

Geospatial Dataset for Wells in the New England Groundwater Level Network, through Water Year 2017

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426 wells in database (network and study wells; currently active and discontinued)

90 attributes for each well:

- Basic site information (17)

- Groundwater level statistics through w.y. 2017 (16)

- Well construction (9)

- Topographic setting (11)

- Land use and cover (17)

- Climate (2)

- Soils (4)

- Geology (14)

381 Active Wells in 2017

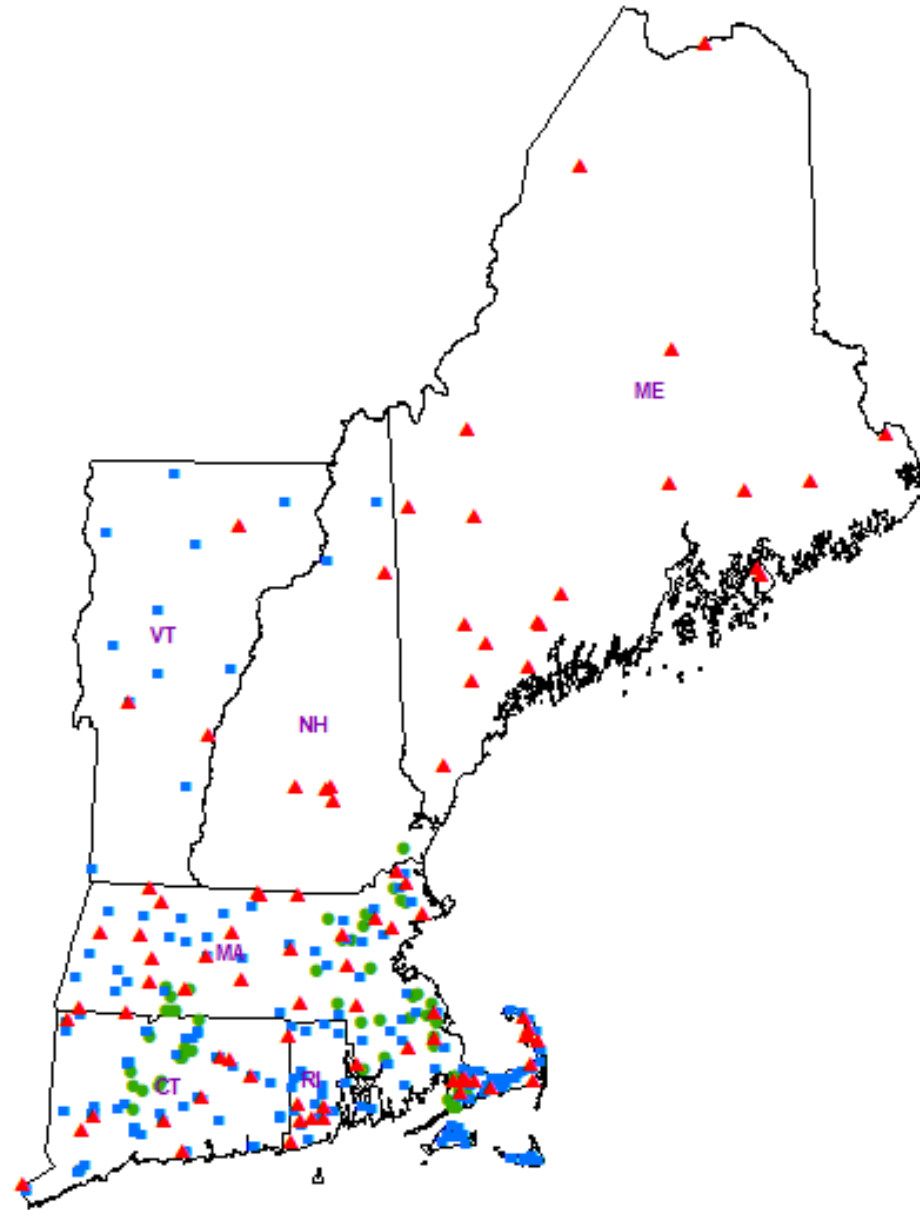
87 Continuous Wells

166 Discrete Wells

95 Intermittent Wells

33 Replaced Wells (in progress)

(45 Discontinued and
Replaced Wells, not shown)



- ▲ Continuous water-level measurements
- Discrete water-level measurements
- Intermittent water-level measurements

Other basic well information:

- Location: Lat/Longs, HUC, County, State....
- Land and datum altitude
- Well construction details
- Begin date for discrete measurements
- End date (blank if active)
- Begin date of continuous monitoring
- End date of cont. monitoring (blank if active)

Average period of data collection: 31 yrs

Earliest water-level measurement: 1913
(CT-WY 1, Litchfield CT)

227 Active MA Wells in Geodatabase in 2017

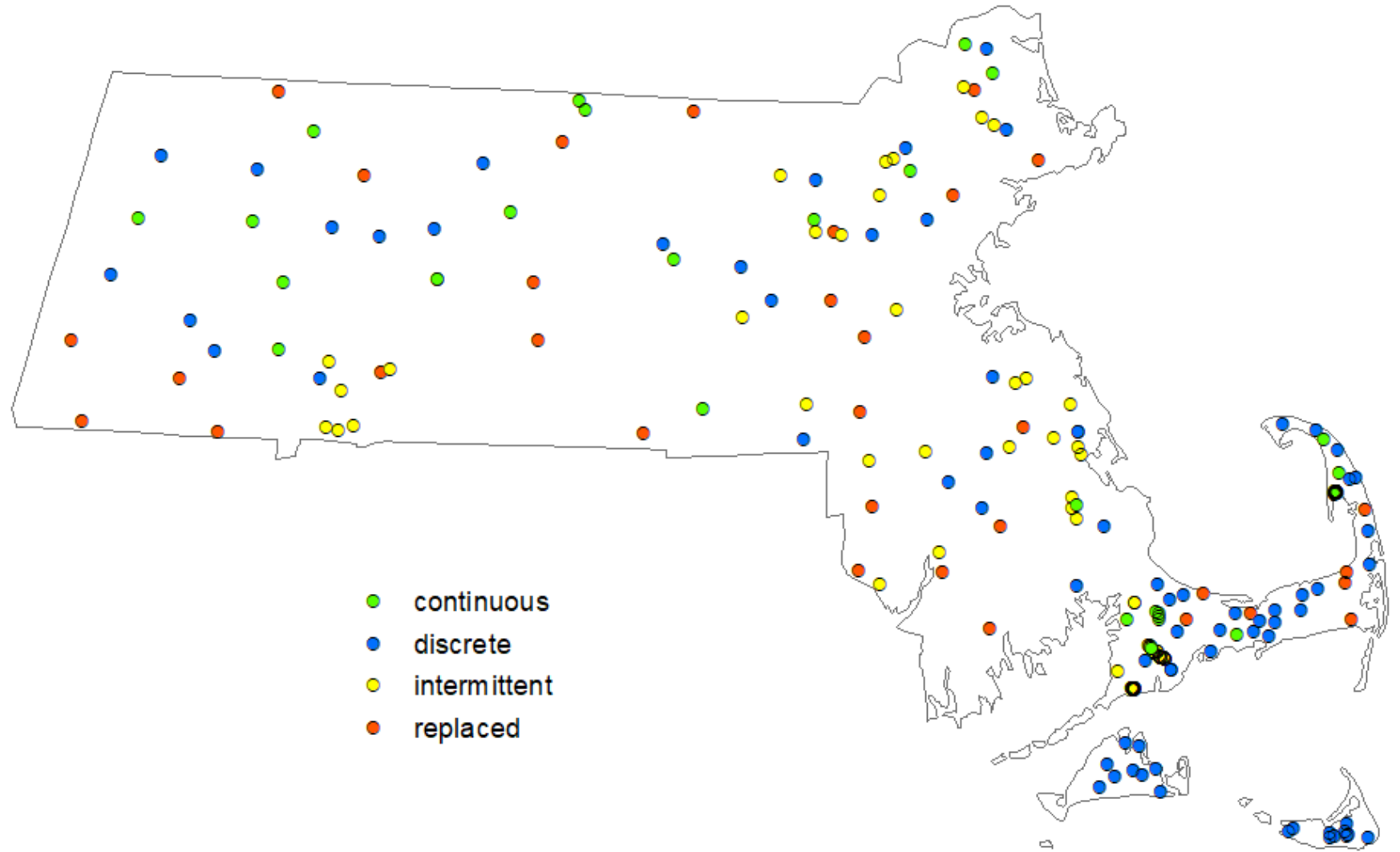
42 Continuous Wells

72 Discrete Wells

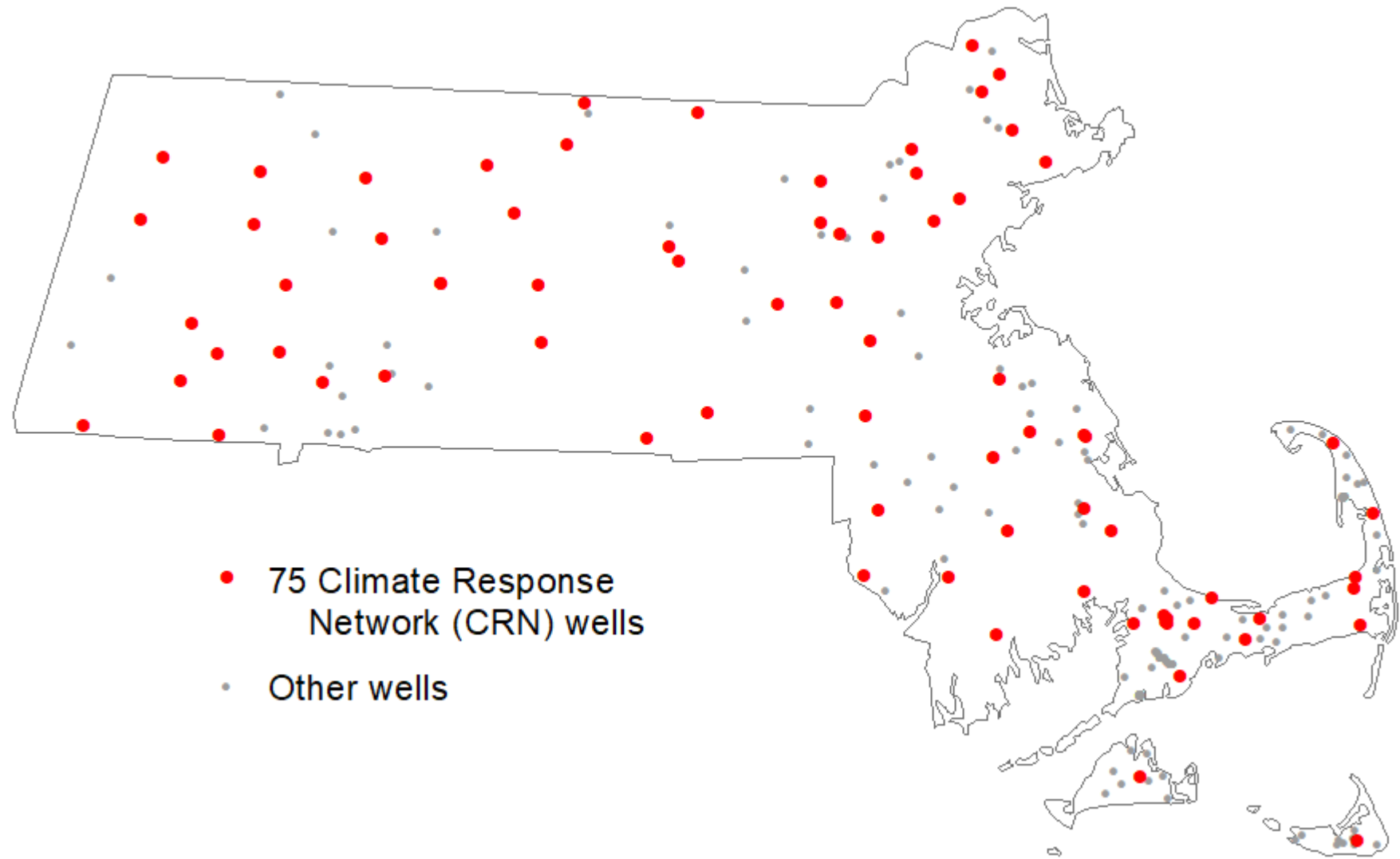
80 Intermittent Wells

33 Replaced Wells

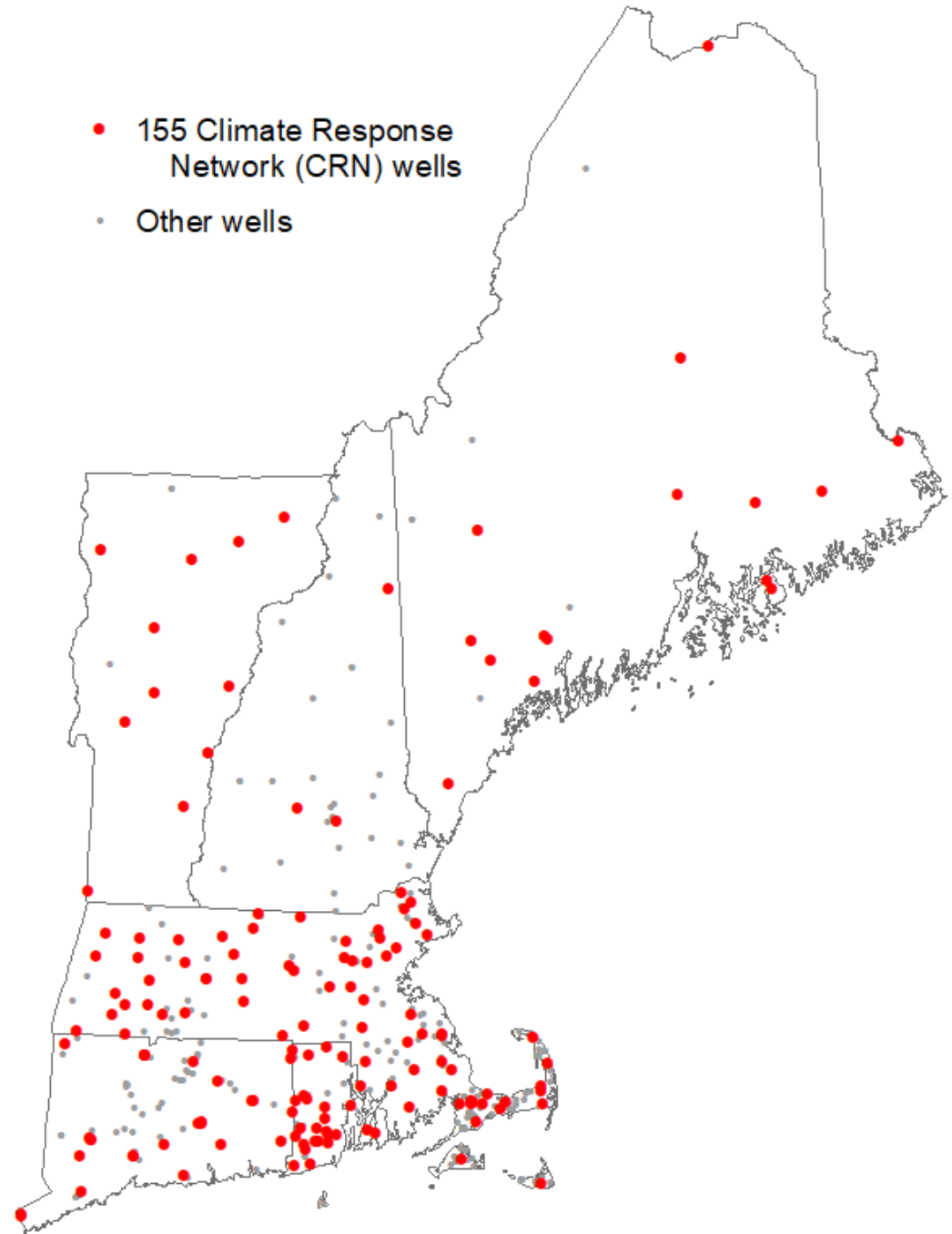
(10 Discontinued Wells, not shown)



Mass. Climate Response Network Wells

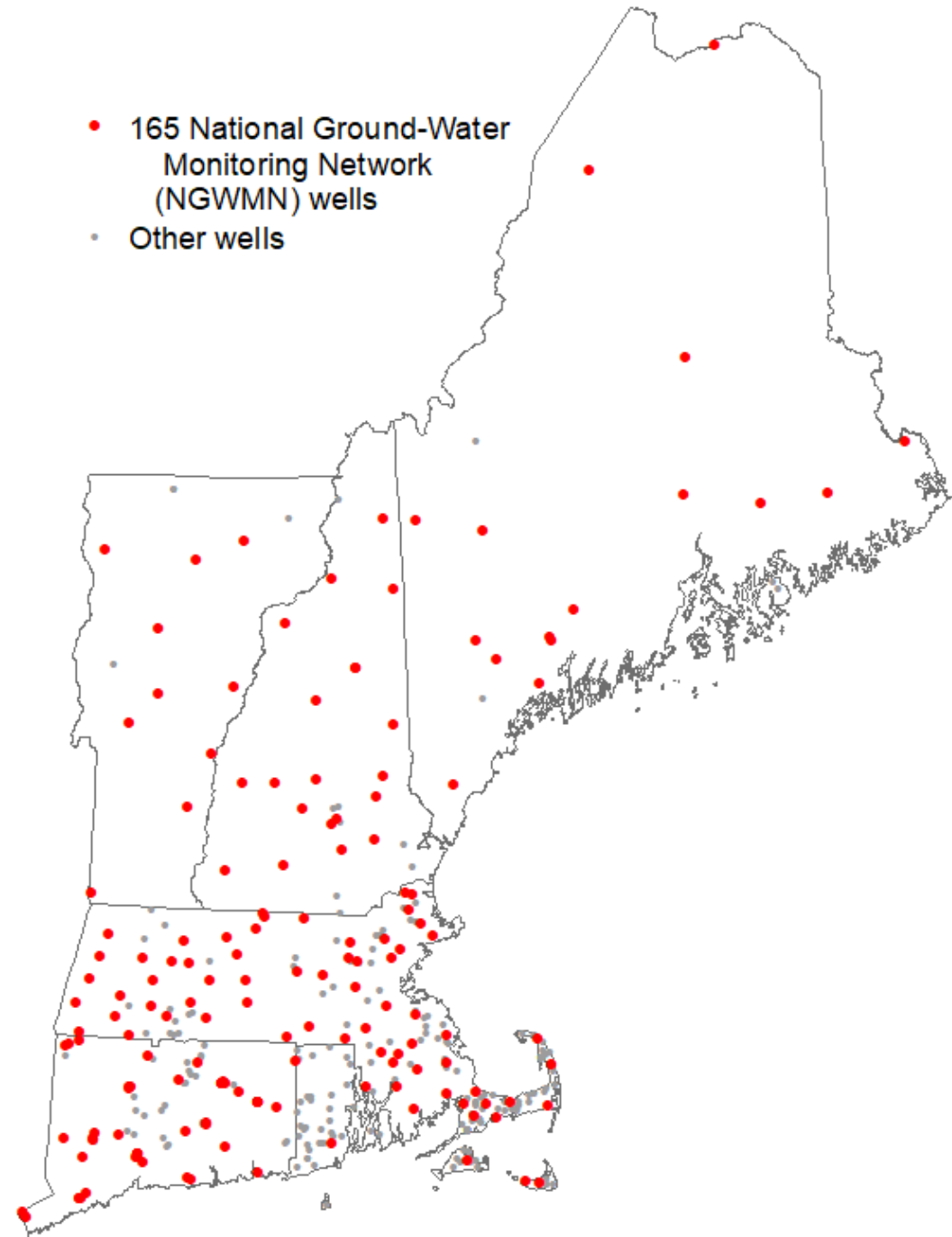


Climate Response Network Wells



National Ground-Water Network Wells

(<https://cida.usgs.gov/ngwmn/>)

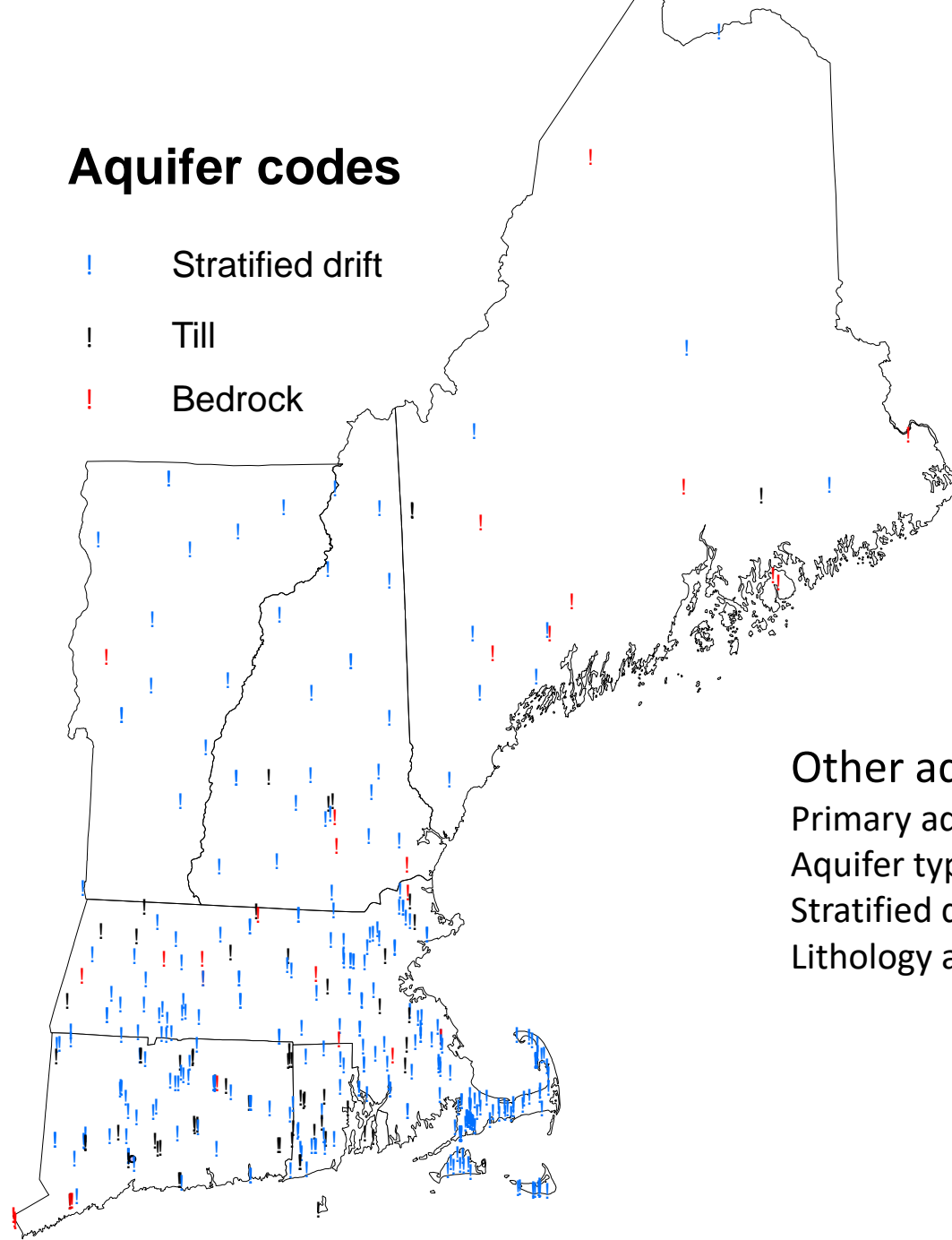


Aquifer codes

! Stratified drift

! Till

! Bedrock



Other aquifer info in database:

Primary aquifers

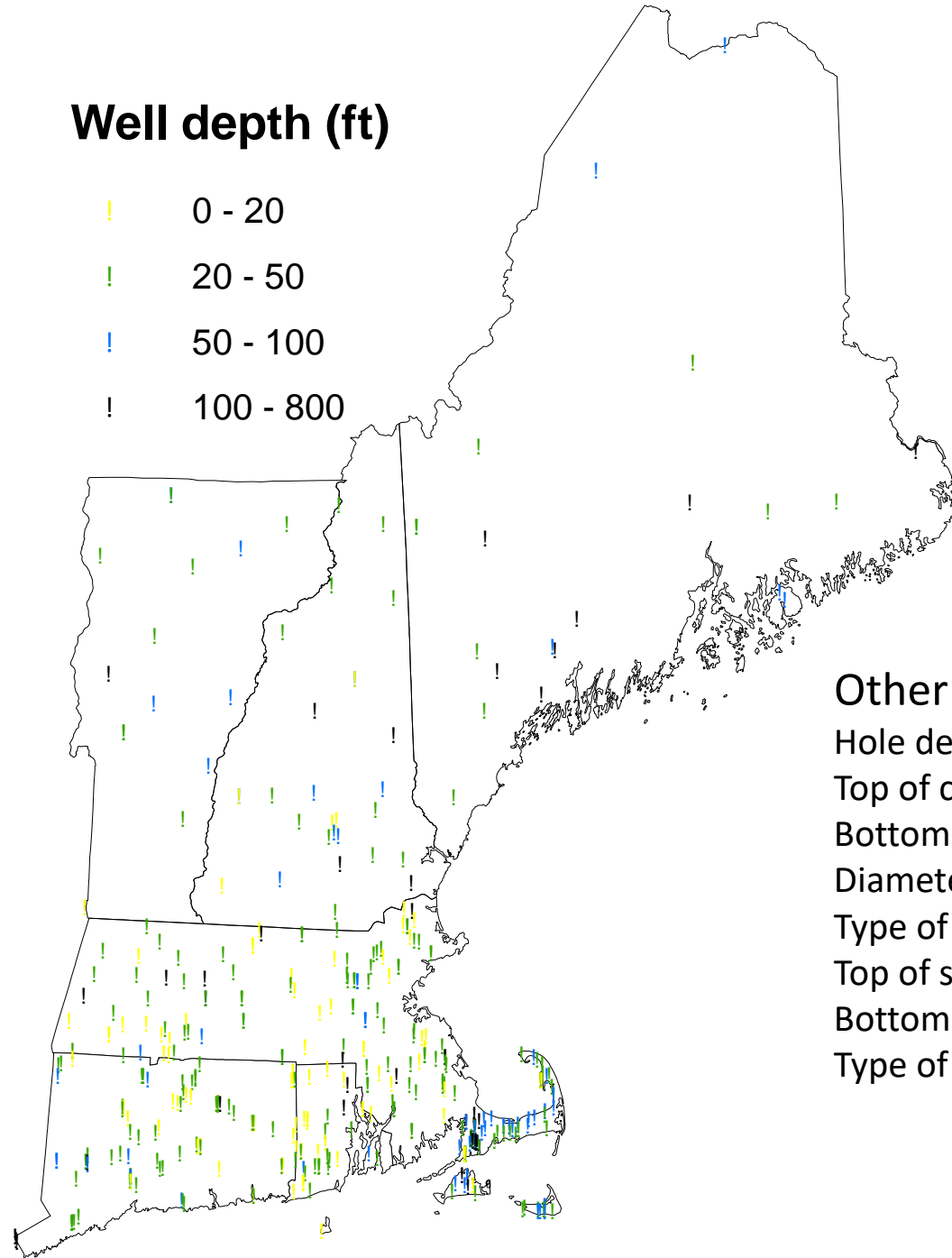
Aquifer types (confined/unconfined)

Stratified drift, yes/no

Lithology at well screen or open area

Well depth (ft)

- ! 0 - 20
- ! 20 - 50
- ! 50 - 100
- ! 100 - 800

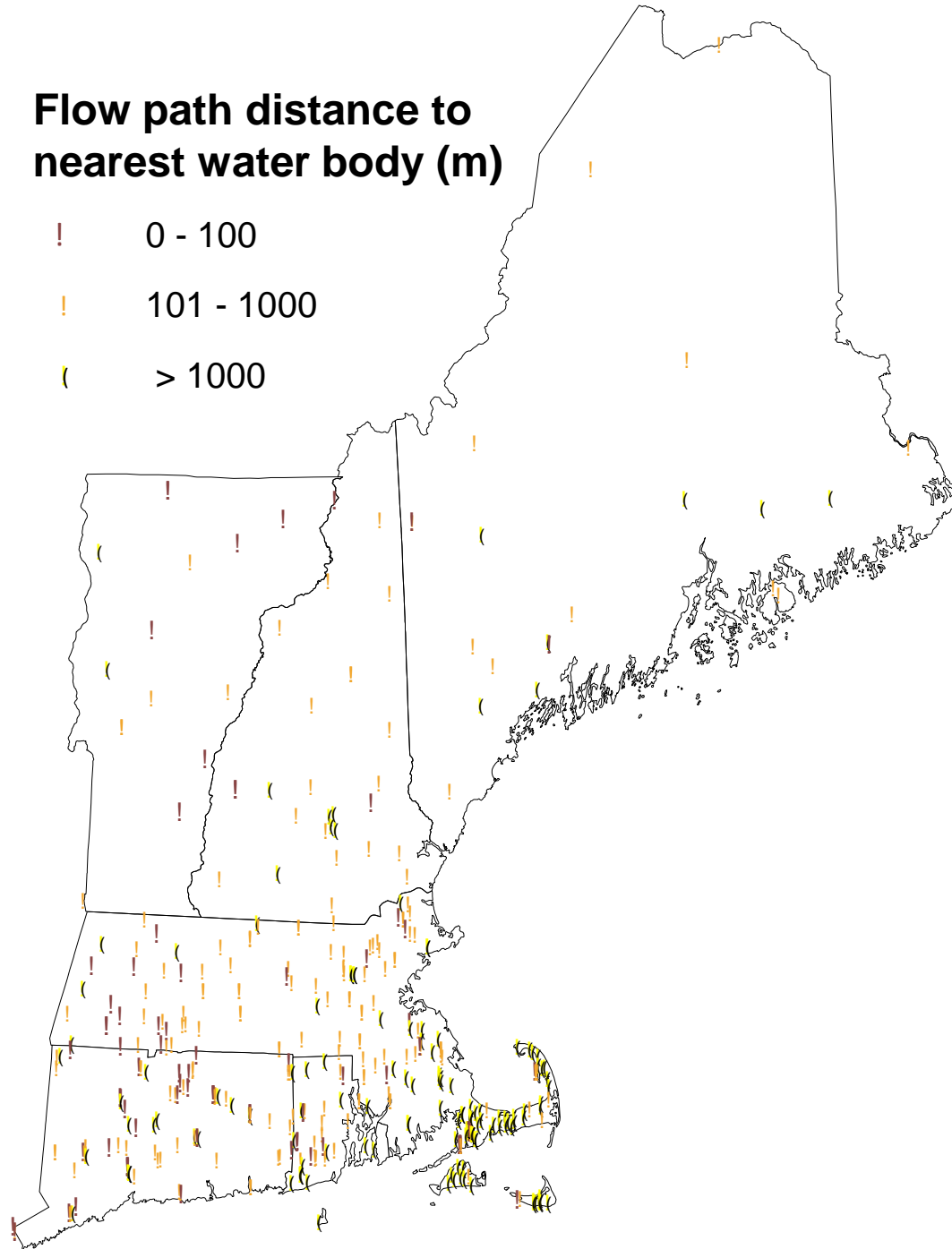


Other well construction information:

- Hole depth
- Top of casing
- Bottom of casing
- Diameter of casing
- Type of casing
- Top of screen/opening
- Bottom of screen/opening
- Type of screen

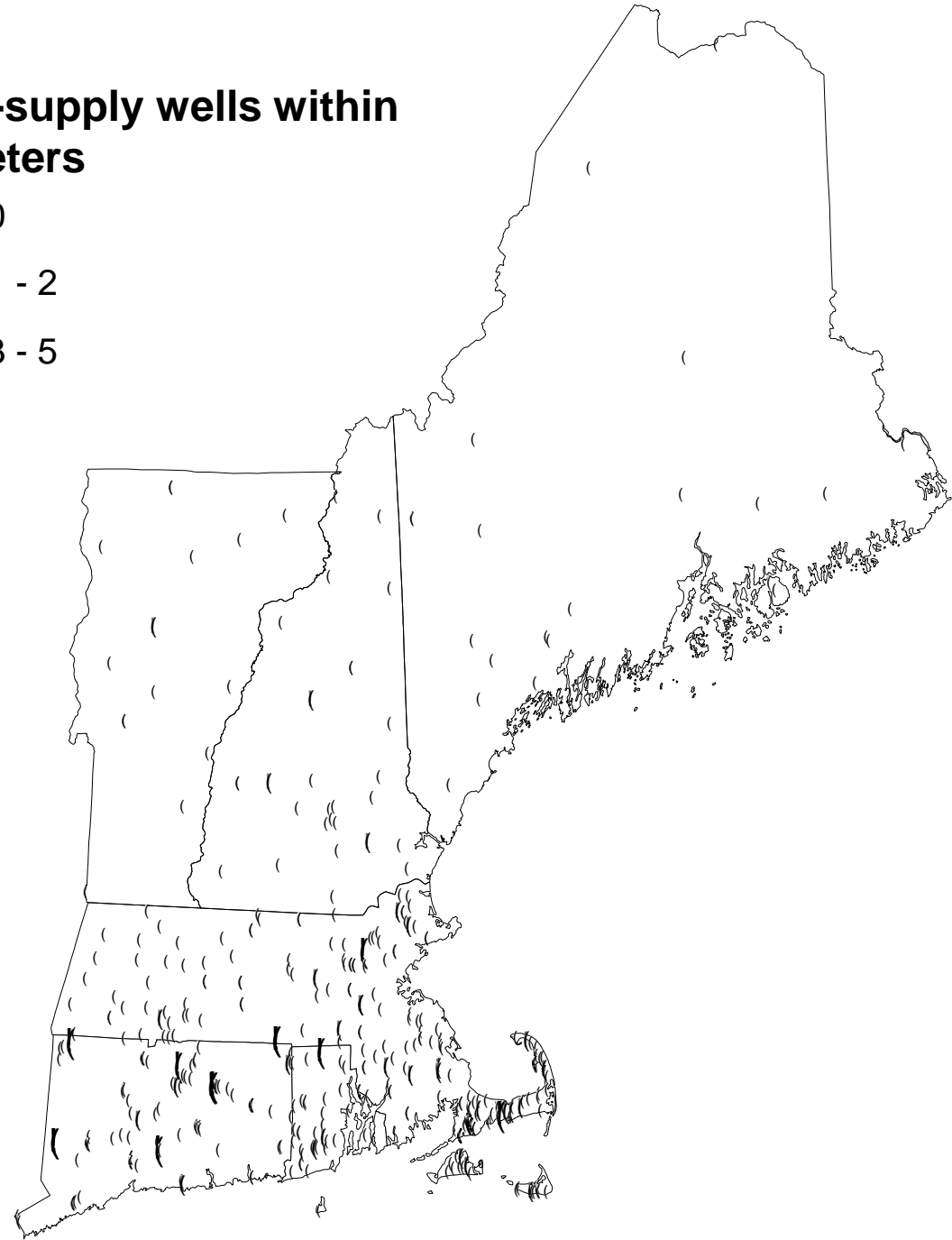
Flow path distance to nearest water body (m)

- ! 0 - 100
- ! 101 - 1000
- (> 1000



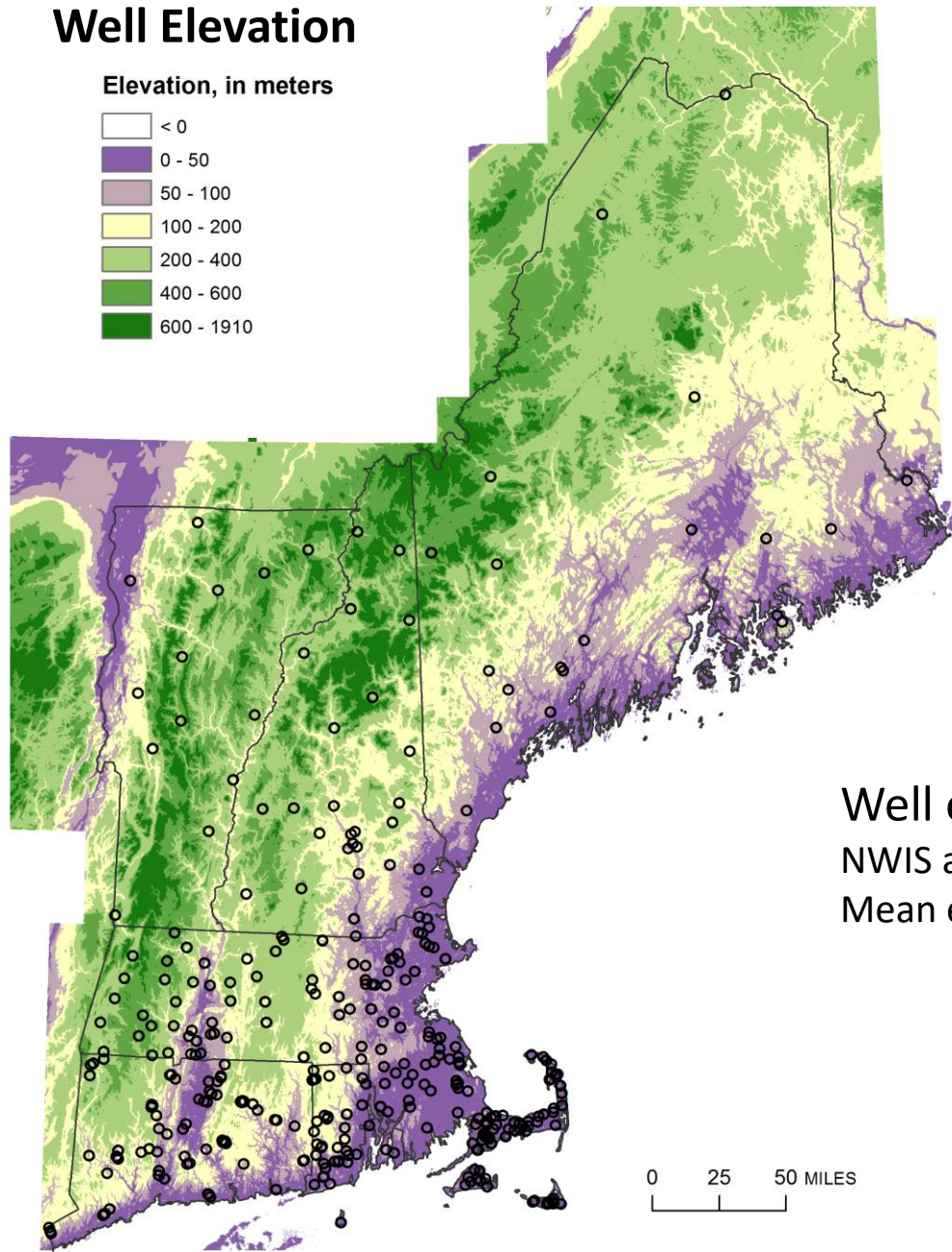
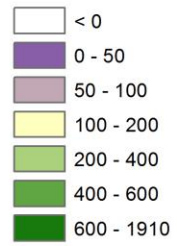
Public-supply wells within 500 meters

- (0
- (1 - 2
- (3 - 5



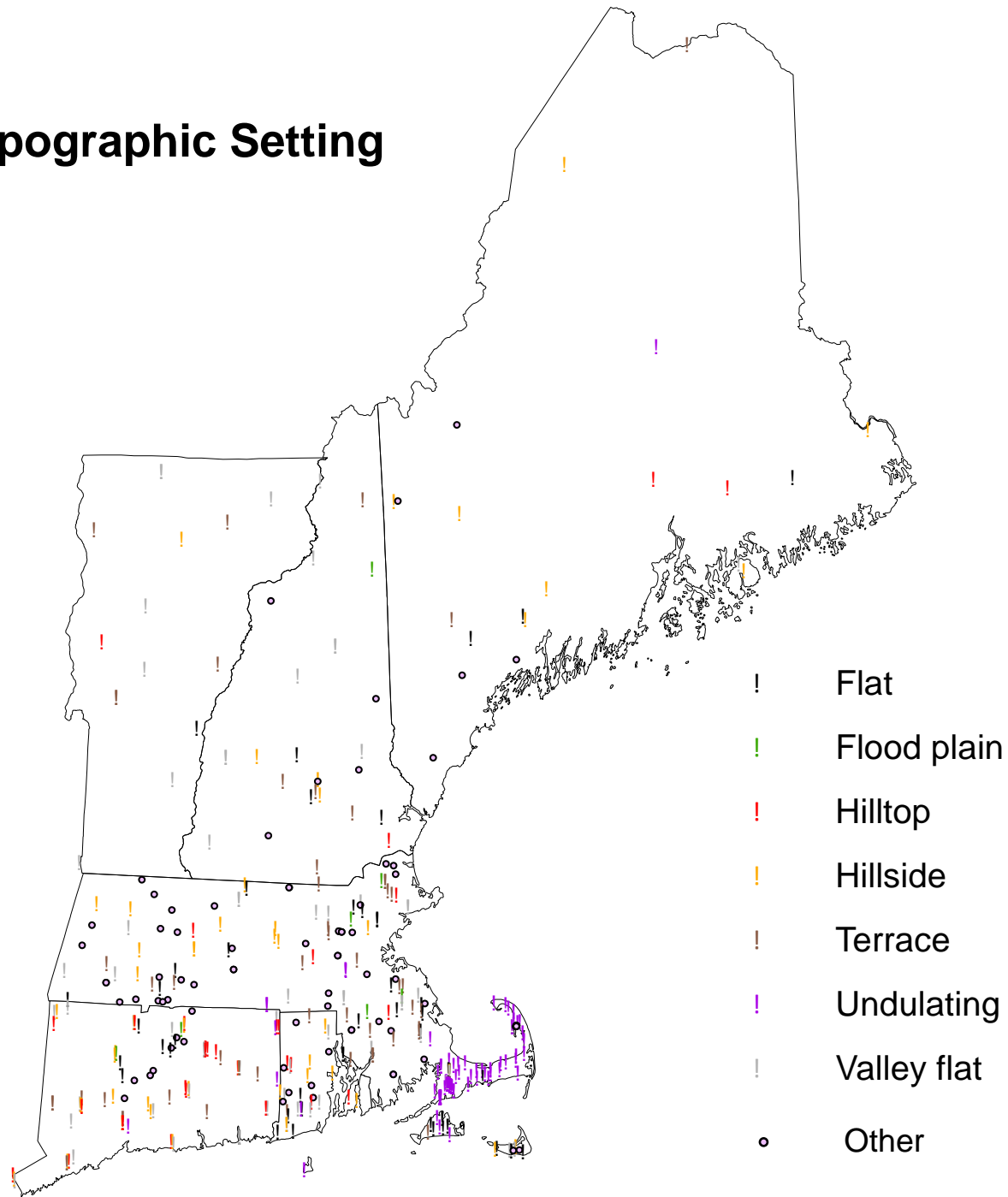
Well Elevation

Elevation, in meters

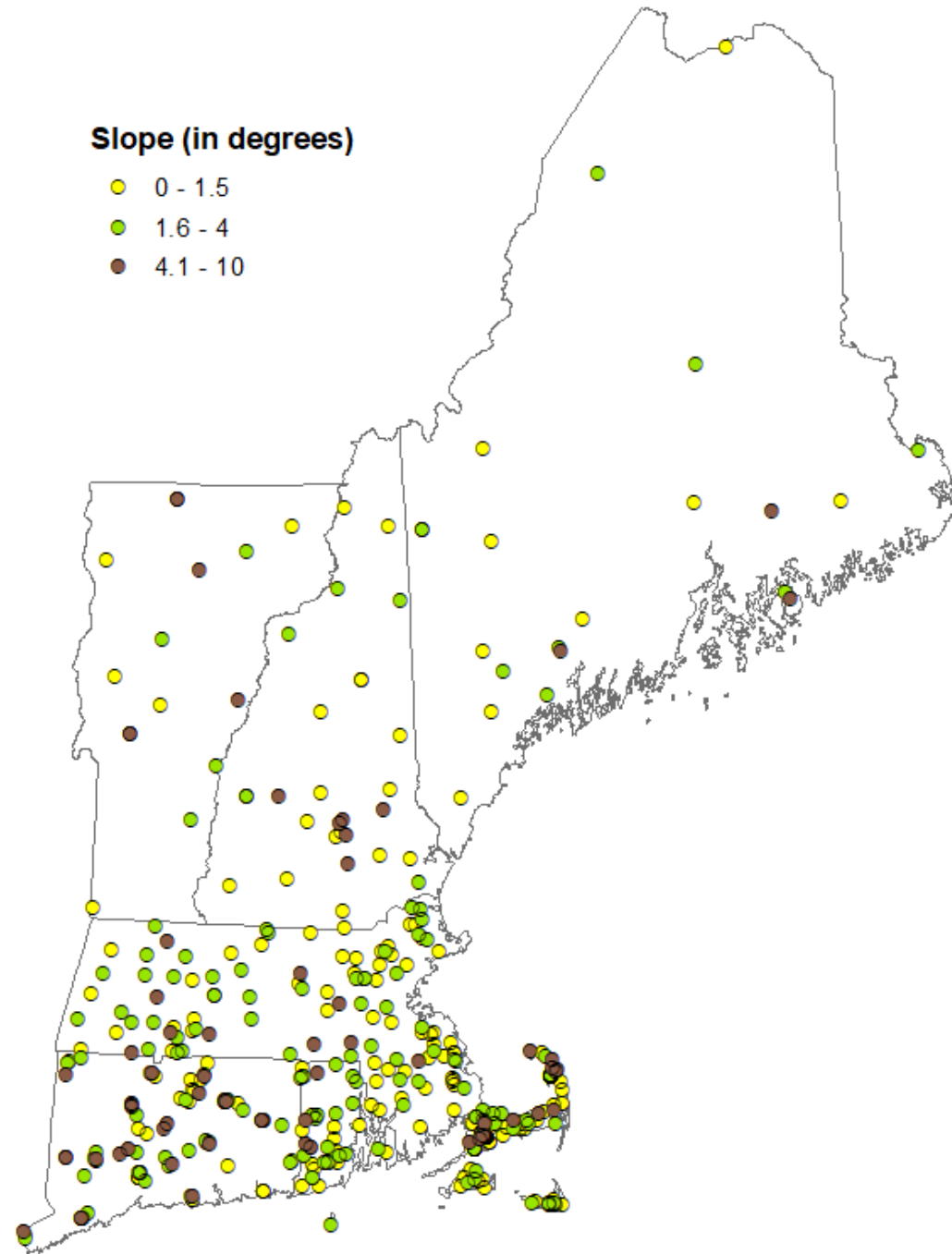


Well elevation information:
NWIS at site elevation
Mean elevation, 500m and 2km buffers

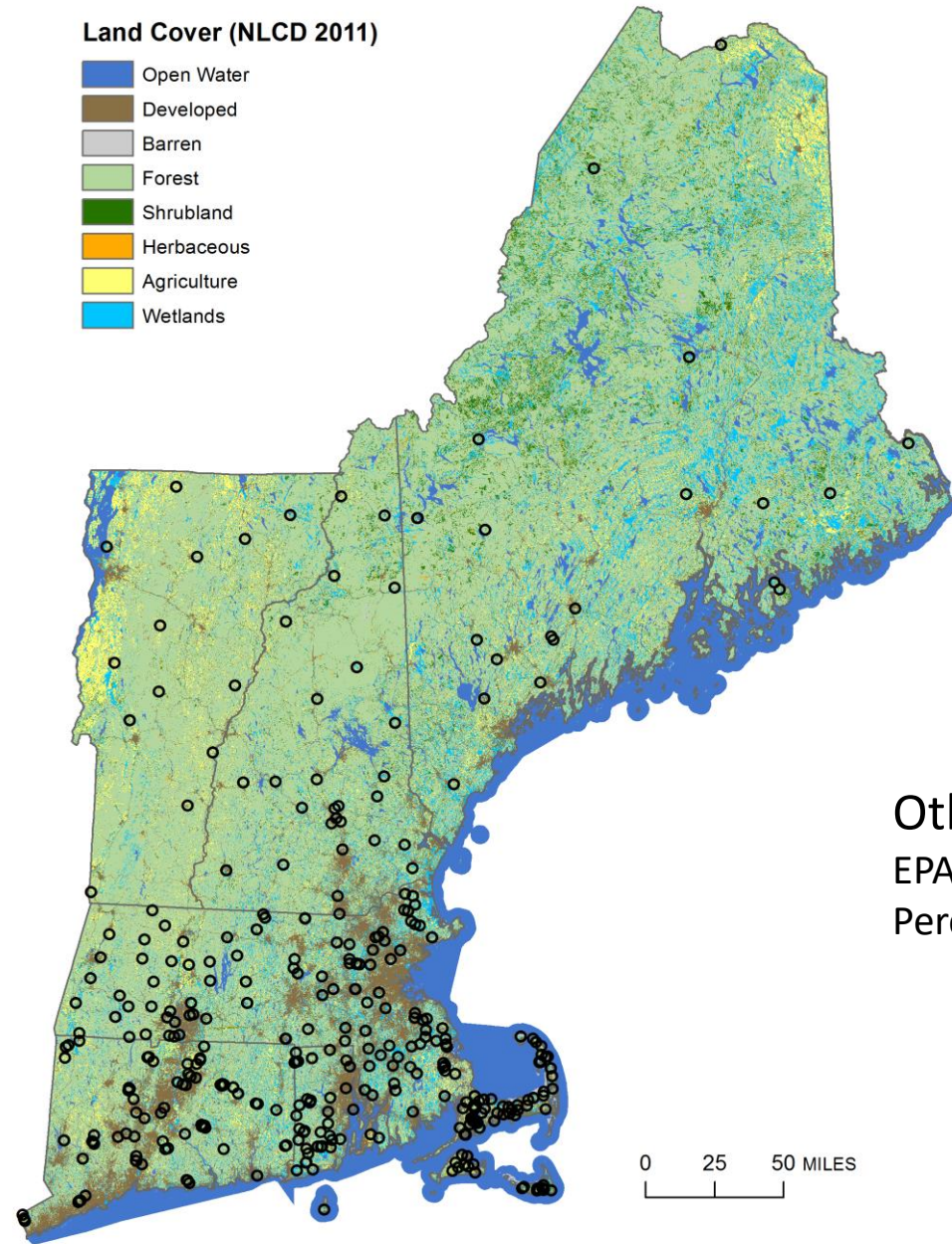
Topographic Setting



Slope

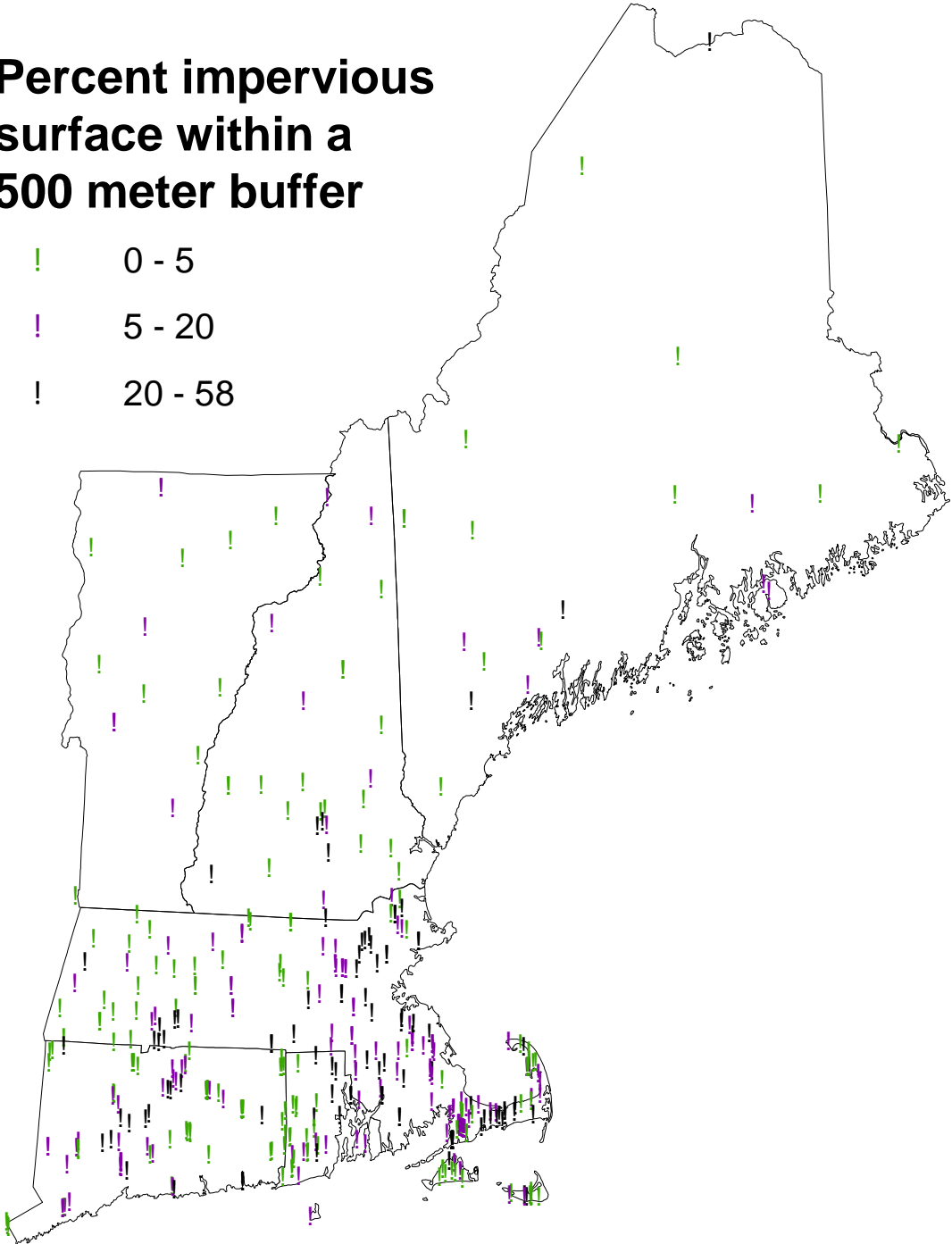


Land Cover/Use



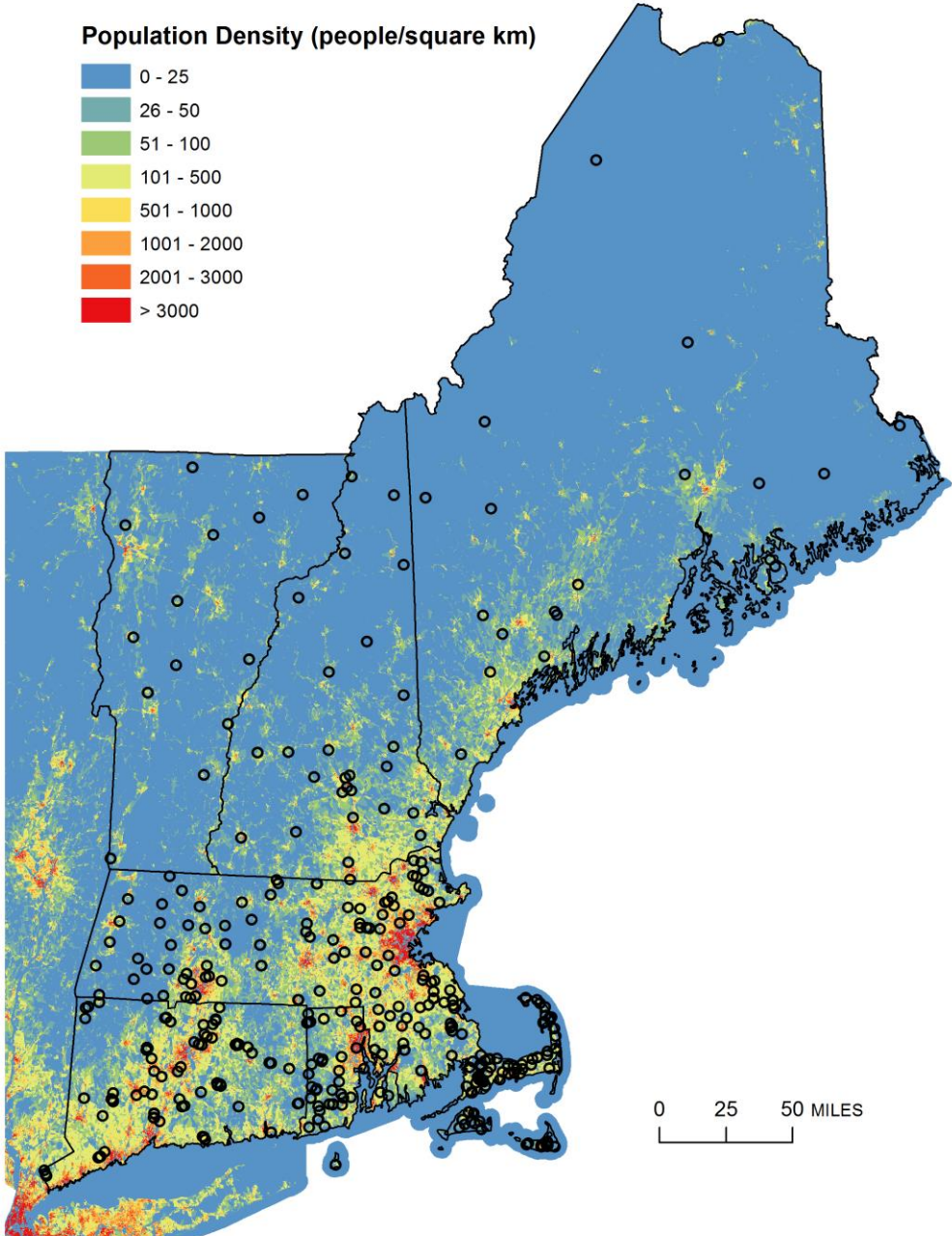
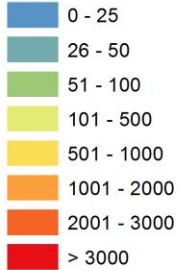
Percent impervious surface within a 500 meter buffer

- ! 0 - 5
- ! 5 - 20
- ! 20 - 58



Population Density

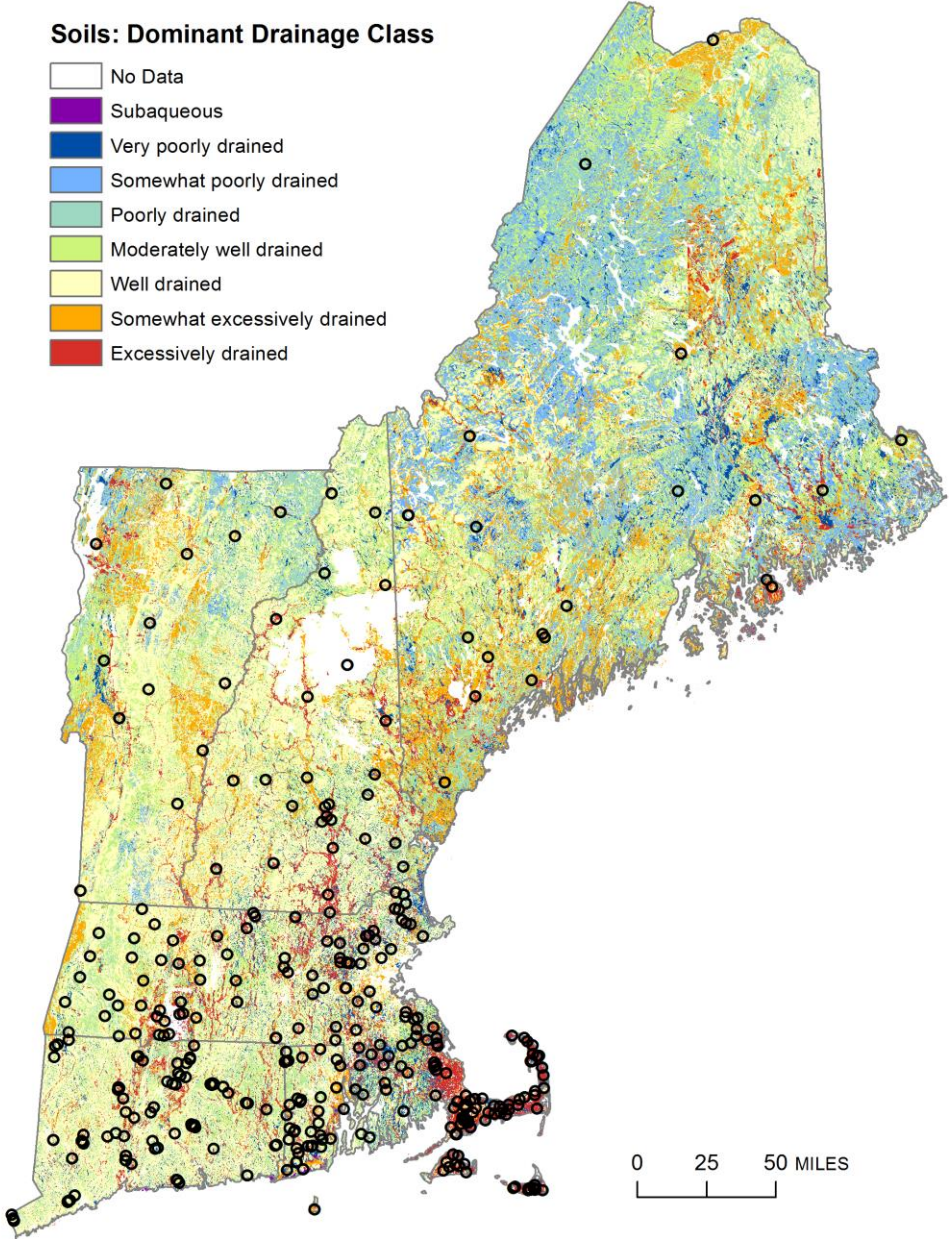
Population Density (people/square km)



Soils

Soils: Dominant Drainage Class

- No Data
- Subaqueous
- Very poorly drained
- Somewhat poorly drained
- Poorly drained
- Moderately well drained
- Well drained
- Somewhat excessively drained
- Excessively drained

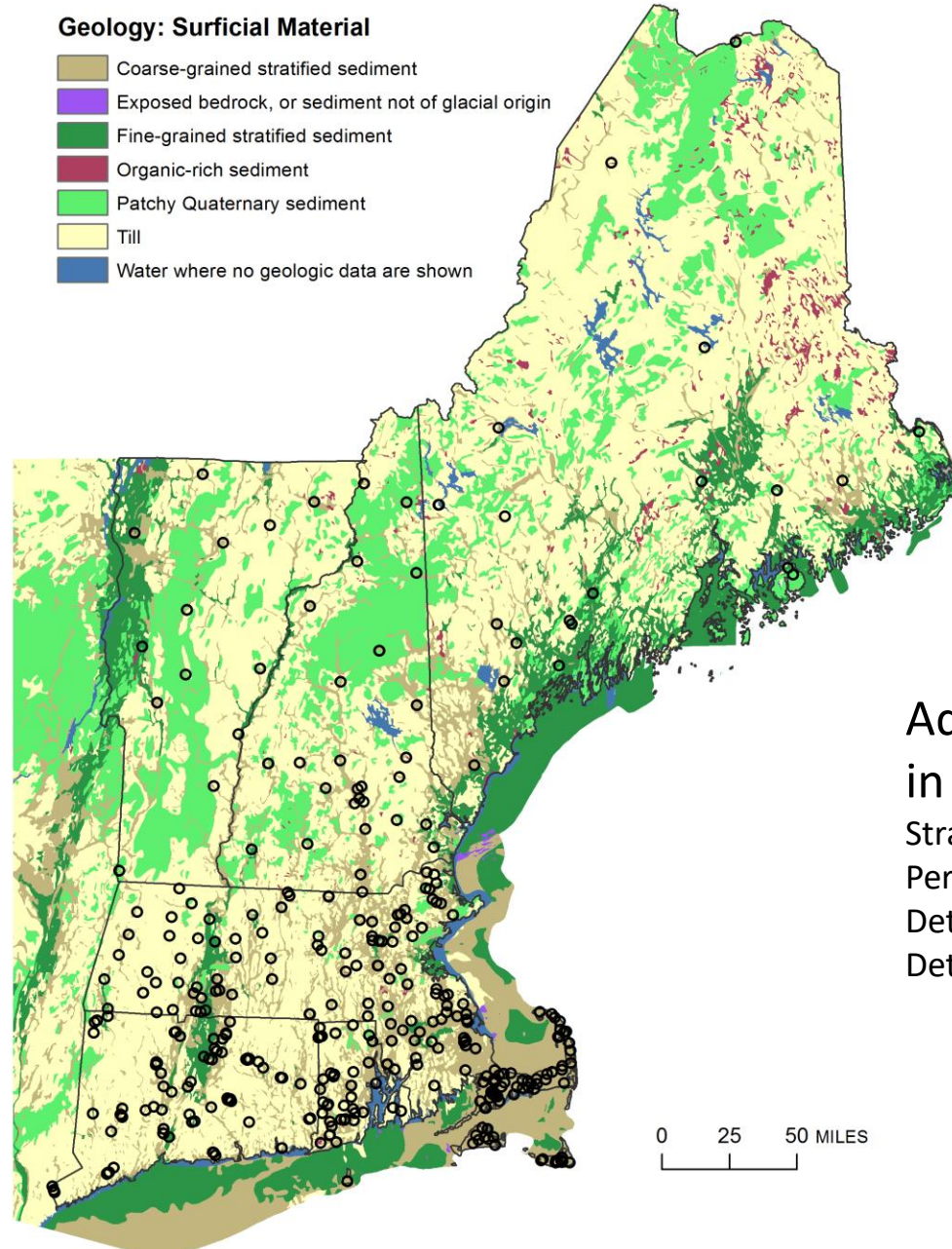


Other soils information:
SSURGO soil texture
SSURGO soil hydro group
SSURGO soil map unit name

Surficial Geology

Geology: Surficial Material

- Coarse-grained stratified sediment
- Exposed bedrock, or sediment not of glacial origin
- Fine-grained stratified sediment
- Organic-rich sediment
- Patchy Quaternary sediment
- Till
- Water where no geologic data are shown



Additional surficial geology
in database:

Stratified drift

Percent sand and gravel in 200 m radius

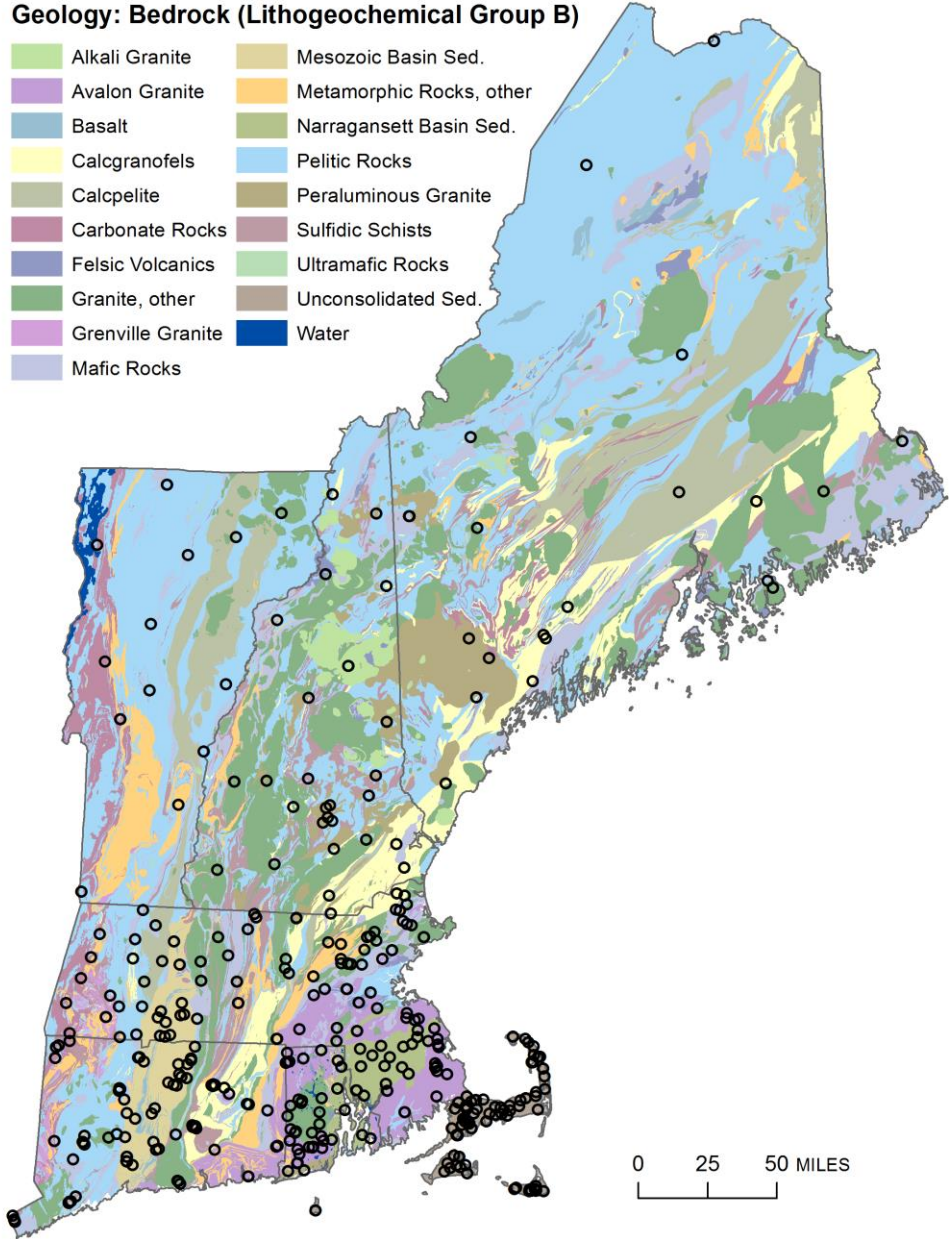
Detailed surficial geology of MA

Detailed surficial geology of CT

Bedrock Geology

Geology: Bedrock (Lithochemochemical Group B)

- | | |
|-------------------|--------------------------|
| Alkali Granite | Mesozoic Basin Sed. |
| Avalon Granite | Metamorphic Rocks, other |
| Basalt | Narragansett Basin Sed. |
| Calcgranofels | Pelitic Rocks |
| Calcpelite | Peraluminous Granite |
| Carbonate Rocks | Sulfidic Schists |
| Felsic Volcanics | Ultramafic Rocks |
| Granite, other | Unconsolidated Sed. |
| Grenville Granite | Water |
| Mafic Rocks | |



Hydrologic Applications of Groundwater-Level Data

- Drought prediction and management
- MA Title V septic system permitting (Frimpter method)
- Regional or State network/gap analysis
- Assessment of climate change and salt-water intrusion
- Groundwater/surface water model calibration
- Bedrock surface mapping
- Monitoring levels in major aquifers, physiographic regions, river basins
- Other regional to local hydrologic investigations

Products

- USGS data release (shapefile, attribute definition table):

<https://www.sciencebase.gov/catalog/item/5c9bd20ae4b0b8a7f62c323>

- Project page on New England WSC web site:

https://www.usgs.gov/centers/new-england-water/science/geospatial-dataset-wells-and-attributes-new-england-groundwater?qt-science_center_objects=0#qt-science_center_objects

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New England Water Science Center

Geospatial Dataset of Wells and Attributes in the New England Groundwater Level Network, 2017



[Overview](#) [Data and Tools](#) [Maps](#) [Partners](#)

The drought of 2016 affected hydrologic conditions throughout New England. Responses of USGS groundwater observation wells to this event, however, were not uniform and were sometimes markedly different from site to site. Although USGS scientists were able to provide explanations for most of these situations, the event highlighted the need for additional well information to develop quantitative and reproducible analyses and interpretations of groundwater-level data. To address this need, a dataset of attributes for the wells in the New England groundwater-level network was developed.

Status - Completed

Contacts

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