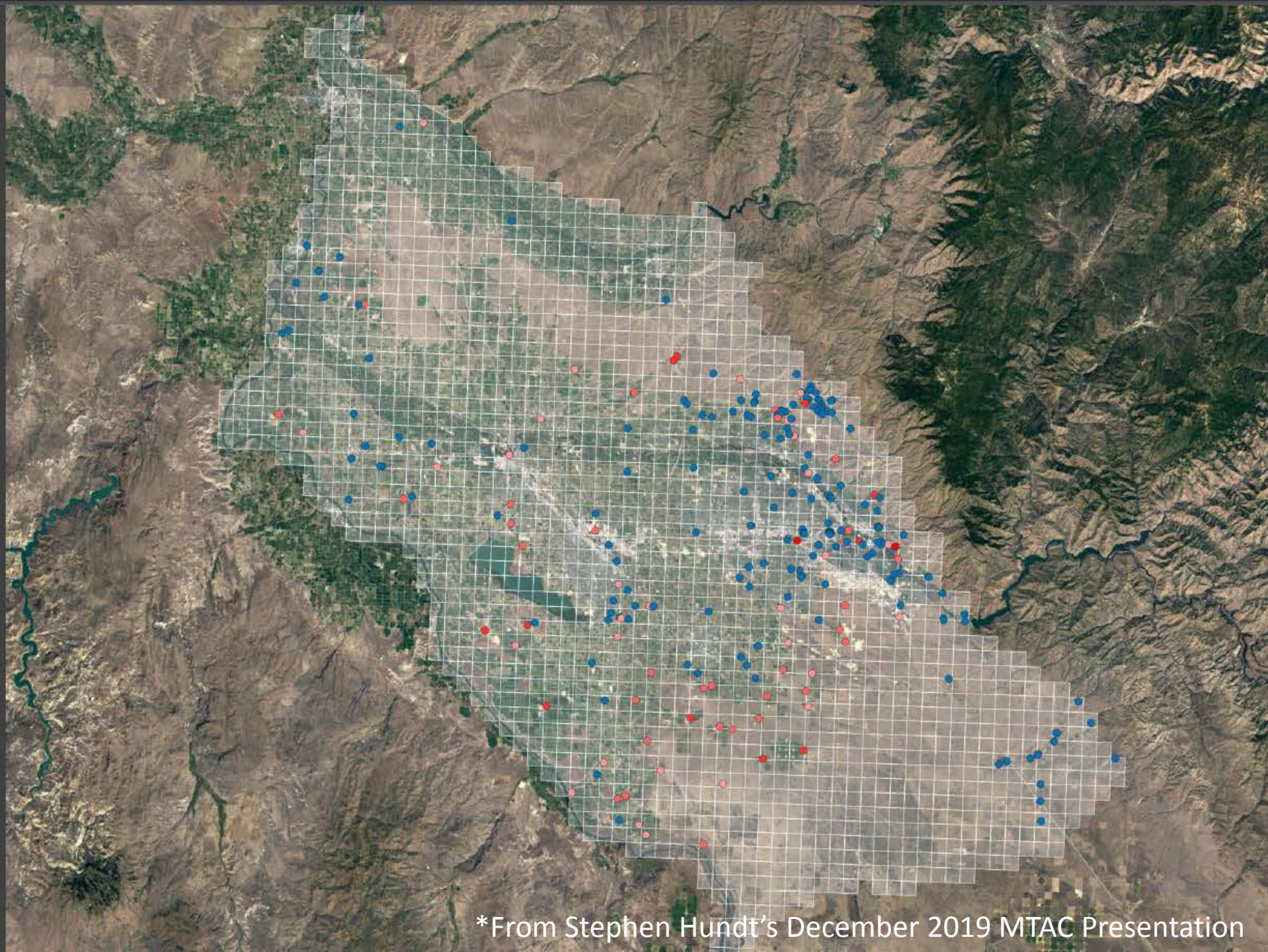
- Measurements occur year round
- Try to target time with minimal pumping influence (late fall, early spring)
- Wells with at least one measurement in a given season



Monitoring Wells: Layer 1

Number of Layers
Intercepted by
Screened Interval(s)

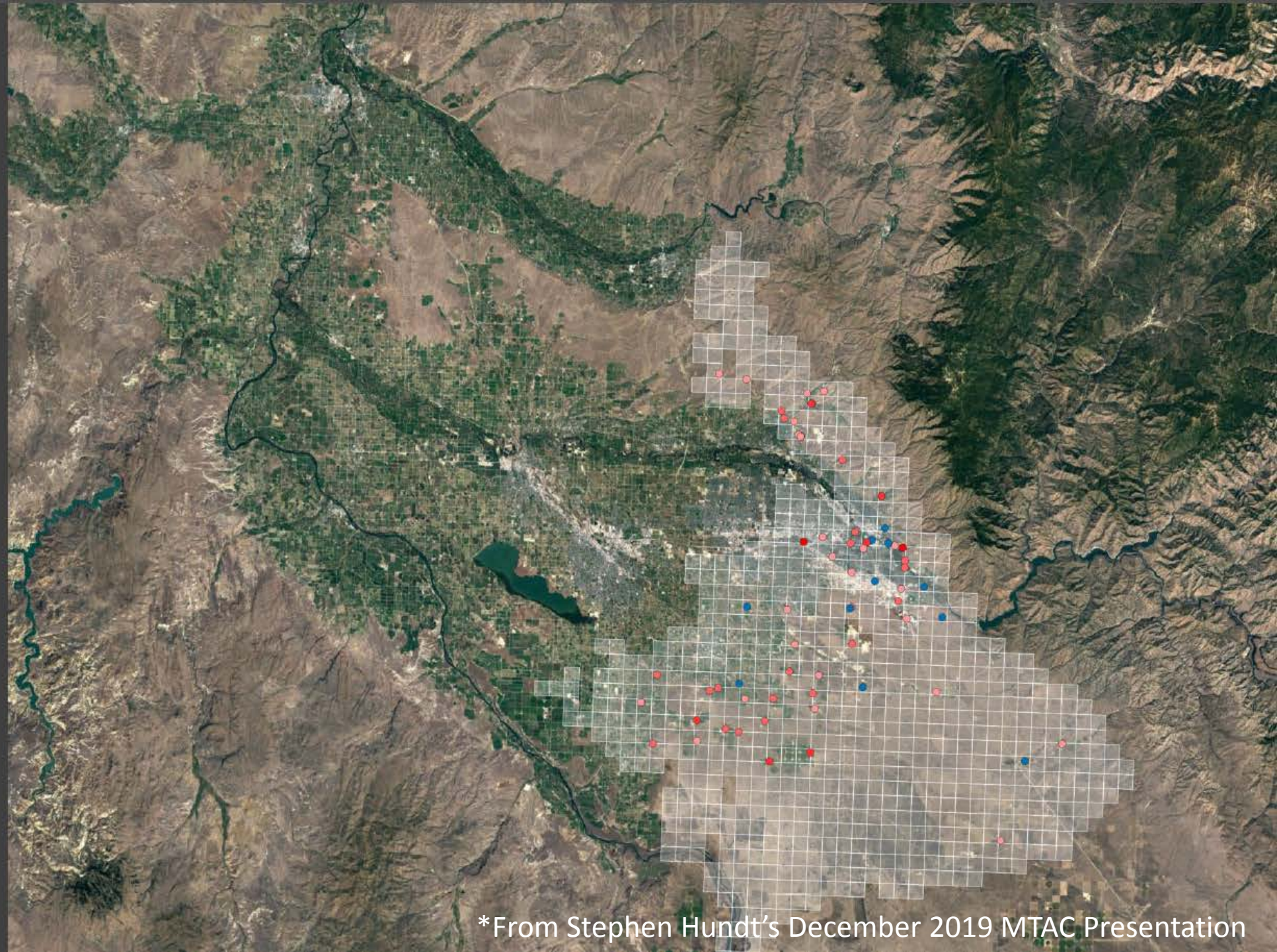
- 1
- 2
- 3
- 4



Monitoring Wells: Layer 2

Number of Layers
Intercepted by
Screened Interval(s)

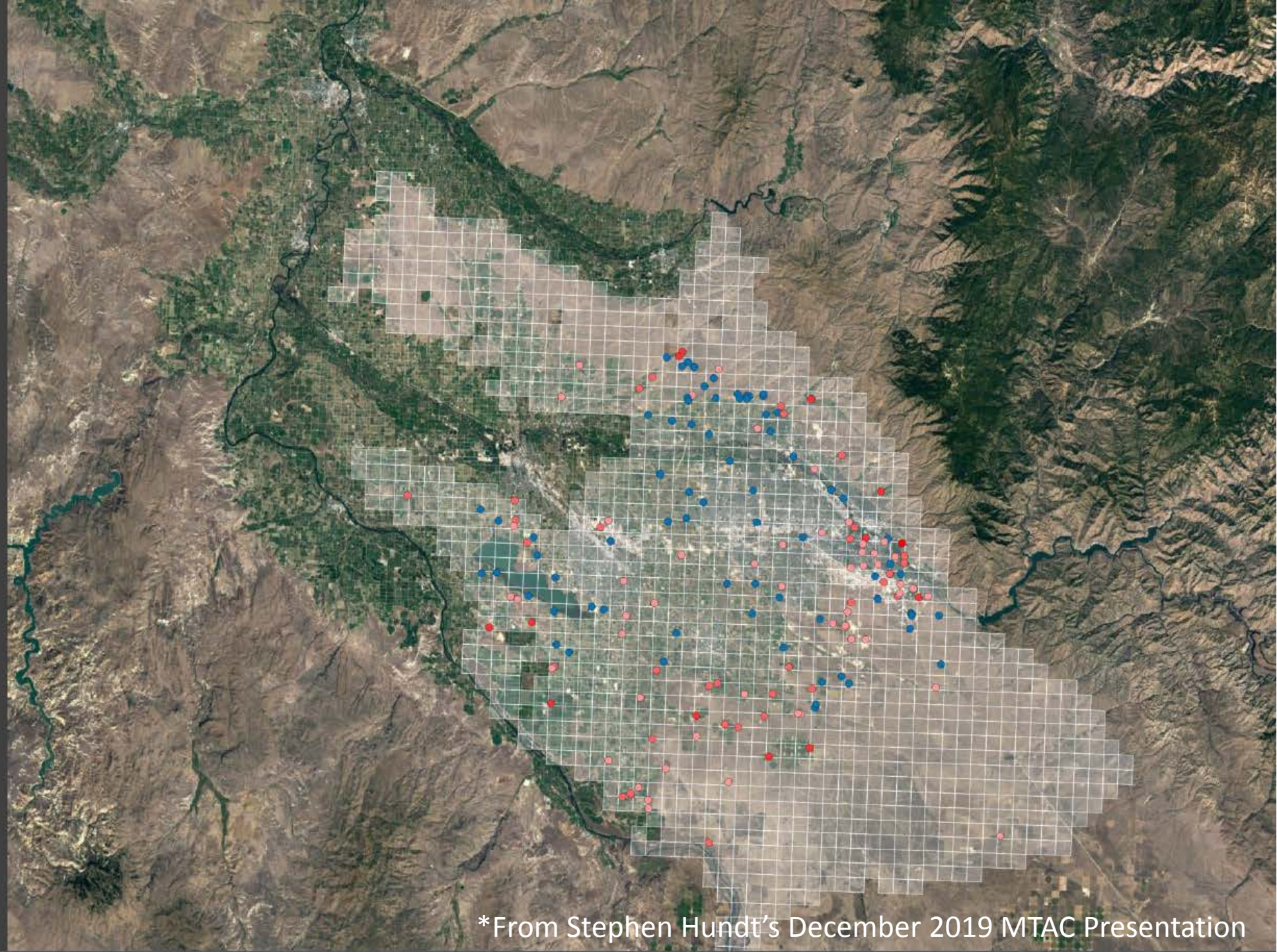
- 1
- 2
- 3
- 4



Monitoring Wells: Layer 3

Number of Layers
Intercepted by
Screened Interval(s)

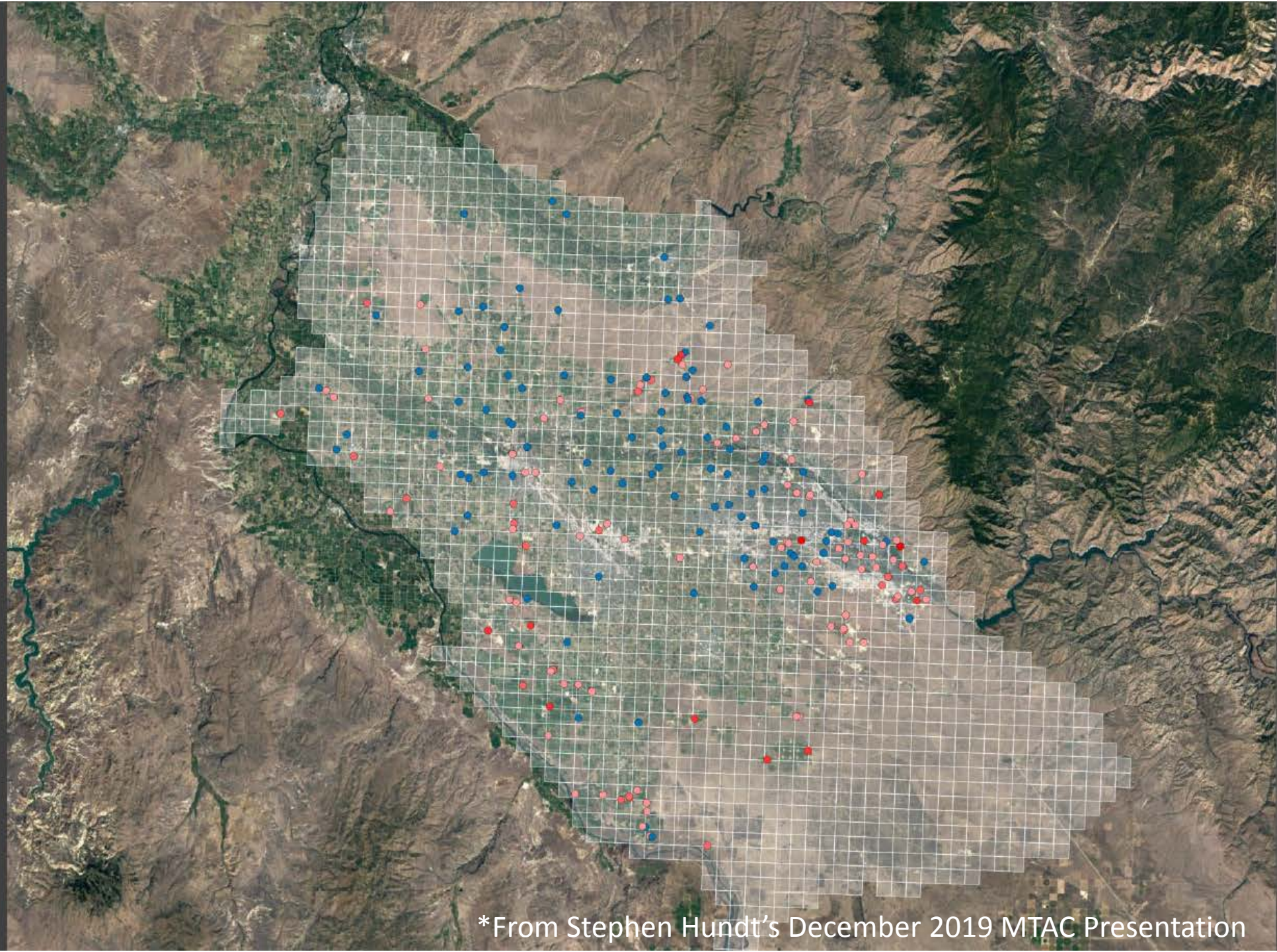
- 1
- 2
- 3
- 4



Monitoring Wells: Layer 4

Number of Layers
Intercepted by
Screened Interval(s)

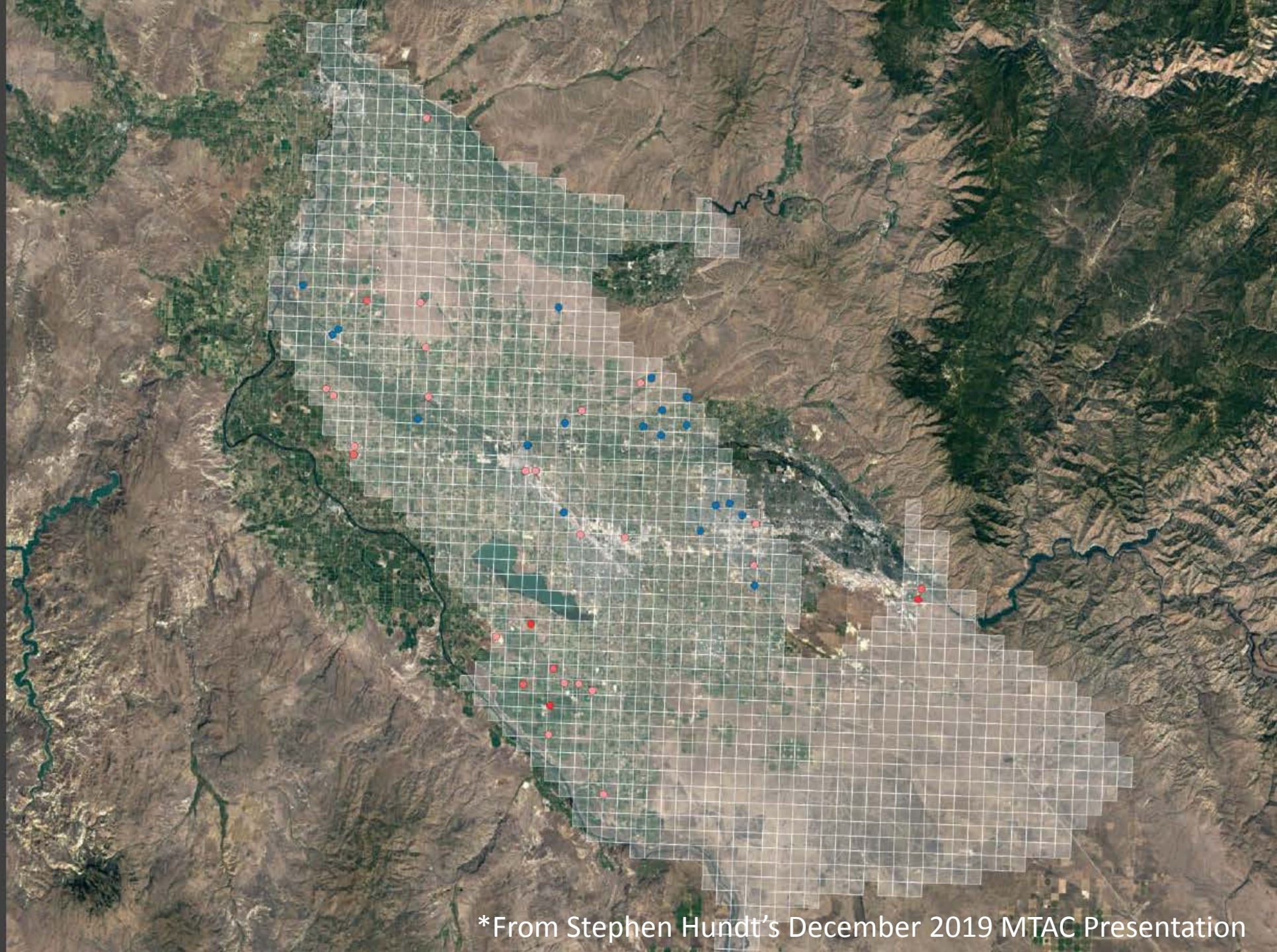
- 1
- 2
- 3
- 4



Monitoring Wells: Layer 5

Number of Layers
Intercepted by
Screened Interval(s)

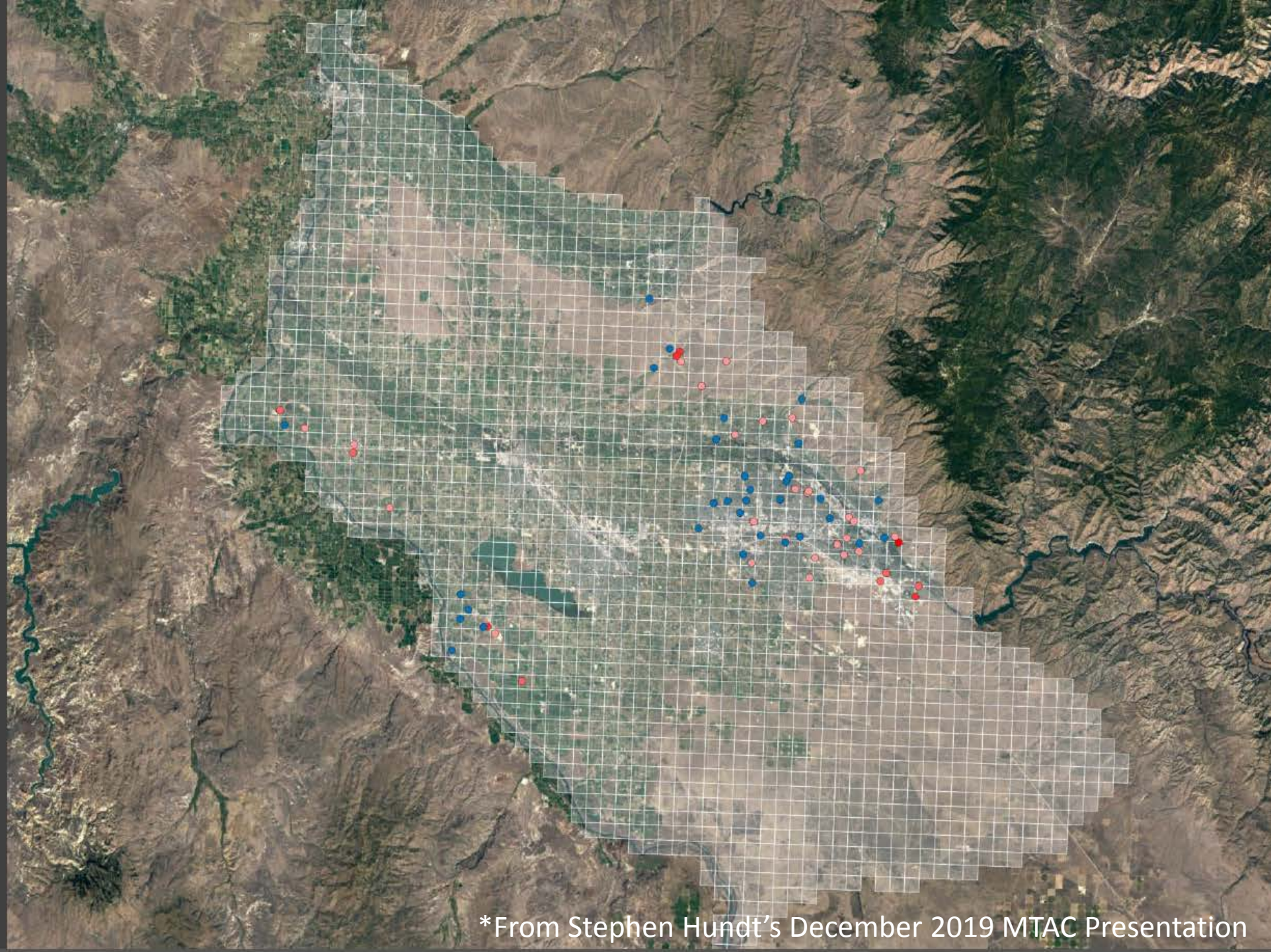
- 1
- 2
- 3
- 4



Monitoring Wells: Layer 6

Number of Layers
Intercepted by
Screened Interval(s)

- 1
- 2
- 3
- 4



Suggestions

- 2 Layers: shallow, deep
- Every 5 years
 - 2010 (average), 2015 (follows dry years), 2020
 - Adjust based on data density
- Payette River valley will be excluded most years due to low monitoring well density.
- More? Less?

