

Exempt Wells in Montana Policy and Data Overview

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Comprehensive Water Review Stakeholder Working Group

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Overview

- Exempt well history and background information
- Socio-economic data
- Hydrology & climate data
- Well data
- Other data
- Take homes

* These are preliminary data for the SWG

Exempt Wells Background

- Permitting vs exception difference
 - New HB 114 process
- Exception vs exemption distinction
 - 85-2-306- exception
 - 85-2-381- exemption

History

- 1973: Established as part of Water Use Act in Title 85, Chapter 2, MCA Groundwater uses for domestic, agriculture, or livestock purposes under 100 GPM were exempt from permit process
- 1974: Amended in to remove purpose restriction
- 1987: Combined appropriation was added as a consideration
- 1987: Definition of combined appropriation added to rule
- 1991: limitations reduced to 35 GPM, 10 AF
- 1993: Definition of combined appropriation changed in ARM (physically manifold added)
- 2014: Judge Sherlock invalidated 1993 rule, reinstated 1987 rule defining combined appropriation
- 2016: CFC vs Tubbs: Court found that 1993 rule expanded the narrow exemption to permitting process
- 2022: DNRC provided clarification to the 2016 guidance on how it evaluates combined appropriation-clarifies well spacing only applies on parcels 20 ac. or greater

Definition of Combined Appropriation

- 1987 Rule: “Combined appropriation” - An appropriation of water from the same source aquifer by two or more ground water developments, the purpose of which, in the department's judgment, could have been accomplished by a single appropriation. Ground water developments need not be physically connected nor have a common distribution system to be considered a “combined appropriation.” They can be separate developed springs or wells to separate parts of a project or development. Such wells and springs need not be developed simultaneously. They can be developed gradually or in increments. The amount of water appropriated for the entire project or development from these ground water developments in the same source aquifer is the “combined appropriation.”

Exempt Wells SWG Questions

- How does consumptive vs non-consumptive tie into the exception process
- How many wells metered, measured, who does it, how it is done?

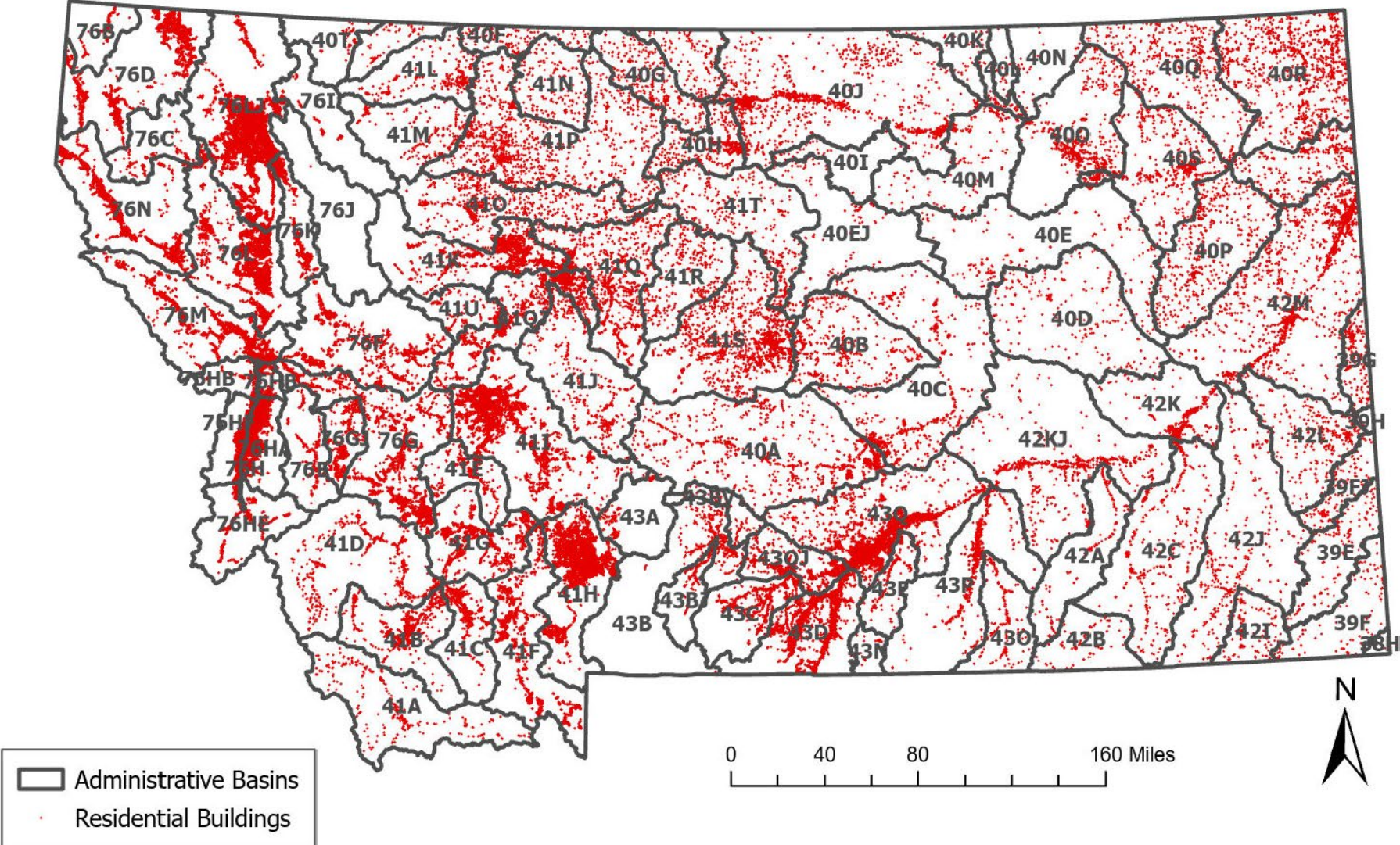
SWG Requested Data

1. How does consumptive vs non-consumptive tie into the exception process? (policy)
2. How many wells metered, measured, who does it, how it is done, effective? (policy)
3. Growth and population data (socio-economic)
4. General aquifer data (hydro/climate)
5. Exempt wells overlaid with climatic areas (hydro/climate)
6. MBMG well data/GWIC vs DNRC well data difference (well data)
7. The number of exempt wells and by purpose (well data)
8. Estimated volume used (based on standards) by exempt wells and estimated consumption by purpose (well data)
9. What are the different purposes of exempt uses, distribution, and volume of those uses? (well data)
10. Number and location of controlled ground water areas and stream depletion zones? (other)
11. Regional Water Systems- where and what? (other)
12. Exempt well by lot size (future analysis) (well data)
13. Exempt well by metric of location in the state; subject to a zoning authority (future analysis) (well data)
14. Cumulative effect per aquifer? Number of wells per aquifer (future analysis) (hydro/climate)
15. Assessment of the grandfathered plats and level of development (future analysis) (socio-economic)

Socioeconomic Data

- SWG Requested #3: Growth and population data

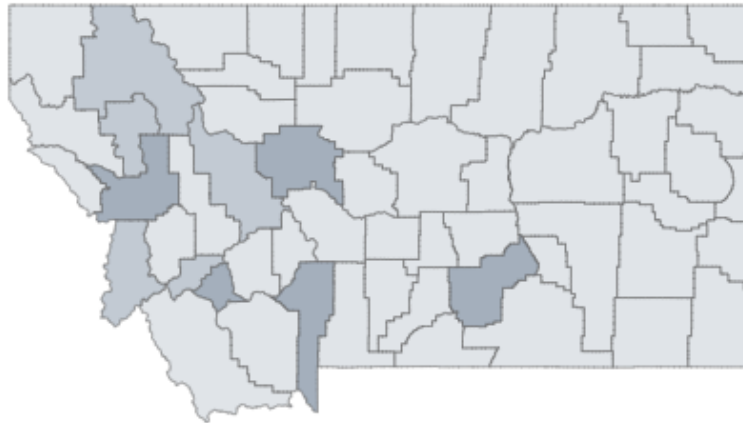
Count of Residential Buildings



Source: Montana Structures/Addresses Framework spatial database https://mslservices.mt.gov/Geographic_Information/Data/DataList/datalist_Details.aspx?did={E8C6A50B-EBC9-4625-93FC-B798179A8C04}

Montana Census Data

Population Density in Montana Counties: 2020



People per square mile



Montana Counties	
(Ranked by 2020 total population)	
1. Yellowstone County	164,731
2. Gallatin County	118,960
3. Missoula County	117,922
4. Flathead County	104,357
5. Cascade County	84,414
6. Lewis and Clark County	70,973

Total Population (2020):

1,084,225

Numeric Change in Population (2010–2020):

94,810

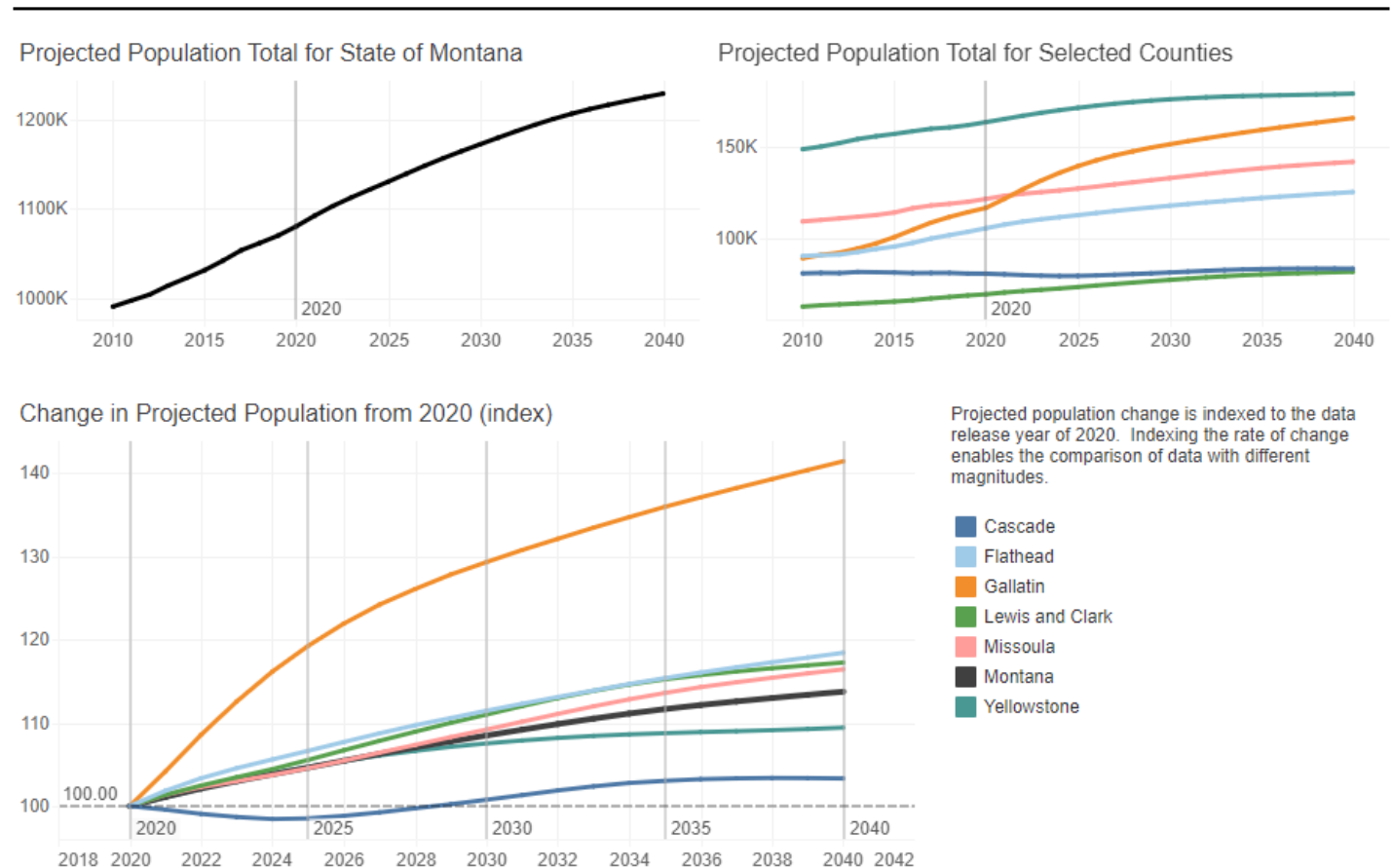
Percent Change in Population (2010–2020):

9.6%

Source: <https://www.census.gov/library/stories/state-by-state/montana-population-change-between-census-decade.html>

Population Projections

- Regional Economic Models Incorporated (REMI) population predictions for Montana and most populous counties
- Rate of change (highest first): Gallatin, Flathead, Lewis and Clark, Missoula, Yellowstone, then Cascade



Hydrology and Climate Data

- SWG Request #4: General aquifer data (hydro/climate)
- SWG Request #5: Exempt wells overlaid with climatic areas (hydro/climate)

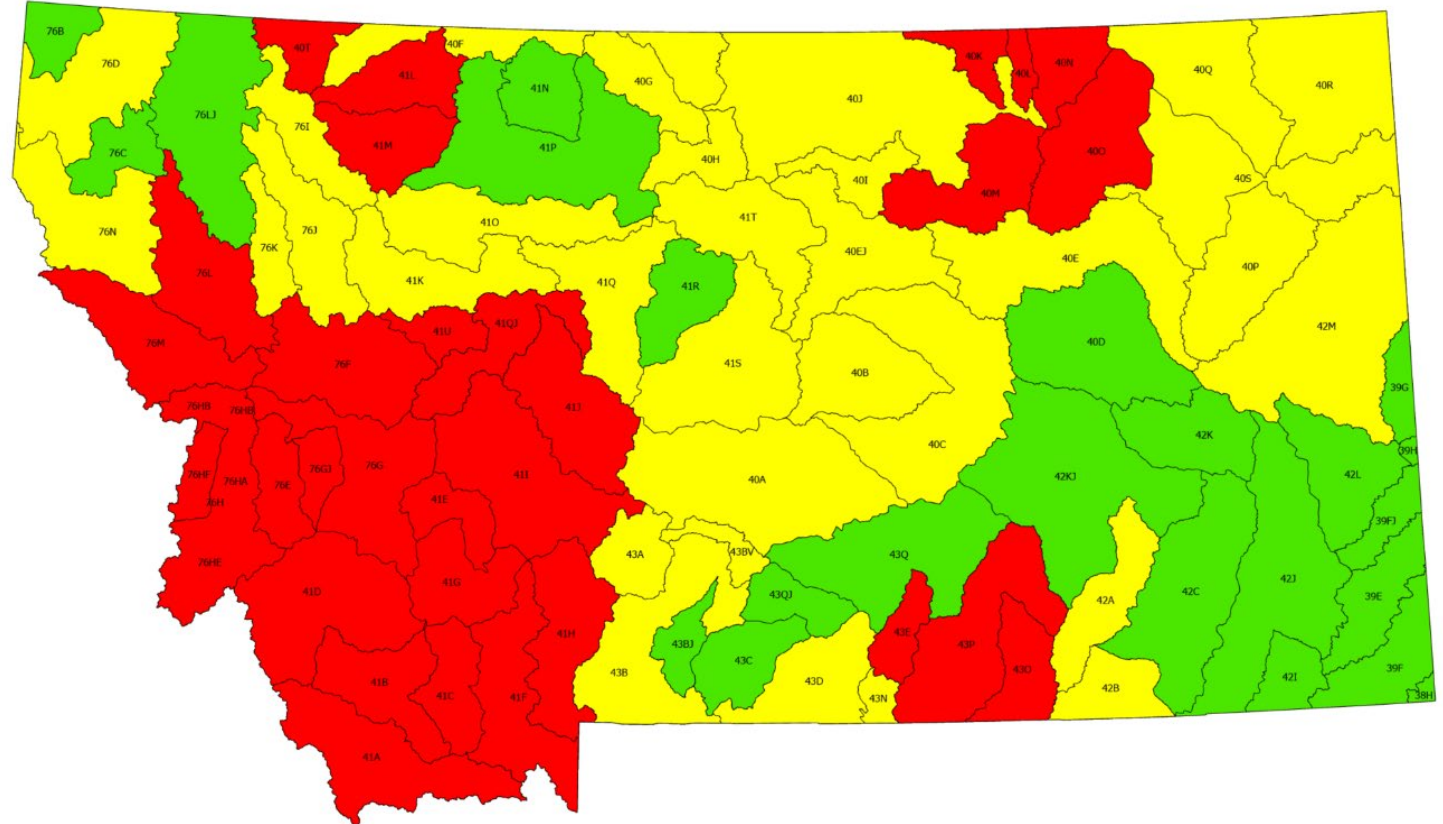
Montana Surfacial Aquifers



Status of the Aquifer by Administrative Basin

Could you get a GW permit without mitigation?

- DNRC qualitative assessment
- Hydrologically connected to SW that is over-appropriated
- Aquifer limitations
- Green- likely to get permit; yellow- possibility; red- not likely

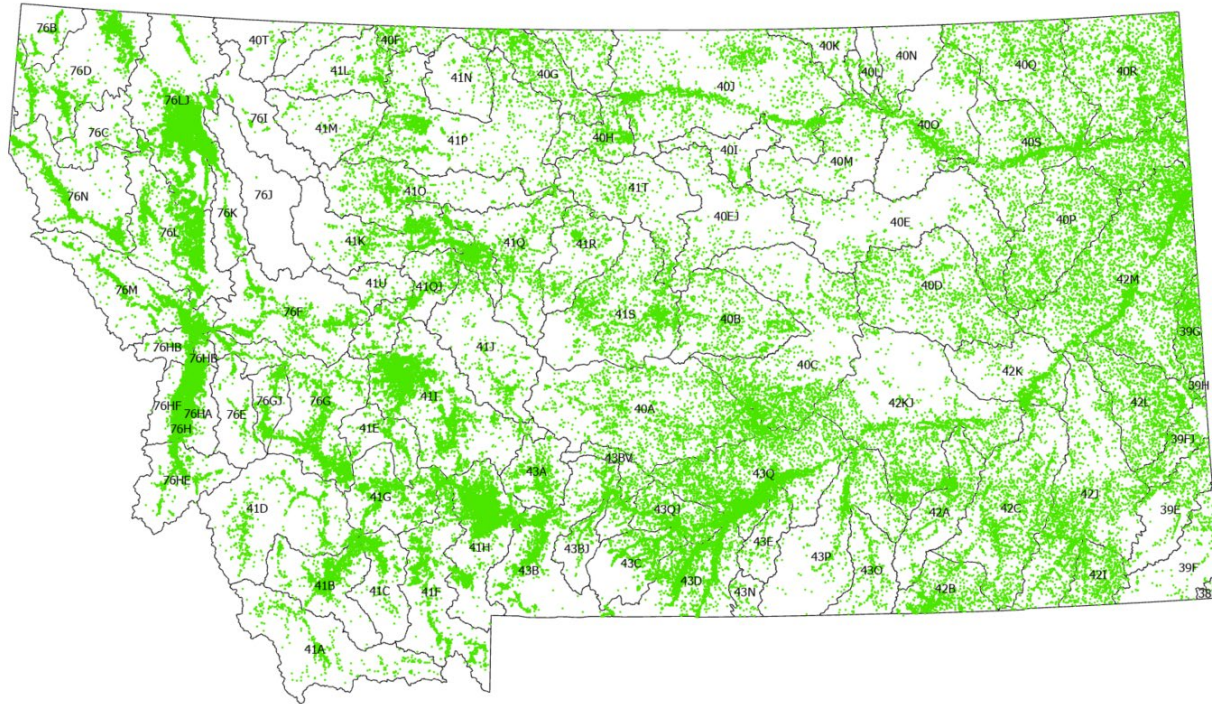


*This map was created by polling the DNRC Regional Office managers and is not intended to be a determinative statewide basin assessment.

Exempt Well Data

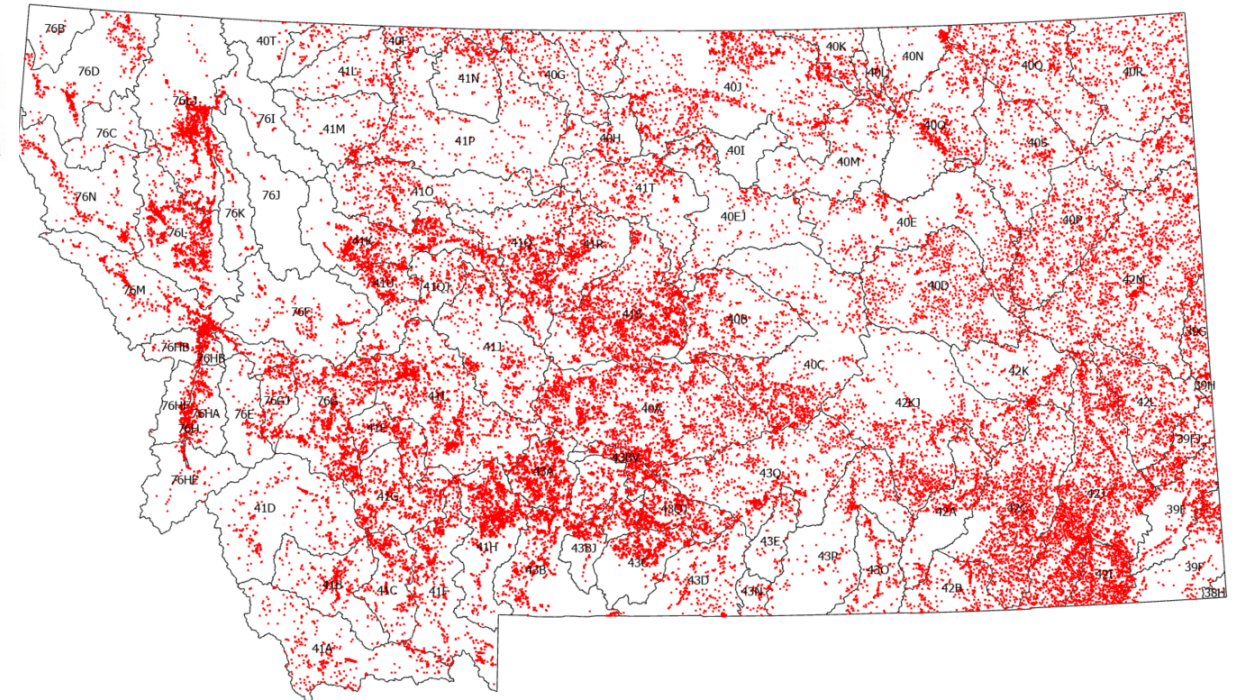
- SWG Request #6: MBMG well data/GWIC vs DNRC well data difference (well data)
- SWG Request #7: The number of exempt wells and by purpose (well data)
- SWG Request #8: Estimated volume used (based on standards) by exempt wells and estimated consumption by purpose (well data)
- SWG Request #9: What are the different purposes of exempt uses, distribution, and volume of those uses? (well data)

MBMG GWIC Wells

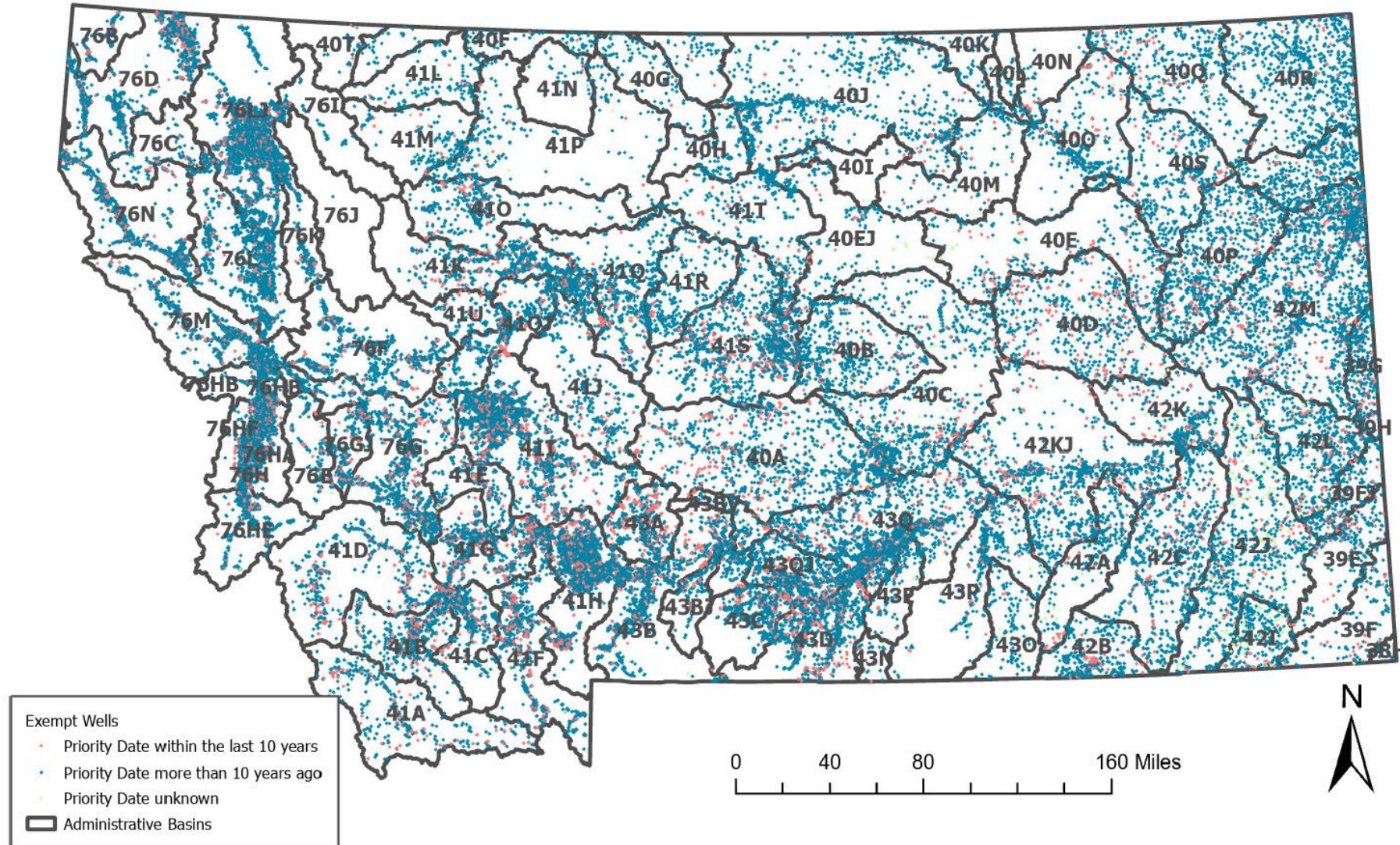


- DNRC WRQS = 215,167 water right entries (as of 2022)
- MBMG GWIC = 298,467 entries
- During 2022, DNRC attempted to match datasets.
 - We can confidently match 93,760 records.
 - The remainder do not have enough overlapping data features to confidently match

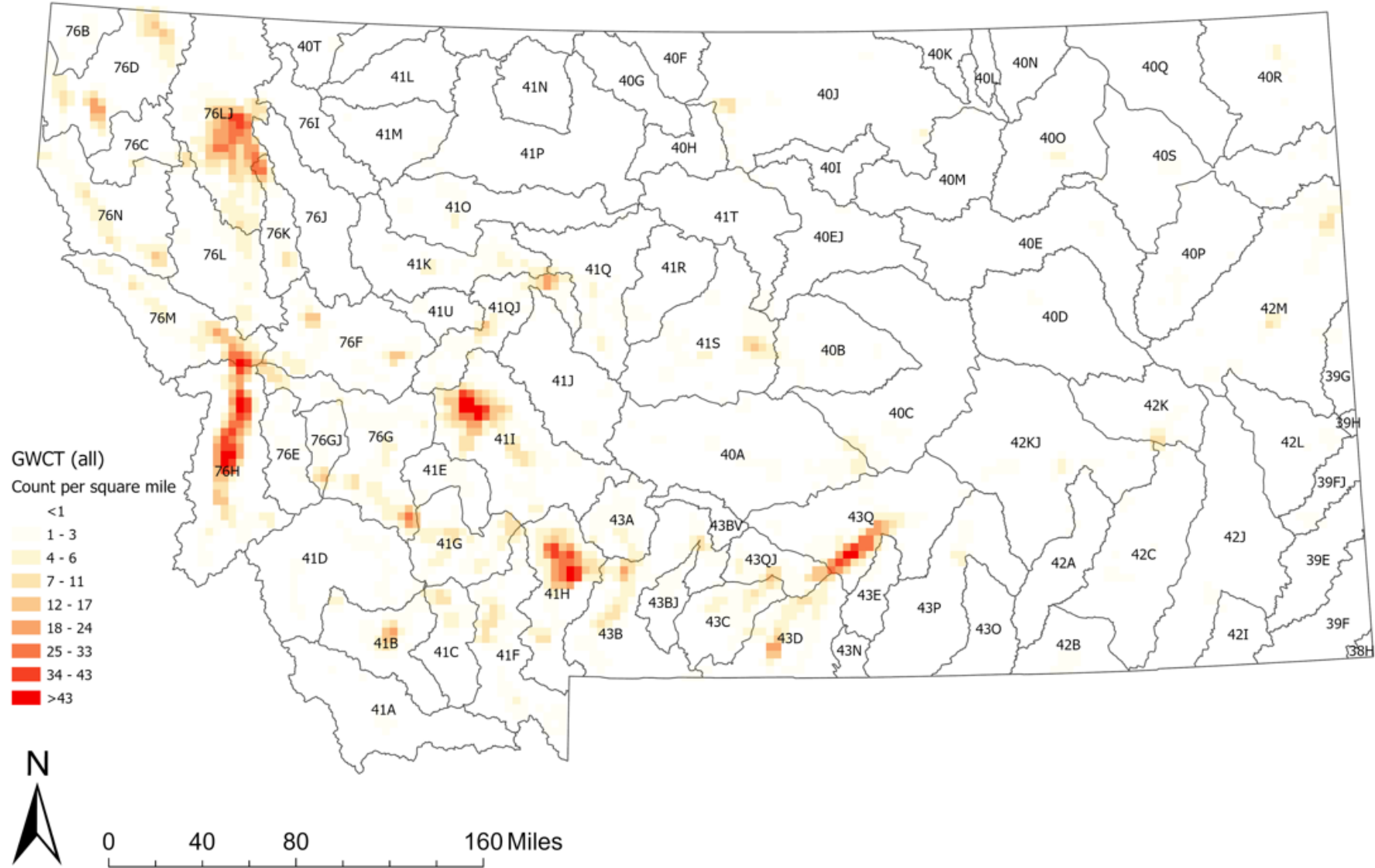
DNRC (permitted wells, claims, 602s)



Count of Exempt Wells



Count of Exempt Wells Per Square Mile by Administrative Basin



Clark Fork/Kootenai

Basin	Count
76B	262
76C	209
76D	4649
76E	325
76F	2740
76G	4478
76GJ	928
76H	16811
76I	102
76J	6
76K	1984
76L	1882
76LJ	13828
76M	6074
76N	2769

Upper Missouri

Basin	Count
41A	471
41B	1903
41C	1075
41D	1011
41E	463
41F	2316
41G	2502
41H	10899
41I	12265
41J	561
41K	1283
41L	156
41M	238
41N	37
41O	665
41P	302
41Q	986
41QJ	2580
41U	229

Lower Missouri

Basin	Count	Basin	Count
40A	1784	40L	26
40B	704	40M	157
40C	992	40N	49
40D	573	40O	520
40E	443	40P	873
40EJ	237	40Q	439
40F	187	40R	964
40G	87	40S	1086
40H	164	40T	87
40I	45	41R	312
40J	1561	41S	2215
40K	70	41T	367

TOTAL

140,766

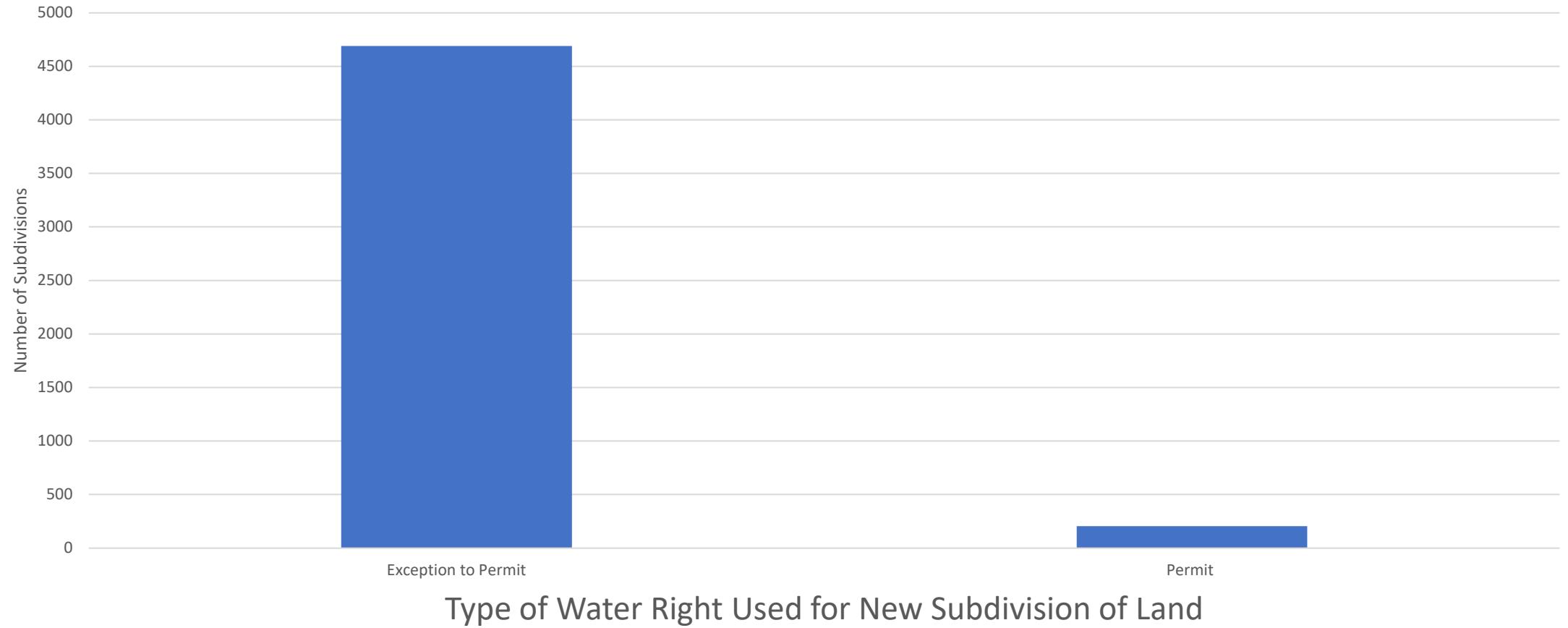
Yellowstone

Basin	Count
42A	276
42B	368
42C	1000
42I	218
42J	890
42K	694
42KJ	1244
42L	623
42M	3092
43A	1000
43B	3353
43BJ	362
43BV	167
43C	1564
43D	3224
43E	222
43N	37
43O	145
43P	539
43Q	7870
43QJ	1926

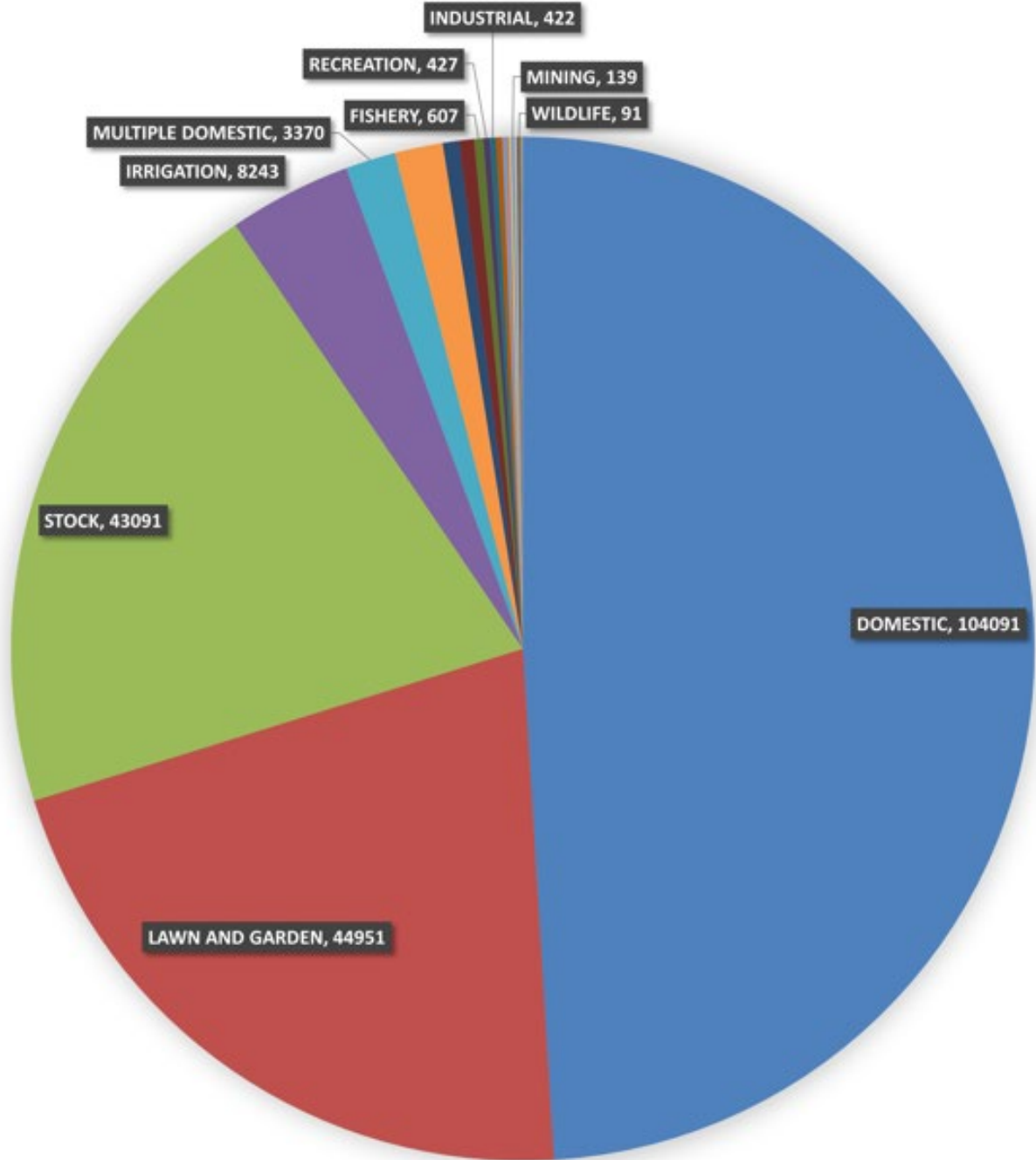
Little Missouri

Basin	Count
38H	8
39E	242
39F	196
39FJ	252
39G	304
39H	19

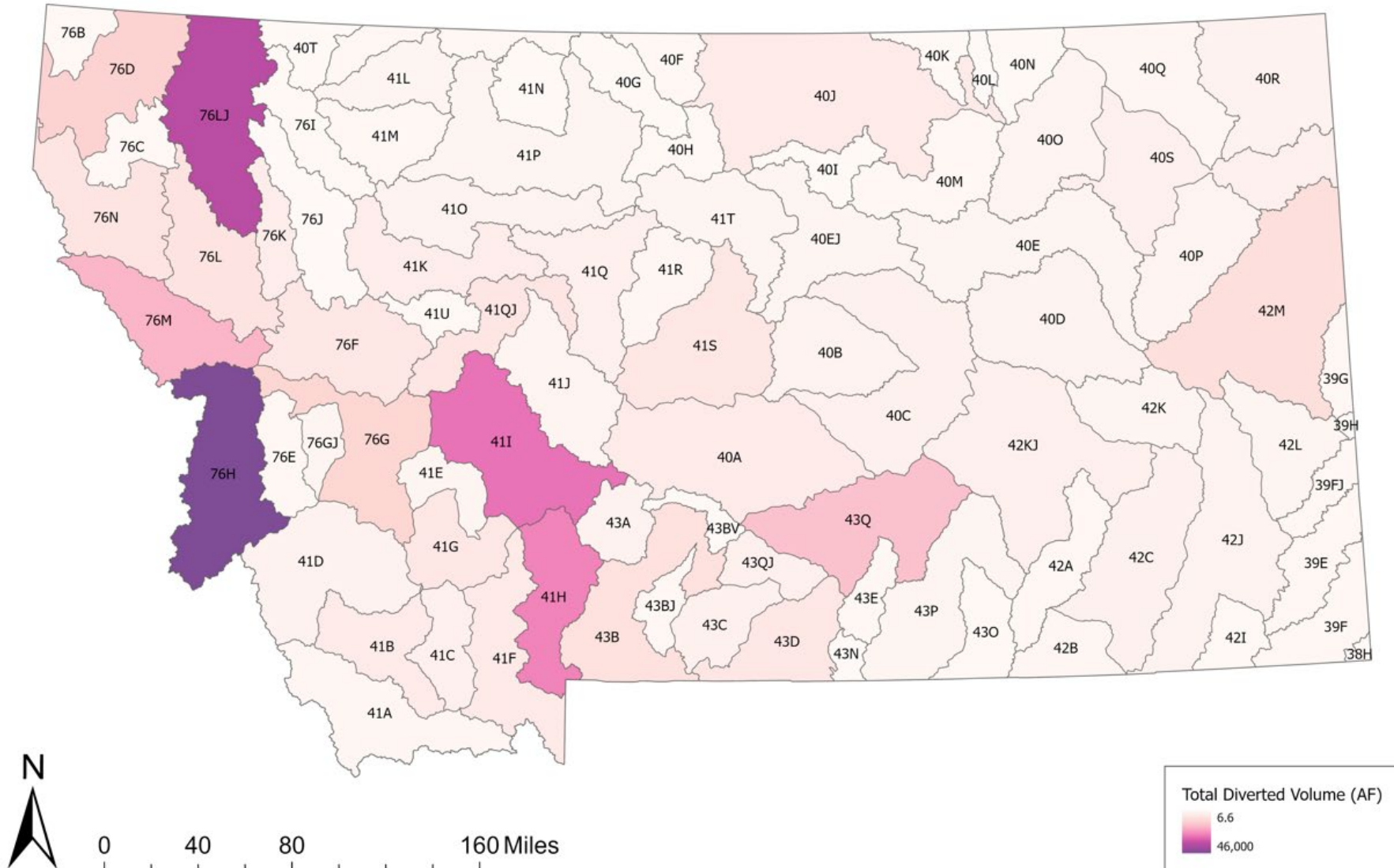
Exempt Well Use in DEQ Subdivision Review



Exempt Wells Count by Purpose Statewide



Exempt Well Total Volume by Administrative Basins



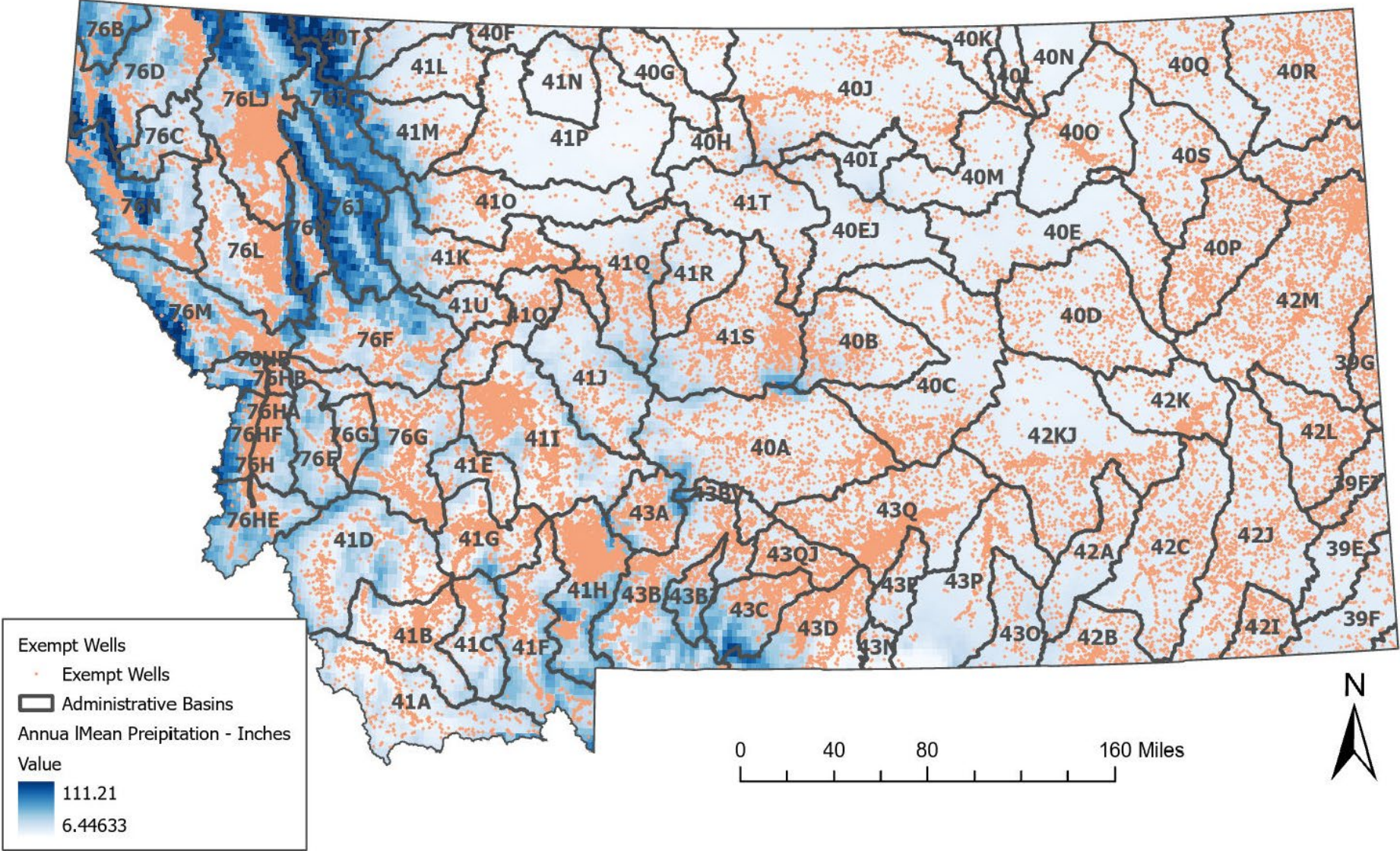
Takeaways from the Data

- There's the potential for exempt wells to impact senior water rights
 - High current/projected growth
 - High number/density of wells
 - Limited surface/groundwater availability
 - Other?
- The geographic areas with the potential for impact is variable across the state
- Additional data requests forthcoming & additional analyses needed
 - SWG Request #11: Exempt well by lot size
 - SWG Request #12: Exempt well by metric of location in the state; subject to a zoning authority
 - SWG Request #13: Cumulative effect per aquifer? Number of wells per aquifer
 - SWG Request #14: Assessment of the grandfathered plats and level of development

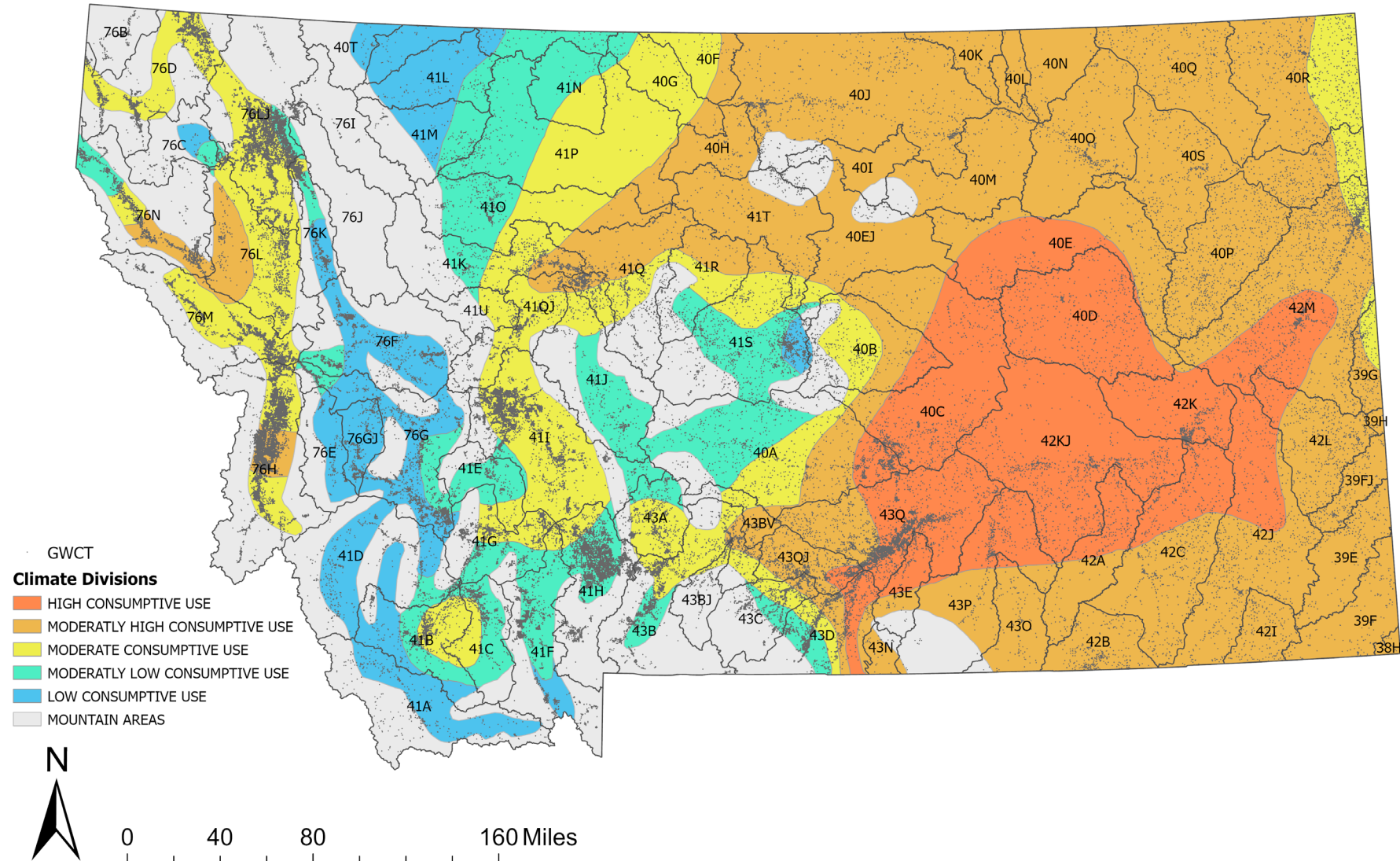
Appendix

- Additional data requested but not presented on 9.12.2023

Exempt Wells Overlaid with Precipitation



Exempt Wells Overlaid with Climatic Divisions

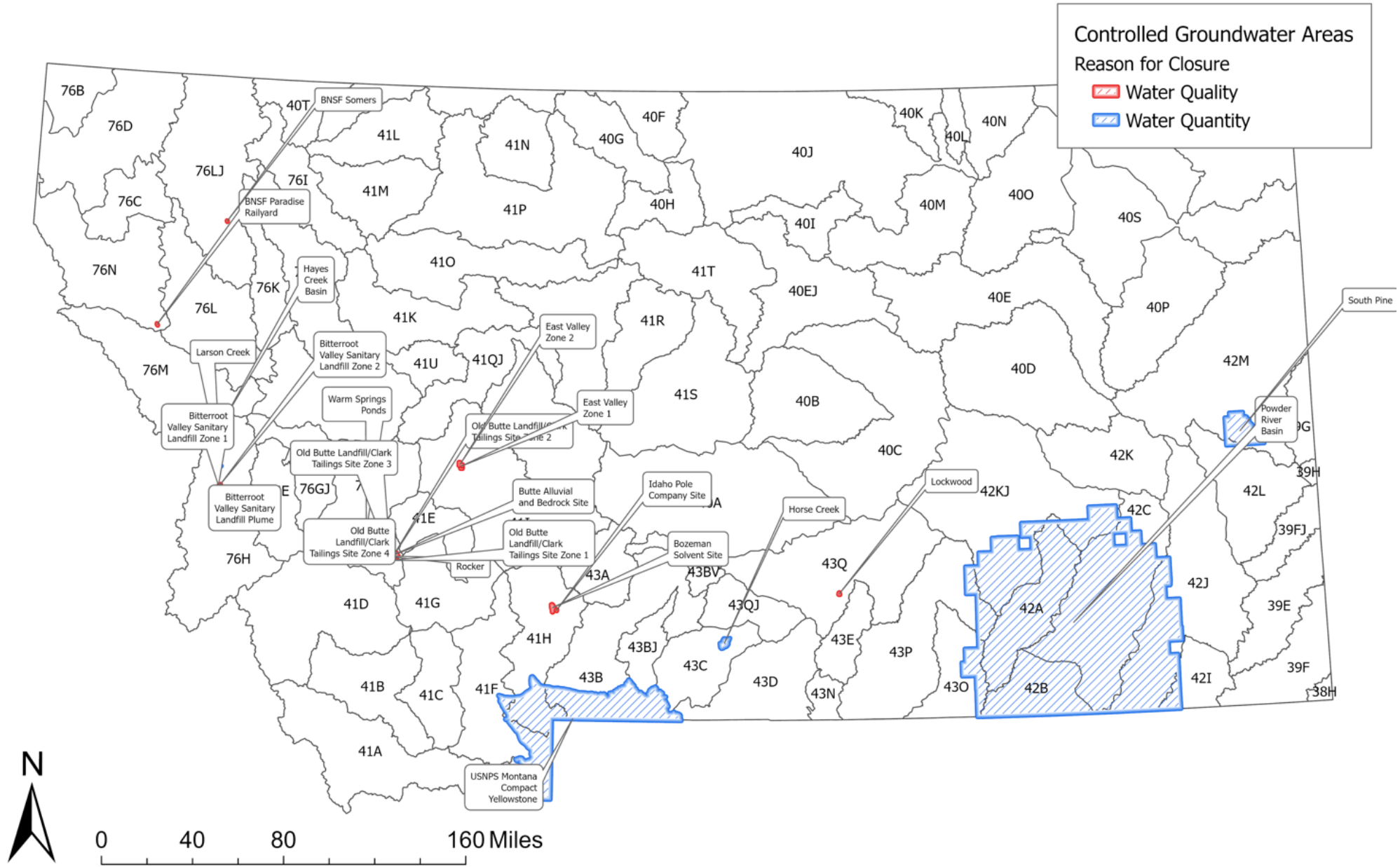


Purpose List	Counts by purpose
DOMESTIC	104091
LAWN AND GARDEN	44951
STOCK	43091
IRRIGATION	8243
MULTIPLE DOMESTIC	3370
COMMERCIAL	3221
FISH AND WILDLIFE	1091
OTHER PURPOSE	1004
FISHERY	607
RECREATION	427
INDUSTRIAL	422
WILDLIFE/WATERFOWL	403
INSTITUTIONAL	245
FIRE PROTECTION	192
AGRICULTURAL SPRAYING	180
MINING	139
MUNICIPAL	122
GEOHERMAL	95
GEOHERMAL HEATING	94
WILDLIFE	91
WETLAND MITIGATION CREDIT	71
POLLUTION ABATEMENT	35
OIL WELL FLOODING	29
OBSERVATION AND TESTING	20
UNKNOWN	13
POWER GENERATION	12
WATER MARKETING	8
WATERFOWL	8
WETLAND	8
EROSION CONTROL	2
MITIGATION WATER	2
SALE	2
AUGMENTATION	1
FISH RACEWAYS	1
INSTREAM FISHERY	1
STORAGE	1
Grand Total	212293

Controlled Groundwater Areas (CGWAs)

- The Department of Natural Resources and Conservation (DNRC) may designate or modify controlled groundwater areas.
- Another state or local agency or water users can petition for a controlled groundwater area.
- You can not use exempt wells in CGWAs; must get a permit (some variation on how this is applied).
- MT has 17 CGWAs (<https://dnrc.mt.gov/Water-Resources/Water-Rights/Basin-Closures-Stream-Depletion-Controlled-Ground-Water-Areas>)

Controlled Groundwater Areas



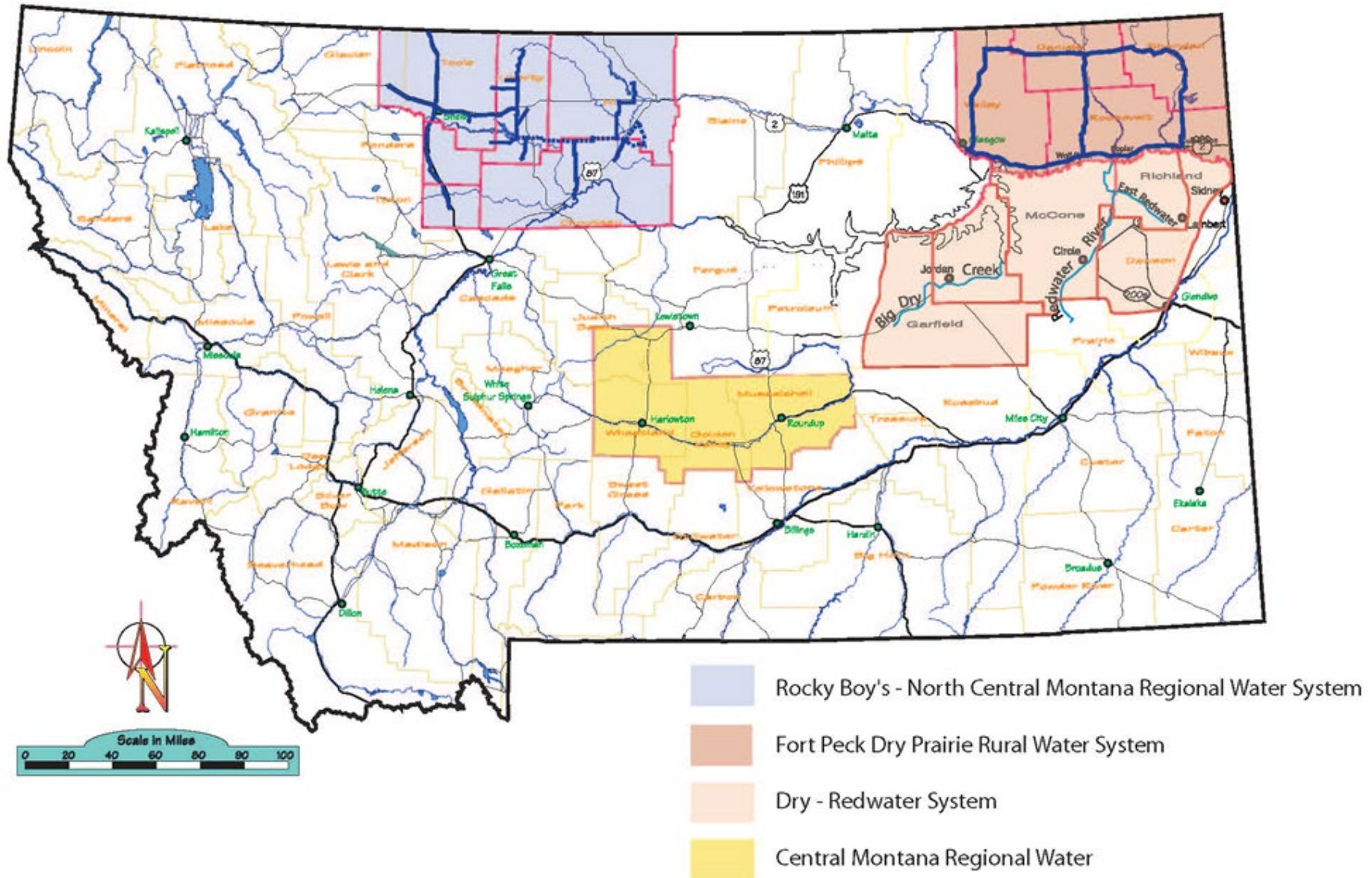
Stream Depletion Zones § 85-2-380, MCA

- A petition may be filed by:
 - municipality; county; conservation district; local water quality district formed under Title 7, chapter 13, part 45; or
 - the owners of at least 15% of the flow rate of the surface water rights in the area estimated to be affected.
- Montana currently has one Stream Depletion Zone in Ravalli County
- Stream Depletion Zone limits exception to 20 GPM flow rate and 2AF volume

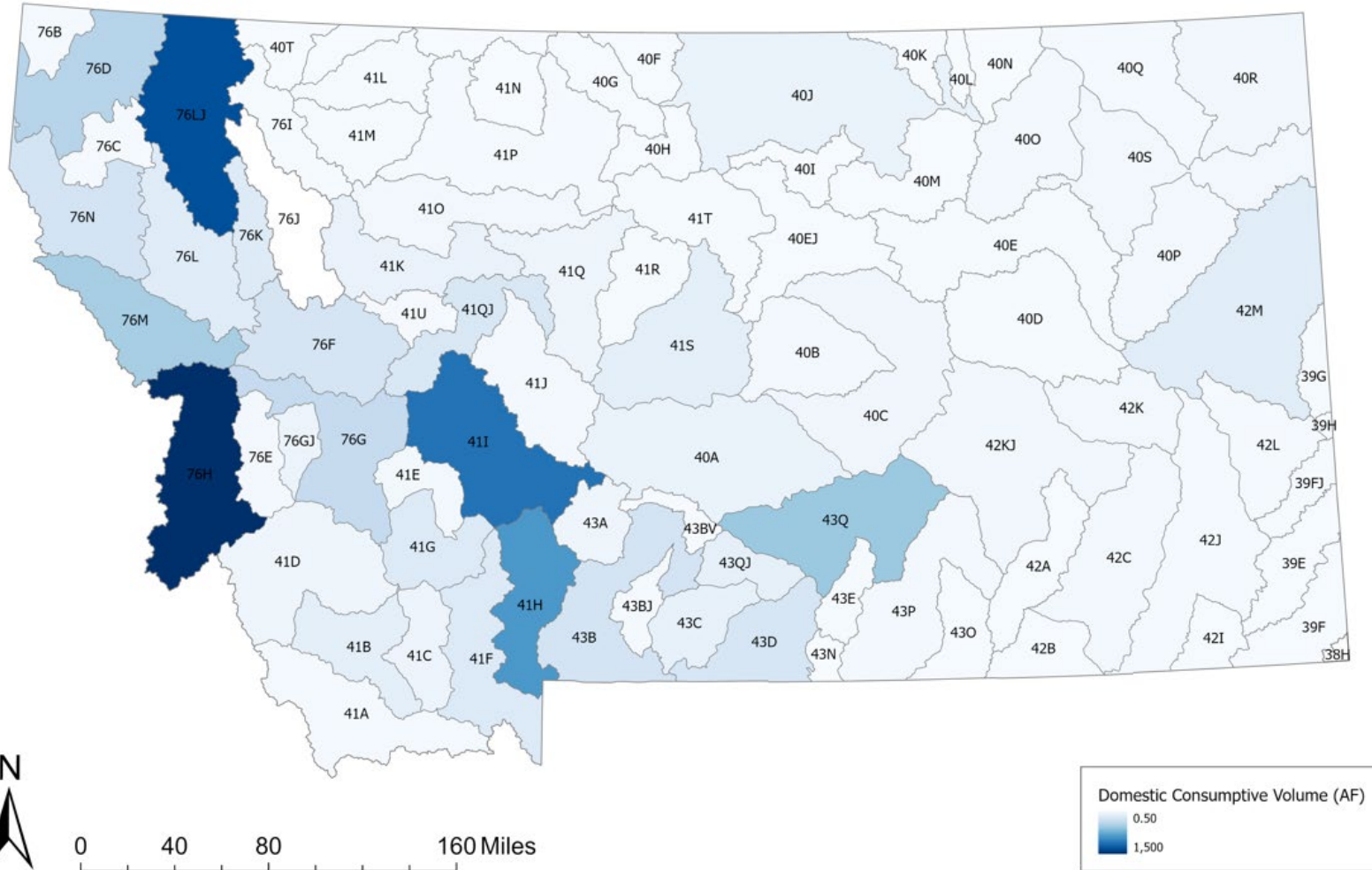
Regional Water Systems

- Montana currently has 4 in development
- All have relied on cooperation and funding from local communities, the U.S. Bureau of Reclamation, and the State of Montana.
- These projects were driven by poor water quality and by some areas of poor water quantity.
- They provide reliable and high-water quality for water users in these areas.

Areas to be Served by Regional Water Systems

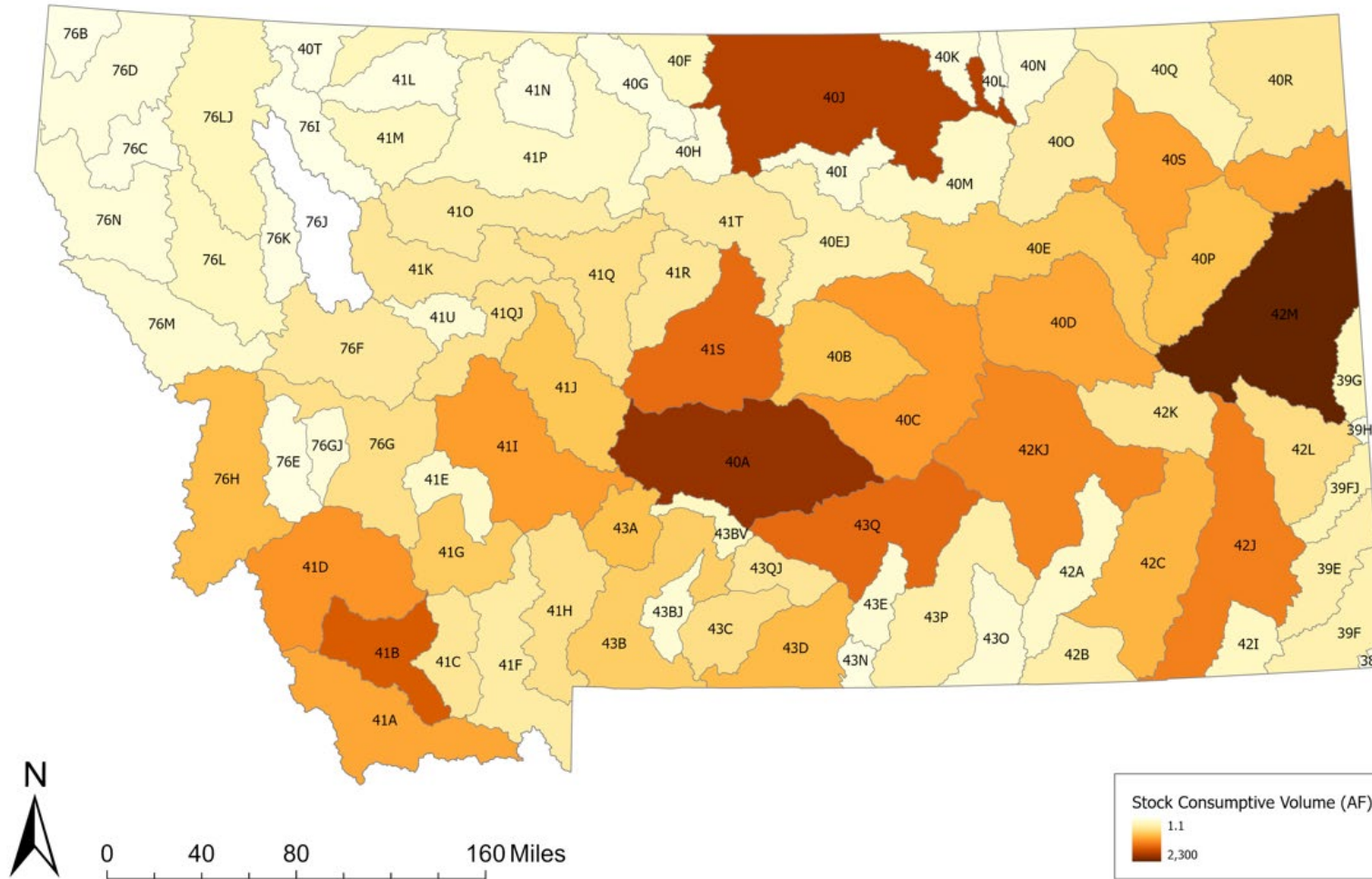


Volume Based on Domestic Use Consumptive Volume (ARM 36.12.115)



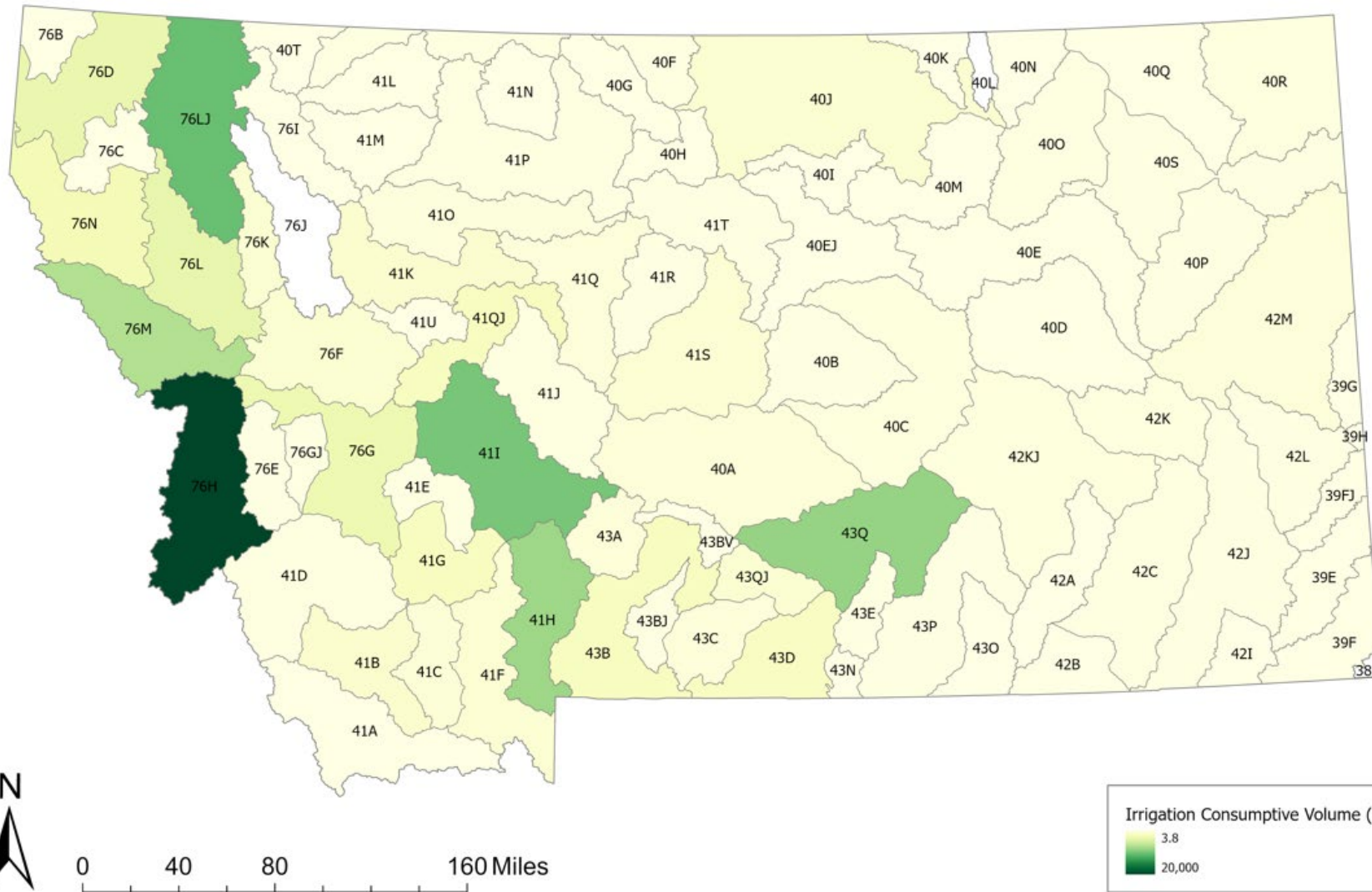
* Assumption- Domestic is 10% consumptive

Volume Based on Stockwater Use Consumptive Volume (ARM 36.12.115)



* Assumption: Stock is 100% consumptive

Volume Based on Acres Irrigated and Irrigation Climatic Areas Consumptive Volume (ARM 36.12.115)



*Most irrigation is lawn and garden purpose

- Irrigation consumption based on climatic area
 - Climatic Area 1: 2.1 AF/Acre
 - Climatic Area 2: 1.9 AF/Acre
 - Climatic Area 3: 1.7 AF/Acre
 - Climatic Area 4: 1.4 AF/Acre
 - Climatic Area 5: 1.0 AF/Acre
 - Climatic Area 6: 1.0 AF/Acre