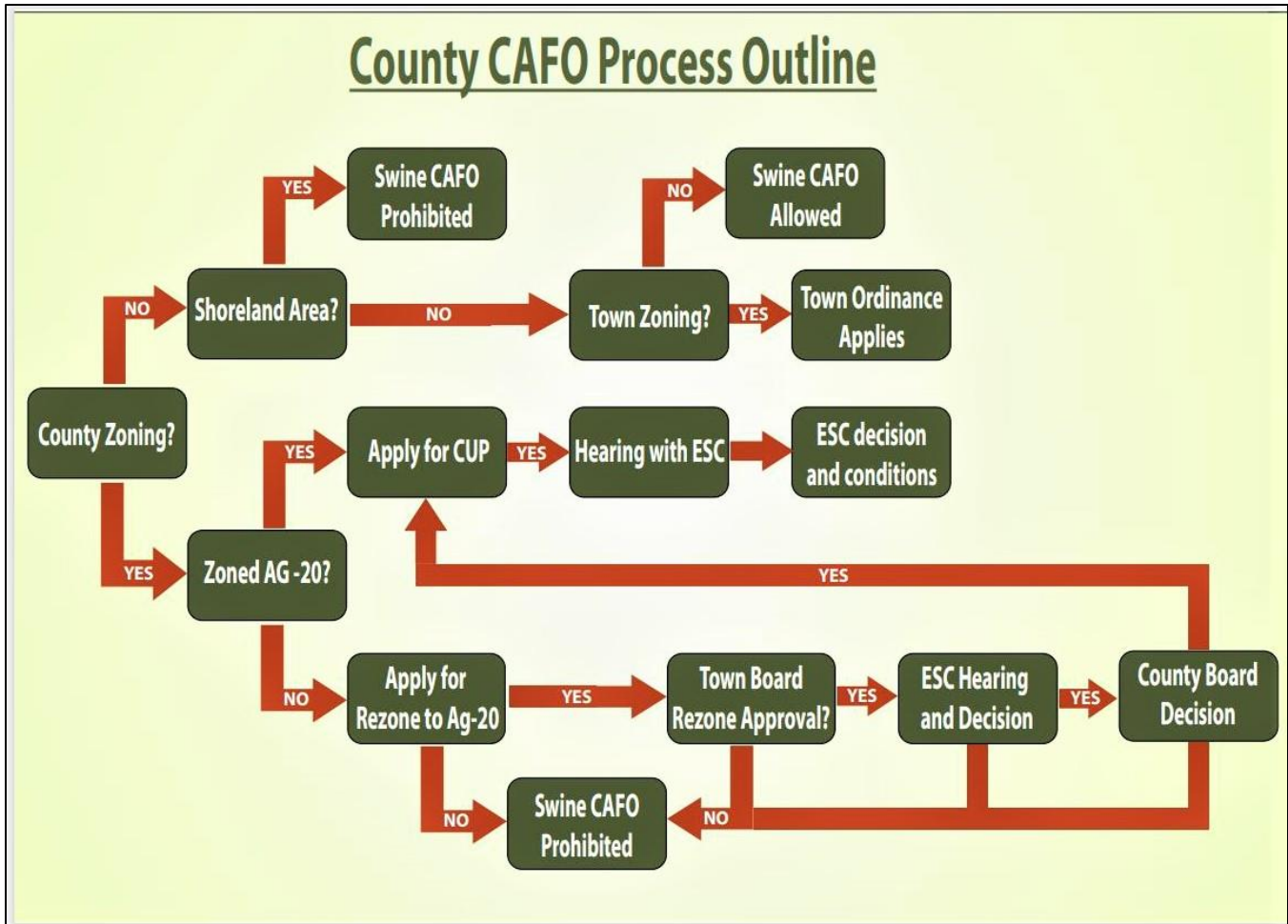


**TOWN OF BONE LAKE  
POLK COUNTY, WISCONSIN  
ORDINANCE NO. 2-2022  
CONCENTRATED ANIMAL FEEDING OPERATIONS (CAFO) ORDINANCE  
DRAFT APPENDIX B.**

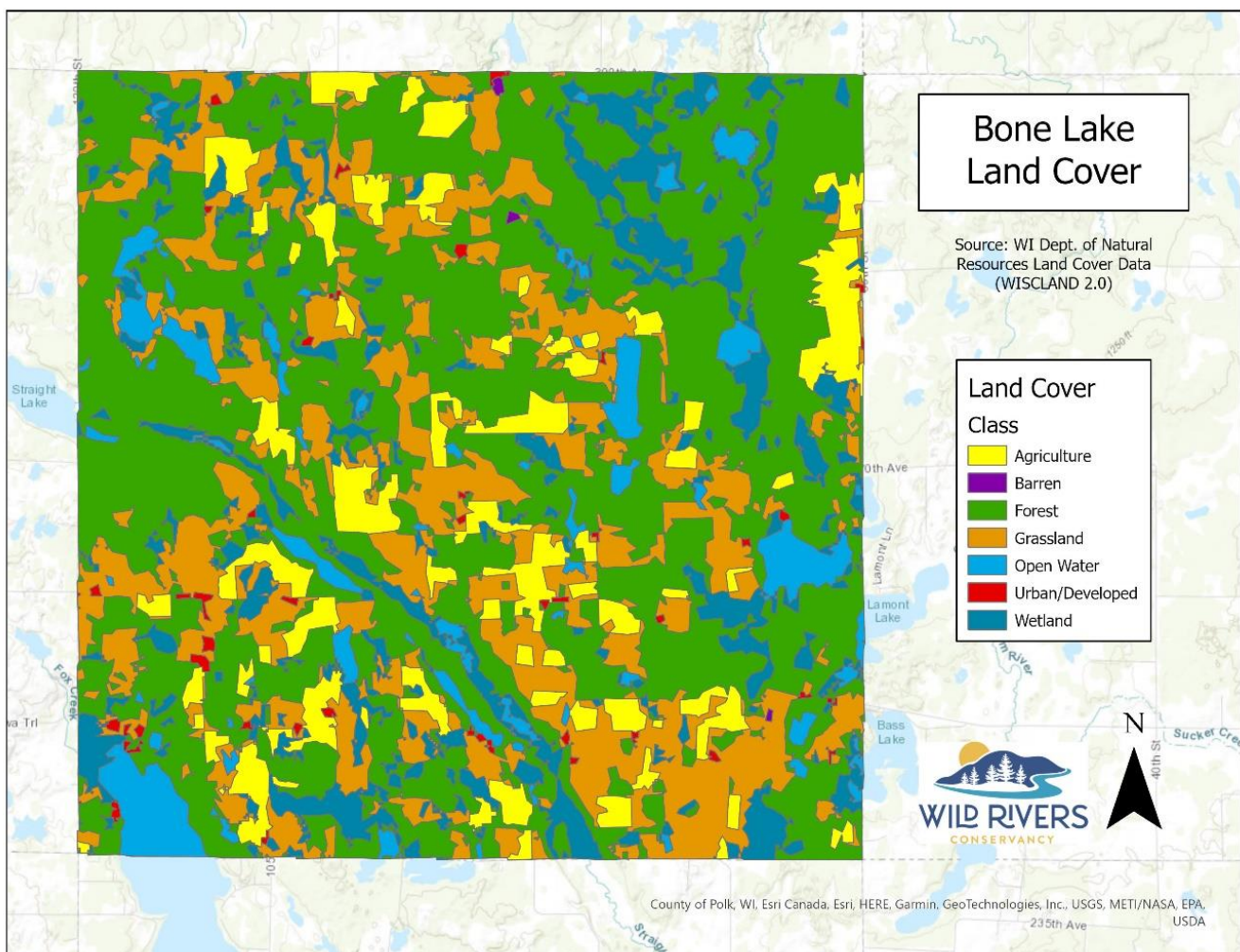
**Figure 1. Polk County Swine CAFO ordinance Flow Chart - Local Finding 2**



## Map 1. Land Cover - Local Finding 5

Data for the Town of Bone Lake extracted from WiscLand 2 shows the approximate land cover as follows:

Land Cover - WiscLand (NOT land use)	Percent
Agriculture	10%
Barren	0%
Forest	51%
Grassland	22%
Open Water	5%
Urban/Developed	1%
Wetland	11%

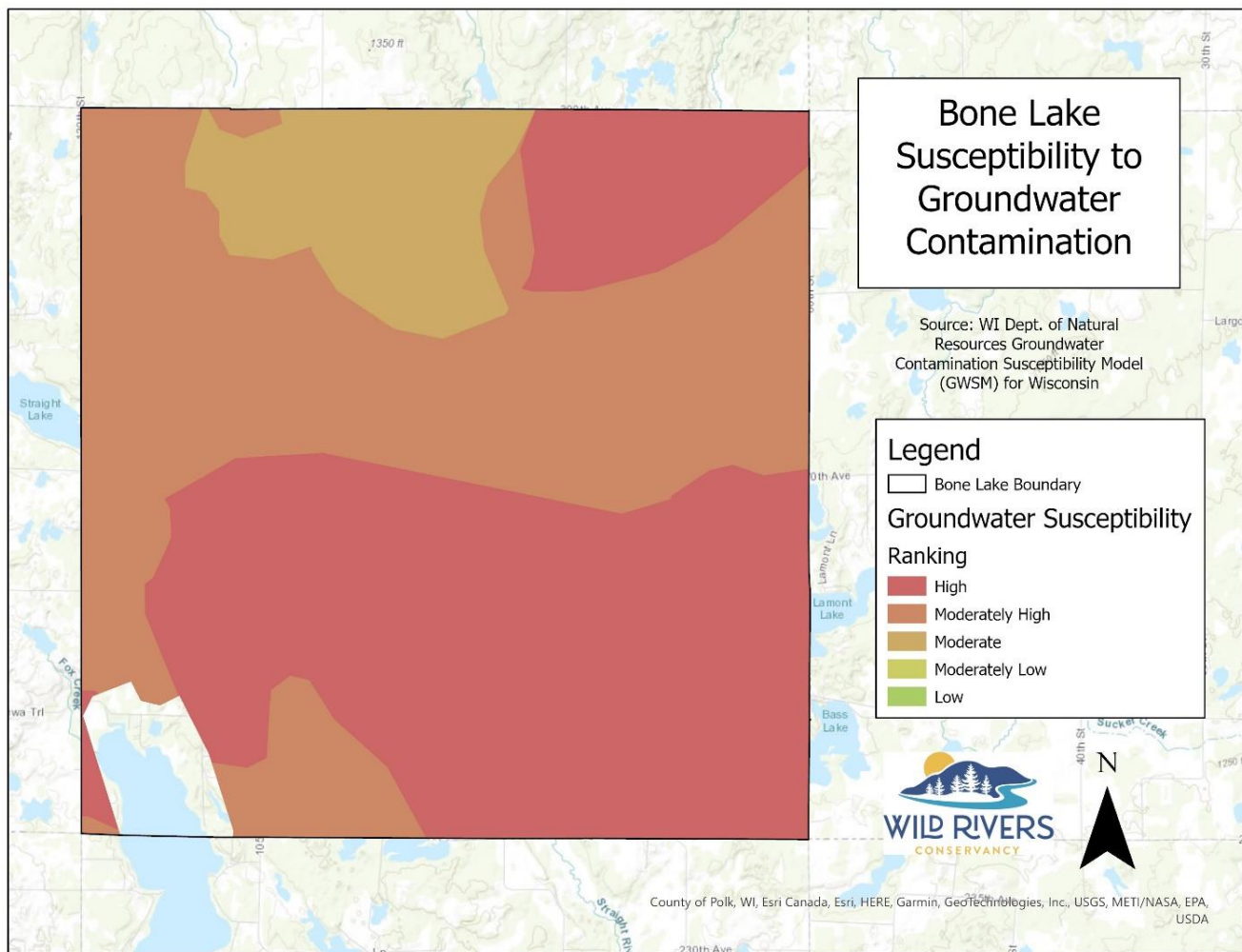


Source: Wisconsin Land Cover Data (WISCLAND 2.0): <https://dnr.wisconsin.gov/maps/WISCLAND>

## Map 2. Groundwater Susceptibility to Contamination Model - Local Finding 8

The Town has a vulnerable landscape with shallow soils, high water table and gravel formations that make large areas susceptible to groundwater pollution. Five factors contribute to groundwater susceptibility, including: type of soil, bedrock and materials between soil and bedrock; depth to bedrock; and depth to groundwater. Data from the Department of Natural Resources Groundwater Susceptibility Model was divided into five evenly spread categories ranging from high to low. Of the town's total acreage approximately 48% is ranked high susceptibility to contamination, 42% moderately high, 10% moderate, 0% moderately low, and 0% ranked low susceptibility.

Groundwater Susceptibility Ranking	
Ranking	Percent of Total
High	48%
Moderately High	42%
Moderate	10%
Moderately Low	0%
Low	0%



Source: Wisconsin Department of Natural Resources (DNR). (2008).

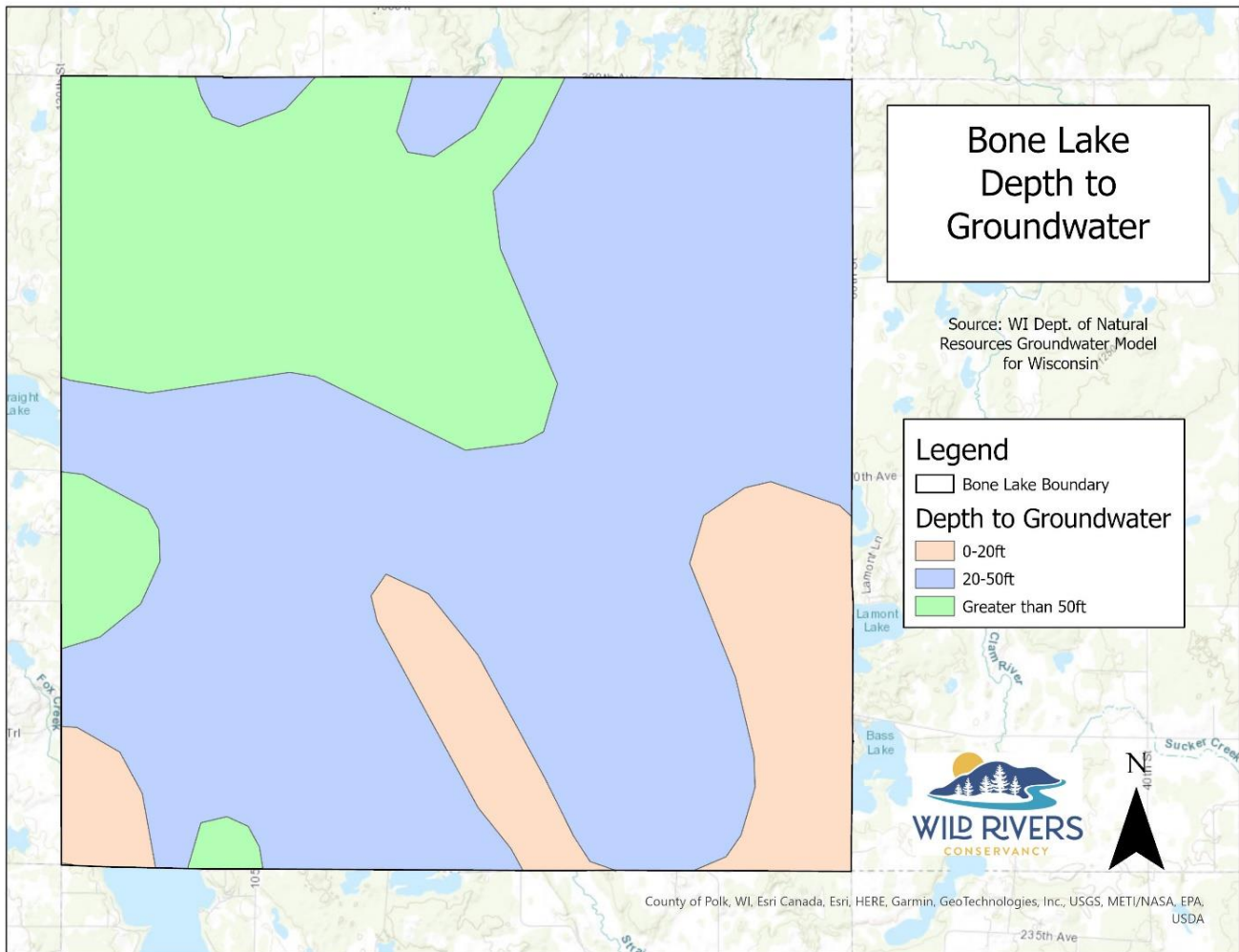
<https://geodata.wisc.edu/catalog/CF9E8298-63E5-43C7-9E8A-DEDCB93C1519>

Developed by the DNR, the US Geological Survey, the Wisconsin Geological & Natural History Survey, and the University of Wisconsin – Madison in the mid-1980s.

### Map 3. Depth to Groundwater - Local Finding 9

Approximately 13% of Bone Lake’s total acres have groundwater within 20 feet of the land surface. Approximately 75% is within 50 feet of the land surface.

Depth to Groundwater	
1-20ft	13%
20ft - 50ft	62%
Over 50ft	25%

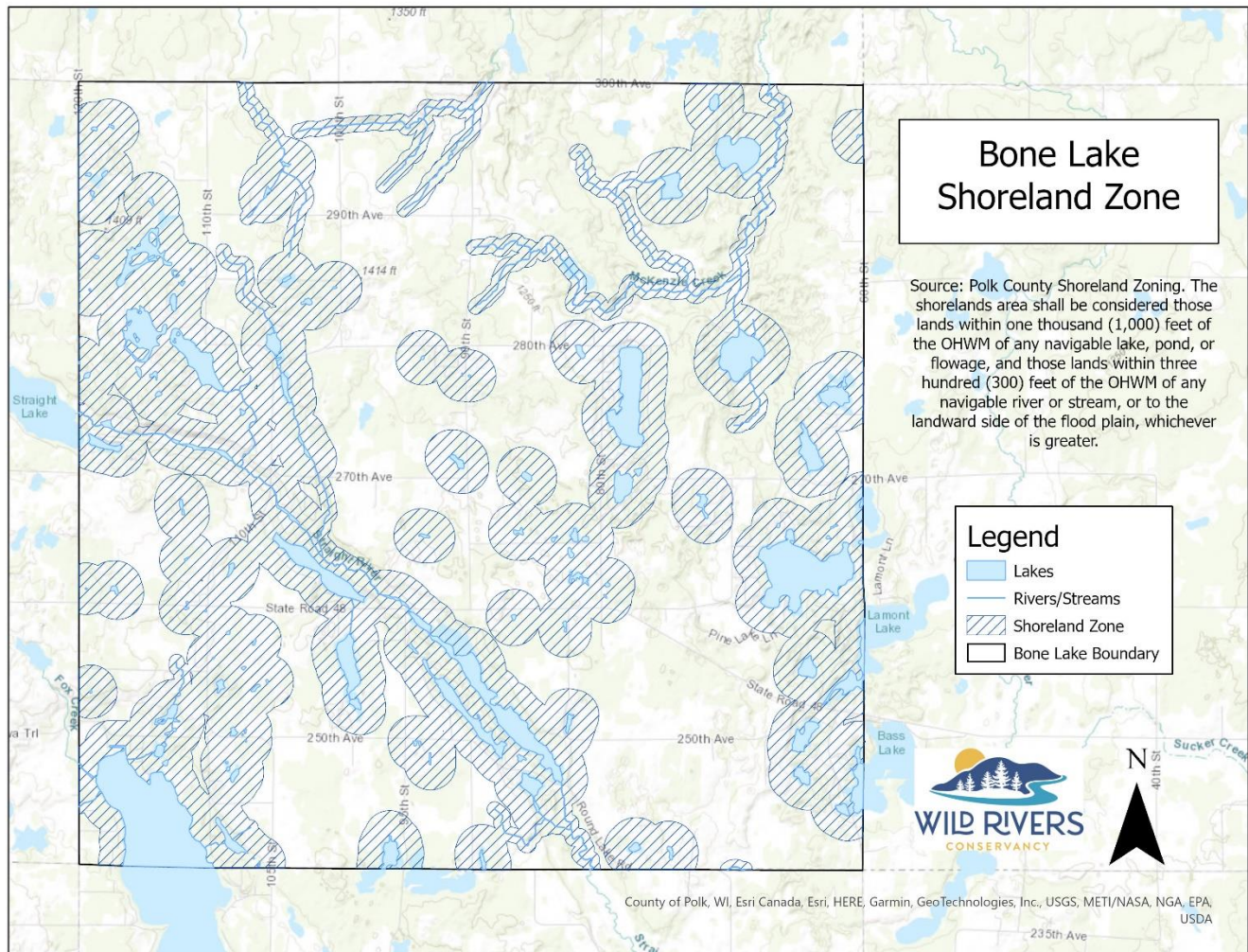


Source:

Wisconsin DNR Groundwater Susceptibility Model, Depth to Groundwater: <https://data-wi-dnr.opendata.arcgis.com/datasets/wi-dnr::gcsm-water-table-depth/about>

## Map 4. Shoreland Area Polk County - Local Finding 10

Approximately 51% of Bone Lake is within shoreland area.



Source: Polk County Shoreland Zoning. The shorelands area shall be considered those lands within one thousand (1,000) feet of the OHWM of any navigable lake, pond, or flowage, and those lands within three hundred (300) feet of the OHWM of any navigable river or stream, or to the landward side of the flood plain, whichever is greater.

## Map 5. Fragile Soil Index - Local Finding 11

WSS provides soil data (Soil Survey Geographic Database) and information produced by the National Cooperative Soil Survey. It is operated by the USDA – NRCS and provides access to the largest natural resource information system in the world. Soil surveys can be used for general farm, local and wider area planning.

<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

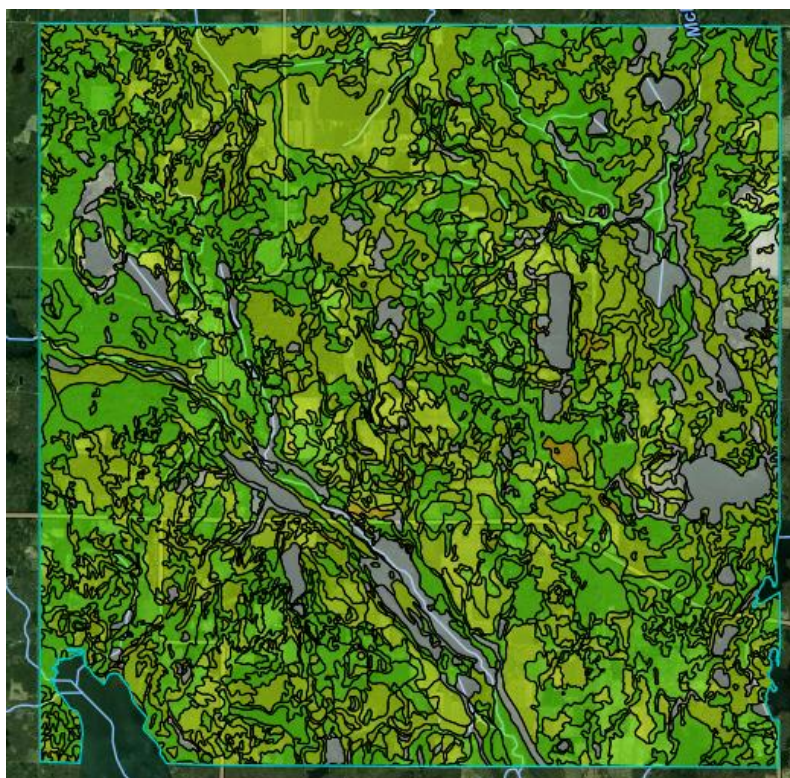
### Fragile Soil Index:

Fragile soils are those that are most vulnerable to degradation. They are easily degraded and are highly susceptible to erosion with low resilience. They are characterized as having low organic matter contents, low water-stable aggregates and low soil structure. Fragile soils are generally located on sloping ground, have sparse plant cover and tend to be in arid and semiarid regions. A fragile soil index interpretation was developed to rate soils based on their fragility. The index can be used in conservation and watershed planning to assist in identifying soils and areas with greater vulnerability to degradation.

### Finding #10:

Of Bone Lake’s total acres:

- 0% Extremely to Highly Fragile
- 0.4% Fragile
- 41.3% Moderately Fragile
- 48.2% Slightly Fragile
- 0% Not Fragile
- 10.1% Not Rated



## Map 6. Manure and Food-Processing Waste - Local Finding 12

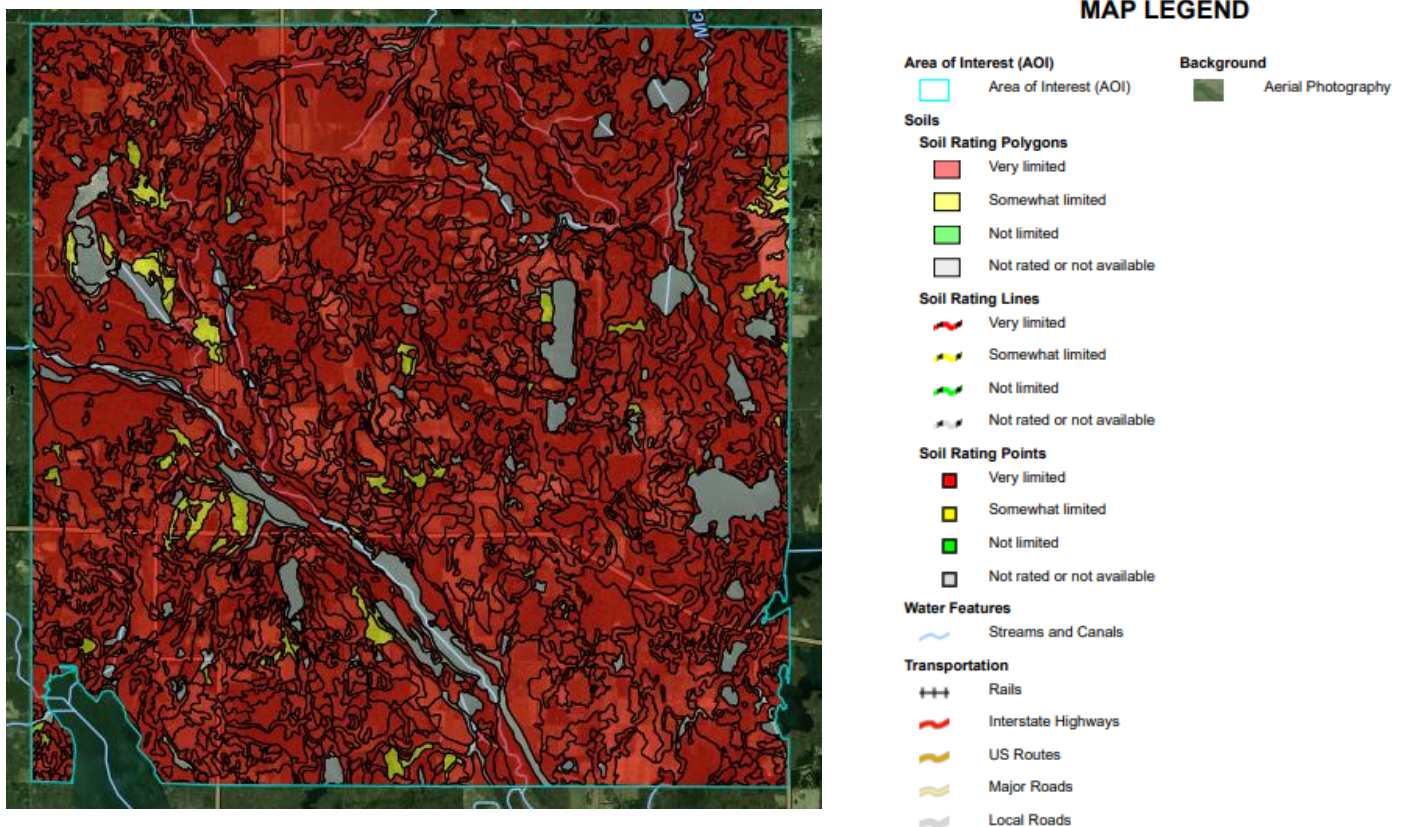
The application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include saturated hydraulic conductivity (Ksat), depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, soil erosion factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

### Finding #11:

Of Bone Lake’s total acres:

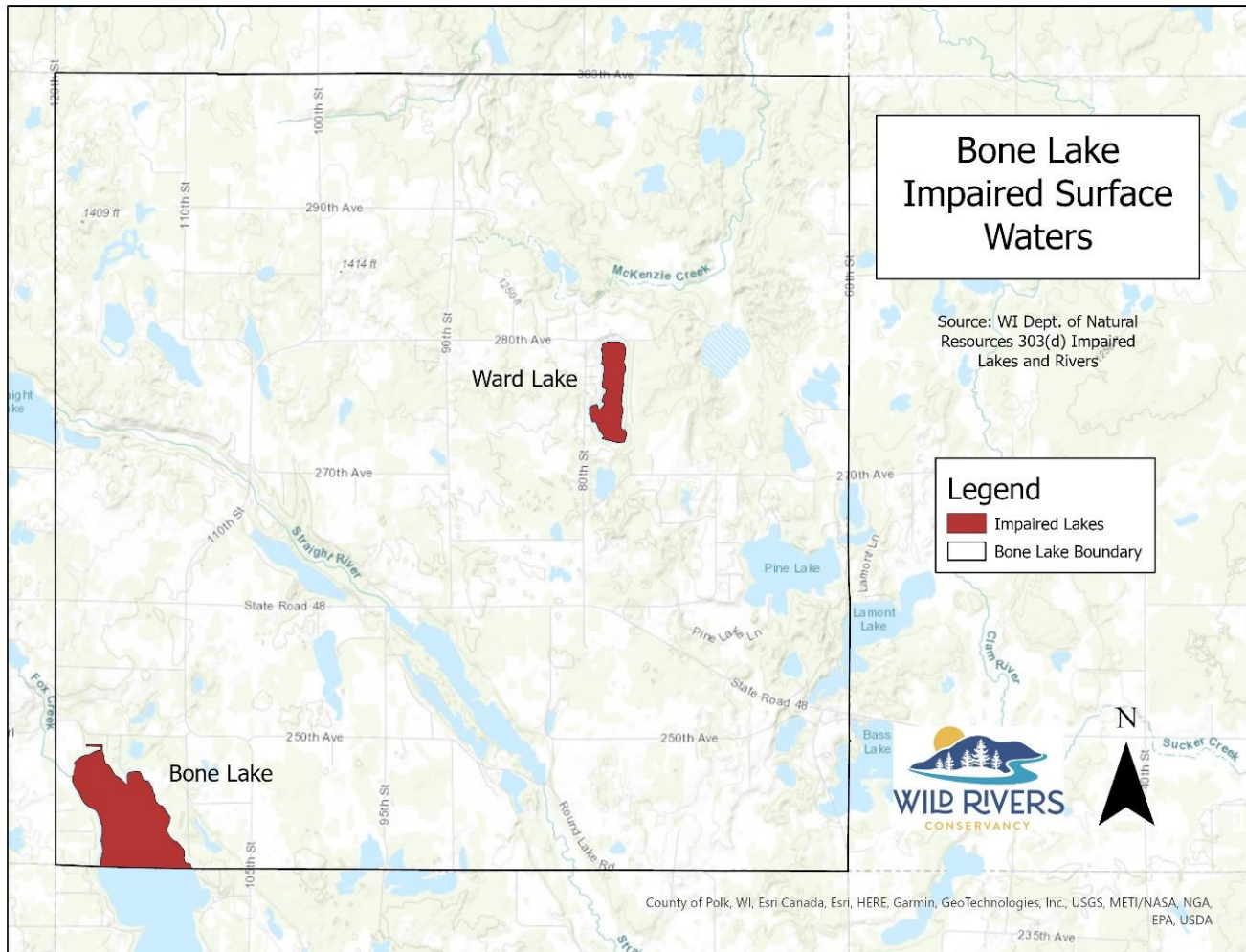
- **89.7% Very Limited** – indicates that soil has one or more features that are unfavorable for the specific use. Limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.
- **2.6% Somewhat Limited** – indicates that the soil has features that are moderately favorable for specified use. Limitations can be overcome or minimized by special planning, design, or installation.
- **0% Not Limited**
- **7.7% Not Rated**



## Map 7. Impaired Waters - Local Finding 15

Excess nutrients from non-point source runoff leads to surface water quality degradation of local lakes and streams. According to the 2012 Lake St. Croix TMDL Implementation Plan, Polk County is the highest contributor of phosphorus runoff in the St. Croix Watershed. Subsequently, it has the greatest phosphorus reduction required by the State of Wisconsin and U.S. Environmental Protection Agency to meet Lake St. Croix TMDL goals. Currently, in Bone Lake Township there are two lakes listed as impaired for excess phosphorus.

Lakes Impaired for P	Acres
Ward Lake	82
Bone Lake	273 (within Bone Lake)



Source:

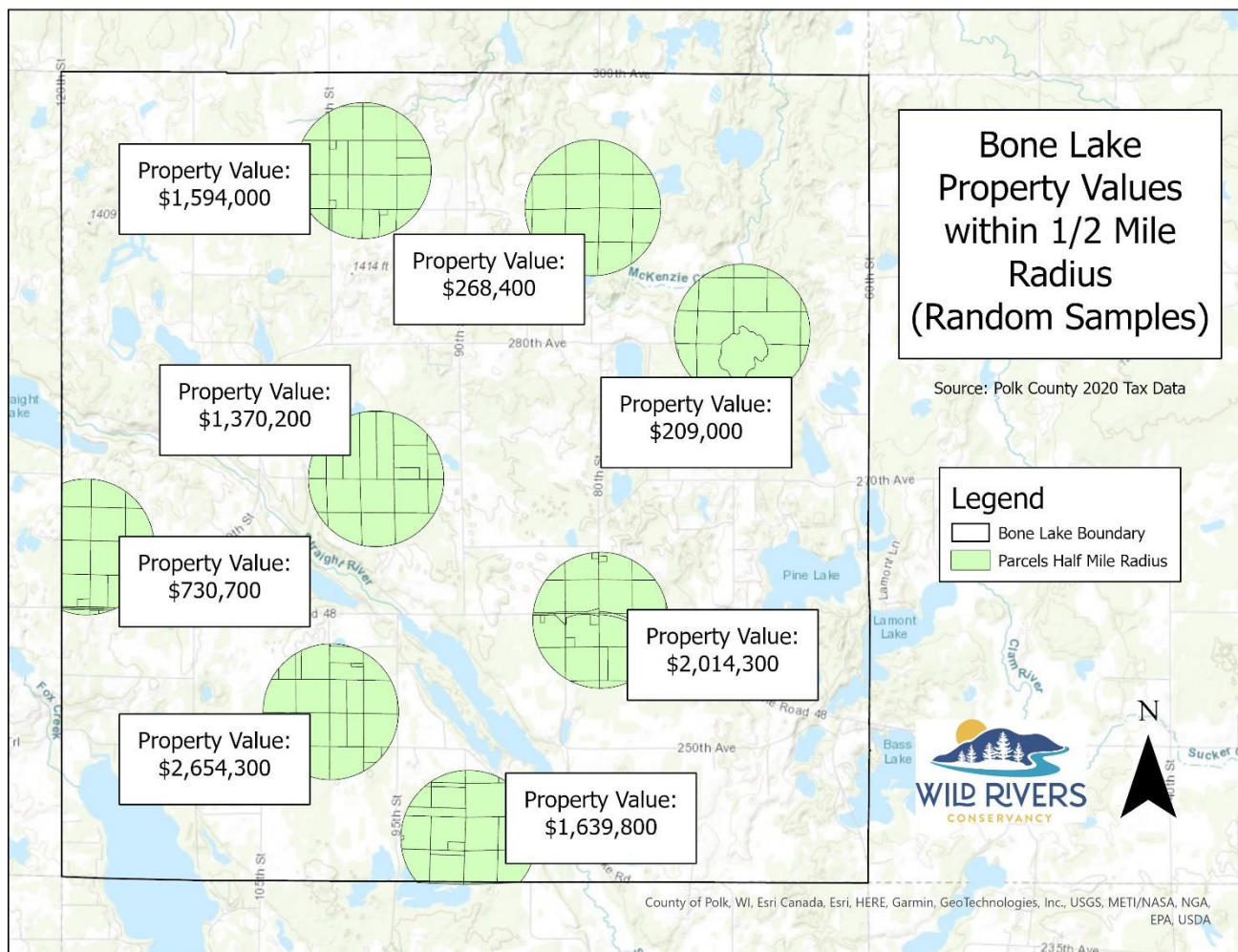
Wisconsin DNR 303(d) Impaired Lakes 2021: <https://data-wi-dnr.opendata.arcgis.com/datasets/wi-dnr::303d-impaired-lakes-listed/about>

Wisconsin DNR 303(d) Impaired Rivers and Streams 2021: <https://data-wi-dnr.opendata.arcgis.com/datasets/wi-dnr::303d-impaired-rivers-and-streams-listed/about>



# Map 8. Property Tax Values Within 0.5 mile radius of 8 Randomly Selected Potential CAFO Sites

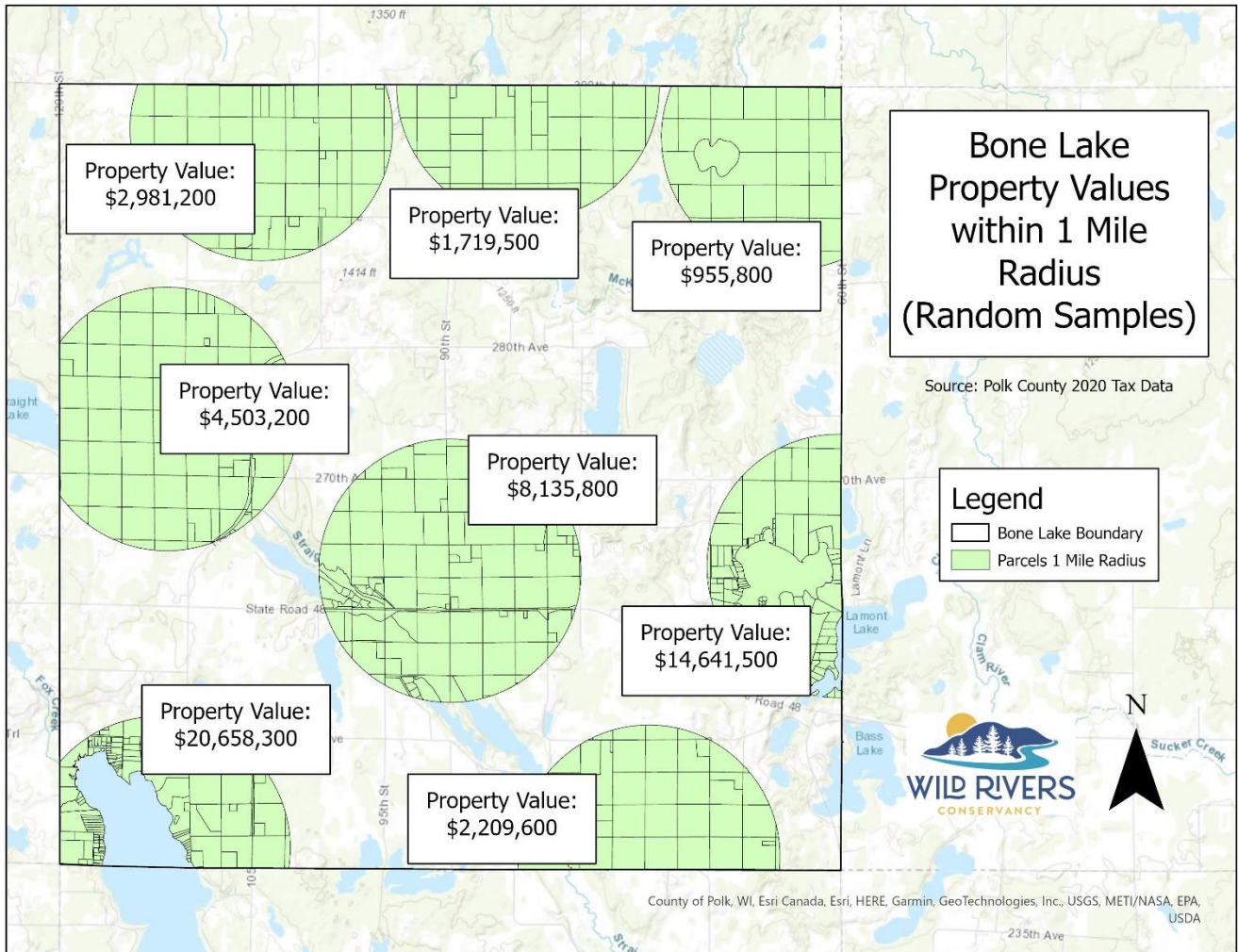
## Local Finding 19



Source: 2020 Wisconsin County Parcel Data – Polk County, WI - <https://www.sco.wisc.edu/parcels/data-county/>

# Map 9. Property Tax Values within 1 mile radius of 8 Randomly Selected Potential CAFO Sites

## Local Finding 19



Source: 2020 Wisconsin County Parcel Data – Polk County, WI - <https://www.sco.wisc.edu/parcels/data-county/>