

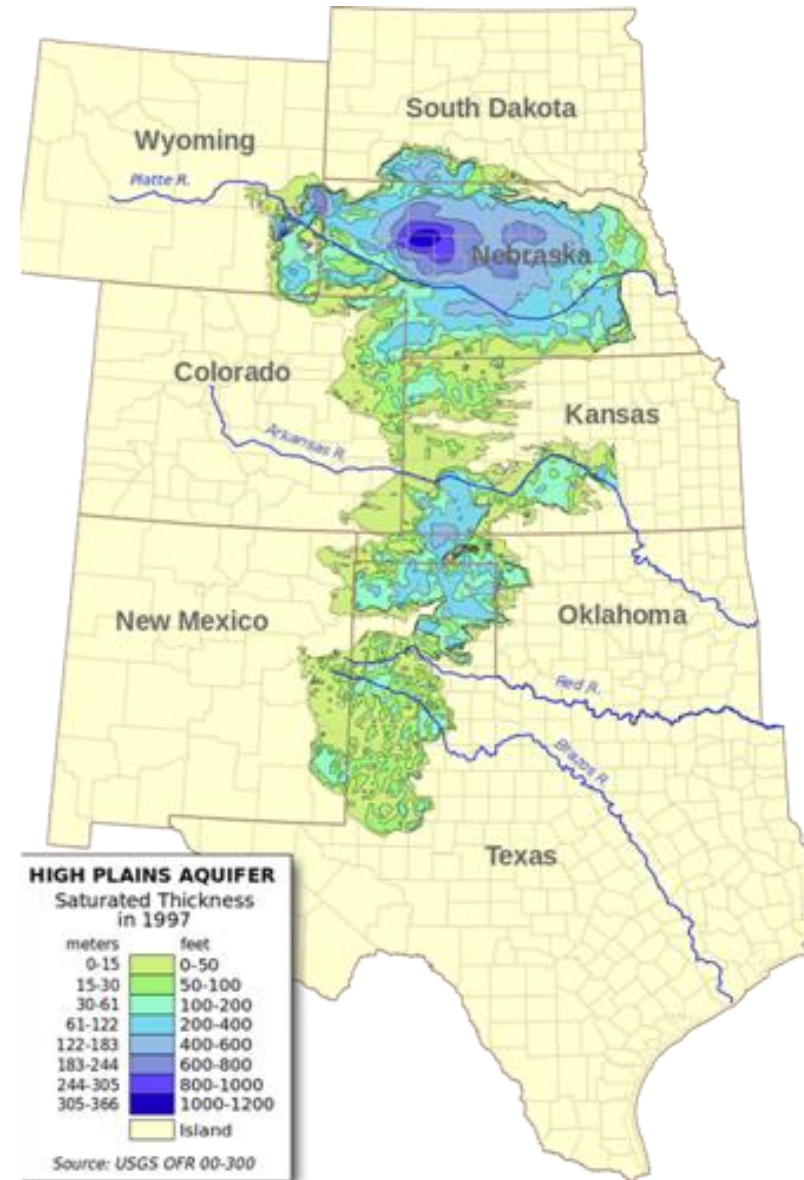
Source Water Protection

Protecting the Quantity and Quality of Our Communities' Public Water Supplies



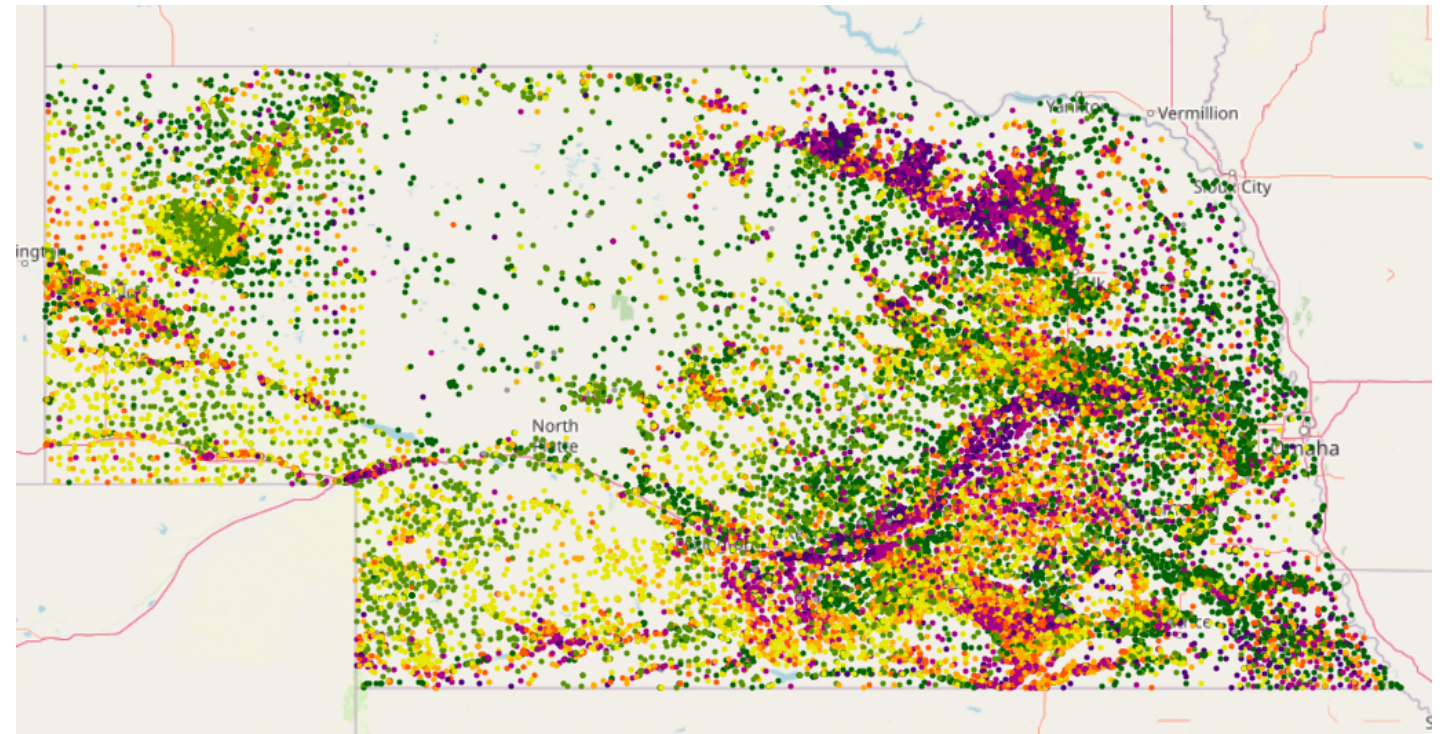
Nebraskans Drink Groundwater

- **Over 88% of water systems**
 - Over 95% excluding Omaha MUD
- **598 Groundwater Public Water Systems (PWS)s in NE**
 - Serving 1,582,983 people
- **583 are SMALL (under <10,000 residents)**
 - Serving 448,682

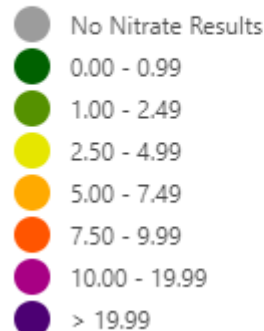


Nebraska Nitrate levels in Drinking Water

- Primary contaminant in drinking water: Nitrate Nitrogen
- Communities in the dark purple/red areas are faced with high costs of treatment/siting new wells/connecting to other communities for clean water



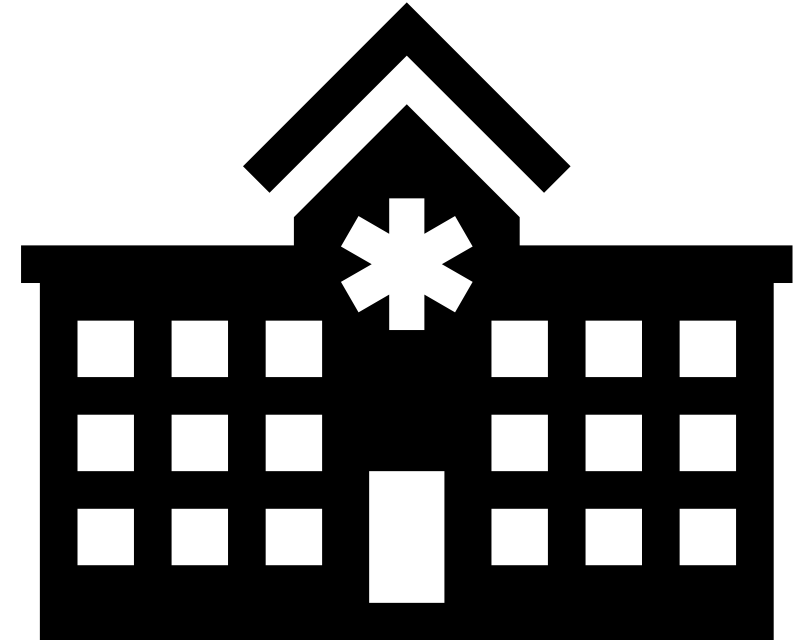
Most Recent Nitrate Concentrations (Last 20 Years)



Clearinghouse.Nebraska.gov

Nitrate and Human Health

- Regulatory limits of nitrate in drinking water are set for infant development of methemoglobinemia, not for other health outcomes
- Numerous scientific studies have looked at the relationship of nitrate in drinking water on human health
- High concentration of nitrate in drinking water have been linked to adverse health outcomes
- Strongest links:
 - Minor health ailments
 - Methemoglobinemia
 - Preterm birth issues
 - Birth defects
 - Pediatric cancers
 - Adult Cancers





Source Water Protection Initiative

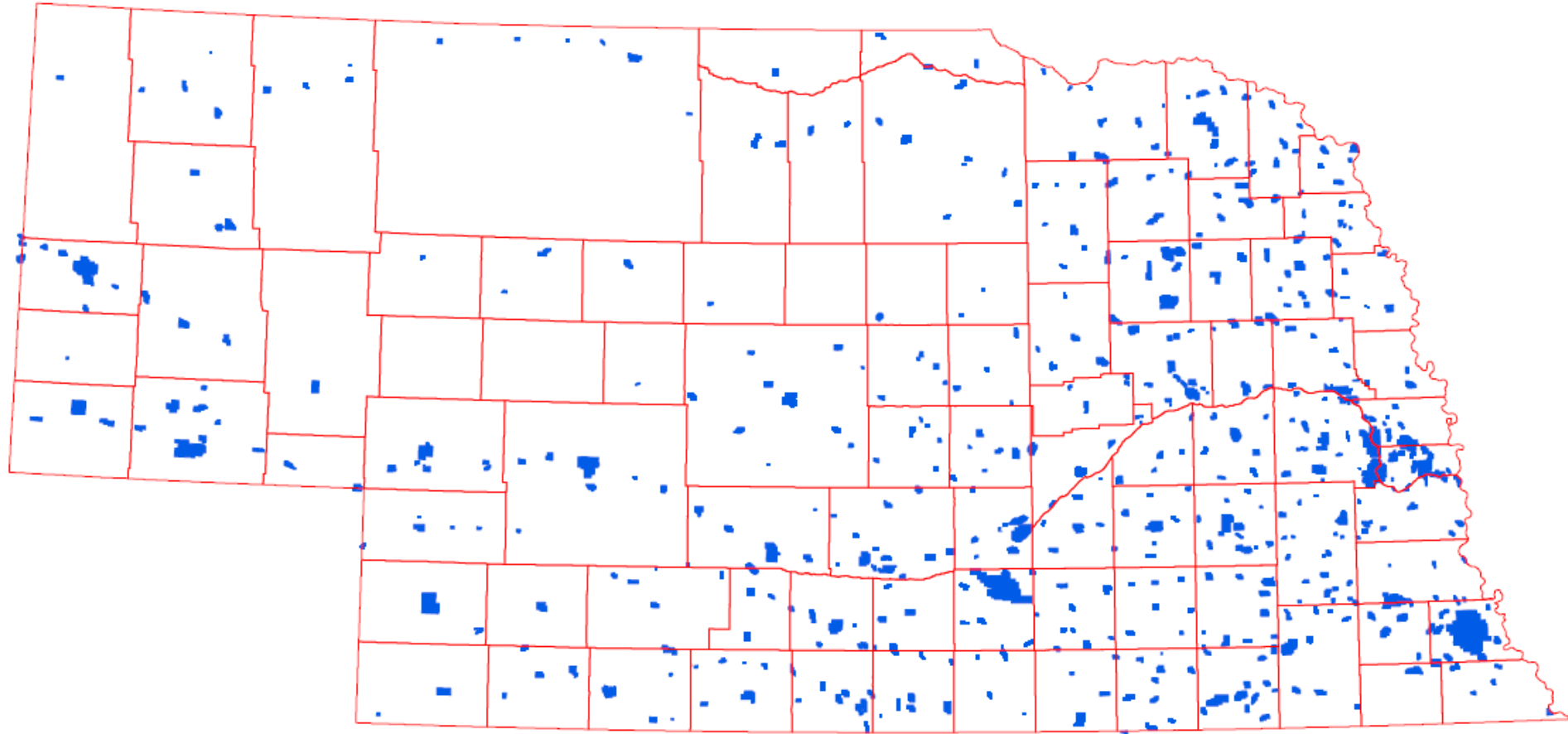


- Started with the 2018 Farm Bill
- Required to spend a minimum of 10% of EQIP cost-share funding on SWP
(this includes Inflation Reduction Act funding as well)
- Practices must improve water quantity and/or water quality for sources of communities' drinking water

522 Wellhead Protection
Areas in Nebraska

Date: 2/22/2019

Nebraska Wellhead Protection Area (WHPA) Map



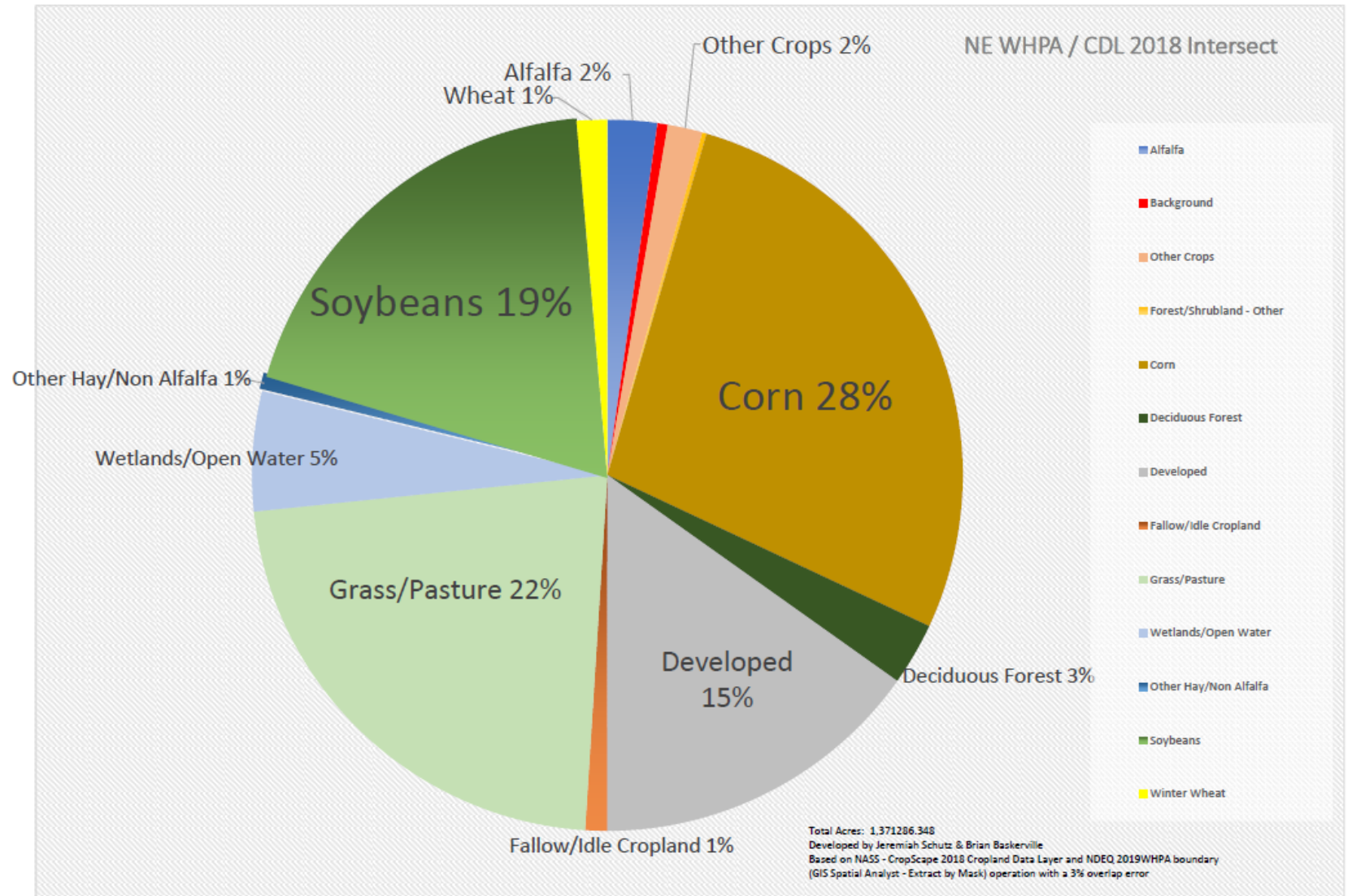
Total WHPA in Nebraska: 1,414,135 acres

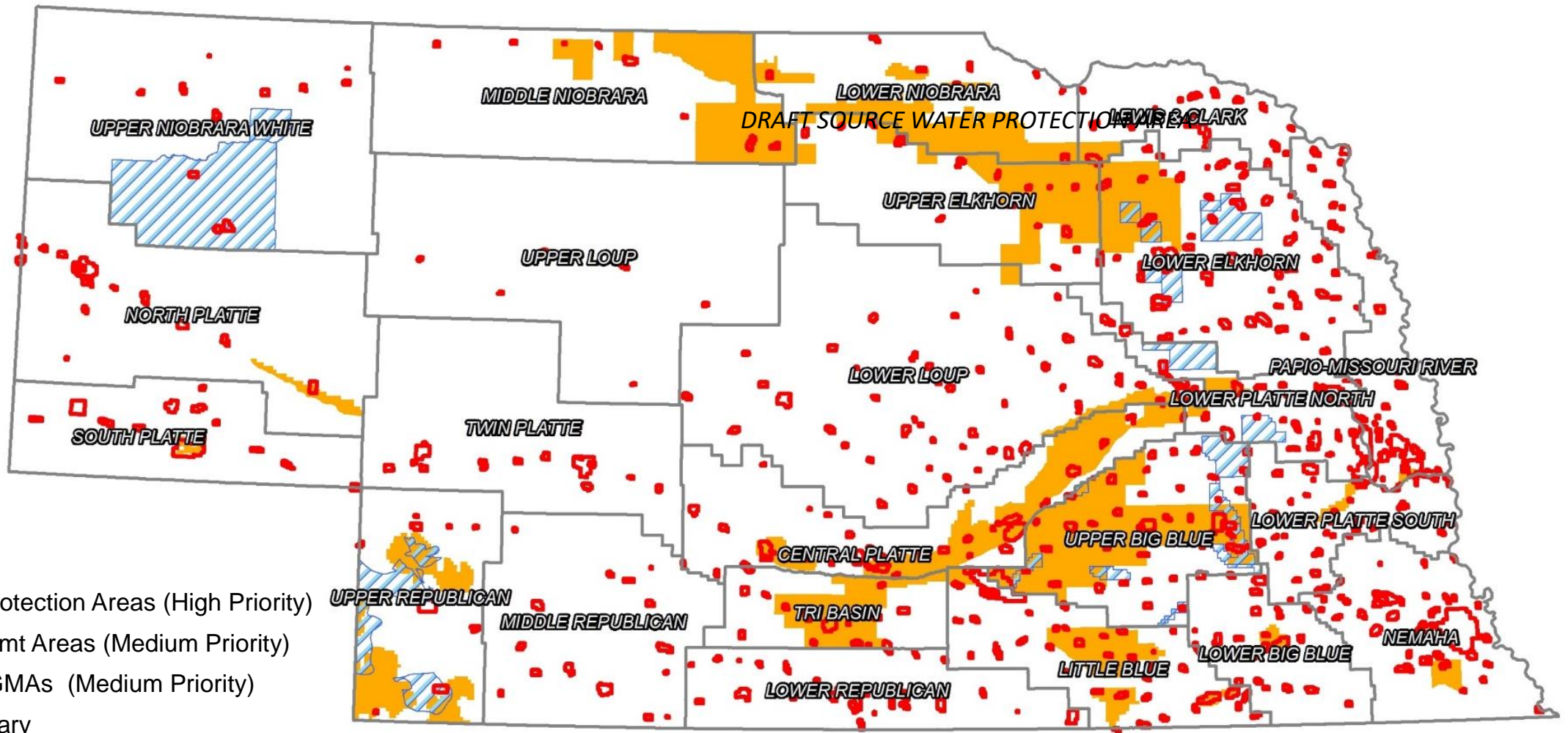
Source: NDEQ 2019 WHPA boundary layer

Land Use in Wellhead Protection Areas

Payments for this initiative go to owners/operators of agricultural land who install conservation practices.

Approximately half of the 1.4 million acres, or about 700,000 acres of public water supply wellhead areas are in cropland





Legend

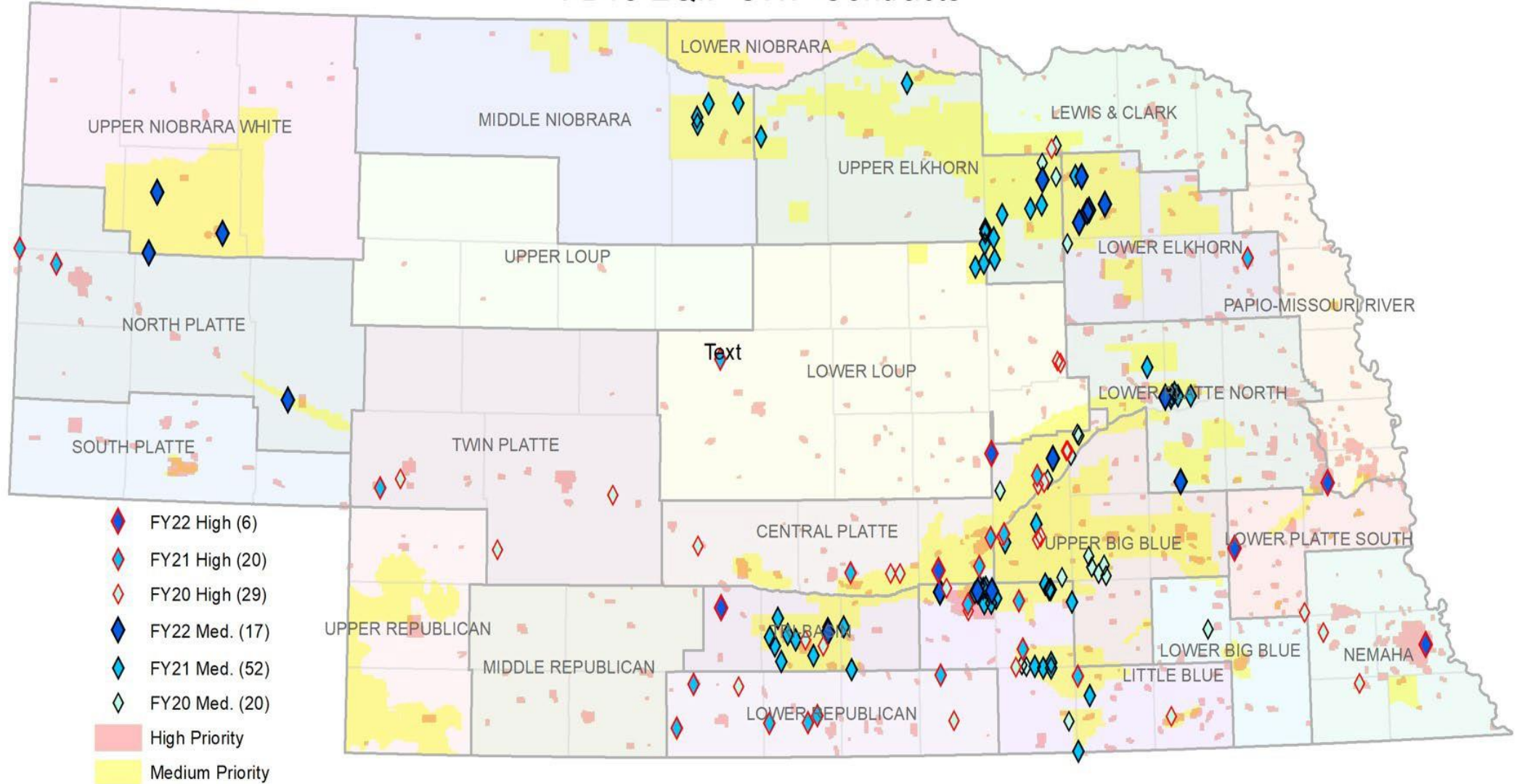
- Wellhead Protection Areas (High Priority)
- Quantity Mgmt Areas (Medium Priority)
- Phase 2-4 GMAs (Medium Priority)
- NRD Boundary

The Phase 2-4 and Quantity Management Areas that intersect a Wellhead Protection Area are medium priority.

Total Medium & High Priority Areas: 8,006,050 acres

FY20 – FY22 Source Water Protection

FB18 EQIP SWP Contracts

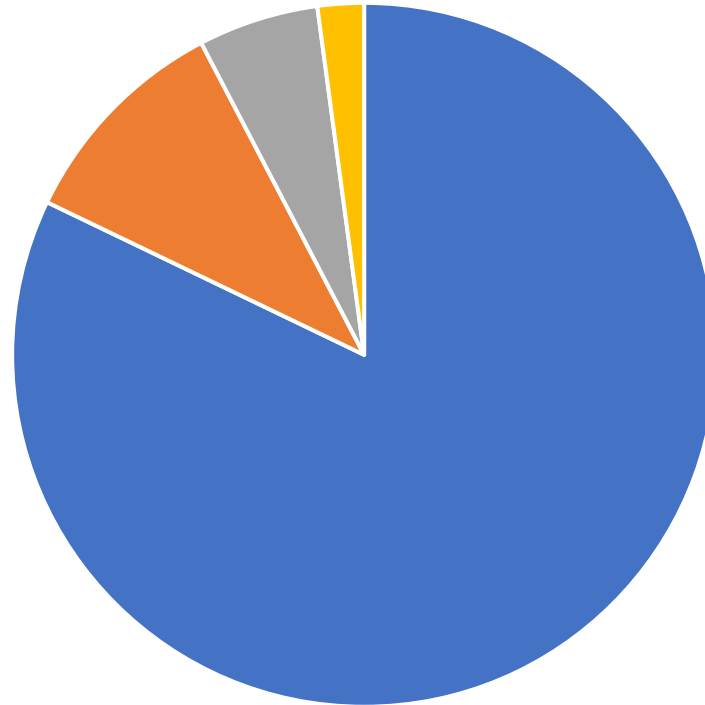


Data compiled from Protracts and IDEA.

FY20 – FY22 SOURCE WATER PROTECTION

Most Common Practices Funded	Count	Amount	Funding
Irrigation Water Management	325	52,503 ac.	\$ 1,111,328
Conservation Crop Rotation (irrigated to dry)	112	1490 ac.	\$ 282,905
Cover Crop	109	22,323 ac.	\$ 568,041
Irrigation Pipeline	60	60,113 ft.	\$ 287,196
Nutrient Management	60	16,283 ac.	\$ 308,185
Pumping Plant	45	48	\$ 466,396
Sprinkler System	45	3022 ac.	\$ 1,458,141
Structure for Water Control (flow meter)	40	74	\$ 67,760
Pest Management Conservation System	21	3107 ac.	\$ 118,449
Sub-surface drip Irrigation	16	739 ac.	\$ 900,825

SWP Funding by Conservation Practice



- Irrigation Practices
- Cover Crop
- Nutrient Management
- Pest Management

FY2023 Source Water Protection Contracts

April 27, 2023

- FY23 Allocation \$2,396,000
- 193 Applications, \$9,276,000
 - 24 High Priority (wellheads) – All approved ~\$660,000
 - 169 Medium Priority – 49 approved ~\$1,786,386

FY2024 Source Water Protection Funding

- FY24 Allocation - \$4.9 million
 - \$2 million general EQIP, \$2.9 million IRA
 - Funding will be at this level or higher for at least the next 3 years
- **To Help Ensure the Source Water Protection Funding is utilized more fully in the Community Wellhead Areas, we need more “boots on the ground” working with producers in those areas.**

Reducing Nitrate Leaching

- **Nutrient Management**
 - Rate of nitrogen applied
 - Timing of nitrogen applications
 - Use of urease and nitrification inhibitors
- **Cover Crops – use available nitrogen after harvest of grain crop**
- **Irrigation Improvements**
 - Convert flood irrigation to sprinkler or subsurface drip
 - Irrigation water management – use soil water probes to guide more efficient use of irrigation water
- **Grow crops with less nitrogen needs**
 - Examples: wheat, alfalfa
 - Crops need to be as profitable as Corn / Soybeans
 - Potential to add incentives to grow different crops in wellhead areas?



Nutrient Management

Payment Scenarios:

- In Nebraska we offer five different EQIP payment scenarios.
 - Nutrient Management – Non-Organic
 - Nutrient Management with Manure and/or Compost
 - Precision Nutrient Application
 - Prescription Nutrient Efficiency
 - Adaptive Nutrient Management

Nutrient Management

Payment Scenarios:

- Precision Nutrient Application – variable rate application
- Prescription Nutrient Efficiency – split application with supplemental evaluation of crop or soil: sensors, PSNT, plant tissue testing, etc.
- Adaptive Nutrient Management – compare different rates, four replications

Irrigation water management

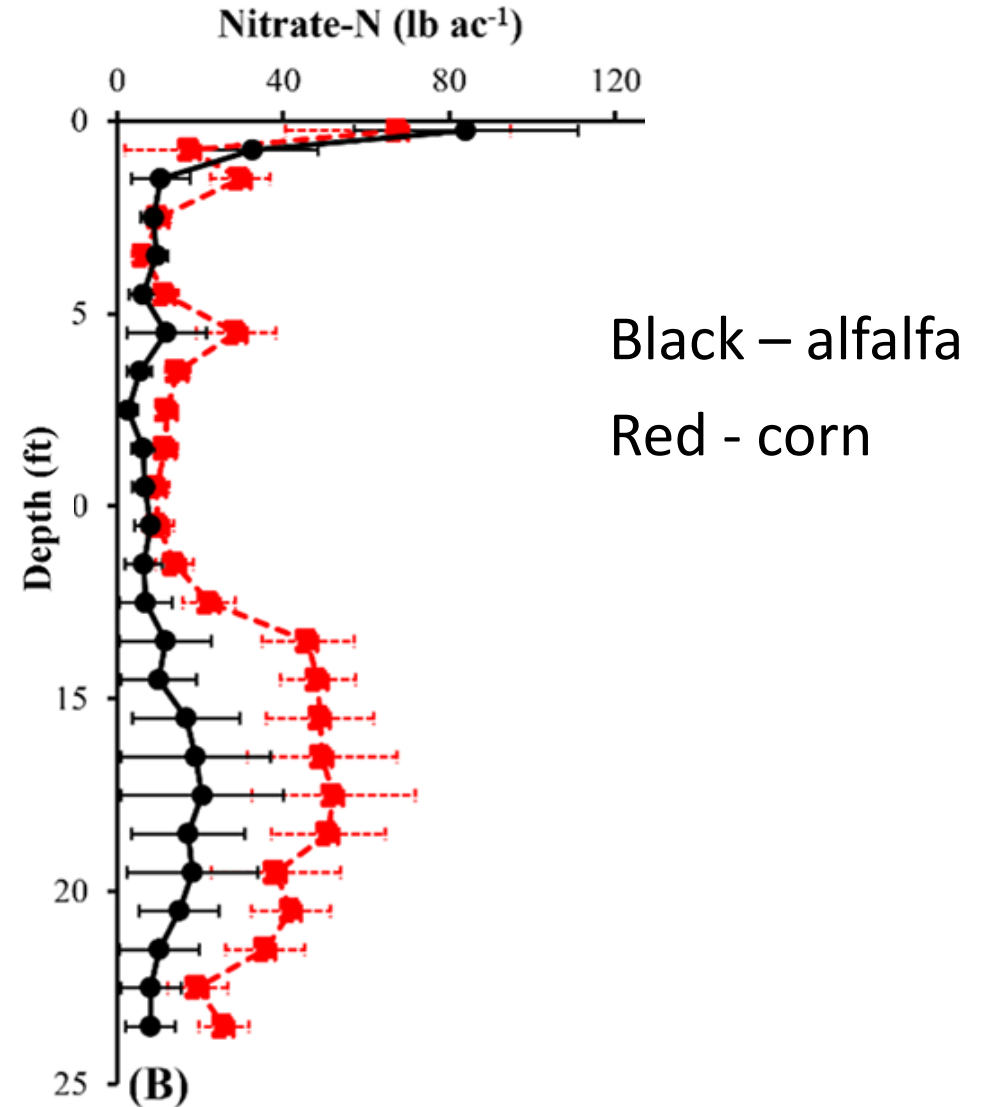
Payment Scenarios:

- In Nebraska we offer three different EQIP payment scenarios.
 - IWM Advanced Technique
 - IWM Advanced Technique Incorporating Precision Irrigation
 - IWM: Consultant Based IWM No Equipment – ET data, modeling

All scenarios are paid on a system basis (each) and require the producer to enter into a service agreement or contract with a consultant.

Using Alfalfa to Reduce Nitrates

- March 30, 2023 article in Cropwatch
- Alfalfa reduced nitrates in top 24 feet of soil by 55%.



Outreach is Needed to Encourage More Widespread Use of these practices



- One-on-one outreach with producers
- Field Days
- Demonstrations
- Meetings
- Mailings

NRDs Expressing Interest in SWP Outreach

The LPSNRD has hired a drinking water specialist to conduct outreach and technical assistance in their wellhead areas – Tyler Benal.

So far, the following NRDs have expressed some level of interest hiring a position, shared with NRCS to conduct positions.

- LC and LE want to share a position.
- LBB wants their own position.
- LPN wants their own position.
- UNW, NP, SP want to share a position.

In another agreement with NRCS:

- The Rainwater Basic Joint Venture is in the process of hiring two agronomists to promote conservation practices. One agronomist will service CP and TB and another will work in UBB.



Questions at the end

www.nrcs.usda.gov/Nebraska



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