

## Drinking Water Information Clackamas

### Agricultural Water Quality Management Area

Oregon Department of Environmental Quality, Drinking Water Protection Program

12/18/2020

- Public drinking water systems in the Clackamas Agricultural Water Quality Management Area utilize groundwater and surface water sources to serve approximately 345,639 persons regularly.
- Recent alerts for coliform bacteria are common, including many of the community water systems. The following public water systems had violations for the *E. coli* or total coliform maximum contaminant limit (MCL): Currinsville Mobile Home Park, Mountain View Mobile Estates, and Excalibur Village.
- Four public water systems had alerts for elevated nitrate concentration with no MCL violations.
- Twenty of the 1,435 tested private wells in the area had elevated nitrate concentrations ( $\geq 5$  mg/L). Four of the wells had nitrate concentrations over the MCL ( $\geq 10$  mg/L).
- Contaminants in water supplies potentially related to agriculture co-occur with human populations, agricultural land uses, and aquifers susceptible to contaminant infiltration.
- DEQ acknowledges that small water systems may have limited capacity and resources to deal with potential contamination issues. The Drinking Water Protection program is available for technical assistance and is developing outreach materials to better coordinate with water systems in disadvantaged communities.

Ninety-seven Public Water Systems obtain domestic drinking water from groundwater and surface water sources in the Clackamas Agricultural Water Quality Management Area. Drinking water is an important beneficial use under the federal Clean Water Act. When Clean Water Act standards are met in source waters, a drinking water treatment plant using standard technology can generate water meeting the Safe Drinking Water Act maximum contaminant limits (MCLs).

Agricultural land uses (berries, orchards, nurseries, grains, filberts, dairies, livestock, etc.) are present near many of the public water system wells and springs in the management area. The agricultural lands are concentrated in the western portion of the management area.

There are 29 Community Public water systems in the plan area using only groundwater wells to serve approximately 33,949 people on a regular basis, in addition to visitors at recreation sites. There are 7 Community Public Water Systems using surface water to serve 303,173 people regularly. There are 13 active Non-transient, Non-community workplace or school public water systems using groundwater, serving 2,405 persons regularly. The remaining 48 active public water systems are Transient Non-community systems and Non-public, State-regulated systems with an estimated service population of 6,112. See Table 1 below for a list of public water systems, their classifications, sources and activity status, and populations served.

### *Bacteria*

Seven community public water systems in the management area have recent alerts for detections of *E. coli* bacteria: USFS Lockaby Campground Hand Pump, Currinsville Mobile Home Park, Canby Regency, USFS Armstrong Campground, Kellys Corner Market, Clackamas River RV Park, and the City of Wilsonville. Currinsville Mobile Home Park has a violation of the MCL for *E. coli*. Mountain View Mobile Estates and Excalibur Village have recent violations for the Total Coliform MCL. These PWSs with bacterial detections are marked in **Bold** text in Table 1.

### *Nitrates*

Nitrate alerts (generated when nitrate exceeds 5 mg/L) for public wells exist for the USFS Riverside Campground Hand Pump, the USFS Fish Creek Campground Hand Pump, Kellys Corner Market, and Canby Regency. None had MCL violations. The drinking water MCL for nitrates is 10 mg/L. These contaminants are often related to animal and cropland agriculture. The locations of nitrate contamination of public drinking water sources and private domestic wells (see below) is near to agricultural land uses.

Nitrate contamination is often related to animal and cropland agriculture. The soils through most of the management area have moderate or high nitrate leaching potential, according to the National Cooperative Soil Survey, based on slope, precipitation, and land use; data are not available for much of the area.

Oregon Health Authority rated some of the public water system wells in the Ag WQMA for contaminant susceptibility for land use impacts to drinking water sources based on Source Water Assessments, aquifer characteristics, and well locations and construction. The management area has a mix of low, moderate, and high susceptibility wells. The nitrate and other contamination issues described above and the ready movement of nitrogen into aquifers in the area verify this susceptibility. Measures to reduce leachable nitrate in soils would reduce risk to groundwater sources of drinking water.

DEQ only addresses drinking water issues identified for PUBLIC water systems. A query of Oregon Water Resources' water rights database for private domestic points of diversion (using a threshold of 0.005 cfs for domestic surface water rights that are household use only, not irrigation) identified 31 private domestic water rights in the area. There are also numerous private groundwater wells for domestic use. The Domestic Well Testing Act database (real estate transaction testing data) for 1989-2018 indicates that out of the 1435 well results included in the database for this area, 20 wells had nitrate concentrations above 5 mg/L. Twelve wells had significant detections of nitrate: eight wells  $\geq 7$ mg/L and four wells recorded  $\geq 10$ mg/L for the area. Nitrate from fertilizers and septic systems can readily penetrate to the aquifers used for drinking water when leaching potential is high or very high, and bacteria removal through soil filtration can be less effective in sandy soils.

### *Other*

Non-agricultural related contaminants found include lead, sodium, fluoride, and toluene.

Drinking Water Protection staff are happy to provide additional details, maps, and recommendations upon request.

**Table 1. Public Water Systems in the Clackamas River Ag WQMA**

Note: Table 1 does not include public water systems which purchase drinking water from these water systems but does include the population served by wholesale customers in the Total Population. **Bold text indicates PWSs w/ recent bacteria alerts.**

PWS ID	Public Water System Name	Drinking Water Source	Type	Population
<b>Ground Water Systems</b>				
4190041	Clackamas Co Parks - Barton Park	2 GW wells	NC	300
4190053	Clackamas Co Parks - Eagle Fern	1 GW well	NC	150
4190091	Viewpoint Restaurant/Lounge	1 GW well	NC	90
4190452	Clackamas Co Parks - Metzler Park	1 GW well	NC	400
4190485	Squaw Mountain Ranch Inc	1 GW well	NC	35
4190516	Cedars Lutheran Outdoor Ministry	INACTIVE	NC	30
4190760	Clackamas Co Parks - Hebb Park	1 GW well	NC	100
4192606	USFS Riverside Campgrnd - Hand Pump	1 GW well	NC	40
4192619	USFS Lazy Bend CG	1 GW well	NC	100
4192621	USFS Roaring River Campground	1 GW well	NC	45
4192622	USFS Fish Creek CG - Hand Pump	1 GW well	NC	75
4192624	USFS Sunstrip Campground - Hand Pump	1 GW well	NC	25
<b>4192625</b>	<b>USFS Lockaby CG - Hand Pump</b>	<b>1 GW well</b>	<b>NC</b>	<b>90</b>
4192887	USFS Kingfisher CG	1 GW well	NC	60
4192890	USFS Indian Henry CG	1 GW well	NC	50
4193548	Eagle Creek Inn	1 GW well	NC	50
4193549	Eagle Fern Camp	2 GW wells, 1 inactive GW well	NC	100
4193564	Camp Kuratli At Trestle Glen	1 GW well	NC	250
4193565	Sandelie Golf Course	1 GW well	NP	20
4193568	Springwater Golf Course	1 GW well	NP	15
4193569	Spinning Wheel	1 GW well	NC	74
4193594	OPRD Milo McIver State Park	1 GW well	NC	850
4193700	Collins Retreat Center	1 GW well	NC	30
4194206	USFS Harriet Lake CG	1 GW well	NC	45
4194621	Backroads Pub & Grub	1 GW well	NC	200
4194638	Top O The Mornin	1 GW well	NC	100
4194639	Eagle Creek Chevron-Hwy 224	1 GW well	NC	140
4194739	Porkys Deli & Pit	INACTIVE	NC	50
4194833	Pheasant Ridge RV Park	1 GW well, 1 inactive emergency well	NC	190
4194973	Clackamas Co Parks - Metzler Park #2	1 GW well	NC	400
4195064	Canby United Methodist Church	INACTIVE	NC	150
4195121	Clackamas Co Parks - Barton RV Park	1 GW well	NC	90
4100135	Boring Water District No 24	4 GW wells, 1 inactive emergency well	C	2500
4100139	Ranchero Petite Improvement District	2 GW wells	C	40
4194670	Oregon Trail SD - Boring Middle School	1 GW well	NTNC	400
4194669	Hoodview Junior Academy	1 GW well	NTNC	120

4194946	Guide Dogs For The Blind, Inc.	1 GW well	NTNC	75
4100141	Orient Drive Mobile Estates	2 GW wells, 1 inactive emergency well	C	75
4193720	Kelso Elementary, Sandy SD #46	1 GW well	NTNC	450
4100134	Kelso Water Assn	2 GW wells	C	300
4101053	Riverbend Mobile Home Park	2 GW wells	C	550
4101145	Riverview Manufactured Home Court	1 GW well	C	400
4100189	Carver Mobile Ranch	1 GW well	C	110
4100188	Carver Water Co-Op Association	INACTIVE	C	85
4105094	Youth Adventures Inc	INACTIVE	NTNC	60
4101068	Big Valley Woods RV Resort	1 GW well, 2 inactive emergency wells	C	420
4194992	Sandy Ridge Headstart	1 GW well	NTNC	40
4100140	Barlow Trail Estates	2 GW wells	C	180
4100791	Wunder Mobile Park	2 GW wells	C	100
4193715	Eagle Creek Elementary, SD 108	1 GW well	NTNC	300
4194063	West Linn/Wilsonville	1 GW well	NTNC	40
4101207	Forest Park Mobile Village	1 GW well	C	85
4101264	Spar Tree Mobile Home Park	1 GW well	C	25
4101222	Eagle Crest Mobile Home Park	3 GW wells	C	300
4195024	Oregon Golf Course	1 GW well	NTNC	35
4100280	Cedarhurst Improvement Club	1 GW well	C	60
4100264	Paradise Community Assoc	1 GW well	C	75
4101419	Eagle Creek Mobile Estates	1 GW well	C	35
4101120	Thunderbird Mobile Club	INACTIVE	C	150
<b>4100266</b>	<b>Currinsville Mobile Home Park</b>	<b>1 GW well</b>	<b>C</b>	<b>90</b>
4100265	Twin Island Community	1 GW well	C	80
<b>4101125</b>	<b>Mountain View Mobile Estates</b>	<b>2 GW wells</b>	<b>C</b>	<b>95</b>
4100458	Riverbend-Riverbank Community	2 GW wells	C	225
4100282	Springwater Estates	3 GW wells	C	110
4105086	Polehn Heights Water Assn	2 GW wells	C	150
<b>4100163</b>	<b>Canby Regency</b>	<b>1 GW well</b>	<b>C</b>	<b>300</b>
4194720	Parrott Creek Child & Family Svcs	1 GW well	NP	23
4101252	Estacada Mobile Village	2 GW wells	C	150
<b>4100599</b>	<b>Excalibur Village</b>	<b>2 GW wells</b>	<b>C</b>	<b>180</b>
4193970	Carus Elementary	1 GW well	NTNC	320
4193721	Molalla Alternative Options School	INACTIVE	NTNC	80
4193957	PGE Faraday Dam	1 GW well, 1 inactive emergency well	NTNC	35
4100281	PGE Three Lynx (Oak Grove)	INACTIVE	NP	5
4101093	USFS Timber Lake JCC	INACTIVE	NTNC	450
<b>4192623</b>	<b>USFS Armstrong Campground</b>	<b>1 GW well</b>	<b>NC</b>	<b>40</b>
4101223	Walnut Mobile Home Park	1 GW well, 1 emergency SWP	C	200
4195464	Lekaroz WS	1 GW well	NP	15
4192597	USFS Clackamas Lake WS	1 GW well	NC	60
4195169	Beavercreek United Church Of Christ	1 GW well	NC	70

4192880	USFS Little Crater Lake Cg	1 GW well	NC	30
4194371	Barton Community Baptist Annex	1 GW well	NC	100
4195517	Estacada Lds - Well #1 (New)	1 GW well	NC	150
4195518	Estacada Lds - Well #2 (Old)	INACTIVE	NC	150
4192878	USFS Gone Crk Hoodview Pine Pt	1 GW well	NC	500
4190504	PGE Timothy Lake (Oak Grove)	1 GW well	NC	25
<b>4194706</b>	<b>Kellys Corner Market</b>	<b>1 GW well</b>	<b>NC</b>	<b>200</b>
<b>4194761</b>	<b>Clackamas River Rv Park</b>	<b>1 GW well</b>	<b>NC</b>	<b>100</b>
4194941	Tualatin Valley Regional Trng Ctr	1 GW well, 1 inactive emergency well	NC	300
4100906	City of Tualatin	1 GW well, 1SWP (Portland Water Bureau)	C	26,879
<b>Surface Water Systems</b>				
4100635	Sunrise Water Authority	3 SWP wells, 5 GW wells, 1 inactive emergency GW well	C	46,228
<b>4100954</b>	<b>City of Wilsonville</b>	<b>1 SW well (Willamette River), 8 inactive emergency GW wells</b>	<b>C</b>	<b>22,729</b>
4100279	City of Estacada	1 SW (Clackamas River)	C	3,725
4100187	Clackamas River Water – Clackamas	1 SW (Clackamas River)	C	41,338
4100580	North Clackamas County Water Comm.	1 SW (Clackamas River)	C wholesale	87,700
4100457	Lake Oswego Municipal Water	SWP	C	36,453
4100591	South Fork Water Board – Oregon City	1 SW (Clackamas River)	C wholesale	65,000

System Type:

C - "Community Water System (C)" means a public water system that has 15 or more service connections used by year-round residents or that regularly serves 25 or more year-round residents.

NTNC - "Non-Transient Non-Community Water System (NTNC)" means a public water system that is not a Community Water System and that regularly serves at least 25 of the same persons over 6 months per year.

NC - "Transient Non-Community Water System (NC)" means a public water system that serves a transient population of 25 or more persons.

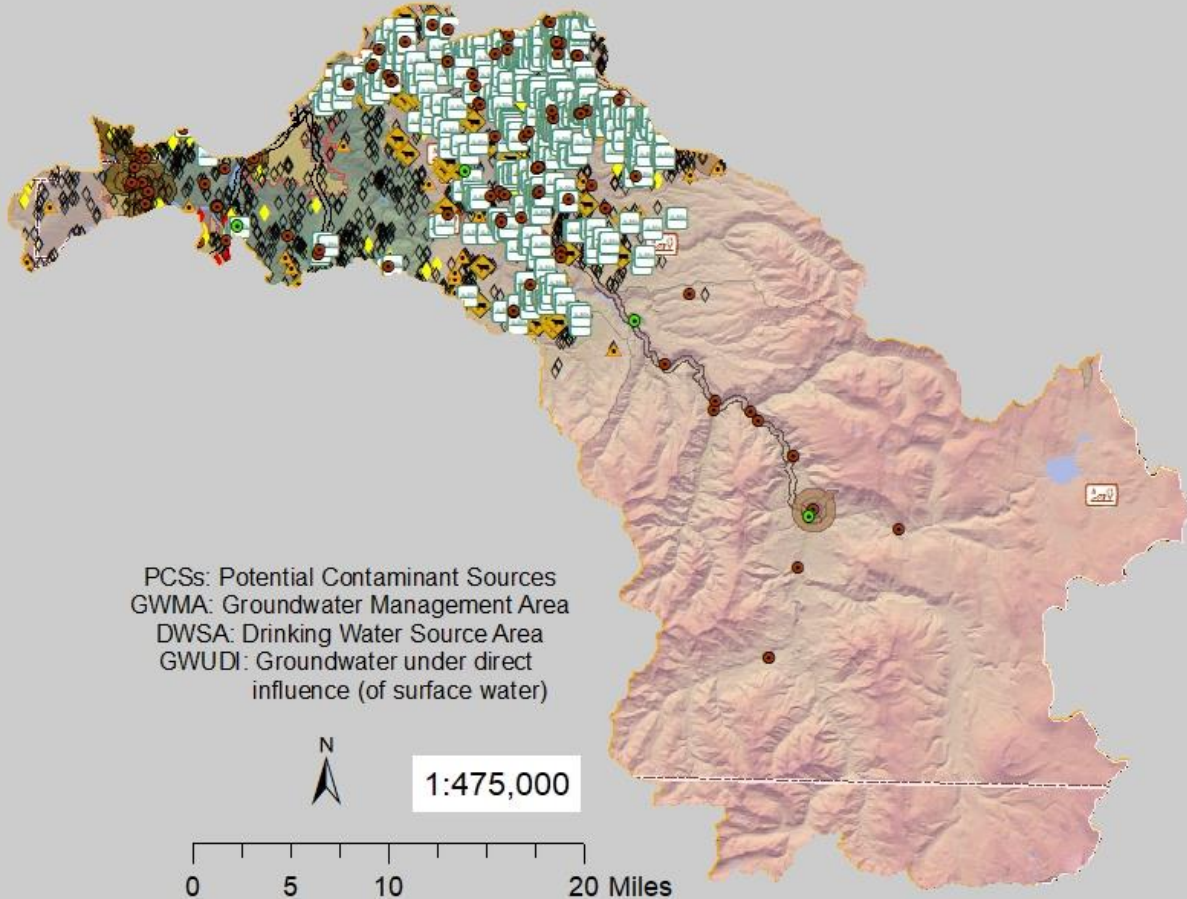
NP - "State Regulated Water System (NP)" means a public water system, which serves 4 to 14 service connections or serves 10 to 24 people. Monitoring requirements for these systems are the same as those for Transient Non-Community water systems.



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# Drinking Water Source Areas for Public Water Systems in Clackamas Agricultural Water Quality Management Area



PCSs: Potential Contaminant Sources  
 GWMA: Groundwater Management Area  
 DWSA: Drinking Water Source Area  
 GWUDI: Groundwater under direct  
 influence (of surface water)



1:475,000

0 5 10 20 Miles

Clackamas_AgWQMA	Nitrate: Private Well Testing	Groundwater DWSA
Public Water Supply Spring	0 to 3 mg/L	Surface watershed for GWUDI
Public Water Supply Well	>3 to 7 mg/L	Surface Water DWSA
Cropland PCSs	>7 to 10 mg/L	City Limits (2017)
Animals PCSs	>10 to 50 mg/L	Domestic SW Rights
Other Ag PCSs	>50 mg/L	

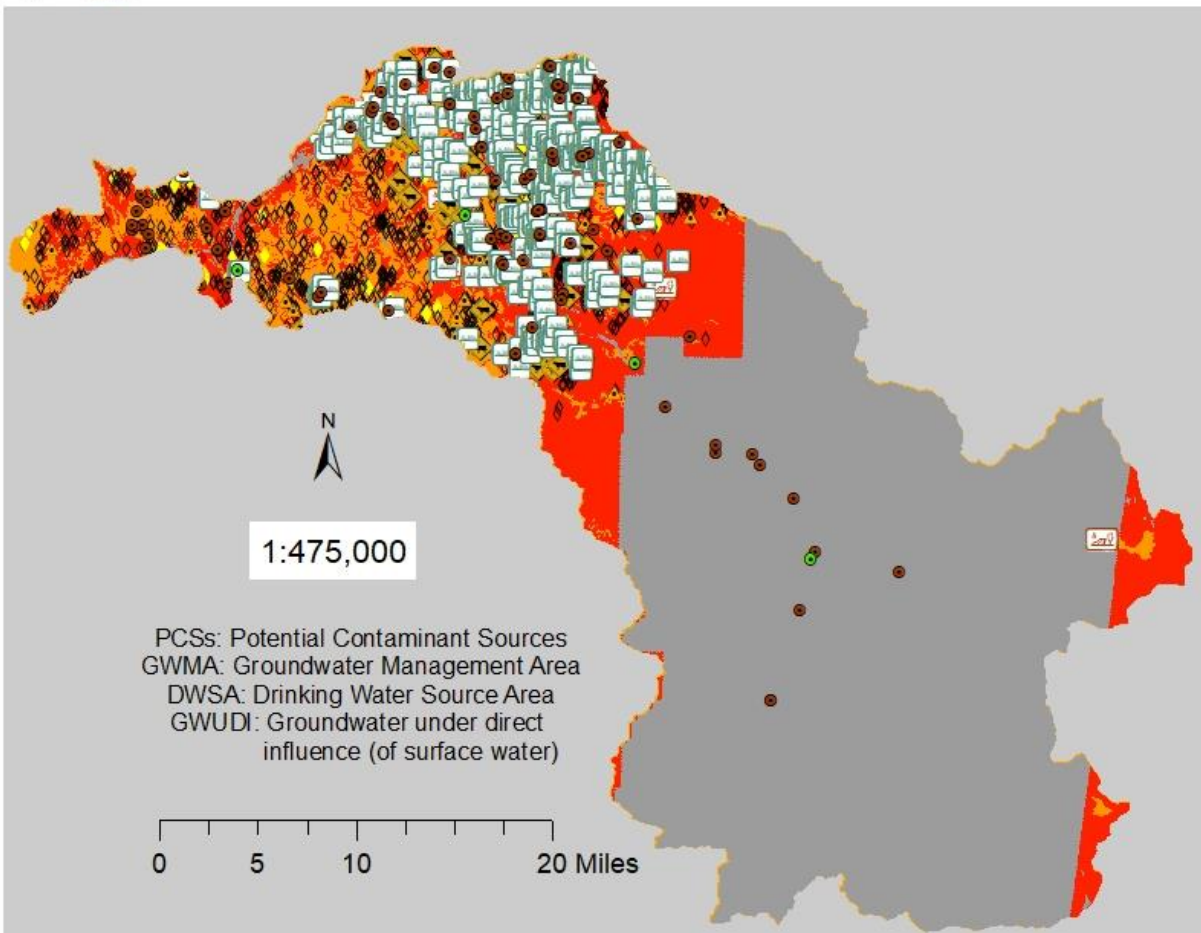
The Drinking Water Source Area (DWSA) delineations define areas that supply the drinking water system. For groundwater this is defined as the area on the surface that overlies that portion of the aquifer that supplies water to a well or spring. DWSAs for wells typically show the 1-, 2-, 5-, and 10- or 15-yr time of travel zones that indicate the amount of time it takes groundwater to move to the wellhead. DWSAs for springs typically show area of short-, intermediate-, and long-term groundwater flow to the spring. DWSAs for surface water represents the watershed that supplies the waterbody where the intake is located.



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# Drinking Water Source Areas for Public Water Systems in Clackamas Agricultural WQMA: Nitrate Leaching Potential



1:475,000

PCSs: Potential Contaminant Sources  
 GWMA: Groundwater Management Area  
 DWSA: Drinking Water Source Area  
 GWUDI: Groundwater under direct influence (of surface water)

0 5 10 20 Miles

Clackamas_AgWQMA	Nitrate: Private Well Testing	<b>Nitrate Leaching Potential</b>
Public Water Supply Spring	0 to 3 mg/L	Not rated or not available
Public Water Supply Well	>3 to 7 mg/L	Low
Cropland PCSs	>7 to 10 mg/L	Moderate
Animals PCSs	>10 to 50 mg/L	Moderately high
Other Ag PCSs	>50 mg/L	High
Domestic SW Rights		

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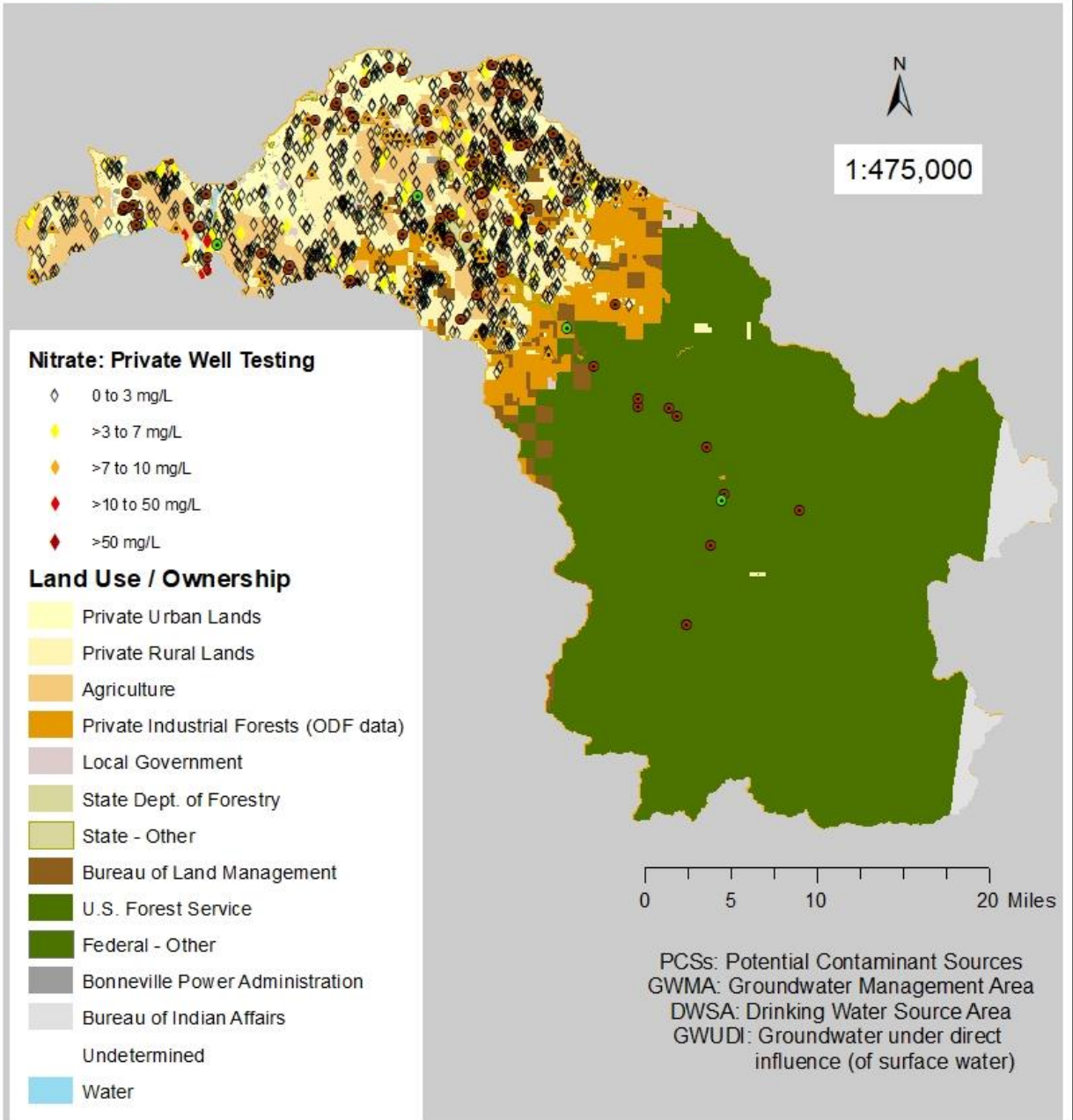




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# Drinking Water Source Areas for Public Water Systems in Clackamas Agricultural WQMA: Land Use / Ownership



The Drinking Water Source Area (DWSA) delineations define areas that supply the drinking water system. For groundwater this is defined as the area on the surface that overlies that portion of the aquifer that supplies water to a well or spring. DWSAs for wells typically show the 1-, 2-, 5-, and 10- or 15-yr time of travel zones that indicate the amount of time it takes groundwater to move to the wellhead. DWSAs for springs typically show area of short-, intermediate-, and long-term groundwater flow to the spring. DWSAs for surface water represents the watershed that supplies the waterbody where the intake is located.

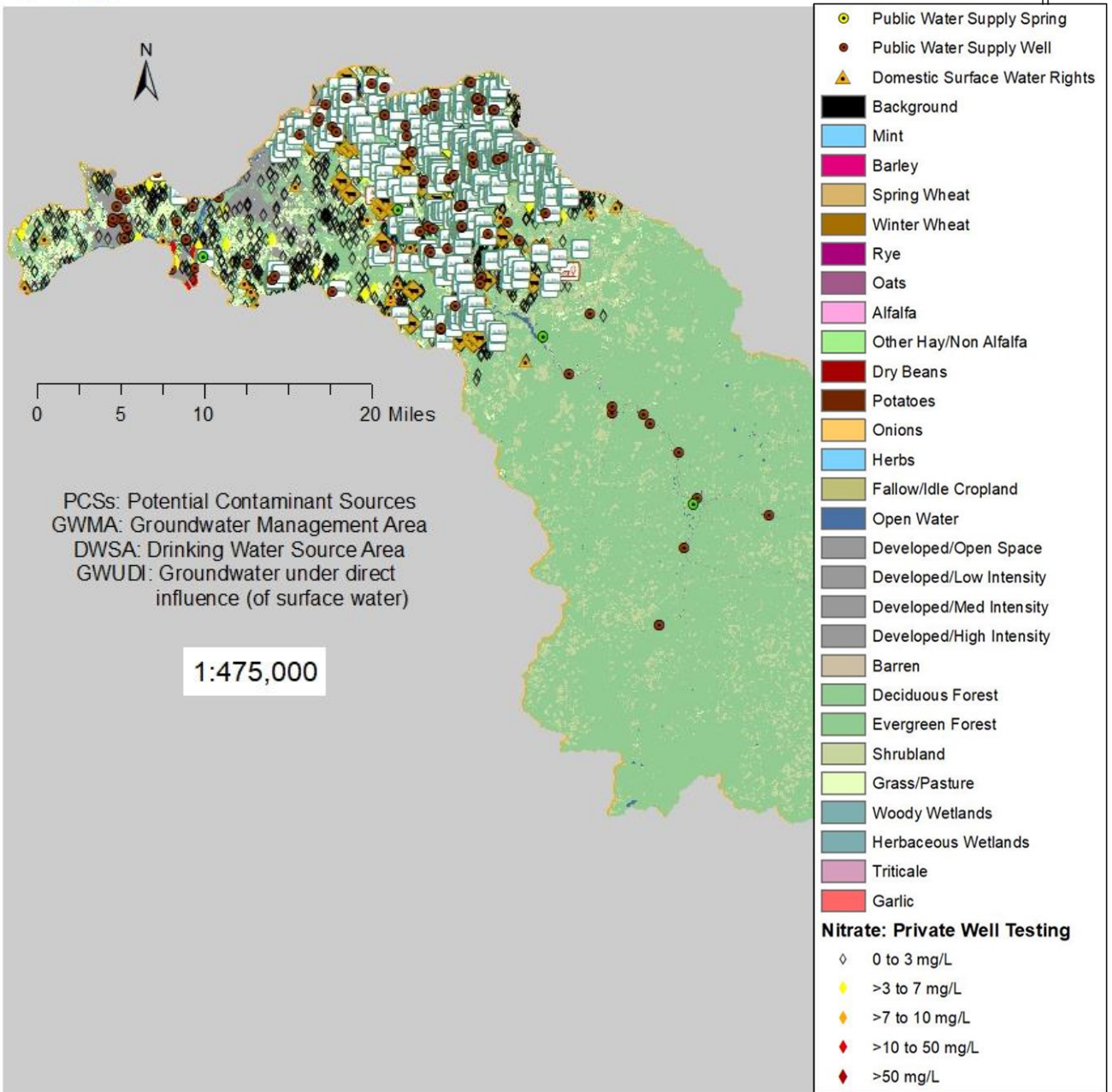




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# Drinking Water Source Areas for Public Water Systems in Clackamas Agricultural WQMA: Crops (2015 NASS)



The Drinking Water Source Area (DWSA) delineations define areas that supply the drinking water system. For groundwater this is defined as the area on the surface that overlies that portion of the aquifer that supplies water to a well or spring. DWSAs for wells typically show the 1-, 2-, 5-, and 10- or 15-yr time of travel zones that indicate the amount of time it takes groundwater to move to the wellhead. DWSAs for springs typically show area of short-, intermediate-, and long-term groundwater flow to the spring. DWSAs for surface water represents the watershed that supplies the waterbody where the intake is located.