

Late Summer 2025 Chautauqua Lake Aquatic Macrophyte Survey



Chautauqua Lake aquatic macrophytes collected in August 2025

Submitted by

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Late Summer 2025 Chautauqua Lake Aquatic Macrophyte Survey



Biologists sampling vegetation with rakes

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Executive Summary

The Chautauqua Lake Association (CLA) is committed to improving the vitality of Chautauqua Lake. To monitor and document the lake's dynamic macrophyte population, the association has employed the State University of New York at Oneonta to conduct an annual macrophyte survey. These data are added to the long-term macrophyte dataset and serve as a comparison with previous years' data. Racine-Johnson Aquatic Biologists and Cornell University led these surveys on Chautauqua Lake from 2003 to 2021. SUNY Oneonta biologists have performed them since 2022, following the same Point Intercept Rake Toss Relative Abundance Method (PIRTRAM) protocol. The 2025 survey documented that plant biomass has increased in both basins. During this survey, we found twenty-nine species of aquatic macrophytes. Most sites had medium biomass, and the north basin had lower vegetation abundance than the south basin. From 2024 to 2025, total macrophyte biomass increased for both native and non-native species. Native Elodea was the most widespread species. We look forward to providing a 2026 survey.

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Introduction

The term macrophyte refers to all aquatic macroscopic vegetation, including macroalgae, liverworts, mosses, ferns, and flowering vascular plants (Cooke, 2016). Macrophytes serve as a food source for many organisms in the aquatic community and provide shelter for animals (Borman, 1997). They can also play a role in sequestering nutrients, stabilizing banks, preventing colonization by invasive species, and inhibiting the growth of cyanobacteria (Bachmann *et al.* 2002).

Since 2003, the Chautauqua Lake Association has hired aquatic biologists to conduct an annual summer survey of aquatic macrophytes in Chautauqua Lake. This serves as a valuable resource for comparison between years and for long-term trend analysis. Plant communities are dynamic. They exhibit seasonality, changing from season to season and year to year. Some species are more sensitive to disturbance while others thrive in human-altered, sediment-rich environments (Havel *et al.*, 2015). Having an annual survey that follows the same protocol at the same locations provides insight into the current dynamics at play beneath the surface.

Chautauqua Lake is a narrow, 13,156-acre, 17.5-mile-long glacially formed lake. Located in the southeast corner of Chautauqua County, it is the largest inland lake in western New York. Sitting approximately 1308 feet above sea level, it is one of the highest navigable waterways in the country. The lake is divided into two basins, north and south, by the Veterans Memorial Bridge. The deepest point of the north basin is 75 ft with a mean depth of 25 ft, and the deepest point of the south basin is 19 ft with a mean depth of 11 ft (NYSDEC, 2014). The watershed for the entire lake is approximately 180 square miles. The lake is fed by 11 streams (Ball Creek, Bemus Creek, Big Inlet, Dewittville Creek, Dutch Hollow Creek, Goose Creek, Lighthouse Creek, Little Inlet, Maple Springs Creek, Mud Creek, and Prendergast Creek), and it empties into the Chadakoin River and Cassadaga Creek (NYSDEC, 2025). Both lake basins are productive; the south is eutrophic, and the north is mesotrophic, according to the Trophic Status Index (Carlson, 1977). The water levels have been managed since 1919 with the construction of the Warner Dam on the Chadakoin River, 3.5 miles from the outlet (CLA, 2024a).

The New York State Department of Environmental Conservation (NYSDEC) classifies Chautauqua Lake as a Class-A waterbody, meaning it is used as a source of drinking water along with boating, fishing, and swimming (NYSDEC, 2014). It is also a popular vacation destination, and the shoreline has several swimming beaches and boat launches to support recreation. Chautauqua Lake supports a diverse fishery that attracts many anglers. The water quality has been degraded in recent years by excessive phosphorus and sediment inputs from the watershed. Phosphorus sources have been addressed through various programs to reduce these inputs (NYSDEC, 2025). However, Chautauqua Lake's Total Max Daily Load (TMDL) of 20 ug/L has not been met, and therefore, the DEC is developing a TMDL Watershed Implementation Plan to achieve target phosphorus concentrations (NYSDEC, 2025).

Since 2019, Chautauqua Lake has been issued annual herbicide application permits from NYSDC (NYSDEC, 2025). This is to manage Eurasian Watermilfoil (*Myriophyllum spicatum*) and Curly-leaf Pondweed (*Potamogeton crispus*), two non-native plants in the lake. Aquathol-K[®] has been used for Curly-leaf Pondweed, and ProcellaCOR EC[™] has been used for Eurasian Watermilfoil; other herbicides have been used in the past (EPA 2019, SePRO 2024a). In 2024, permits were issued for the treatment of the non-native macroalgae Starry Stonewort (*Nitellopsis obtusa*) (herbicides: Captain[™],

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Komeen Descend[®], and Nautique[®]) and native Coontail (*Ceratophyllum demersum*) (herbicides: Komeen Descend), but treatment was not carried out due to low abundance. This year, Clearcast[®] was approved for the treatment of Curly-leaf pondweed, and ProcellaCOR[™] was approved for two phases of treatment of Eurasian Watermilfoil. Ultimately, phase one of the Clearcast application for Curly-leaf pondweed was not applied due to a lack of growth by the end of the approved treatment dates, and phase two of the treatment was not applied due to late approval by the NYSDEC (Chautauqua Lake Partnership 2025, NYDEC 2025)

Methods

This 2025 late summer macrophyte survey followed the same protocol established by Cornell University and used by Racine-Johnson Aquatic Ecologists and the State University of New York at Oneonta (Kishbaugh and Lord 2006; Johnson 2003-2021; Casey and Lord, 2022; Shea and Lord, 2023). The methods and sampling locations were the same to maintain comparability with prior years, with an additional five points added near the Celeron Marina to monitor a planned new herbicide treatment. This survey used PIRTRAM, Point Intercept Rake Toss Relative Abundance Method, (modified to use two rake tosses in lieu of three), which translates macrophyte biomass into approximate dry weight (Figure 1). GPS points were stored on a Lowrance[®] GPS fish finder (Helminen, 2019), 371 total throughout the lake, with 177 in the north and 194 in the south. The macrophyte survey relied on a UTM coordinate grid map (NAD27 datum and true north) with sample locations at the intercept of the north-south and east-west lines (Johnson *et al*, 2021).

This survey took nine days and involved five trained biologists. The first trip was from August 8 to August 12, and the second trip was from August 15 to August 18.

To collect the macrophytes, two 16-inch dual-headed garden rakes welded together and tied to a nylon rope were used at each location. These rakes were tied to the boat to keep them secure. A plastic table and trays were used to sort plants once they were brought aboard the boat (Figure 2, Figure 3). Several reference books were on hand as identification aids, including Through the Looking Glass by Borman *et al*, 1997, and Aquatic and Wetland Plants of Northeastern North America by Crow and Hellquist, 2023.

Following PIRTRAM, a pontoon boat navigated to each GPS point where two rakes were simultaneously tossed. Once the lines reached their full extension, they were slowly pulled towards the boat. The rakes with attached plants were carefully brought into the boat to avoid the loss of vegetation. Based on the quantity of plants attached to the rake, each toss is assigned a specific rating: zero (Z), trace (T), sparse (S), medium (M), or dense (D). The approximate size reference used for T is a fingerful, S is a handful, M is an armful, and D is too big to bring aboard the boat. Once onboard, the rakes were placed on the table, and the plants were removed, identified, and sorted into piles based on species. Plants that were not green were considered not viable and not recorded. Once the entire rake-full had been sorted into individual piles, the piles were then spun into a sphere and assigned a percentage of the whole for that toss. These percentages are recorded in the Raw Data Sheets in Appendix B.

All information was recorded on waterproof data sheets and later input into an Excel spreadsheet for further analysis. For the calculations, it is assumed that the dry weight for single species abundance

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is the same across all species (Johnson *et al.*, 2003-2021). This calculation method is consistent with all prior surveys done by Racine-Johnson Aquatic Ecologists and SUNY Oneonta. The results of this were used to create abundance maps using a mapping software product, QGIS.

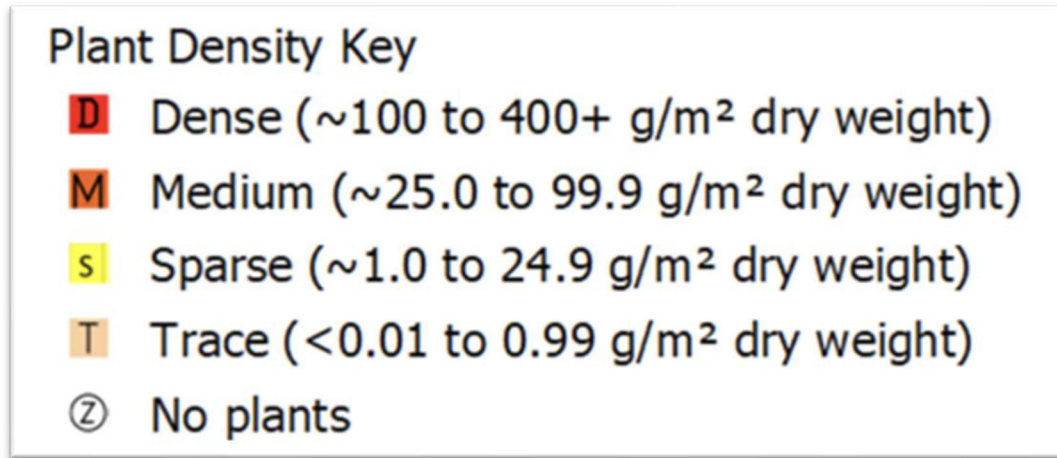


Figure 1. Macrophyte density key used to derive abundances at sites in Chautauqua Lake. These biomass dry weights are lab-tested to align with the field estimates of each rake toss (Kishbaugh and Lord, 2006).

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Figure 2. Macrophytes collected in the southern basin in this 2025 survey.



Figure 3. Sorting trays and tables used in this study.

Results

Figures and graphs of our major findings are presented below (Figures 4-17). Biomass maps of the most common species are included in the Appendix A-Biomass Maps section. Raw data are included in the Appendix B-Data Sheets section.

Our 2025 survey found twenty-nine species of macrophytes, five more than the previous year's survey. In this report we will be using common names to refer to the macrophytes we found, as well as introducing their Latin binomial for specificity (Table 1). The five "new species" found, Watermoss (*Fontinalis* sp.), Common Duckweed (*Lemna minor*), Hill's Pondweed (*Potamogeton hillii*), Richardson's Pondweed (*Potamogeton richardsonii*), and Greater Duckweed (*Spirodela polyrhiza*) were only found in trace amounts. The most common species by total number of occurrences was the native Elodea (*Elodea* sp.), Non-native Eurasian Watermilfoil and native Coontail were the second and third most common macrophytes recorded (Figure 4). The most widespread species in both the north and south basins was native Elodea. Non-native species accounted for approximately 20% of all occurrences. Invasive Eurasian Watermilfoil made up approximately 16% of occurrences. Native Elodea accounted for approximately 17% of occurrences (Figure 5).

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Common Name	Latin Binomial
Elodea	<i>Elodea</i> sp.
Eurasian Watermilfoil	<i>Myriophyllum spicatum</i>
Coontail	<i>Ceratophyllum demersum</i>
Star Duckweed	<i>Lemna trisulca</i>
Stargrass	<i>Heteranthera dubia</i>
Small Leaf Pondweed	<i>Potamogeton pusillus</i>
Southern Water Nymph	<i>Najas guadalupensis</i>
Eel Grass	<i>Vallisneria americana</i>
Whitestem Pondweed	<i>Potamogeton praelongus</i>
Curly-leaf pondweed	<i>Potamogeton crispus</i>
Flatstem Pondweed	<i>Potamogeton zosteriformis</i>
Slender Naiad	<i>Najas flexilis</i>
Water Plantain	<i>Alisma</i> sp.
Starry Stonewort	<i>Nitellopsis obtusa</i>
Sago Pondweed	<i>Stuckenia pectinata</i>
Chara	<i>Chara vulgaris</i>
Common Duckweed	<i>Lemna minor</i>
Richardson's Pondweed	<i>Potamogeton richardsonii</i>
Greater Duckweed	<i>Spirodela polyrhiza</i>
Columbian Watermeal	<i>Wolffia columbiana</i>
Brittle Naiad	<i>Najas minor</i>
Smooth Stonewort	<i>Nitella flexilis</i>
Hill's Pondweed	<i>Potamogeton hillii</i>
Water Moss	<i>Fontinalis</i> sp.
Leafy Pondweed	<i>Potamogeton foliosus</i>
Longleaf Pondweed	<i>Potamogeton nodosus</i>
Robbin's Pondweed	<i>Potamogeton robbinsii</i>
Thread Leaf Water Crowfoot	<i>Ranunculus trichophyllus</i>
Hardstem Bullrush	<i>Scirpus acutus</i>

Table 1. Common names and Latin binomials of the macrophytes found in the 2025 Lake Chautauqua macrophyte survey.

Of the 371 sites surveyed, 200 had an overall macrophyte abundance of medium (Figure 6). Native macrophytes were also found at medium abundance at 176 sites (Figure 7). Non-native macrophytes were found most frequently in trace and sparse abundances at 124 and 154 site respectively and only 42 at medium (Figure 8).

The north basin had 17.5% sparse sites and 57.6% medium sites. The south basin had 17% sparse sites, 50.5% medium sites, and 11.3% dense sites (Figure 9). Both basins had a majority of sites with medium abundance for all species occurrences (Figure 9). The majority of non-native macrophytes in the south basin were of medium abundance, whereas in the north basin, they were more often of sparse abundance (Figure 11). The north basin had more zero abundances for non-natives than medium

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(Figure 11). The north basin had more medium native macrophyte abundance than non-native macrophyte abundance whereas the south basin had more medium non-native abundances than native (Figure 10 and 11).

Macrophyte occurrence reflects where species are present but does not indicate how much biomass is present at a site (Figure 12, Figure 13, and Figure 14). As a result, occurrence is useful for understanding distribution patterns but cannot be used to directly assess changes in population size or dominance. Macrophyte abundance overall has increased from the 2024 survey for both native and non-native species (Figure 15). Native species have increased at a higher rate since they have increased in medium and dense sites (Figure 16). Non-native species decreased in medium sites, but increased in dense sites (Figure 17). Native medium abundance sites increased from 148 in 2024 to 176 in 2025, and non-native medium abundance sites stayed the same at 42 in 2024 and 2025.

The 2024 and 2025 survey samples were mostly medium (Figure 15). Last year had three dense sites, and this year there were 24, which contained mostly native vegetation. Fourteen zero sites were recorded this year, compared with thirteen last year. In comparison to last year, the number of trace sites went from 60 to 69, sparse from 110 to 64, medium from 185 to 200, and dense from 3 to 24 (Figure 15). Native species found last year were mostly medium and sparse, with a few zero, while this year were mostly medium, a few zero, and a few dense (Figure 16). For non-native plants, last year we documented mostly sparse and trace sites, and this trend persisted into this year. The number of medium sites remained at 42, and the number of zero sites increased from 36 to 46 (Figure 15).

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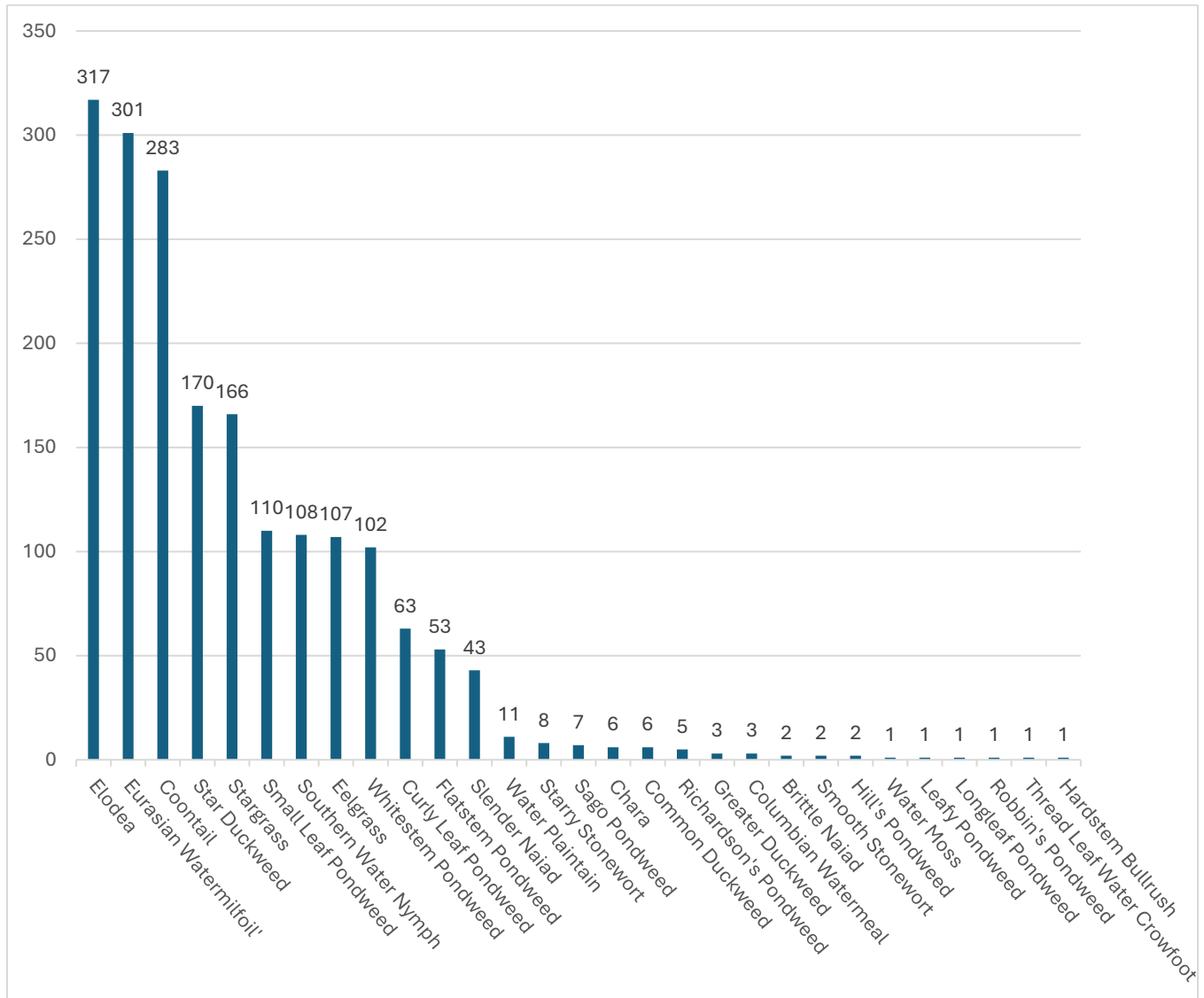


Figure 4. Occurrences of each species found in Chautauqua Lake, August 2025. Elodea (*Elodea* sp.) was the most widespread macrophyte surveyed, followed closely by Eurasian Watermilfoil (*Myriophyllum spicatum*).

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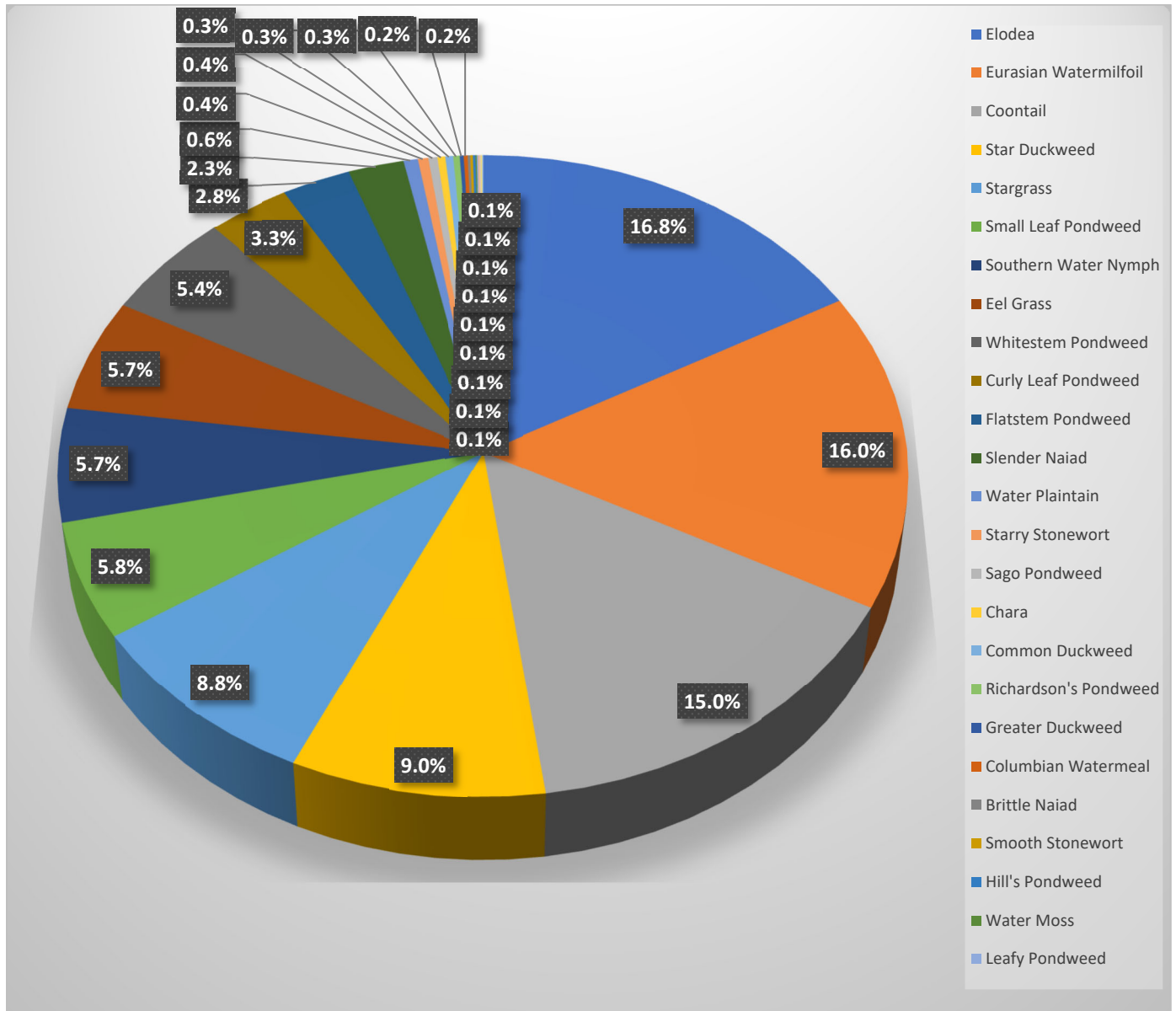


Figure 5. Percent occurrence of each species found in Chautauqua Lake, August 2025. Species listed in order of percentage, largest to smallest.

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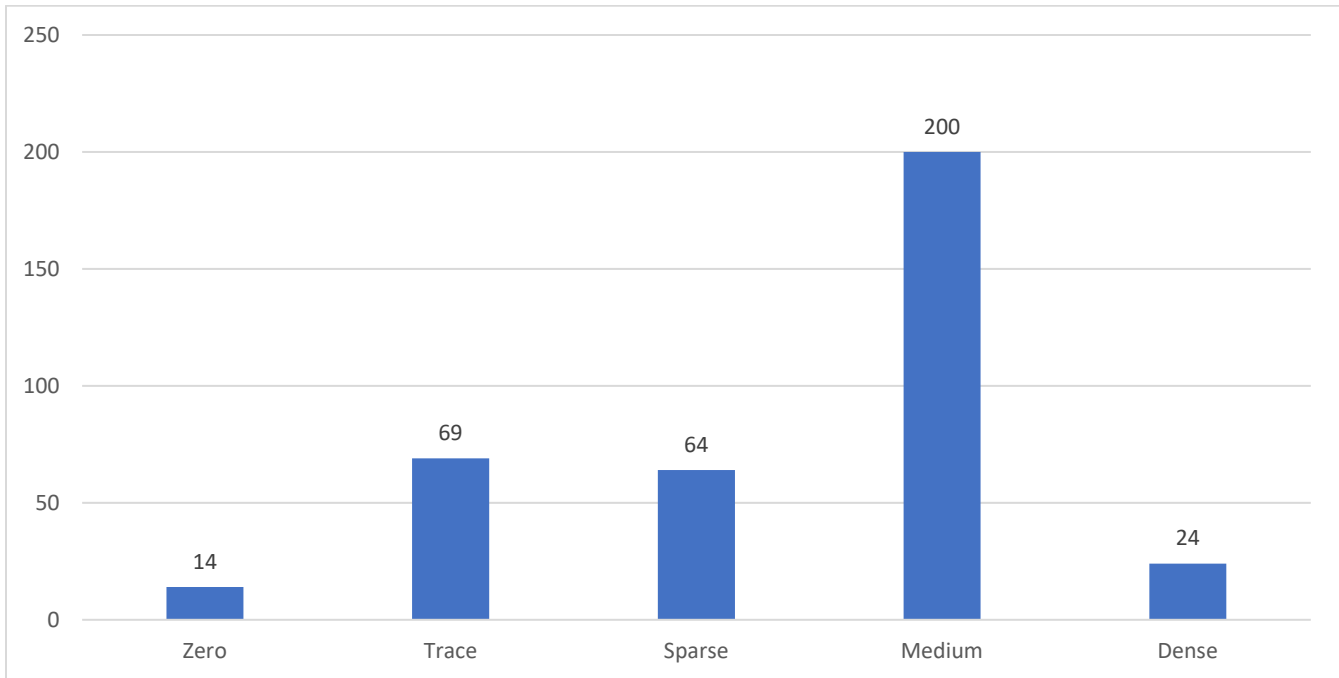


Figure 6. Total macrophyte abundance in Chautauqua Lake, August 2025. Most sites had medium aquatic vegetation.

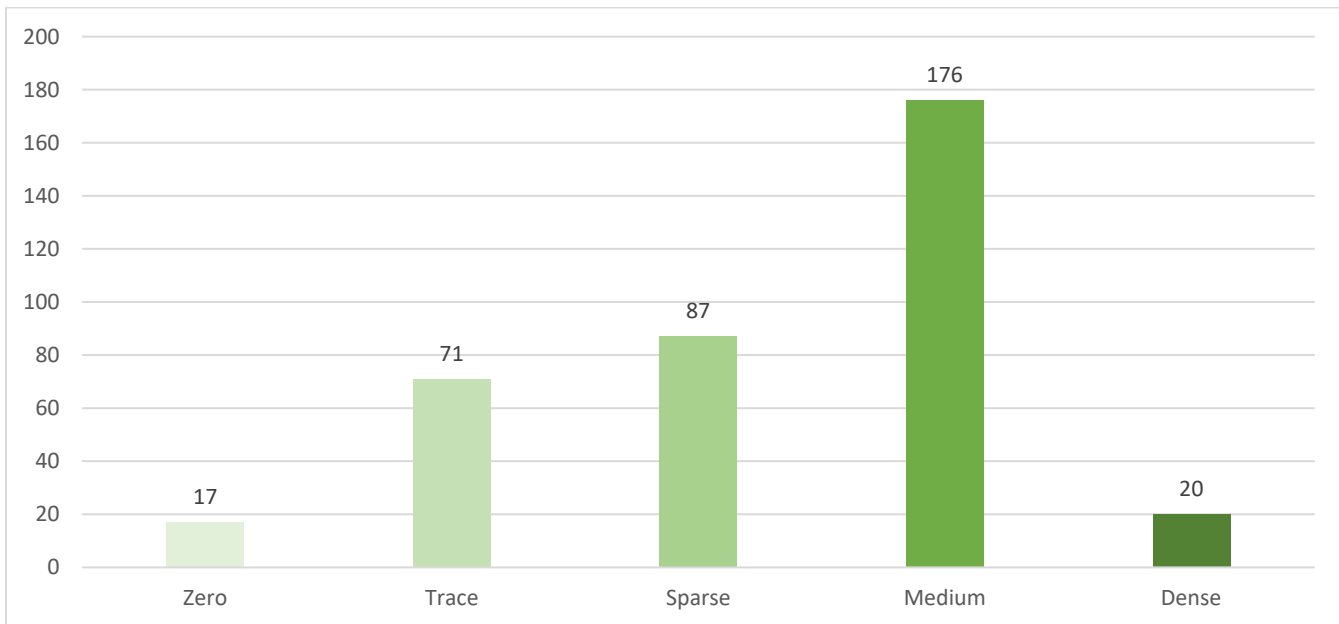


Figure 7. Native macrophyte abundance in Chautauqua Lake, August 2025. Most sites were medium or sparse in aquatic vegetation.

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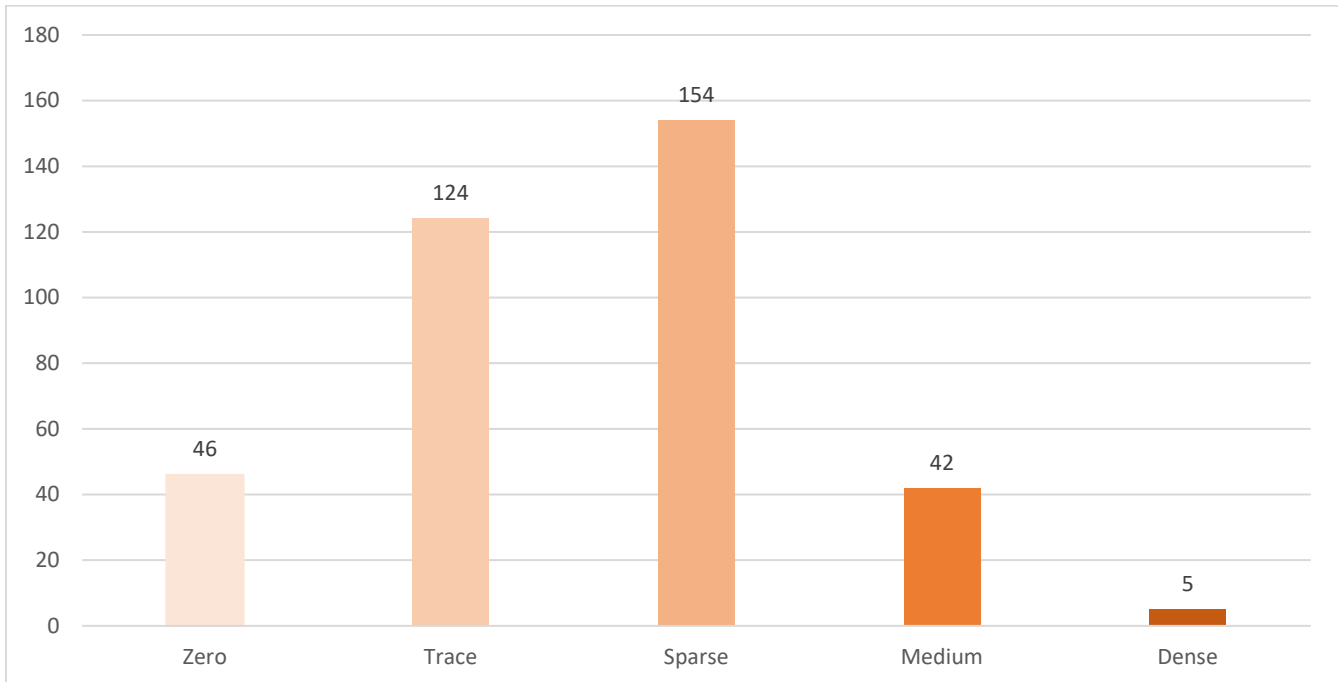


Figure 8. Non-native macrophyte abundance in Chautauqua Lake, August 2025. Most sites were sparse or trace in aquatic vegetation

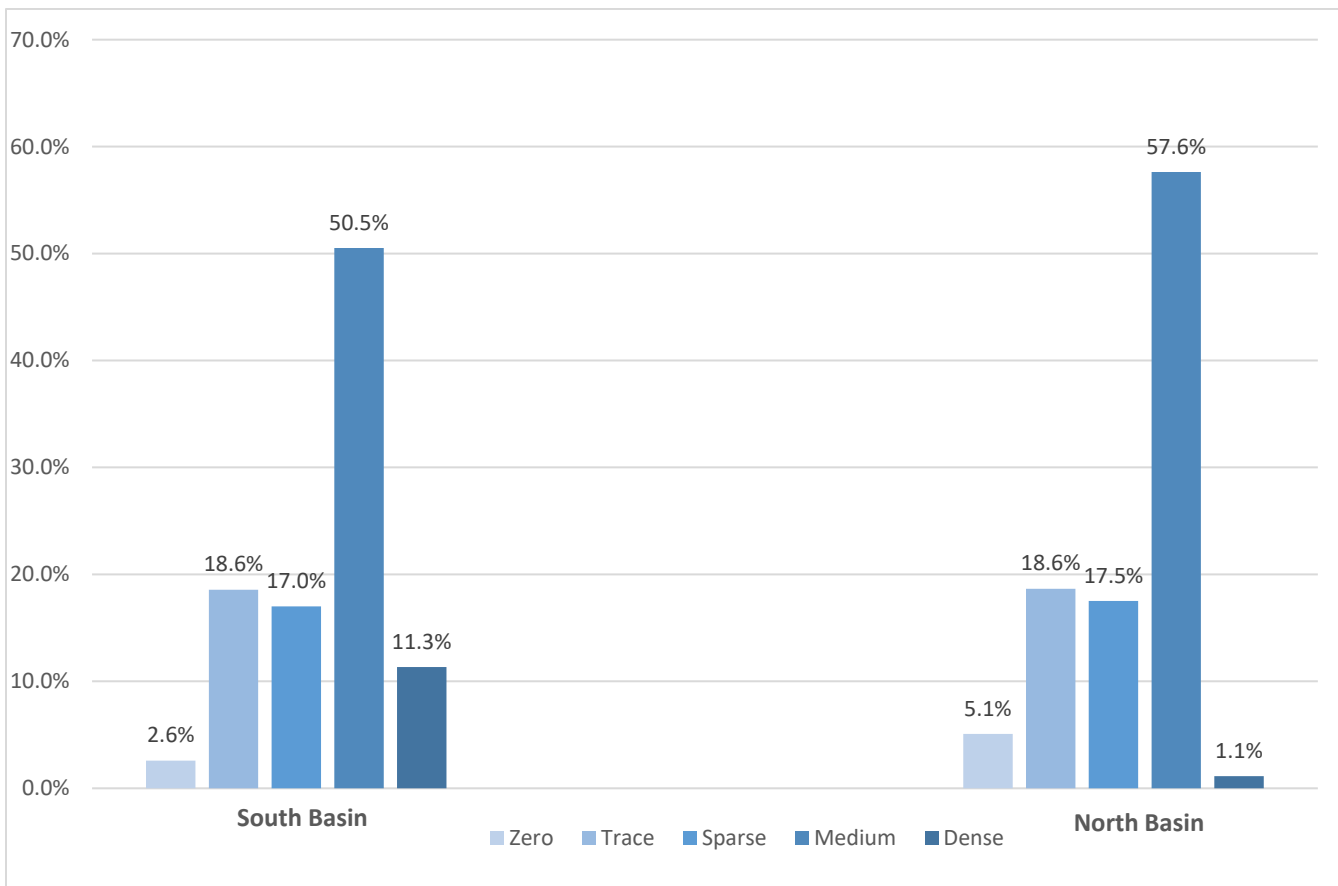


Figure 9. Percentage of biomass ratings for all macrophytes by basin. More than 50% of sites sampled had medium biomass.

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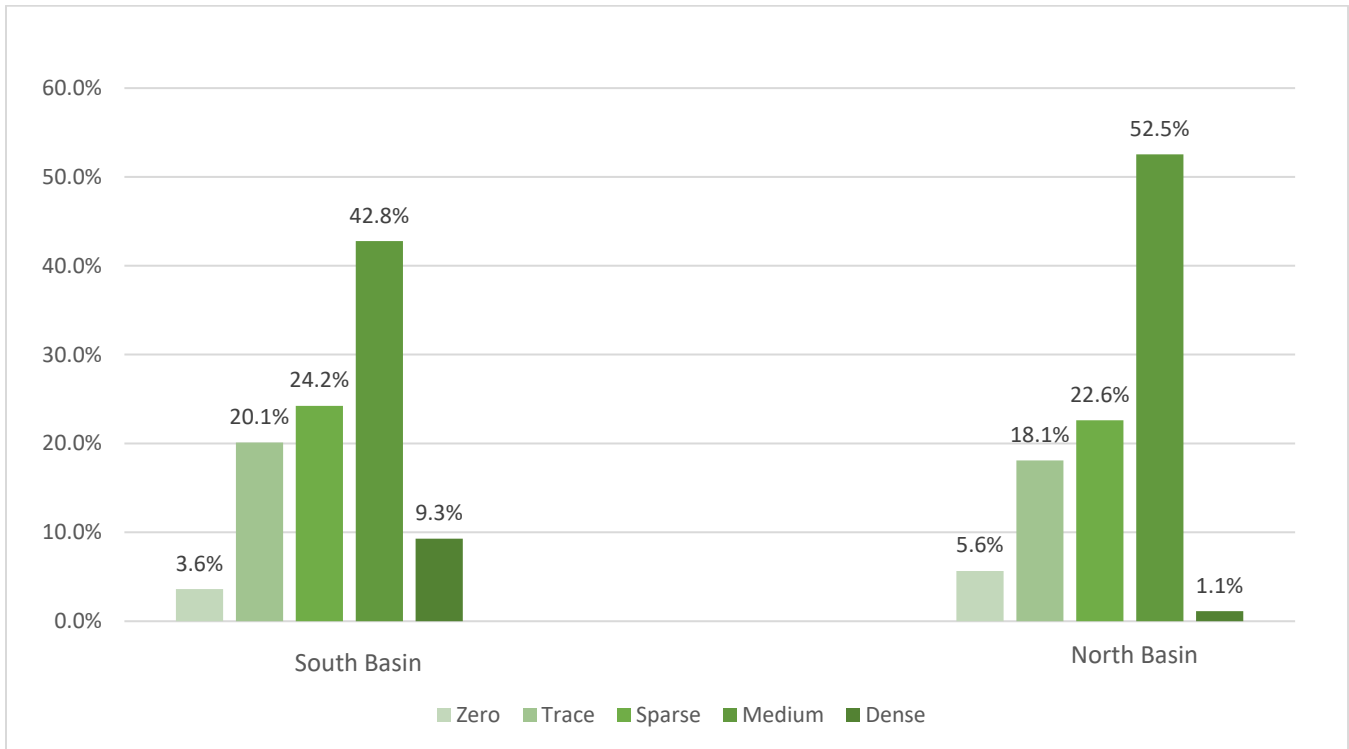


Figure 10. Percentage of native plant biomass ratings by basin. Many sites in both basins had medium biomass.

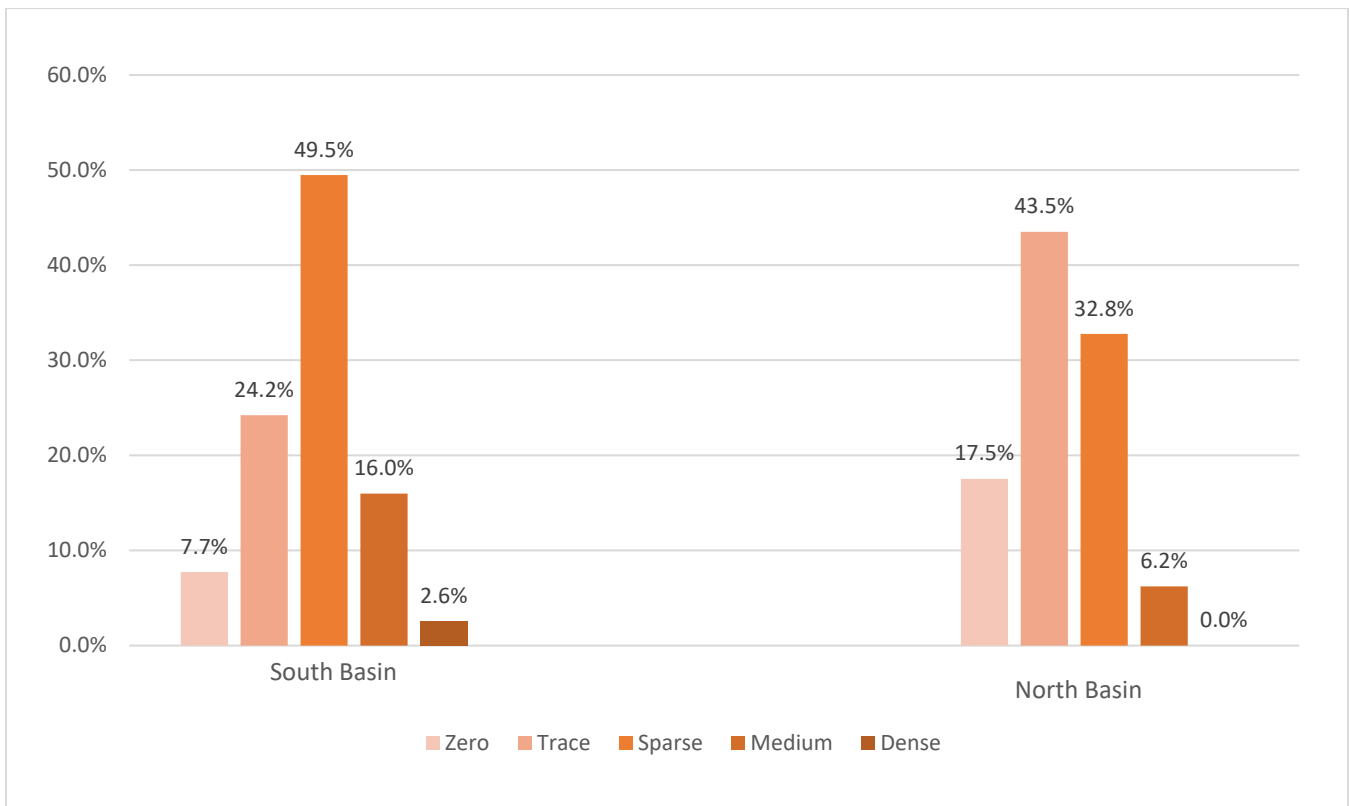


Figure 11. Percentage of non-native biomass ratings by basin in our 2025 survey. Trace and sparse ratings were the most common for non-native macrophytes.

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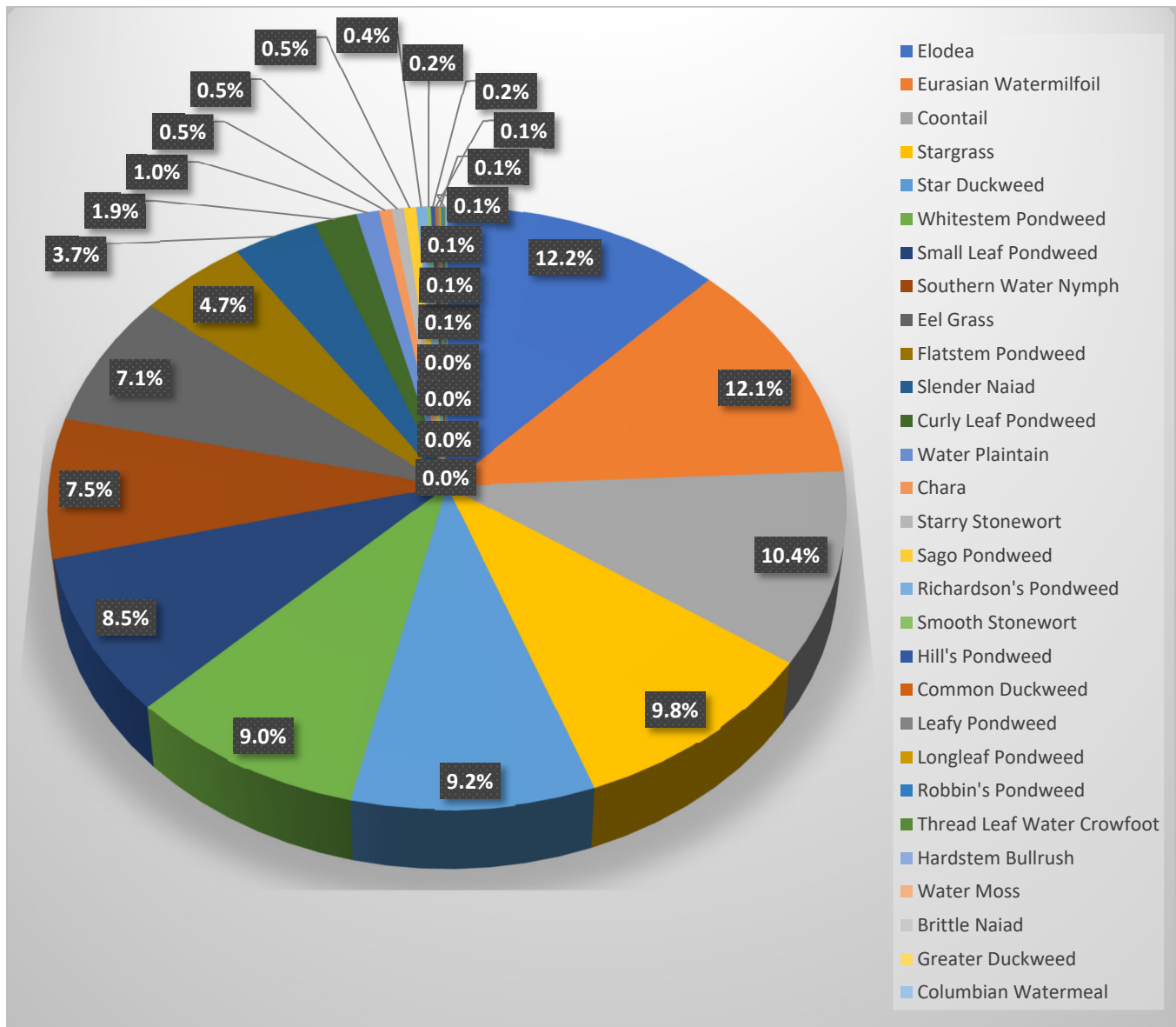


Figure 12. Percent occurrence of each species found in the North Basin of Chautauqua Lake, August 2025

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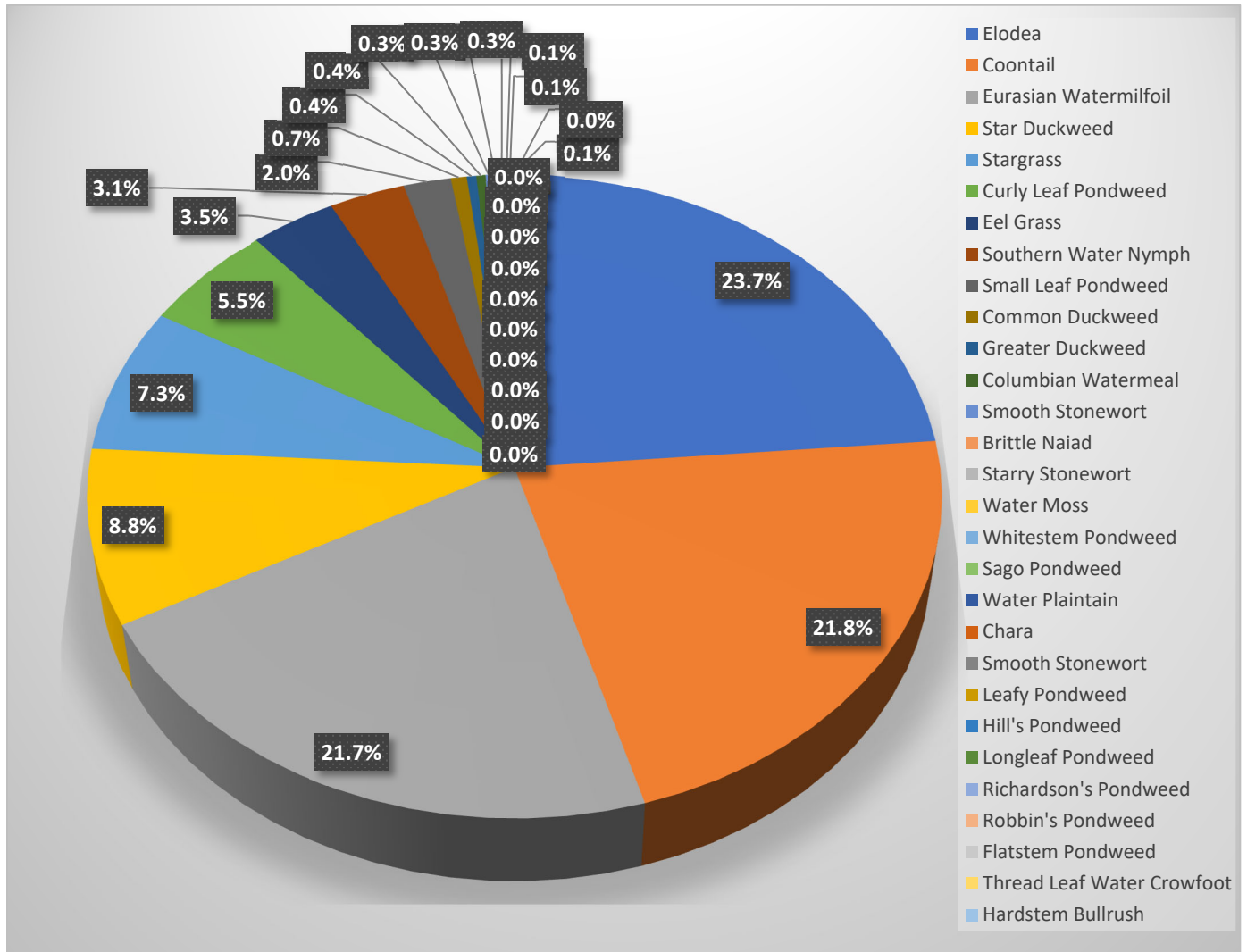


Figure 13. The percentage occurrences of each species in the South Basin of Chautauqua Lake, August 2025

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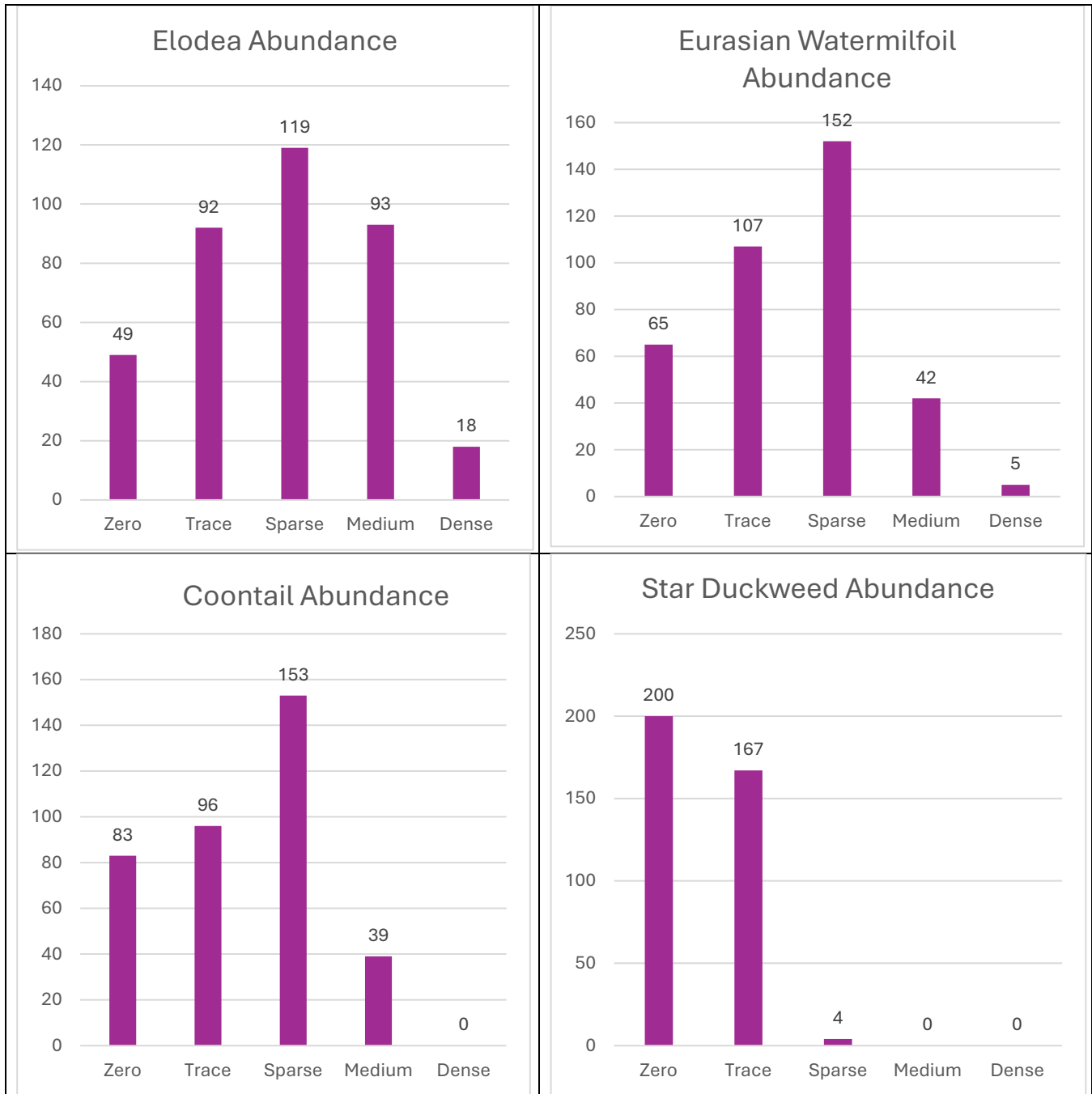


Figure 14. Abundances of the four most frequently occurring species found in Chautauqua Lake, August 2025. The Y-axis represents the number of sites, and the X-axis represents the biomass category. Elodea and Eurasian Watermilfoil both had dense abundances.

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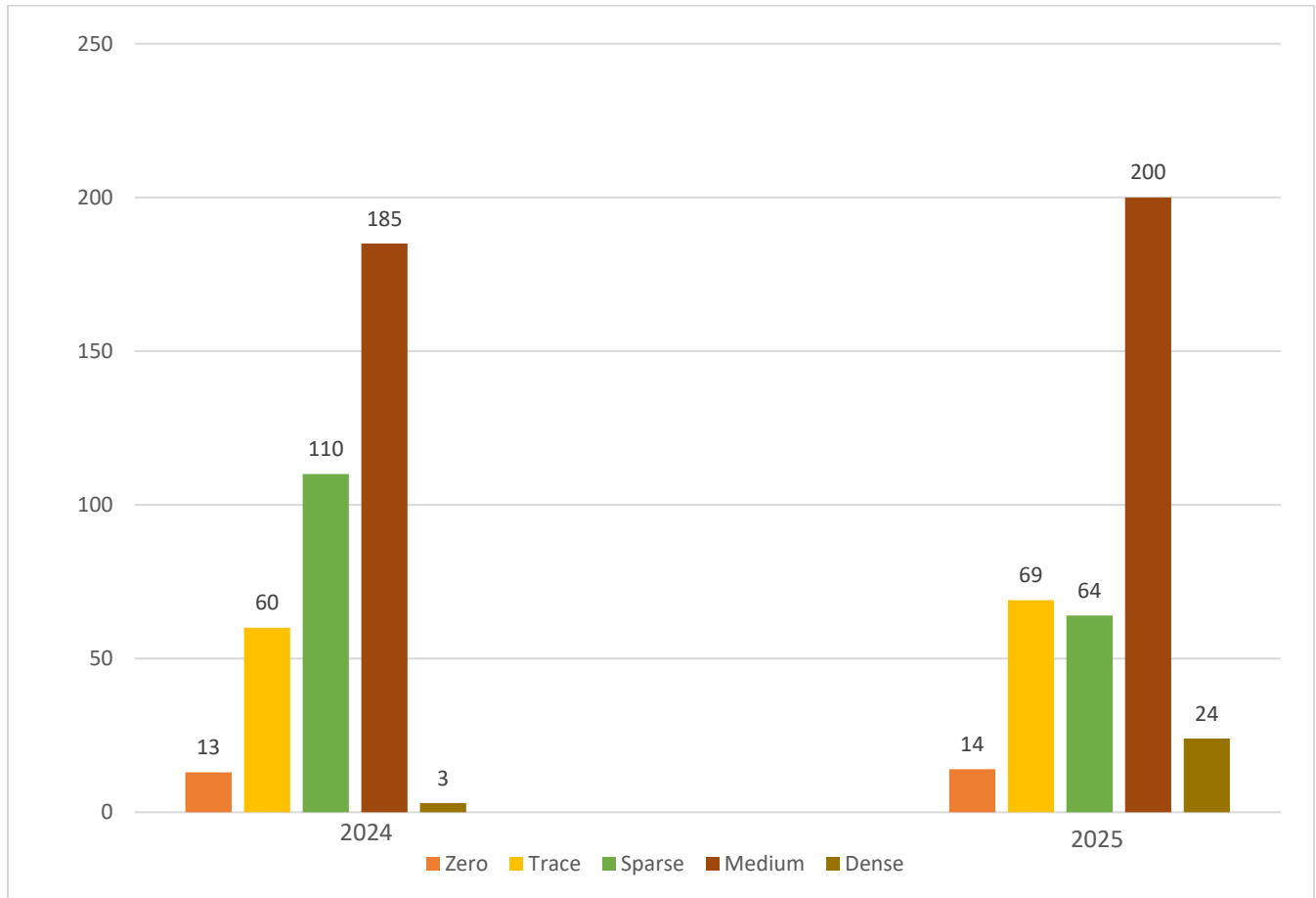


Figure 15. Total species abundance from 2024 and 2025. The 2025 survey had fewer sparse abundances and more medium and dense abundances. Y-axis delineates the number of sites with the abundance category.

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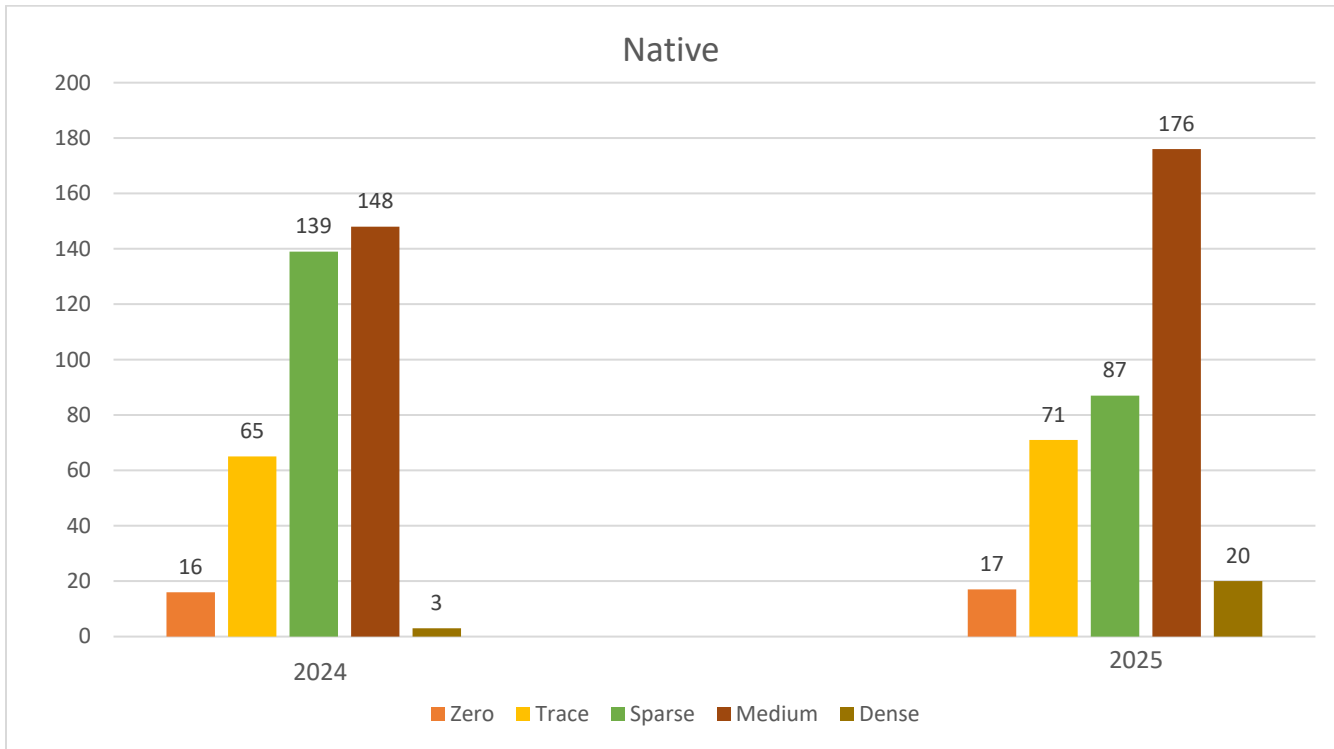


Figure 16. Native species abundances from 2024 and 2025. The 2025 survey had more medium and dense abundances. Y-axis delineates the number of sites with the abundance category.

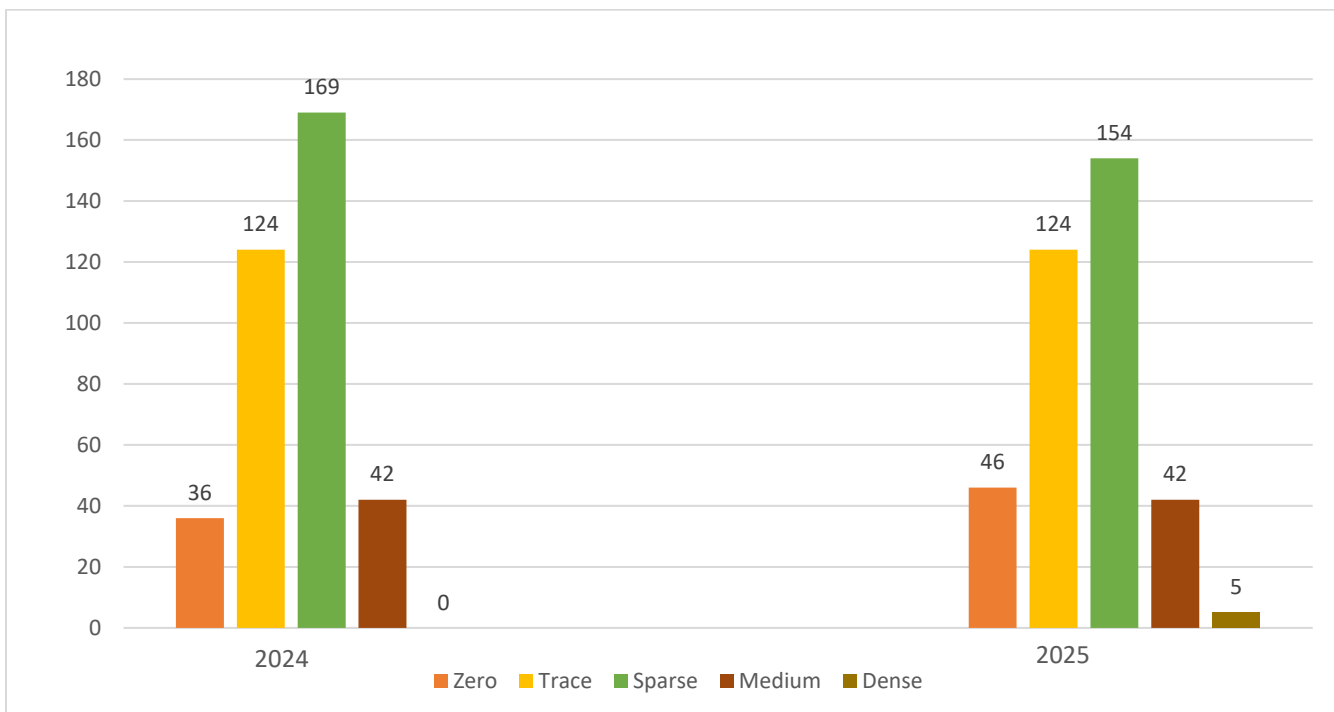


Figure 17. Non-native species abundance from 2024 and 2025. The 2025 survey had fewer sparse abundances, similar medium abundances, and an increase in dense abundances. Y-axis delineates the number of sites with the abundance category.

Discussion

The results of the 2025 aquatic macrophyte survey are consistent with last year's findings. Over the past year, the amount of vegetation has increased, primarily in the south basin. The crew expected to find dense vegetation based on news media reports and the previous years' findings (McMahon and Lord 2024). The density of plants in the south basin required careful navigation to complete the survey.

During the survey, biologists Beatrice Moss, Melanie Rooney, Victor Brown, Darian Paul and Stephen Root identified twenty-nine species of aquatic macrophytes, four of which were non-native. This is the same number of non-native species found last year and an increase by five native species: Watermoss, Common Duckweed, Hill's Pondweed, Richardsons's Pondweed, and Greater Duckweed (McMahon and Lord, 2024). Nine of the species contributed at least 1% of all occurrences (Figure 5). The two most dominant non-native plants were Curly-leaf pondweed and Eurasian Watermilfoil (Figure 4).

. To fully understand changes in abundance and occurrence, it is important to note that abundance is not the same as occurrence. Abundance provides more information than occurrence since it reflects biomass and thus can be used to make data-substantiated comparisons across years. Without accounting for abundance, it is difficult to determine how a population is changing. Occurrences help us understand species distribution spread and contraction.

Elodea was the most common species by occurrence and abundance in 2025. This differs from 2023 and 2024, which were dominated by Eurasian Watermilfoil (McMahon and Lord 2024, Shea and Lord 2023). Eurasian Watermilfoil was present at about the same rate of occurrence as Elodea (Figure 5). Coontail was the sixth most common species in 2024 but was the third this year, and, although last year its range had decreased, it appears to have rebounded in 2025 (McMahon and Lord 2024). The lake had 176 medium abundance sites for native plants (Figure 6) but only 42 medium abundance sites for non-native plants (Figure 7). This is an increase in native plants and no change from last year in non-native plants (McMahon and Lord 2024).

Eurasian Watermilfoil expanded into additional sites, but the number of sites equaled the number of sites that Elodea had colonized (Figure 14). Many of the Milfoil samples showed signs of insect herbivory and degradation from herbicides. This is consistent with findings that aquatic herbivorous insects, including moths (*Acentria ephemerella*), weevils (*Euhrychiopsis lecontei*), and midges (*Cricotopus myriophylli*) impact Eurasian Watermilfoil populations in New York State lakes (Johnson *et al.*, 2000). Milfoil, with herbivore-damaged stems and leaves, is present throughout Chautauqua Lake.

Starry Stonewort presence decreased from 10 sites in 2024 to eight sites in 2025. This non-native macroalgae doesn't seem to be increasing and is still in a small enough number of

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locations that eradication could be possible and cost-effective (WNY PRISM, 2023). Curly-leaf pondweed decreased from 210 sites in 2024 to 63 in 2025. Eurasian Watermilfoil and Curly-leaf pondweed are unlikely to be eradicated as they are widespread and have been well-established members of the Chautauqua Lake plant community since 1972 and 1937, respectively (Johnson *et al.*, 2002 – 2021). We also note that Curly-leaf pondweed is typically an early blooming plant in New York State and its occurrence and abundance is not well documented by an August survey.

Despite repeated herbicide use in the south, the north basin had more zero abundance sites, and the south basin had more medium abundance sites (Figure 9). Shallow lakes with concave bottoms, such as the south basin, typically have high productivity (Klaus *et al.* 2022). Therefore, it is understandable that the south basin would have more vegetation. Vegetation in waterbodies can decrease the occurrence of harmful algal blooms (HABs), yet these blooms have persisted throughout the summer of 2025 (NYHABS Public, n.d). The increase in macrophytes hasn't decreased the HABs, but during the survey, we did note that within dense areas of vegetation, the water was clear, even when surrounded by HABs. Cyanobacteria and other algal blooms can be mitigated by robust macrophyte communities, as they sequester nutrients, making them unavailable in the water column (Bachmann *et al.* 2002, Balls *et al.* 1989, Carpenter *et al.* 1999, Carpenter and Lodge 1986, Didham *et al.* 2005, Genkai-Kato and Carpenter 2005, Hilt and Gross 2008, Jackson 2003, Janse *et al.* 2008, Janssen *et al.* 2014, Jeppesen *et al.* 1997, Jeppesen *et al.* 2012, Ludwig *et al.* 1997, Pakdel *et al.* 2013, Rastogi *et al.* 2015, Scheffer 2001, Scheffer and Carpenter 2003, Scheffer *et al.* 2001, Scheffer *et al.* 1992, Scheffer *et al.* 1993, Scheffer *et al.* 1997, Van Donk and Van de Bund 2002, Van Nes *et al.* 2002, Verhofstad and Bakker 2019, Wang *et al.* 2009). Algal bloom mitigation, especially of the harmful variety, is important for recreation on Chautauqua Lake and for the health of all who live in the community (EPA, 2018).

The results of the 2022 and 2023 surveys showed a trend of decreasing plant abundances; the 2024 results show a significant increase in the number of medium abundance sites and the 2025 survey documented a slight increase in the number of medium abundance sites (Figure 15). Thick plant growth can inhibit boating and swimming; however, there were few dense locations which indicate that recreational opportunities shouldn't have been excessively impacted by plant growth (Killgore *et al.* 1989). However, during our survey, there were instances, while navigating the south basin, where aquatic plants became wound up in our propeller, requiring us to stop and remove them. One possible explanation for increased plant growth could be plants filling in gaps in the canopy left by plants that have died. Since Eurasian Watermilfoil was the target plant, Coontail and Elodea have filled the spaces where Eurasian Watermilfoil used to grow (Neumann, 2024). ProcettaCOR®, one of the two herbicides recently used for Eurasian Watermilfoil management in Chautauqua Lake, has been shown, on occasion, to increase the amount of native, non-target species after application, as those species take advantage of the space left by targeted species (Davidson, 2023). Clearcast®, the herbicide requested and approved for treatment of Curly-leaf pondweed, was unused due to low growth and late approval

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by NYSDEC (Herbicide Treatment 2025, NYSDEC 2025). This year's survey showed a reduced spread of Curly-leaf pondweed compared to last year.

Chautauqua Lake has seven state boat launches, many of which are staffed by watercraft inspection stewards (CLA, 2024b). Even with a robust steward program, it is still possible that non-native or native plants can be introduced by boaters and anglers, given the amount of recreational boating and fishing on the lake each year, and the numerous entry points.

Despite its reputation for being a nuisance to recreation, having a robust and diverse native macrophyte population is important for a healthy lake. Macrophytes serve as a food source to many organisms in the aquatic community and provide shelter for animals (Borman *et al.* 1997). Additionally, submerged vegetation helps lock in nutrient-rich sediments, stabilize lake shorelines, increase water clarity, and oxygenate the water (NHDES, 2019). Aquatic macrophytes help support zooplankton populations which keep the water clear by eating algae, and they provide a food source for fish (Gross *et al.* 2003, Irvine *et al.* 1989, Jackson 2003, Janssen *et al.* 2014, Rastogi *et al.* 2015, Scheffer 2001, Takamura *et al.* 2003, Wang *et al.* 2009).

A diverse assemblage of macrophytes is important for supporting a diverse assemblage of fish, as they provide a variety of habitats, refuge from prey, and foraging areas for predators (Knight, 2014). Aquatic plants also serve as receptacles for fish eggs when spawning (Pitts, 1976), indicating that the observed increase in vegetation could be beneficial for the Chautauqua Lake fishery. Chautauqua Lake supports angling for walleye, muskellunge, largemouth bass, smallmouth bass, and panfish. It is also one of the top ice fishing destinations in western New York. Eighty-one species of fish have been identified in the lake since 1902. The lake has been the site of Muskellunge culturing since 1888, and the Chautauqua Hatchery continues to stock the lake and nearby waterbodies with Muskellunge (NYSDEC 2024, CLA 2024b). Fishing on Chautauqua Lake brings tourists annually, contributing to the local economy. Although aquatic macrophytes may be seen as a nuisance to some boaters and anglers, having a healthy plant population is beneficial to surrounding communities as well as to the lake.

Consistent long-term monitoring is key to assessing the vitality of macrophyte populations and how they are reacting to environmental changes, especially in human-altered environments. Tracking how macrophyte communities are responding to in-lake management methods is critical to evaluating the efficacy of a lake management plan and the longevity of a lake itself. We look forward to providing the Chautauqua Lake Association with similar sampling and analysis in 2026.

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Acknowledgments

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Appendix A: Macrophyte Survey Maps

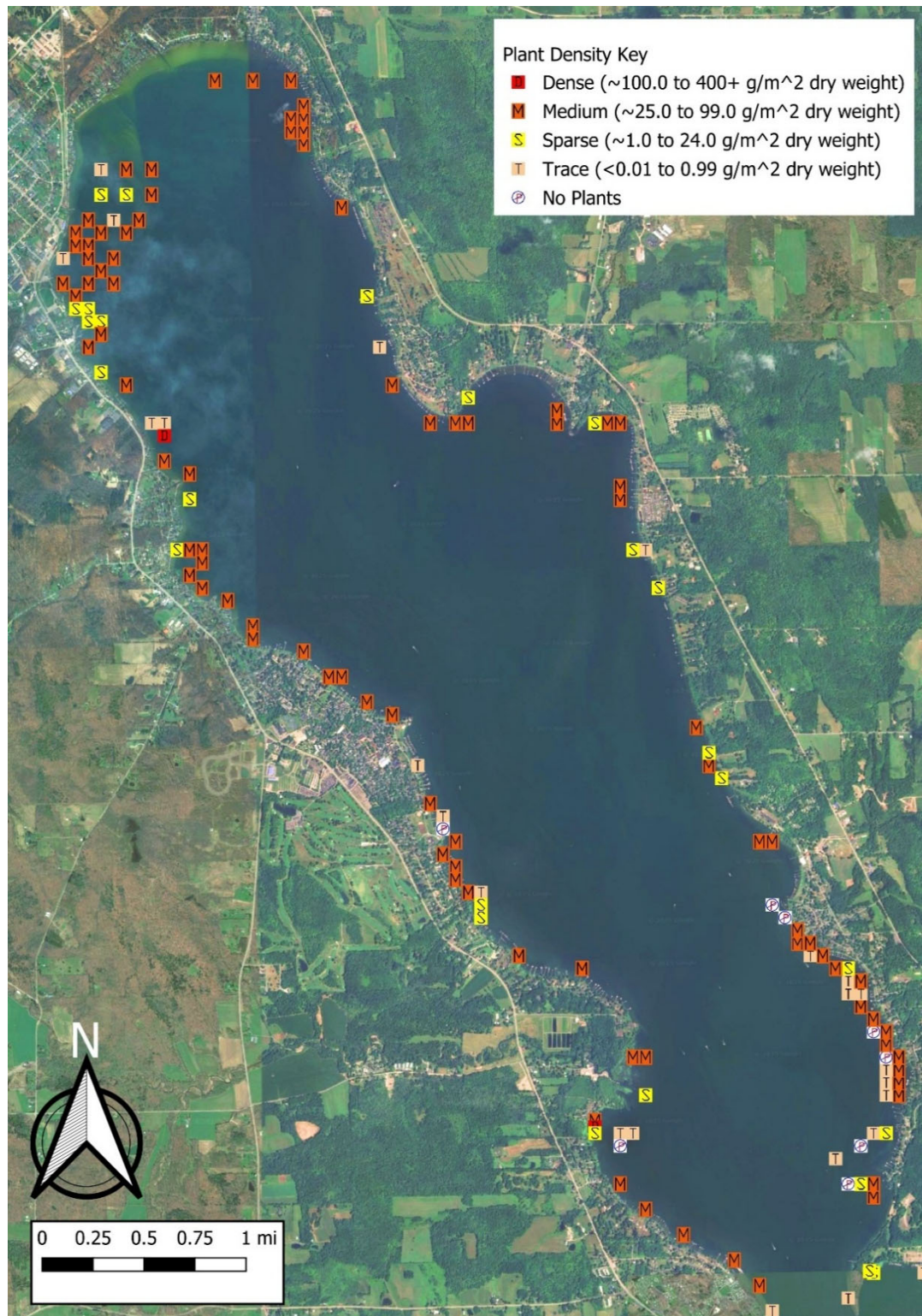


Figure A.1. Abundance of all macrophyte species in the North Basin of Chautauqua Lake, 2025.

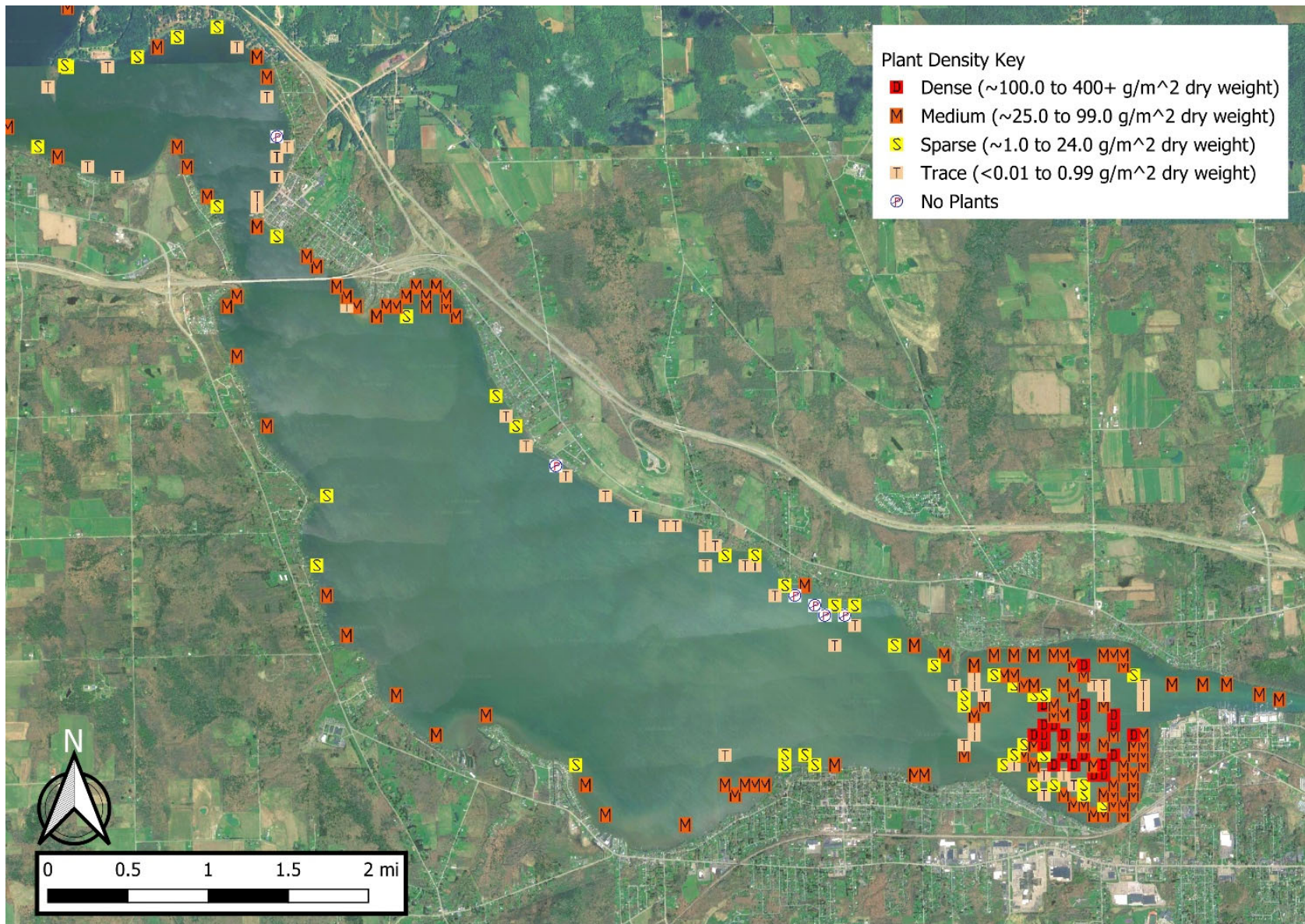


Figure A.2. Abundance of all macrophyte species in the South Basin of Chautauqua Lake, 2025.

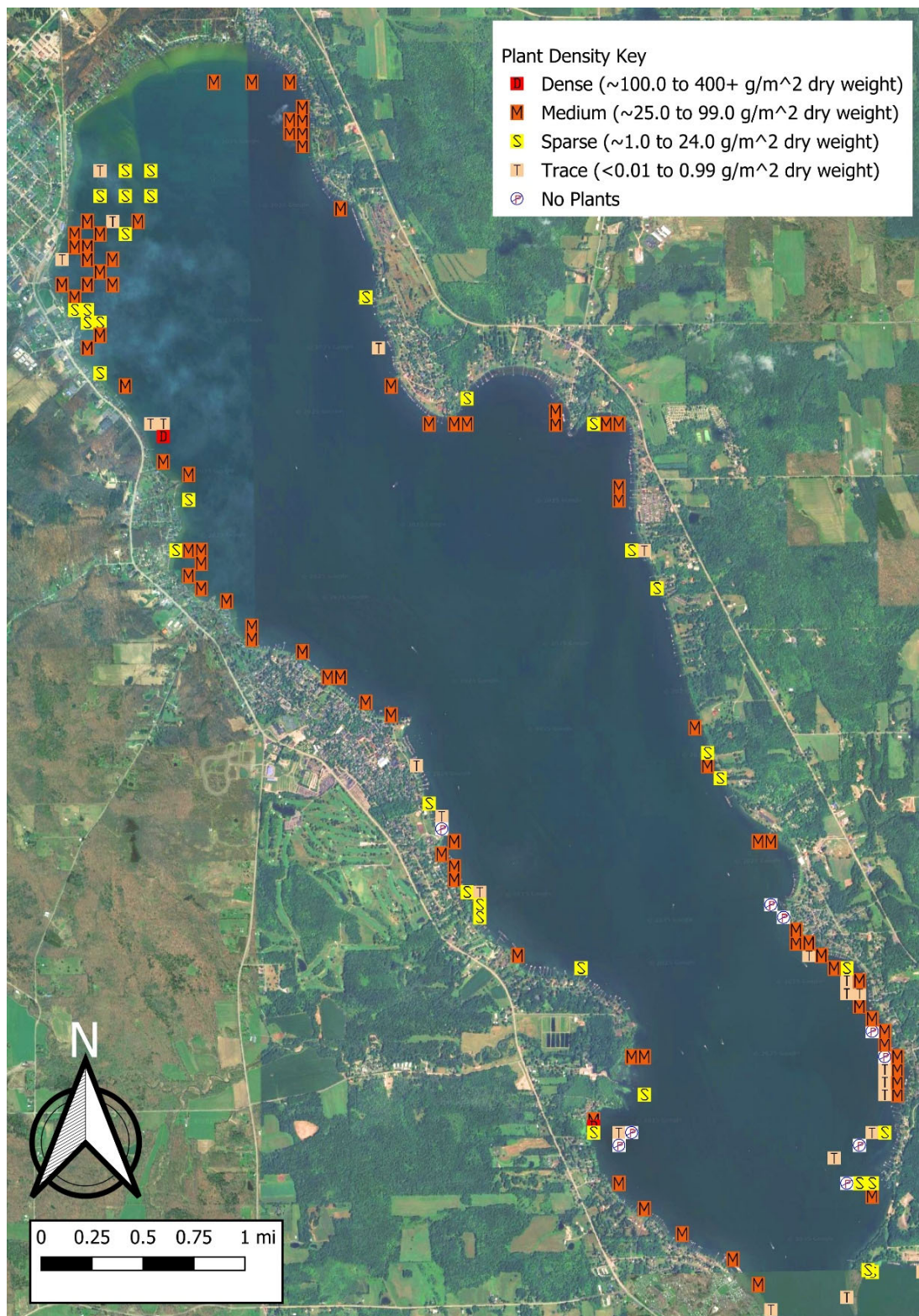


Figure A.3. Abundance of native species in the North Basin of Lake Chautauqua, 2025.

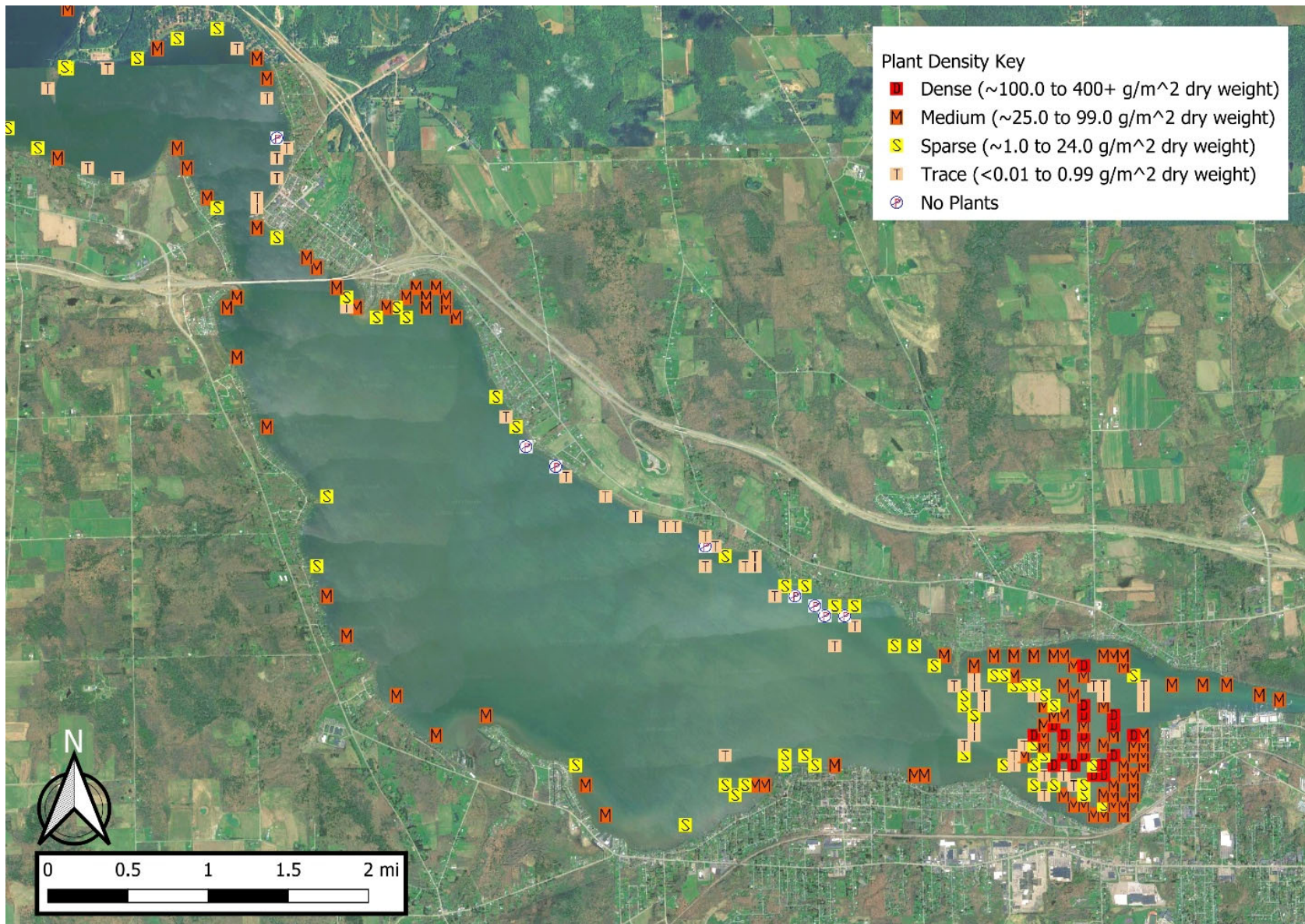


Figure A.4. Abundance of native species in the South Basin of Lake Chautauqua 2025.

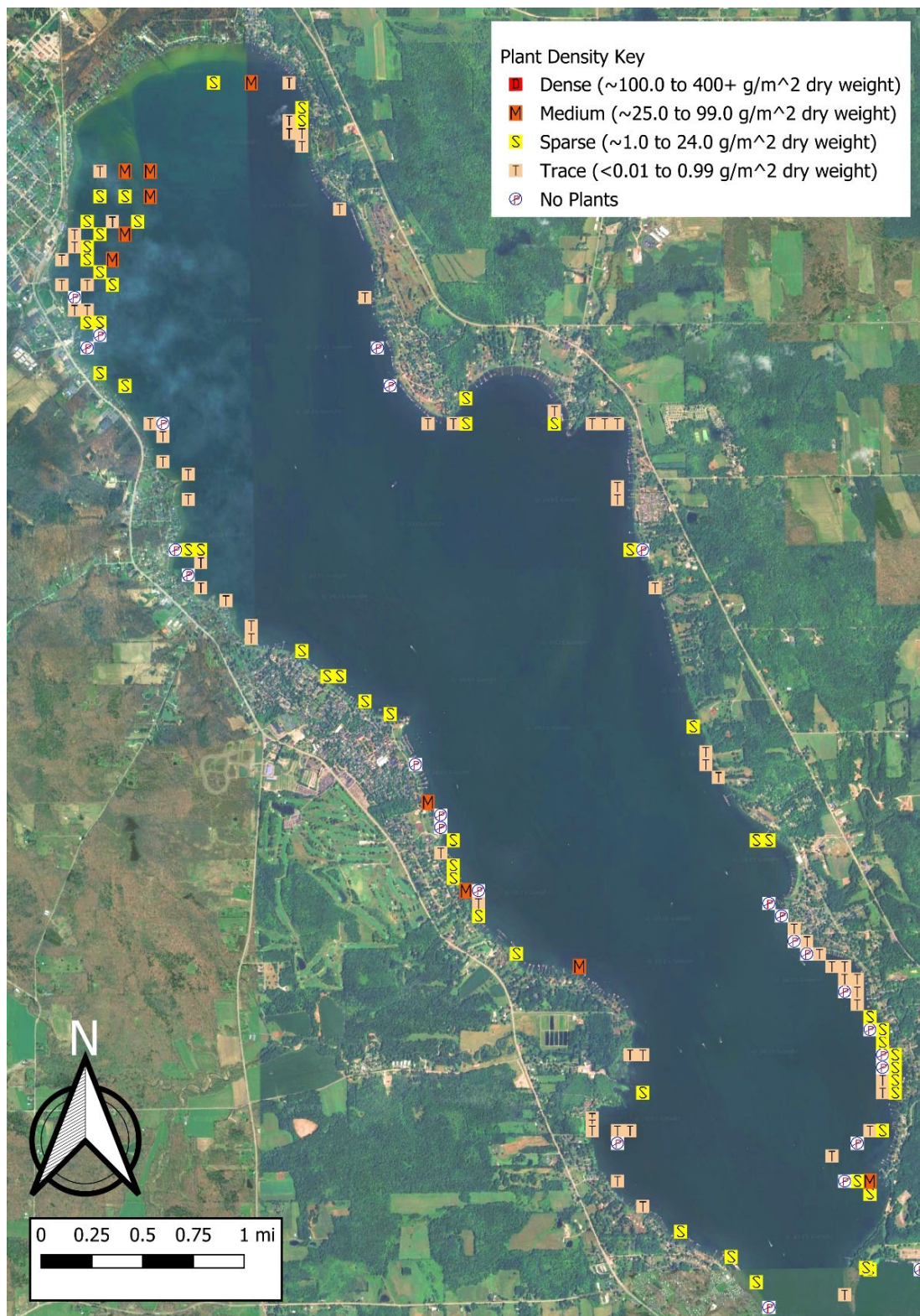


Figure A.5. Abundance of non-native species in the North Basin of Lake Chautauqua, 2025.

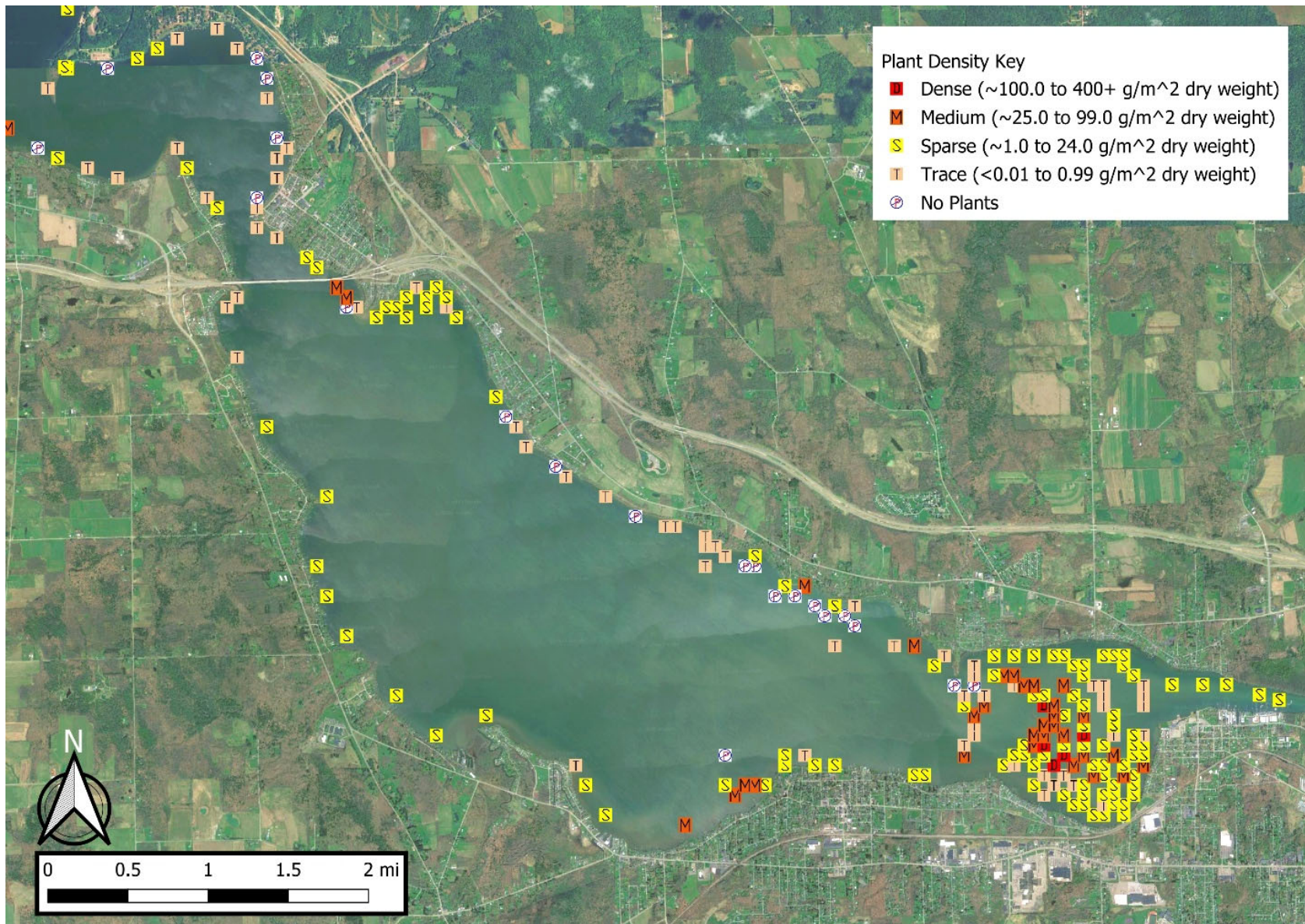


Figure A.6. Abundance of non-native species in the South Basin of Lake Chautauqua, 2025.

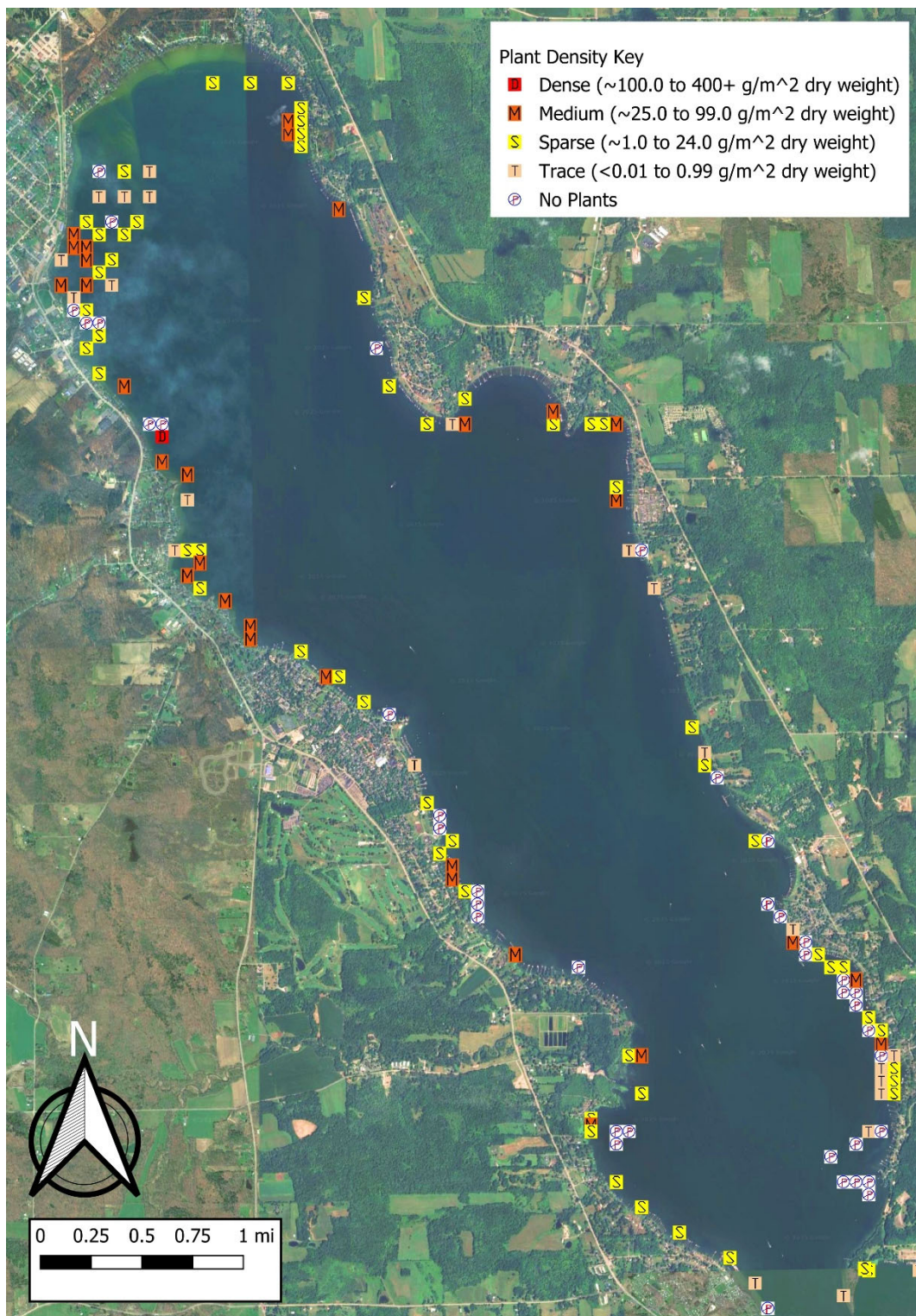


Figure A.7. Abundance of *Elodea* sp. in the North Basin of Lake Chautauqua, 2025.

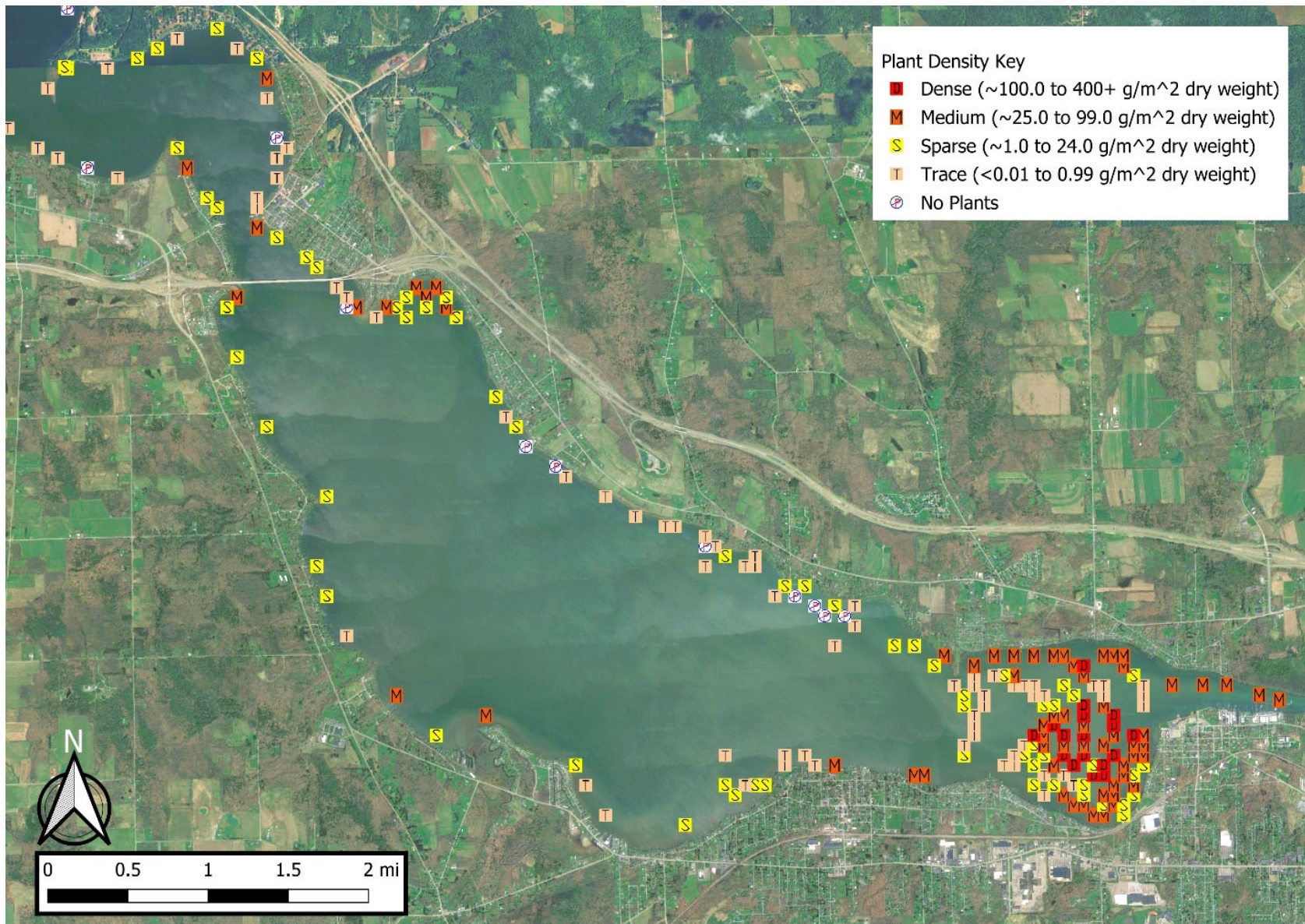


Figure A.8. Abundance of *Elodea* sp. in the South Basin of Chautauqua Lake, 2025.

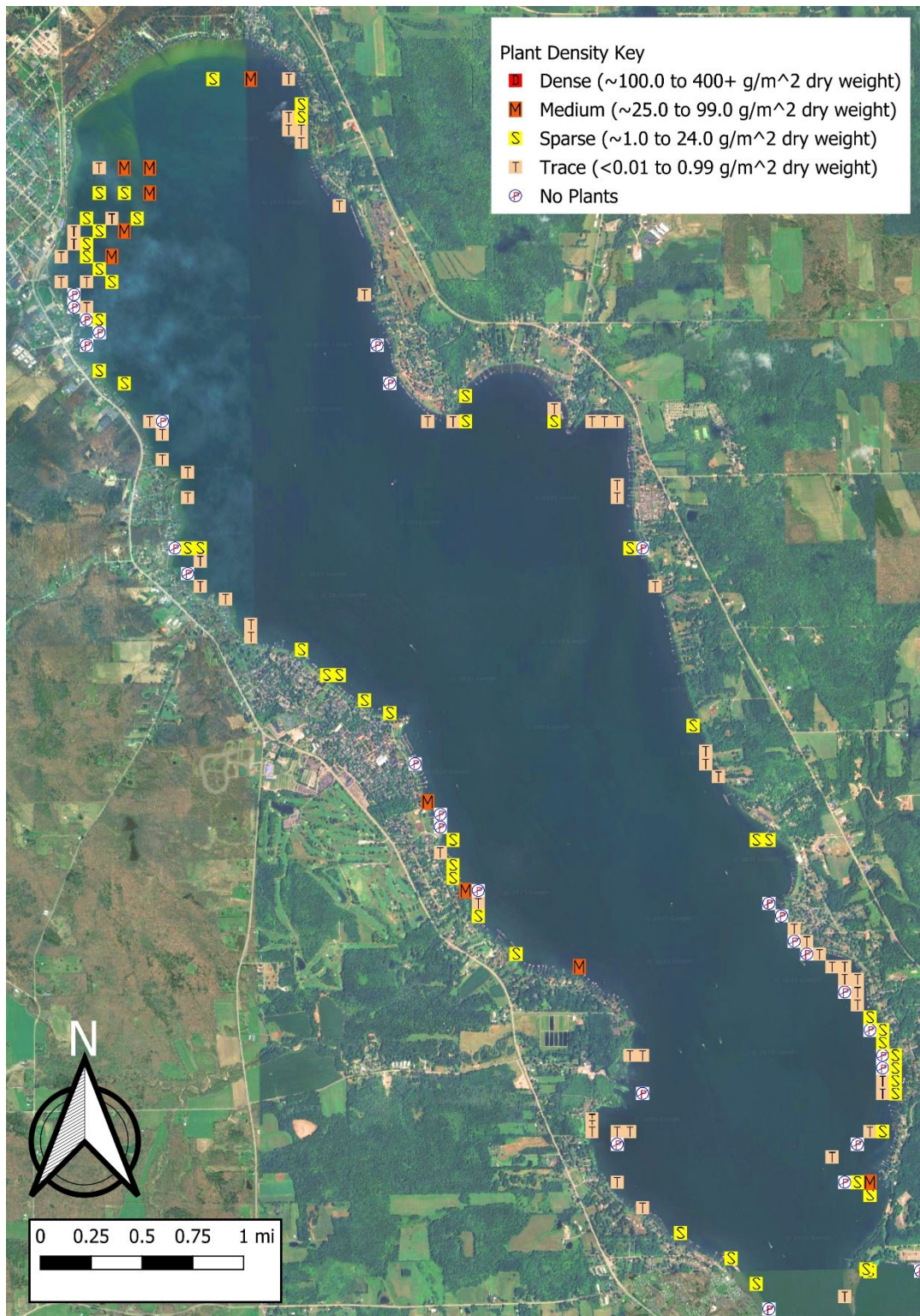


Figure A.9. Abundance of *Myriophyllum spicatum* in the North Basin of Lake Chautauqua, 2025.

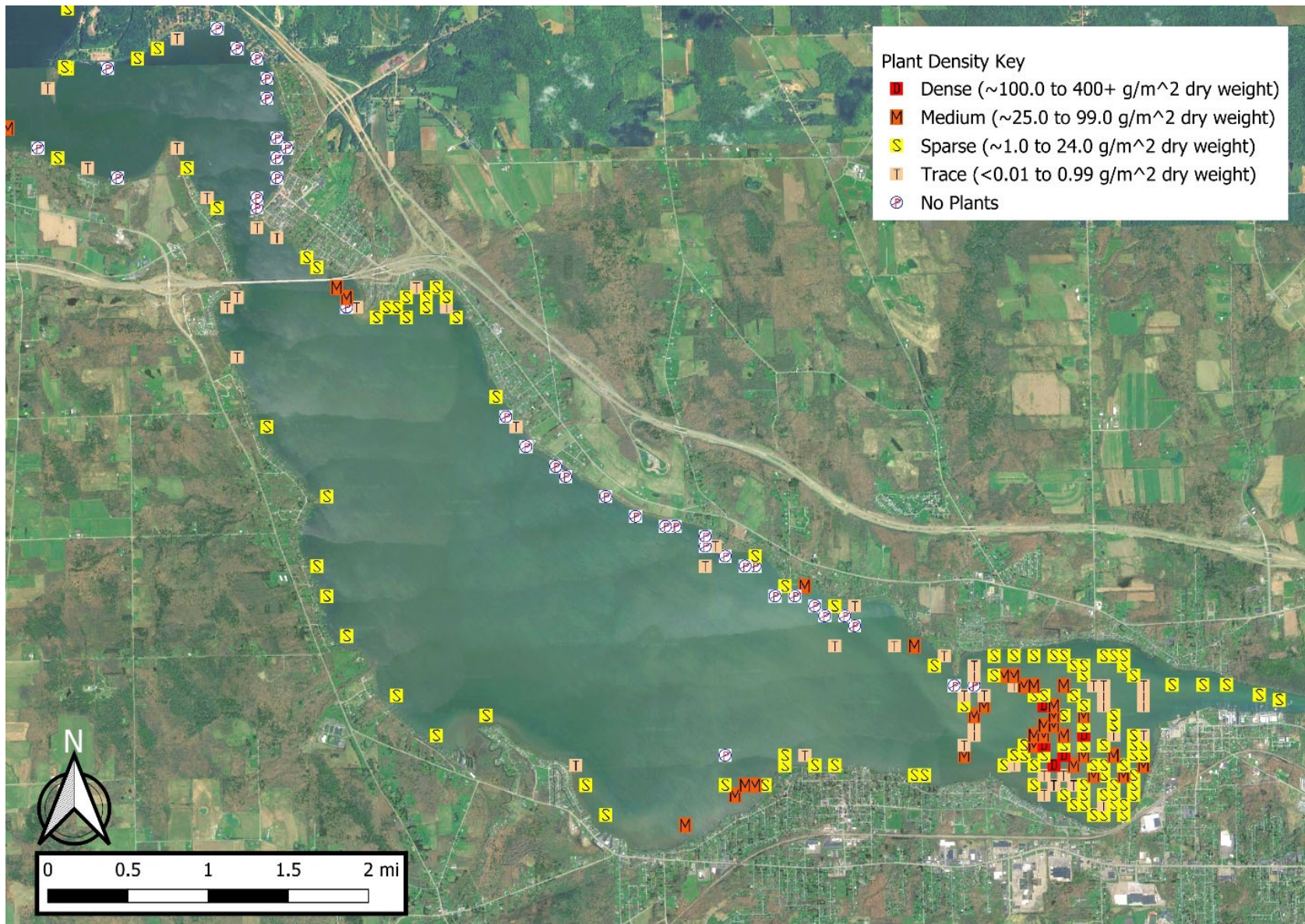


Figure A.10. Abundance of *Myriophyllum spicatum* in the South Basin of Chautauqua Lake, 2025.

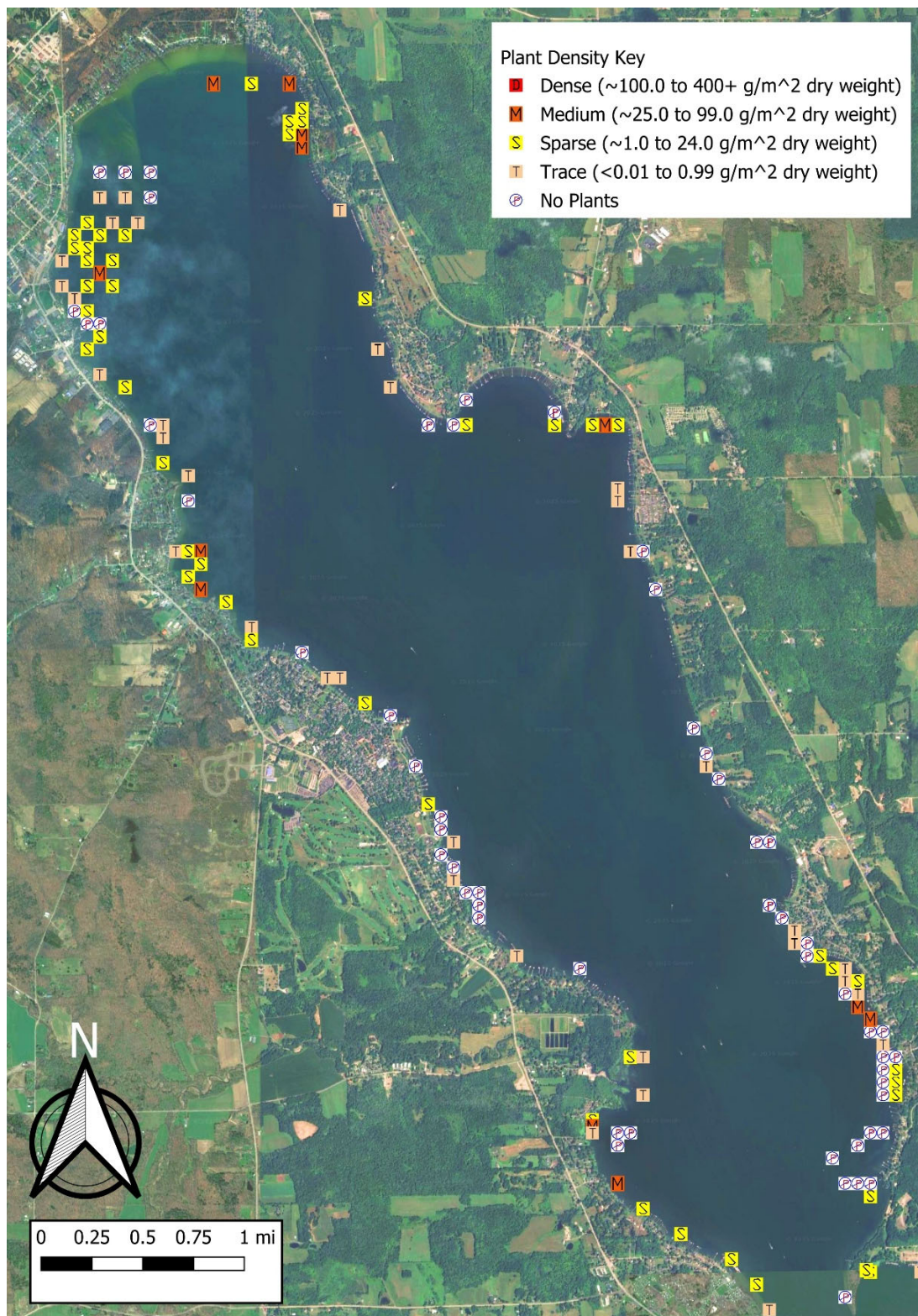


Figure A.11. Abundance of *Ceratophyllum demersum* in the North Basin of Lake Chautauqua, 2025.

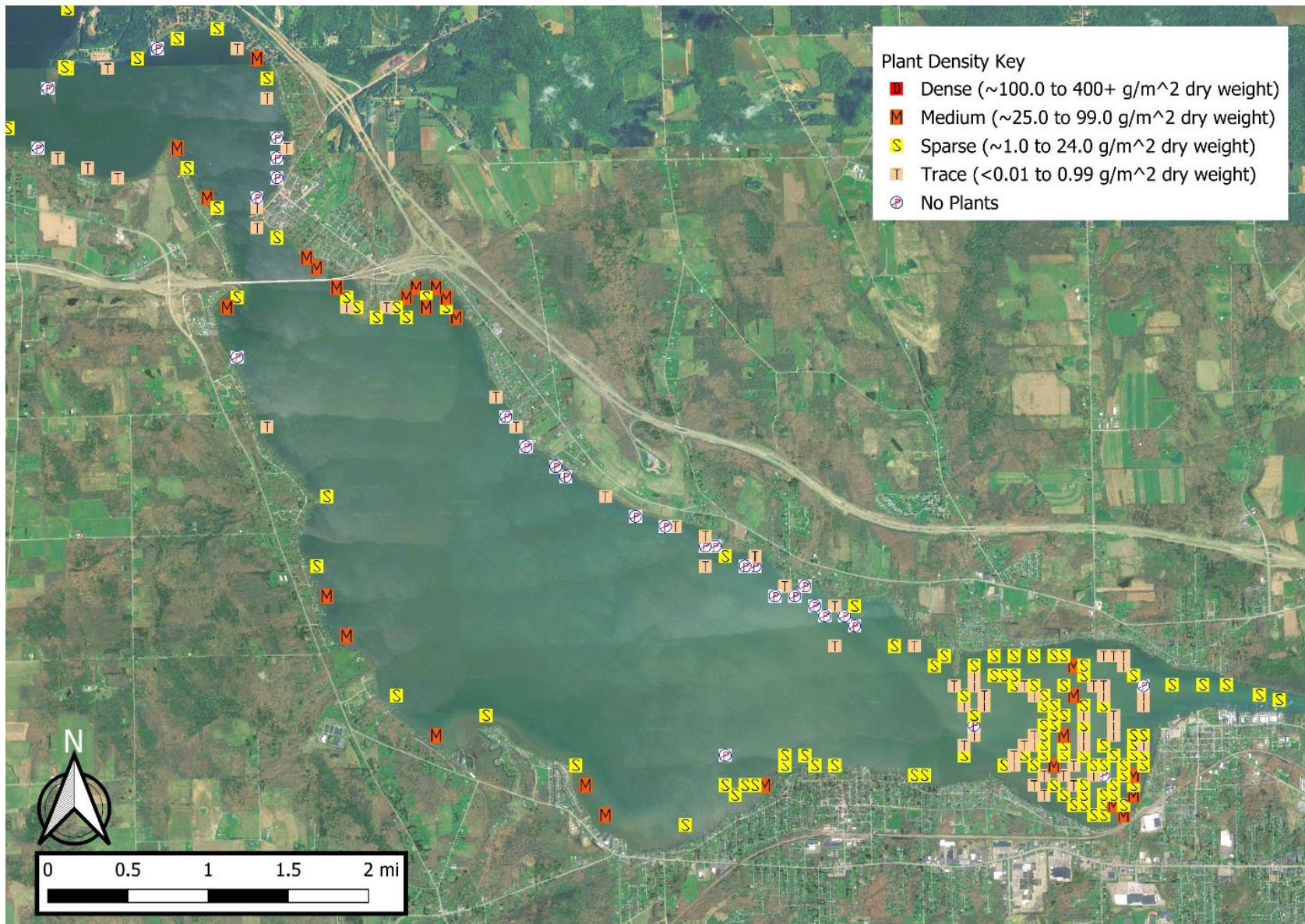


Figure A.12. Abundance of *Ceratophyllum demersum* in the South Basin of Chautauqua Lake, 2025.

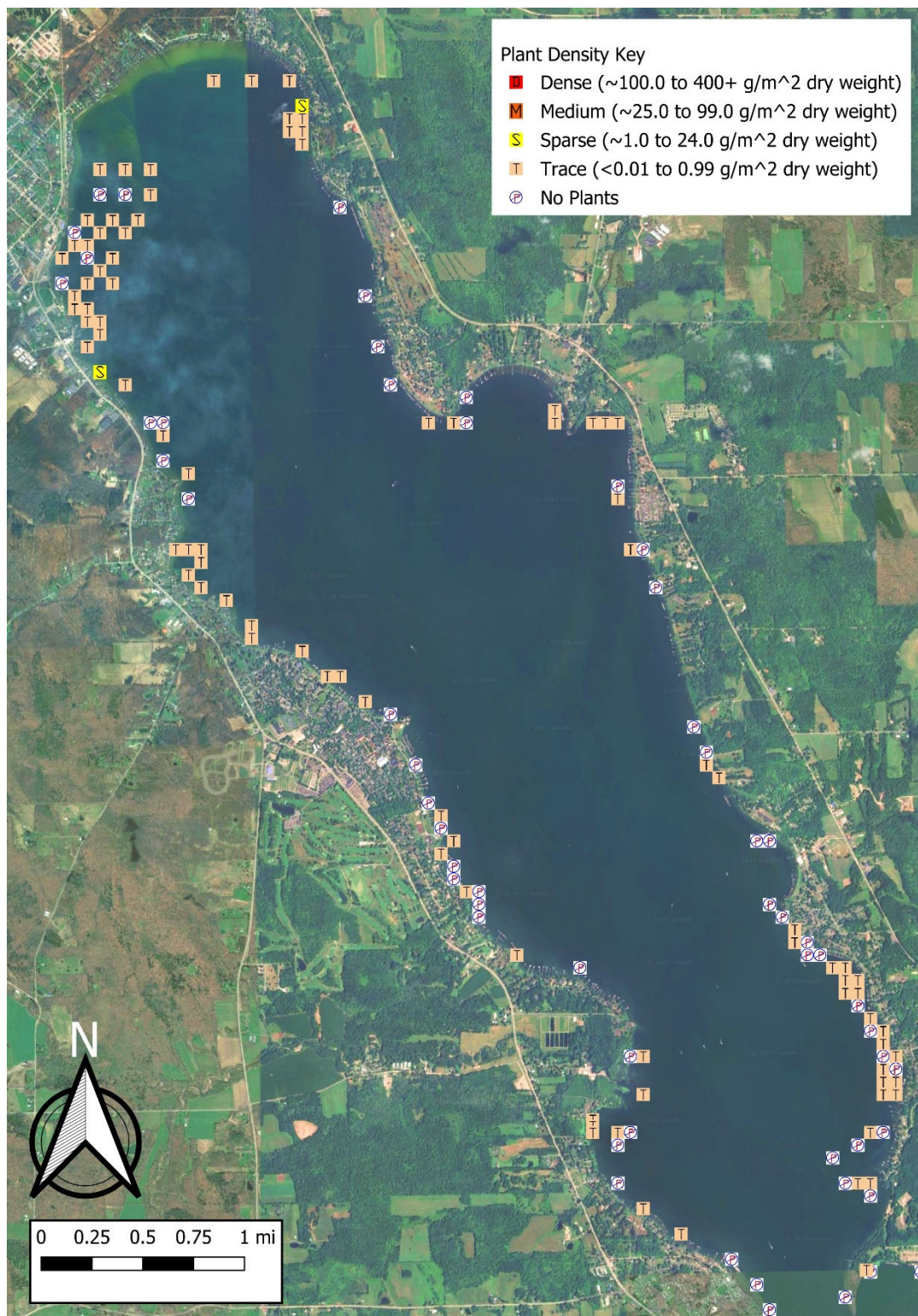


Figure A.13. Abundance of *Lemna trisulca* in the North Basin of Chautauqua Lake, 2025.

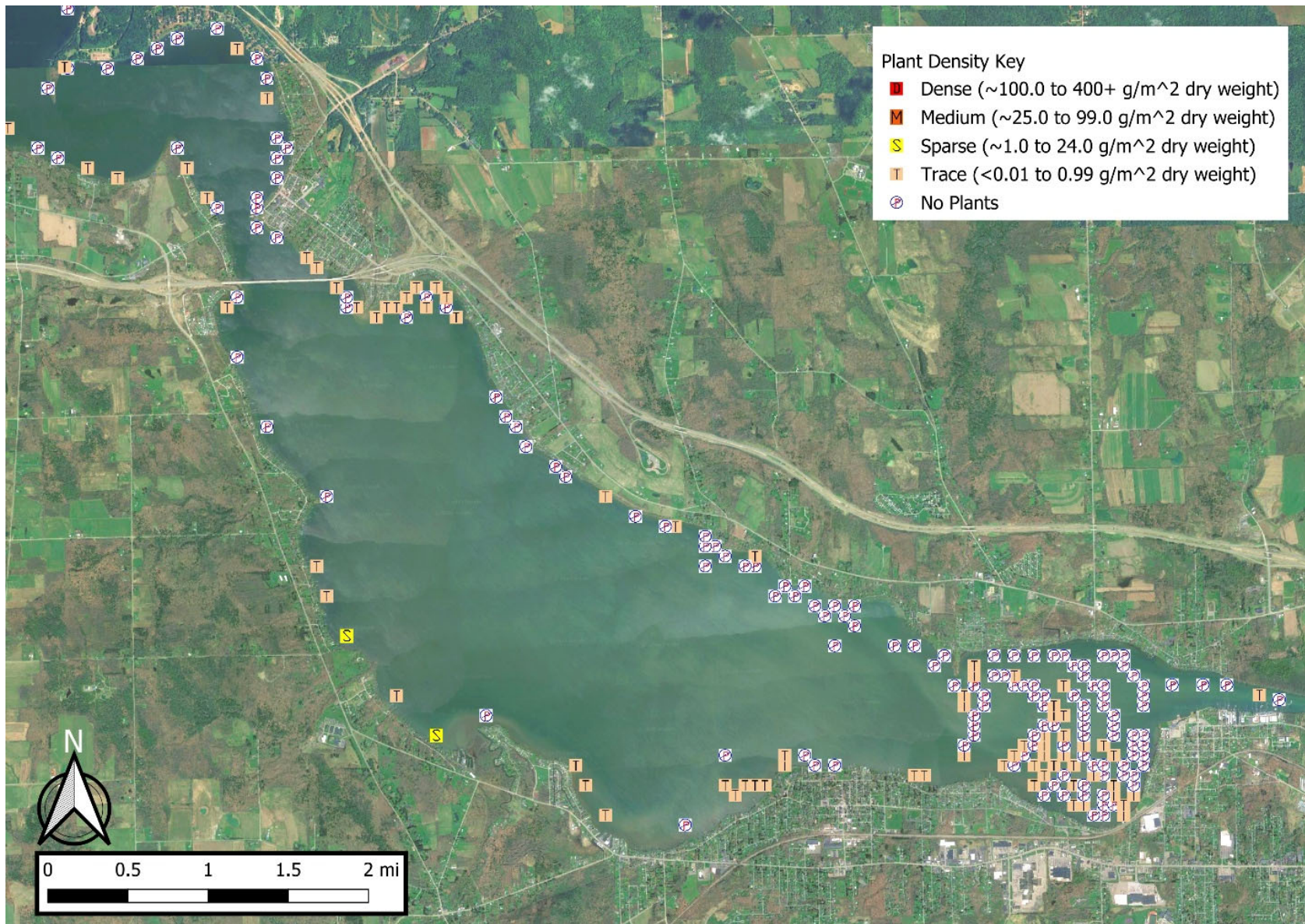


Figure A.14. Abundance of *Lemna trisulca* in the South Basin of Chautauqua Lake, 2025.

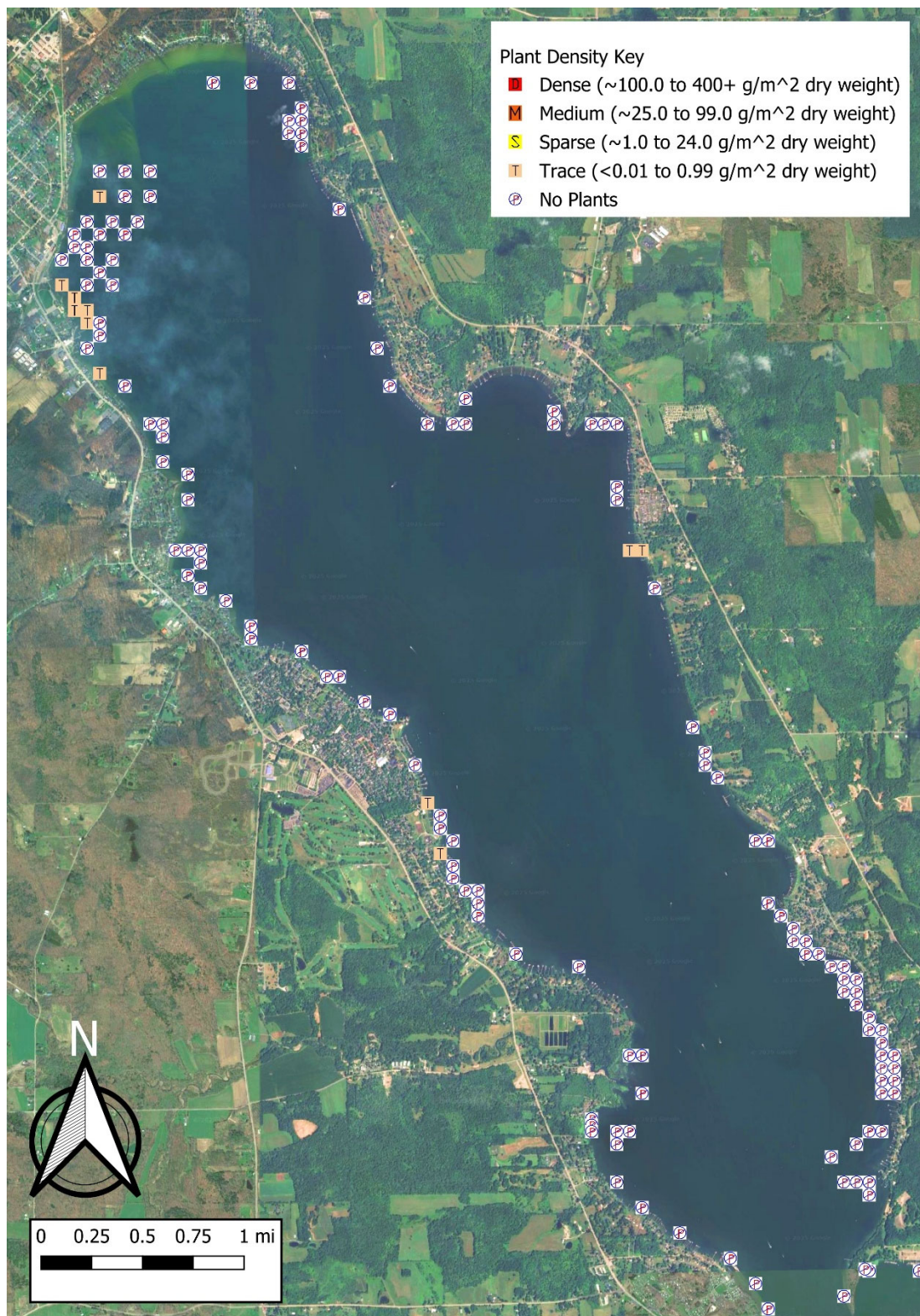


Figure A.15. Abundance of *Alisma* sp. in the North Basin of Chautauqua Lake, 2025.

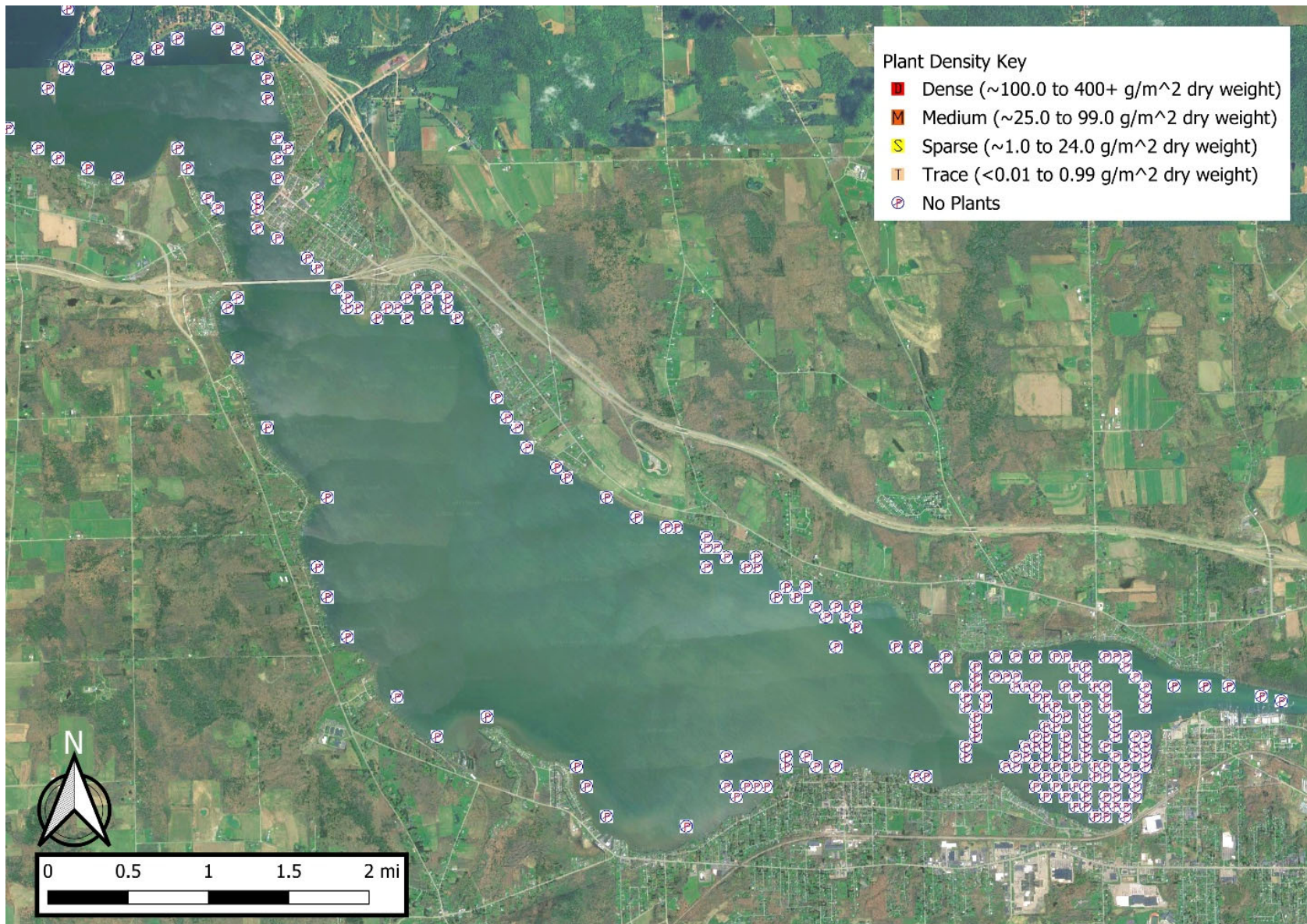


Figure A.16. Abundance of *Alisma* sp. in the South Basin of Chautauqua Lake, 2025.

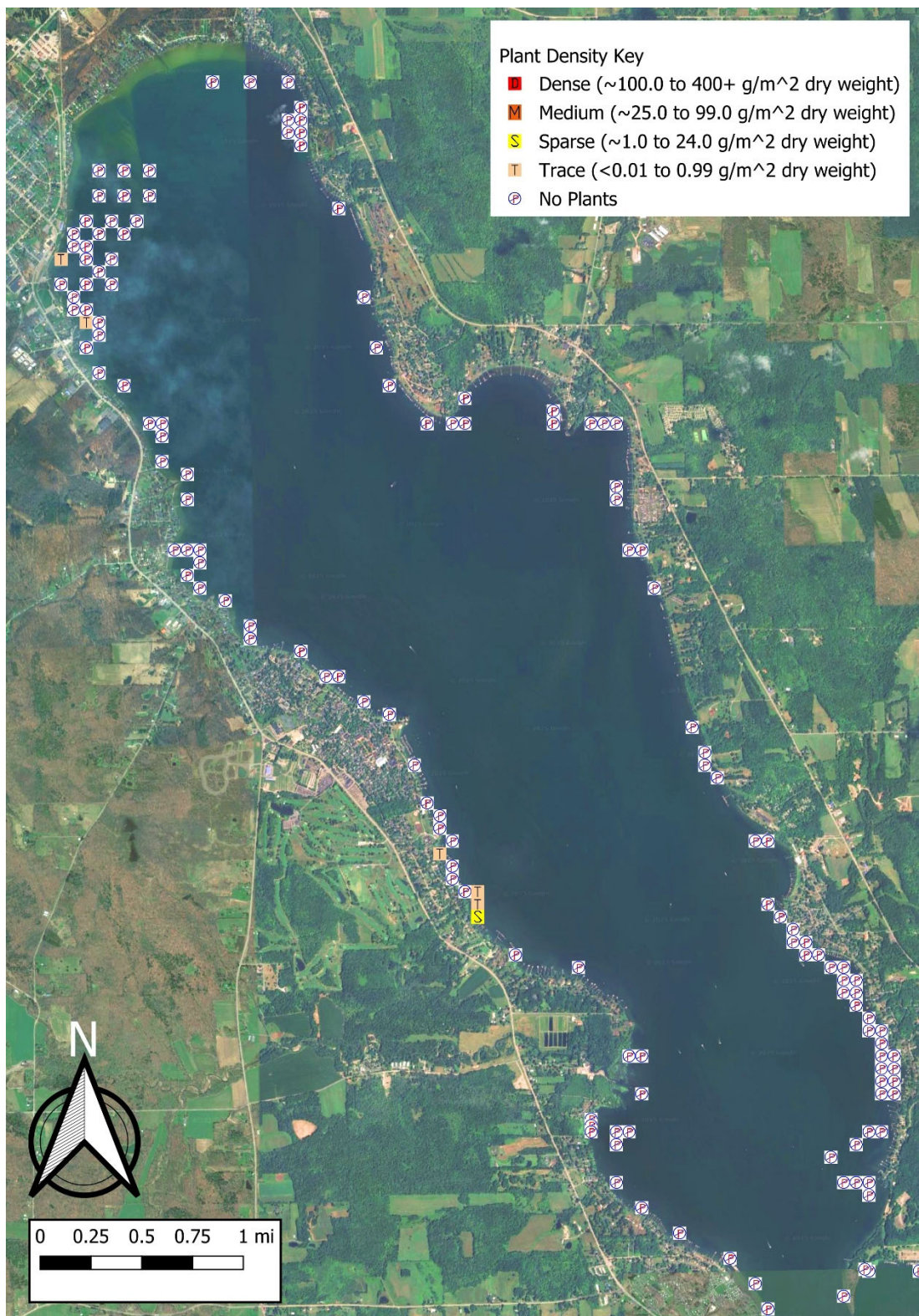


Figure A.17. Abundance of *Chara vulgaris* in the North Basin of Chautauqua Lake, 2025.

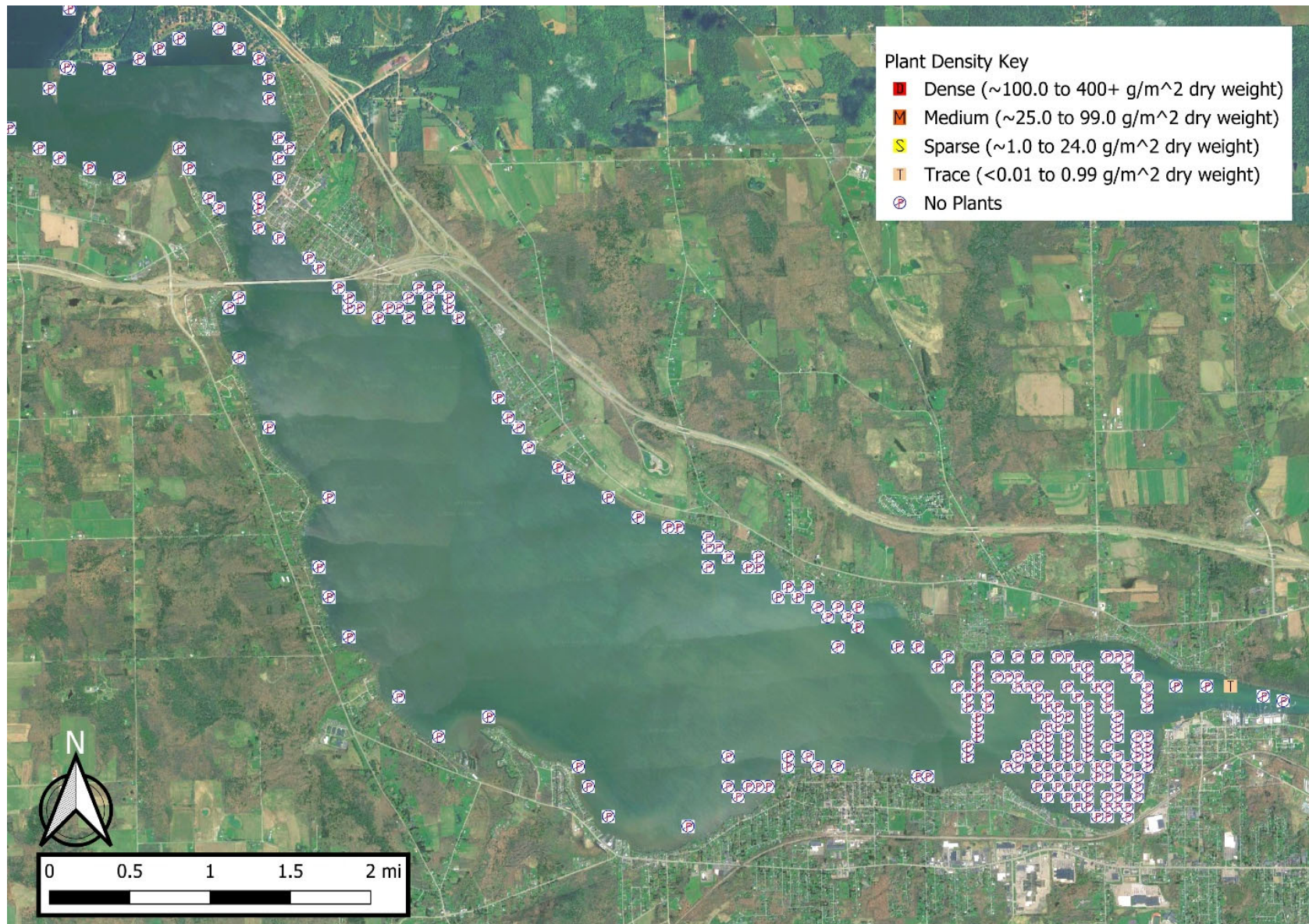


Figure A.18. Abundance of *Chara vulgaris* in the South Basin of Chautauqua Lake, 2025.

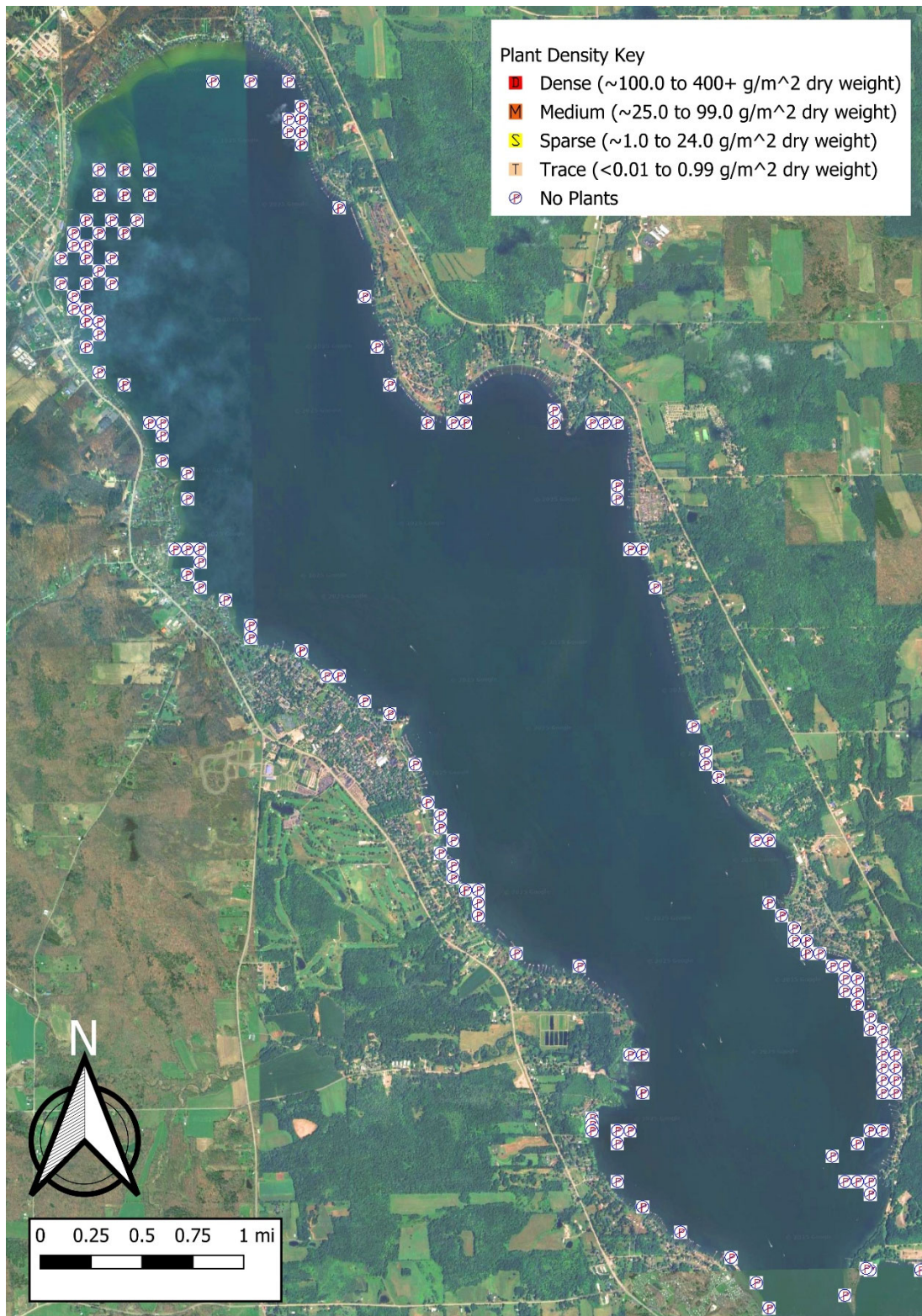


Figure A.19. Abundance of *Fortinalis* sp. in the North Basin of Chautauqua Lake, 2025.

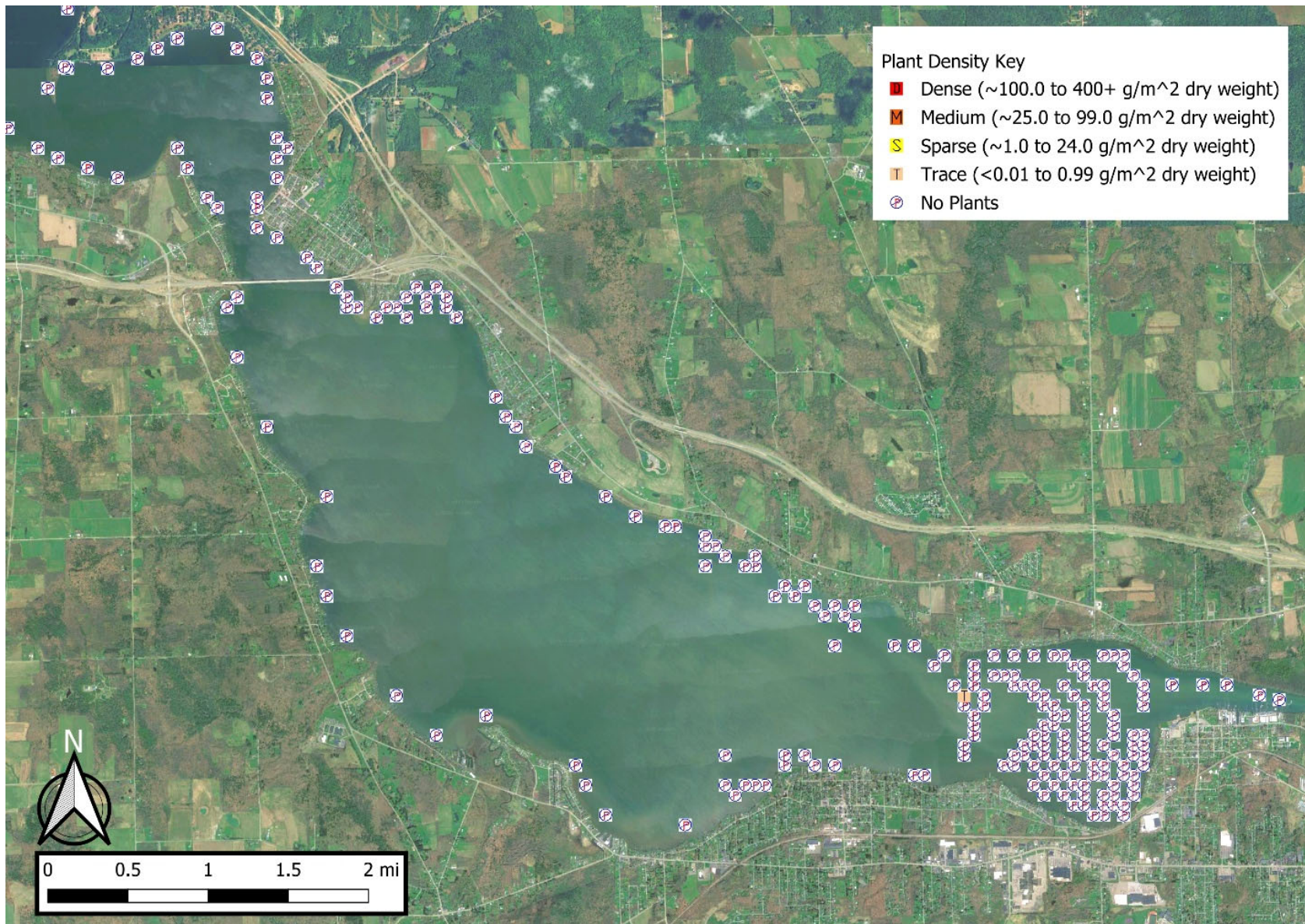


Figure A.20. Abundance of *Fortinalis* sp. Sample in the South Basin of Chautauqua Lake, 2025.

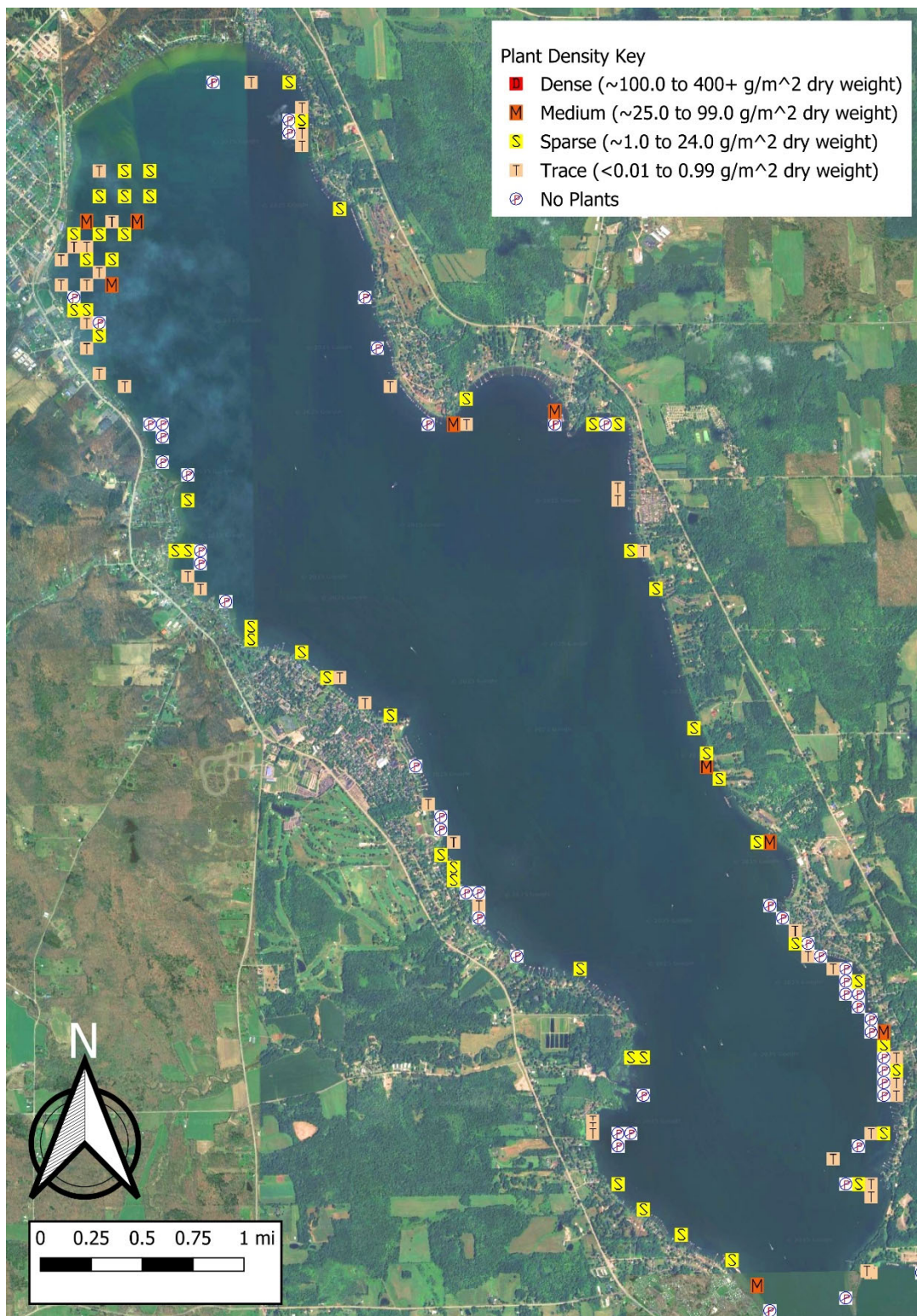


Figure A.21. Abundance of *Heteranthera dubia* in the North Basin of Chautauqua Lake, 2025.

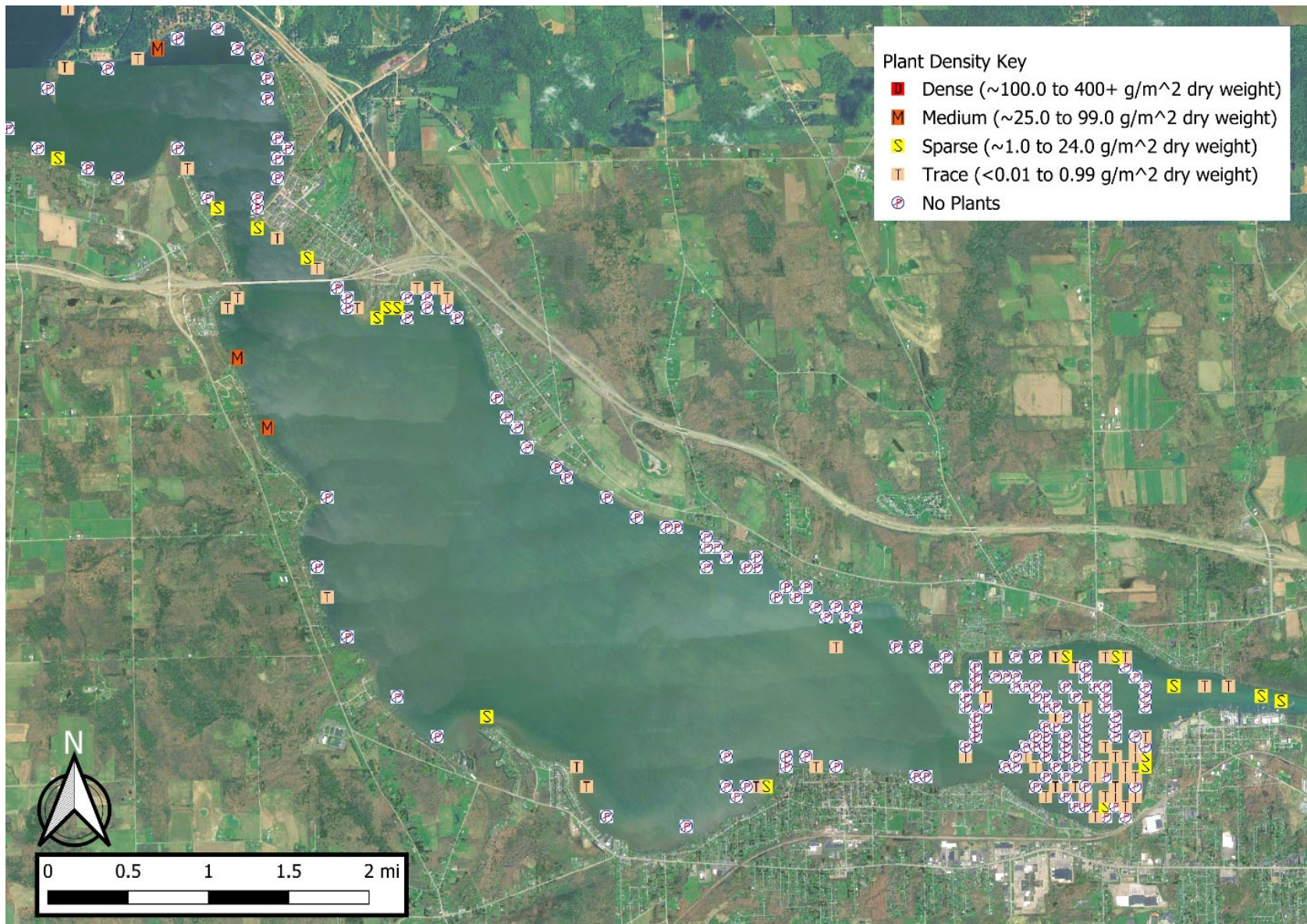


Figure A.22. Abundance of *Heteranthera dubia* in the South Basin of Chautauqua Lake, 2025.

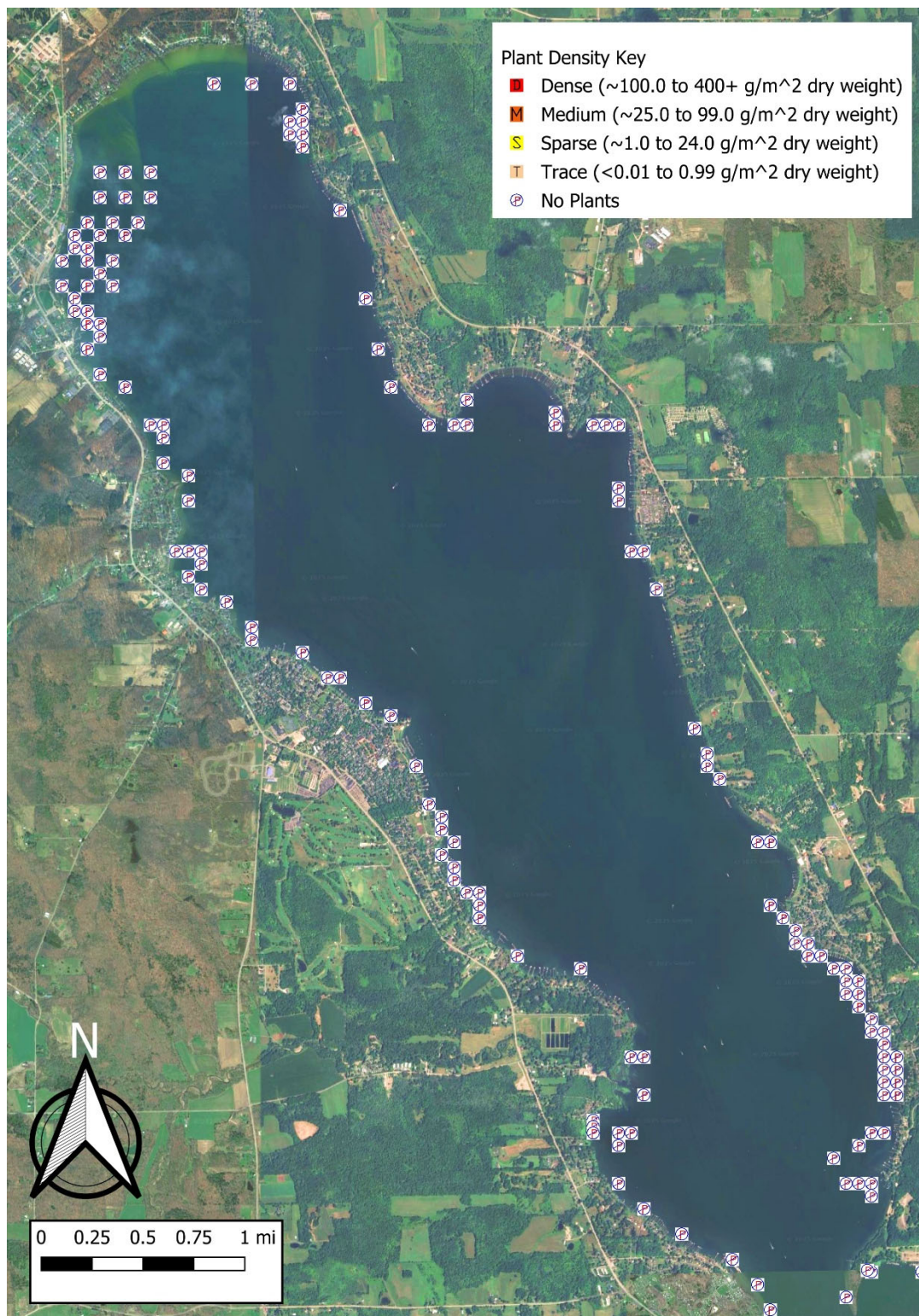


Figure A.23. Abundance of *Lemna minor* in the North Basin of Chautauqua Lake, 2025.

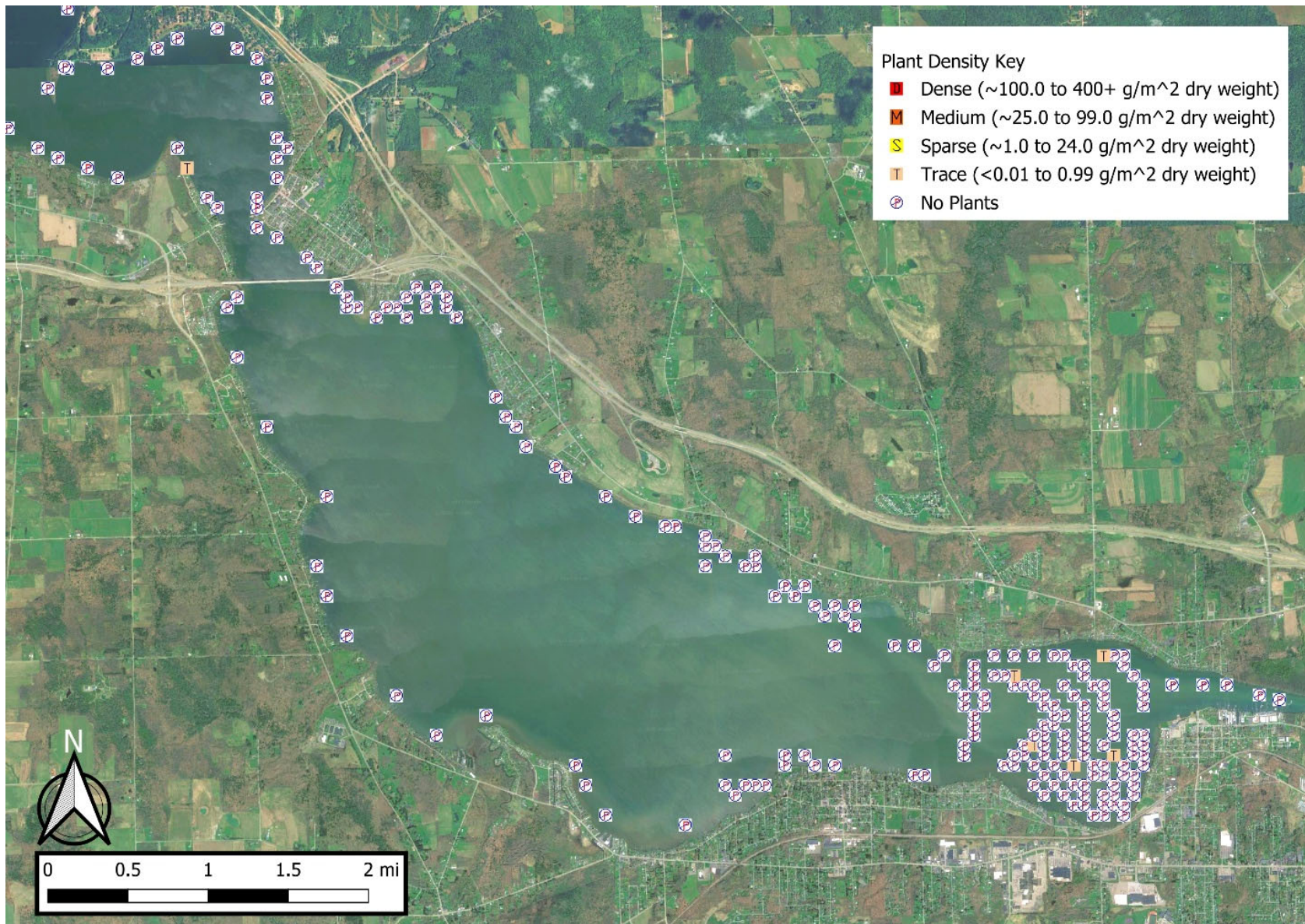


Figure A.24. Abundance of *Lemna minor* in the South Basin of Chautauqua Lake, 2025.

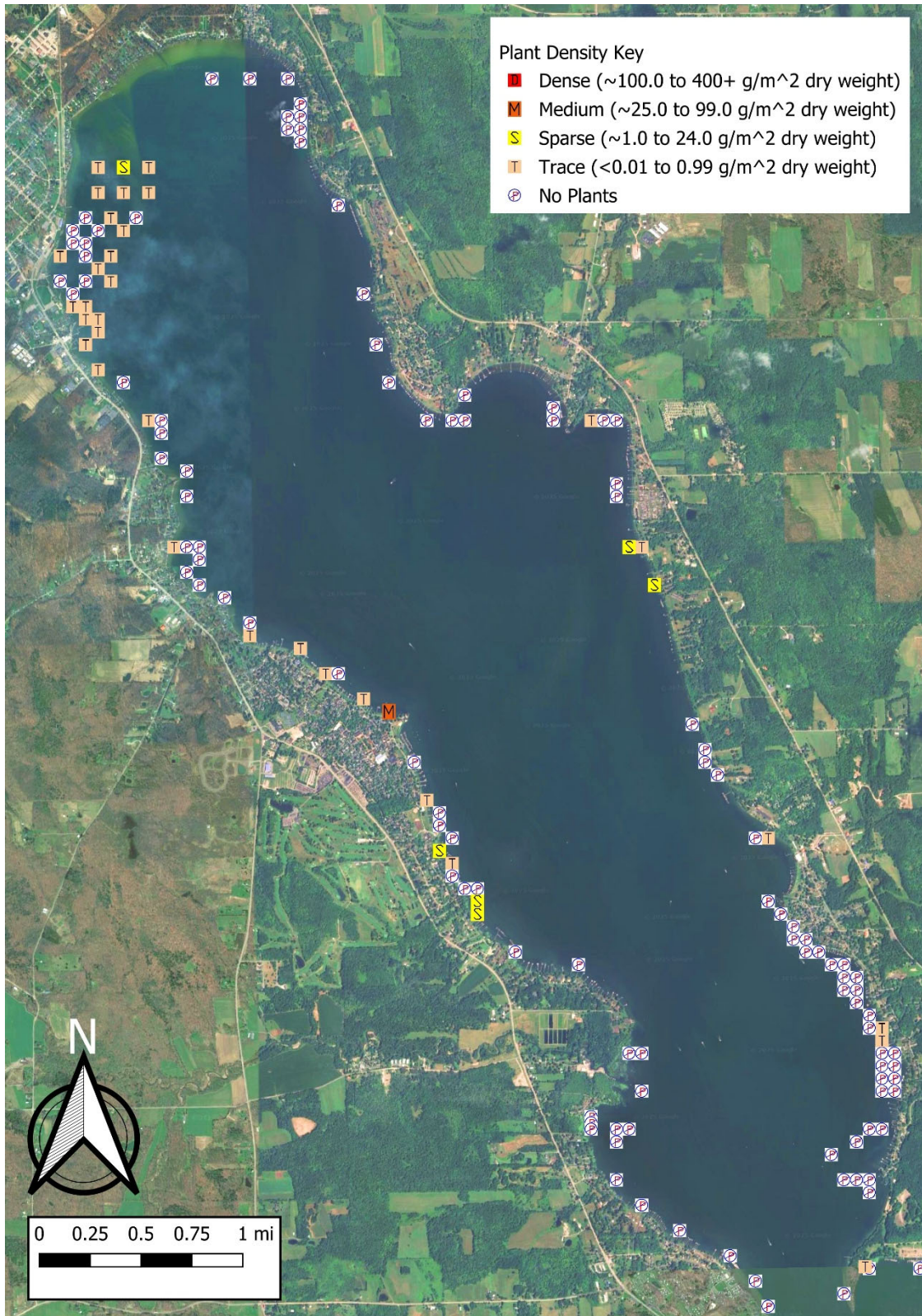


Figure A.25. Abundance of *Najas flexilis* in the North Basin of Chautauqua Lake, 2025.

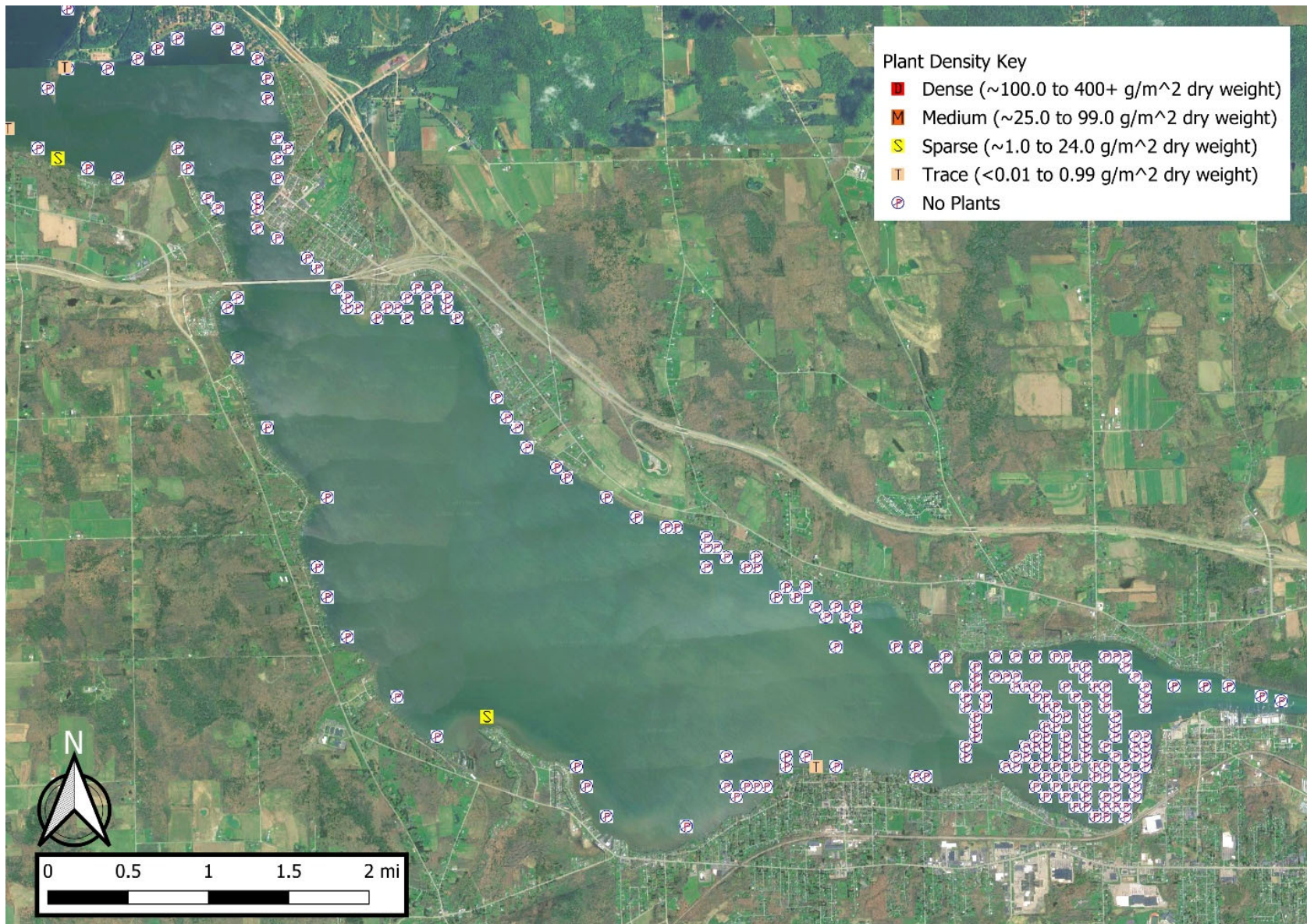


Figure A.26. Abundance of *Najas flexilis* in the South Basin of Chautauqua Lake, 2025.

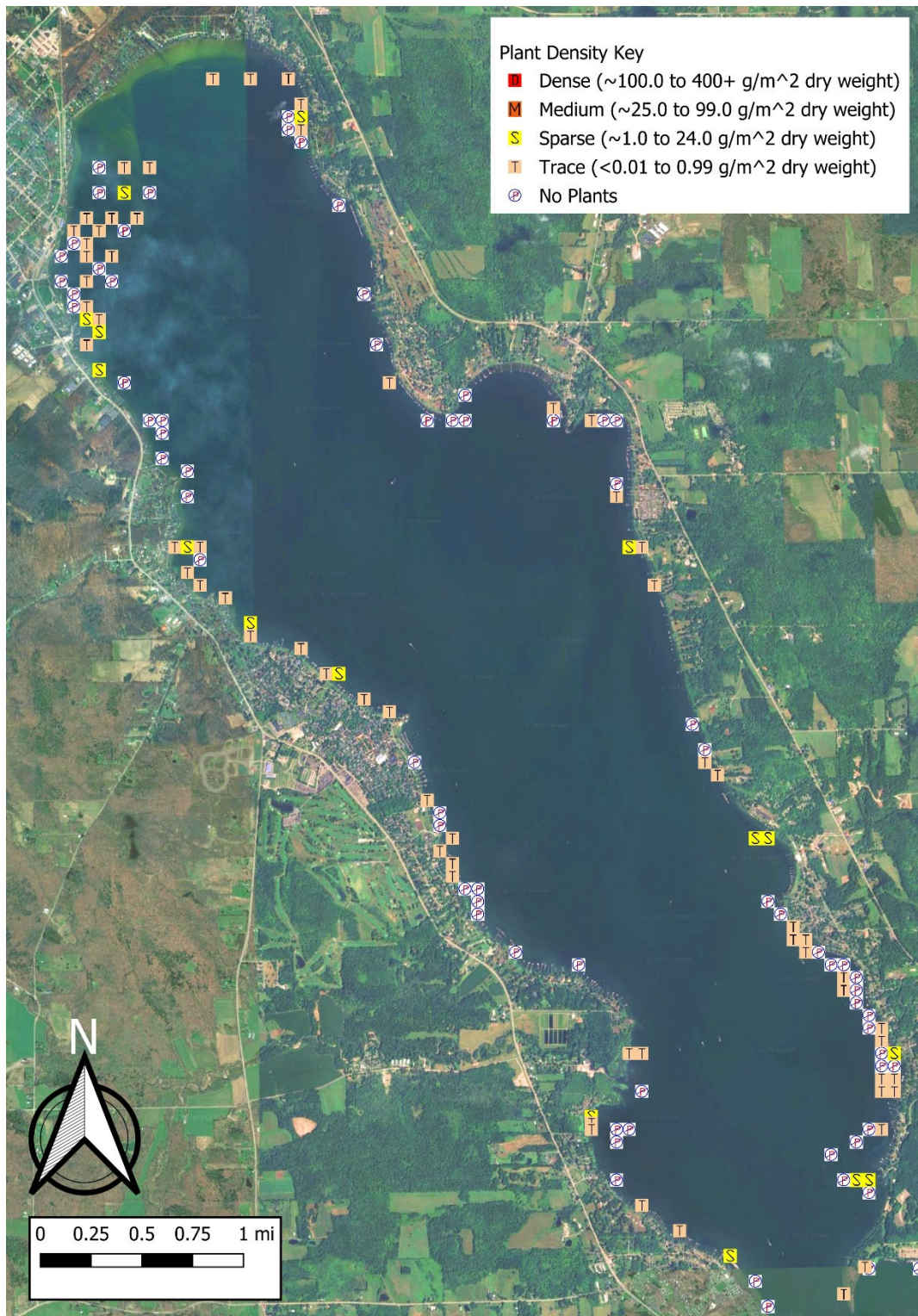


Figure A.27. Abundance of *Najas guadalupensis* in the North Basin of Chautauqua Lake, 2025.

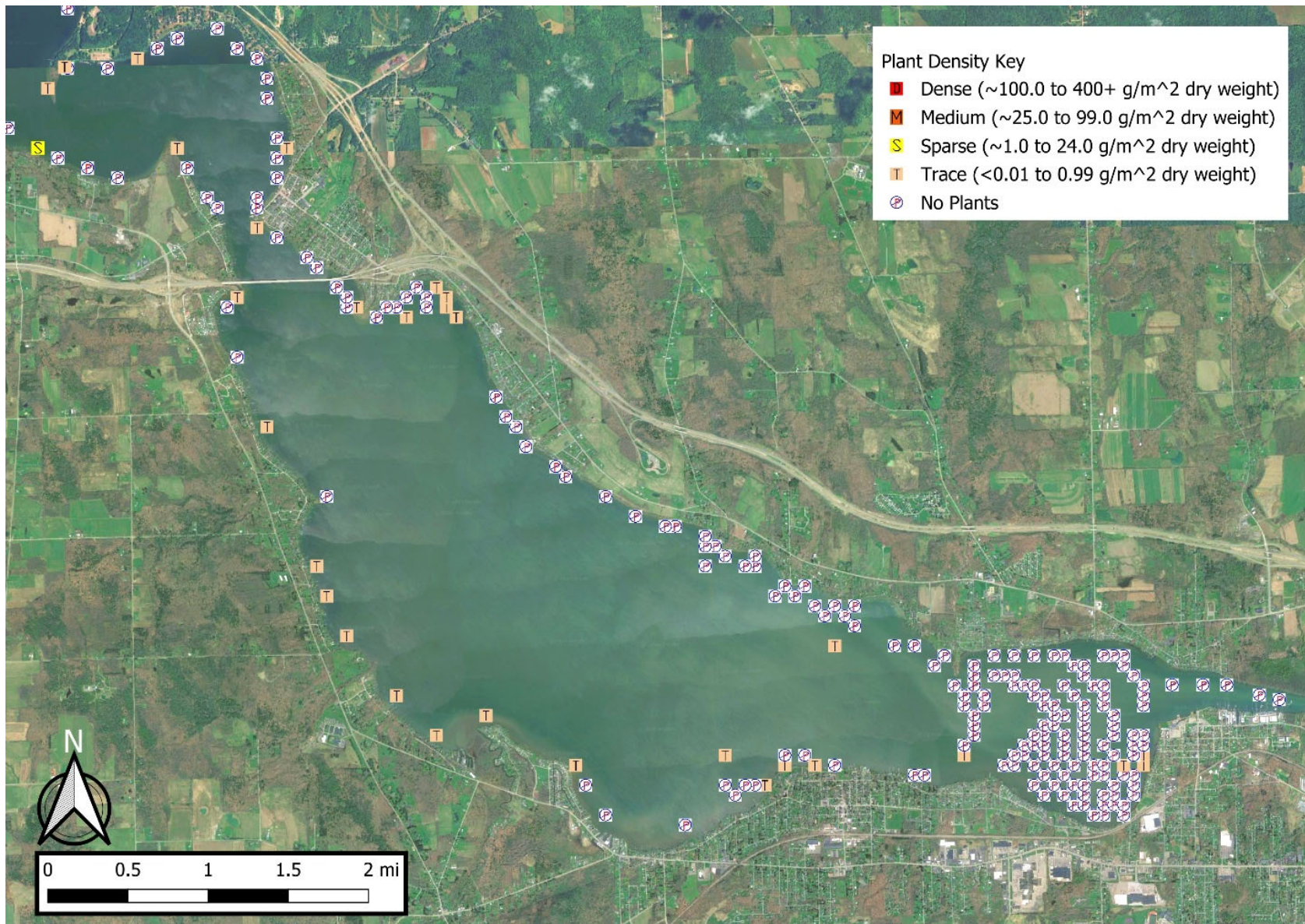


Figure A.28. Abundance of *Najas guadalupensis* in the South Basin of Chautauqua Lake, 2025.

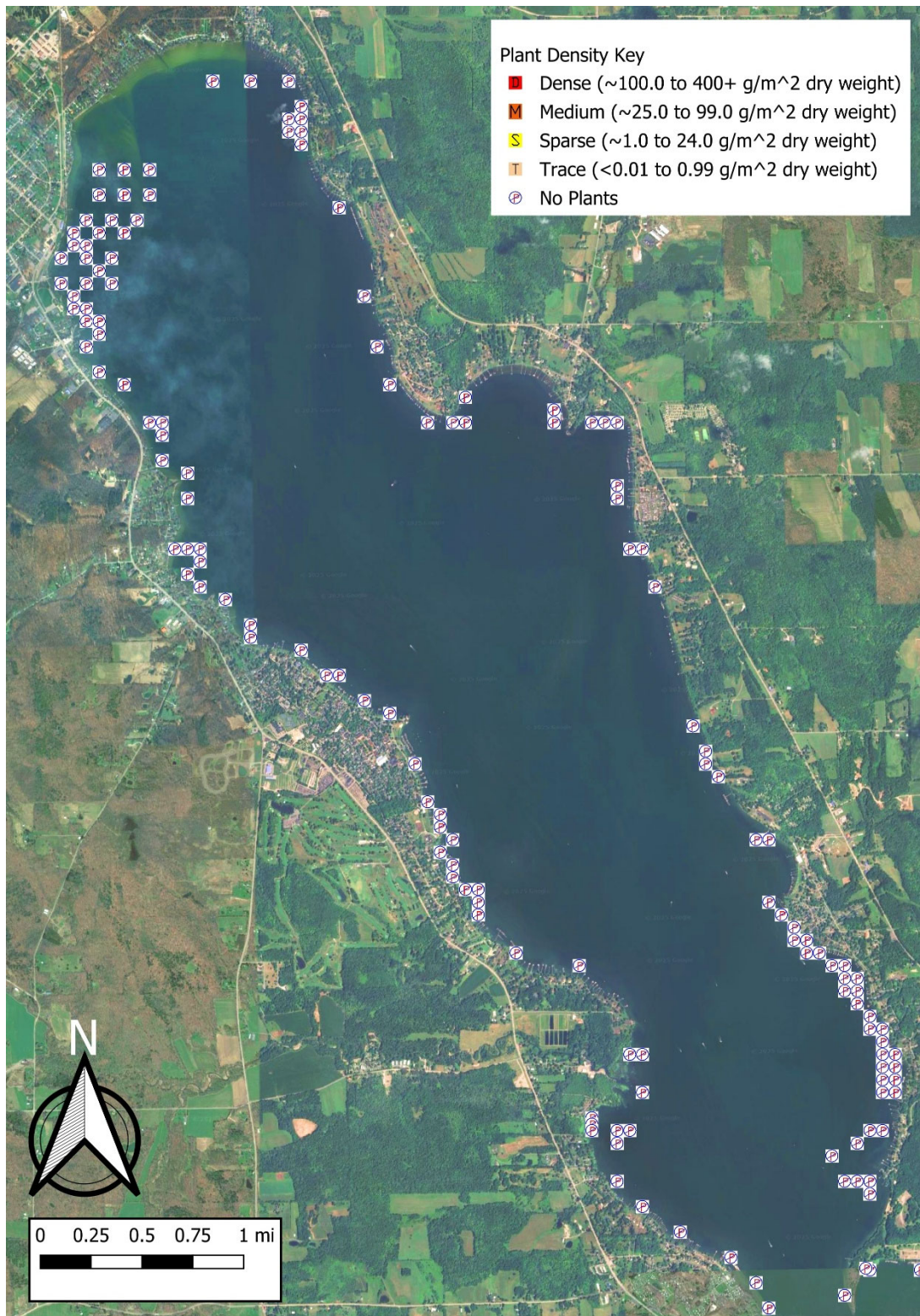


Figure A.29. Abundance of *Najas minor* in the North Basin of Chautauqua Lake, 2025.

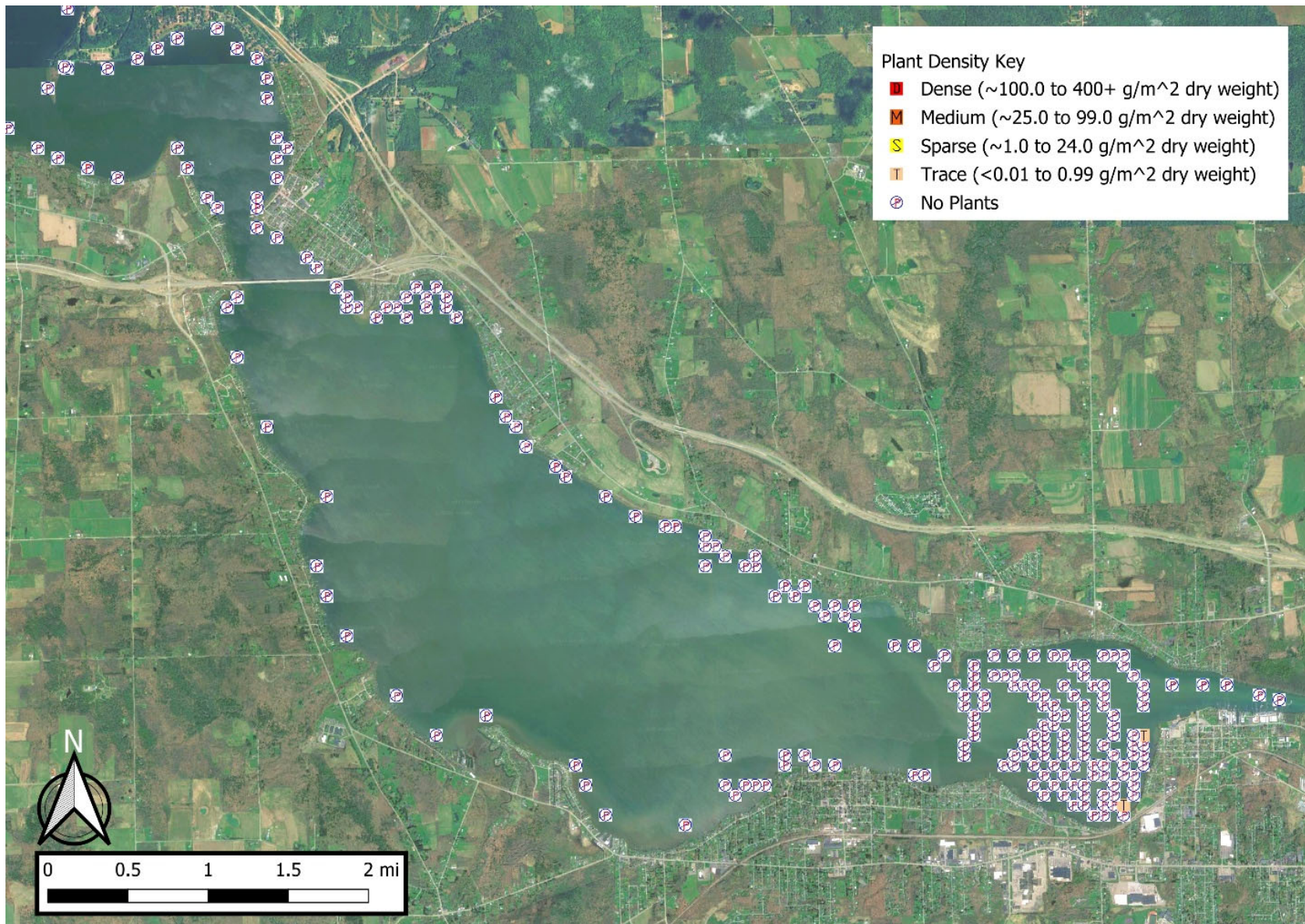


Figure A.30. Abundance of *Najas minor* in the South Basin of Chautauqua Lake, 2025.

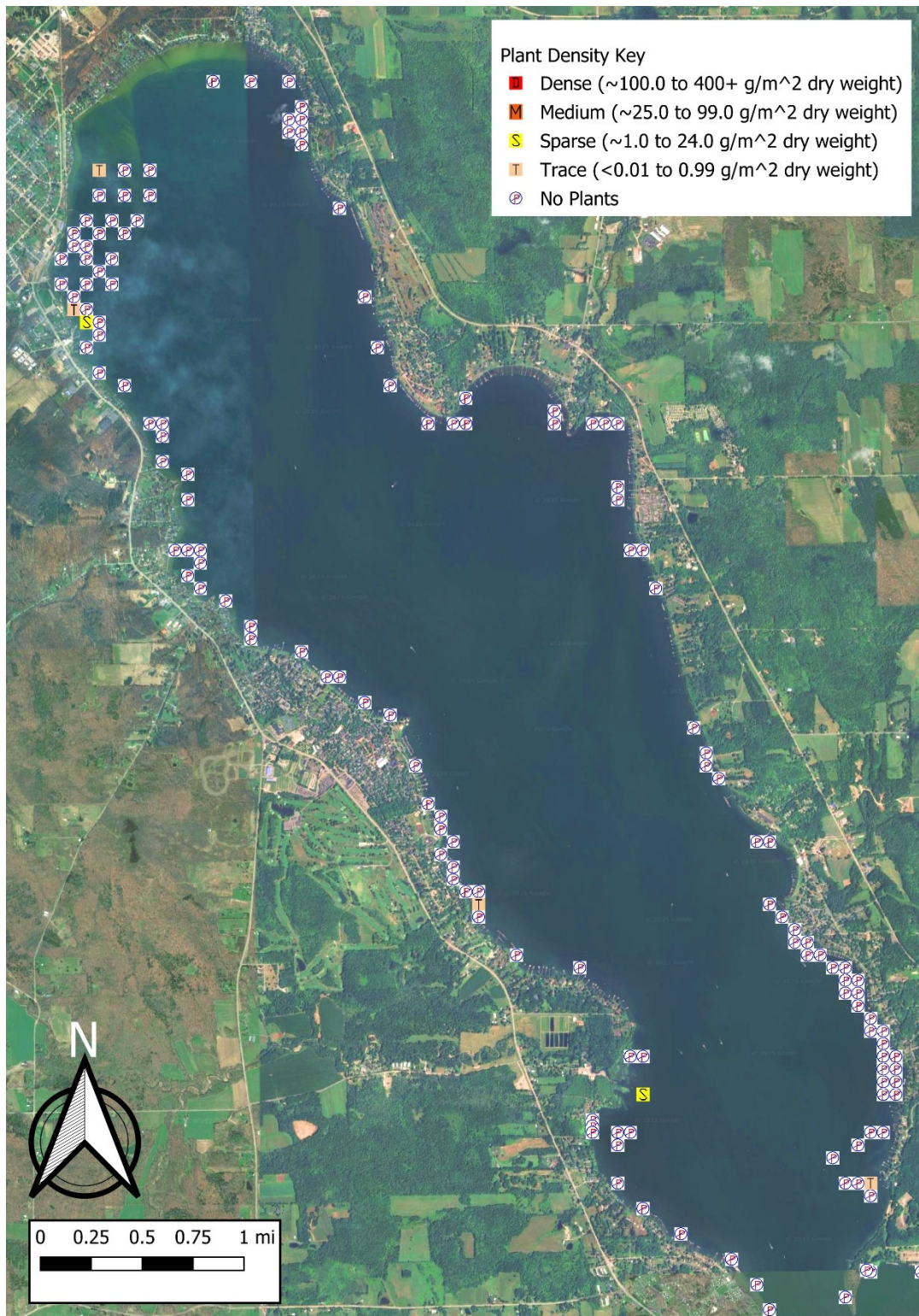


Figure A.31. Abundance of *Nitella flexilis* in the North Basin of Chautauqua Lake, 2025.

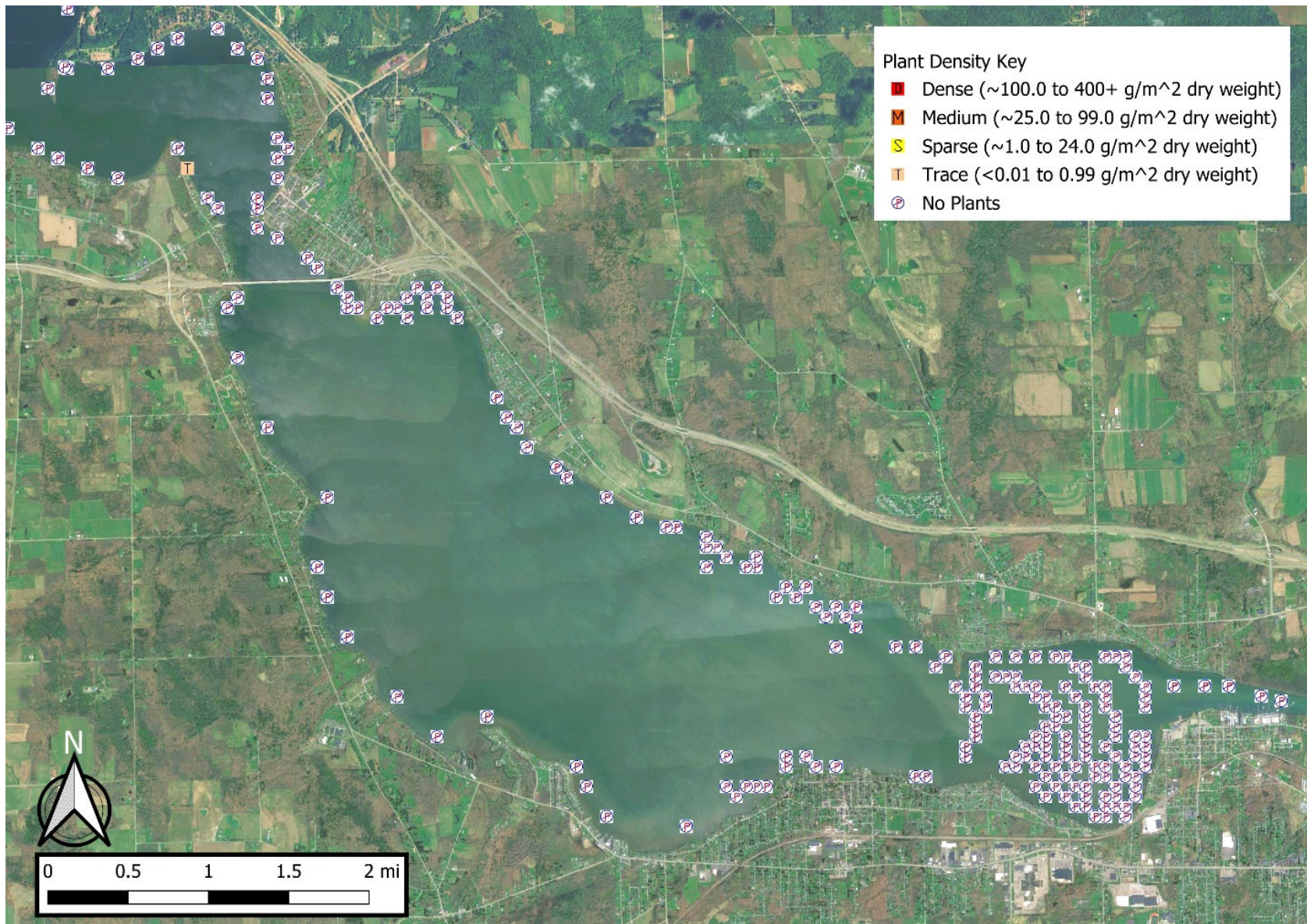


Figure A.32. *Nitella flexilis* in the South Basin of Chautauqua Lake, 2025.

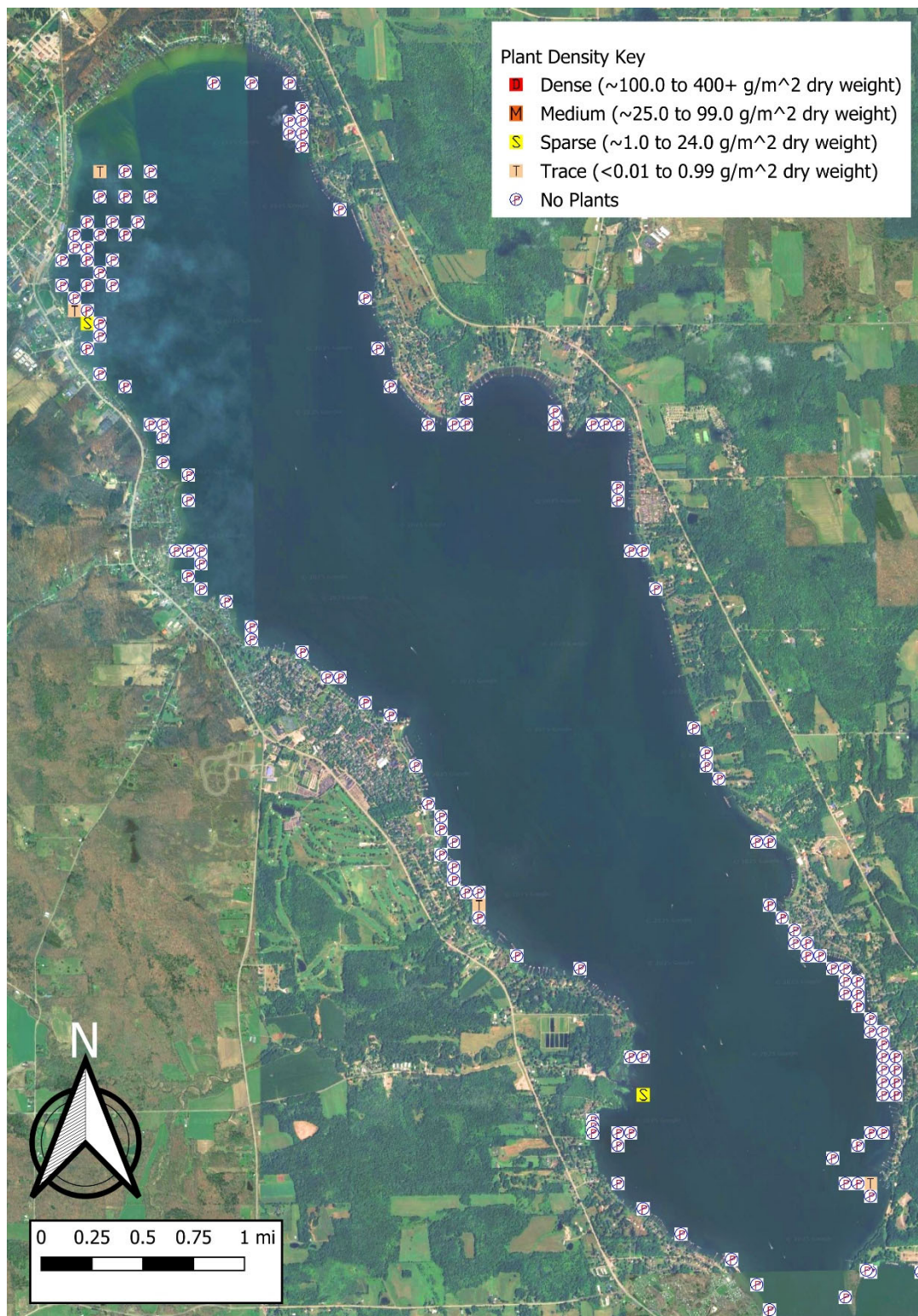


Figure A.33. Abundance of *Nitellopsis obtusa* in the North Basin of Chautauqua Lake, 2025.

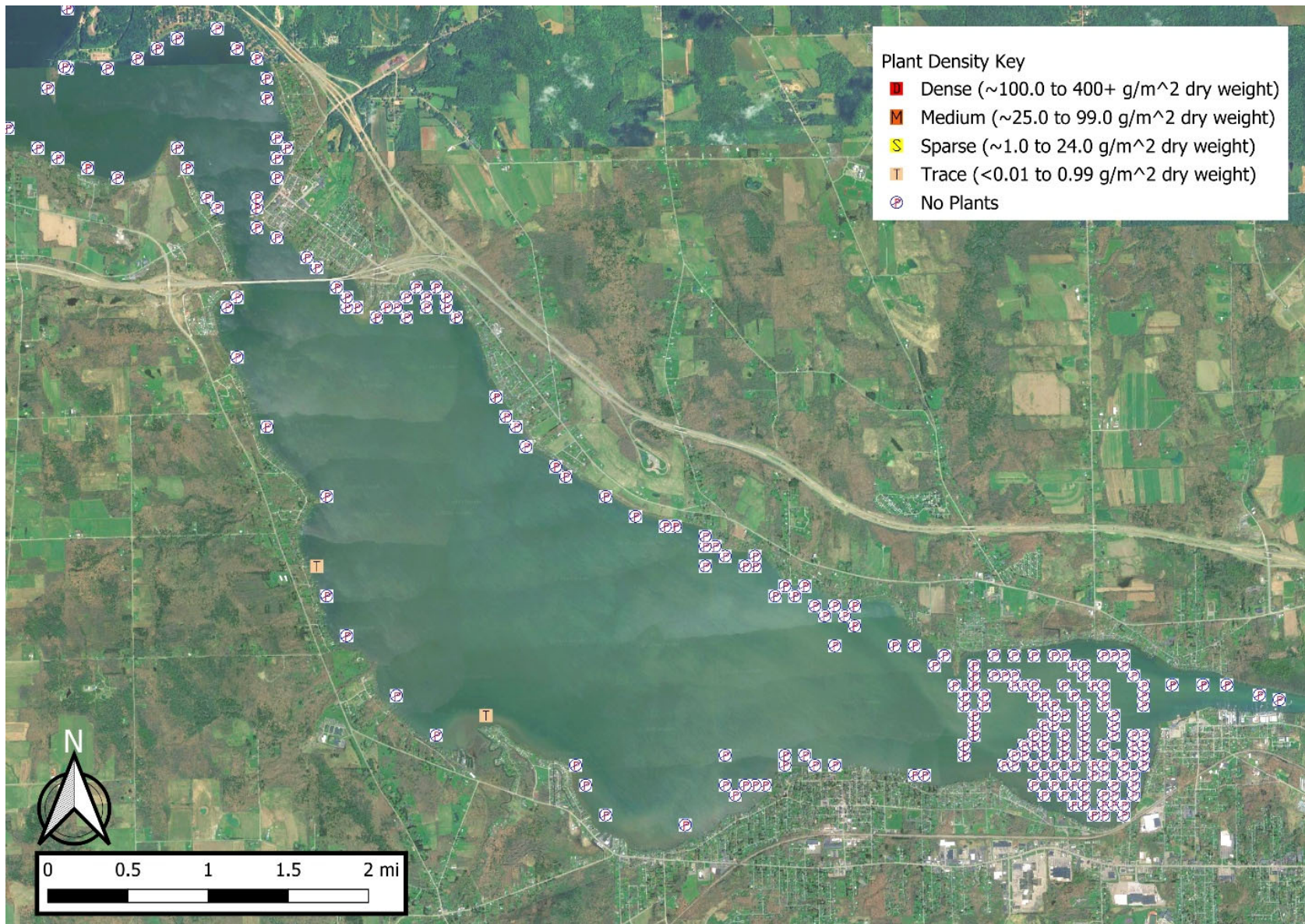


Figure A.34. Abundance of *Nitellopsis obtusa* in the South Basin of Chautauqua Lake, 2025.

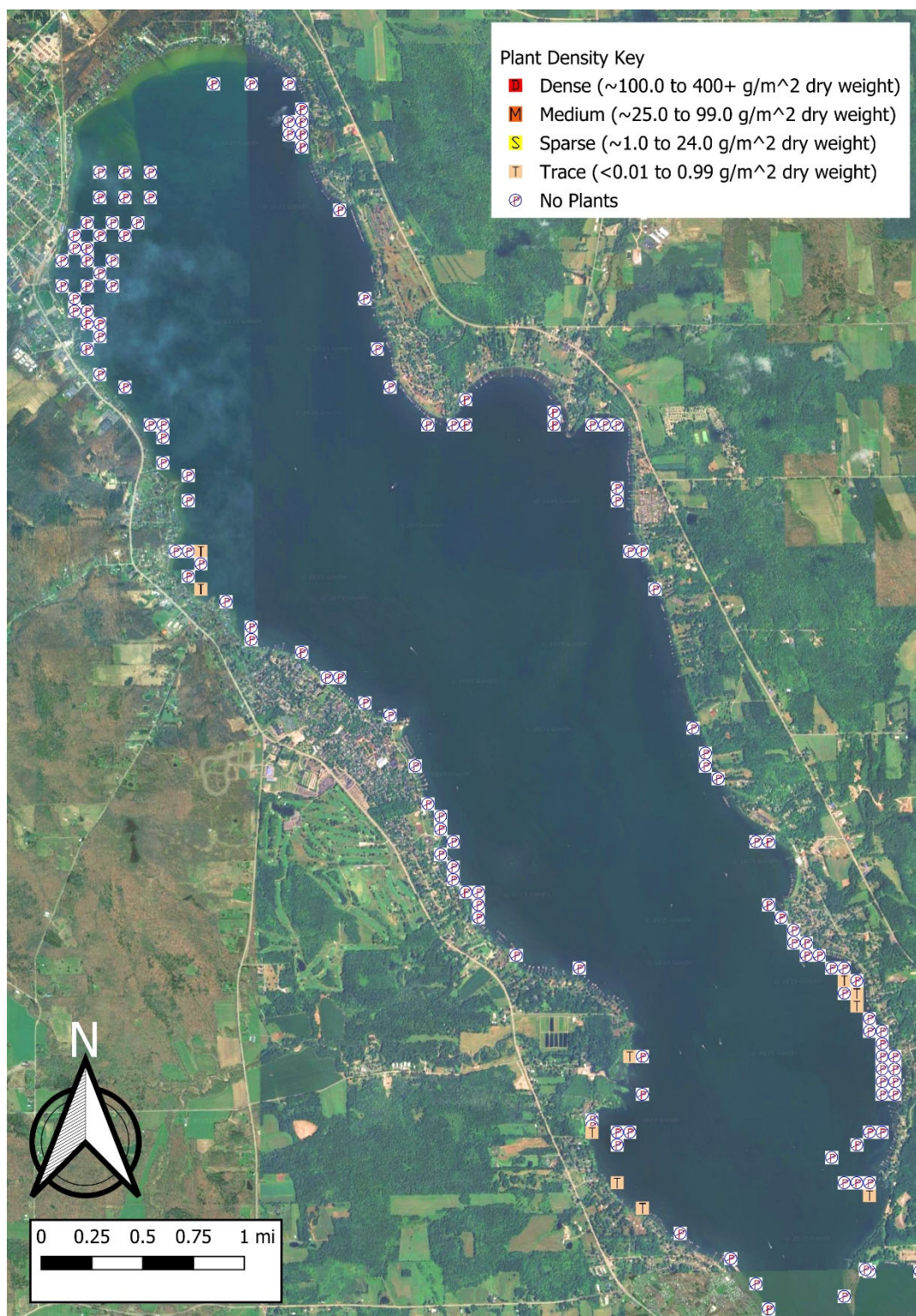


Figure A.35. Abundance of *Potamogeton crispus* in the North Basin of Chautauqua Lake, 2025.

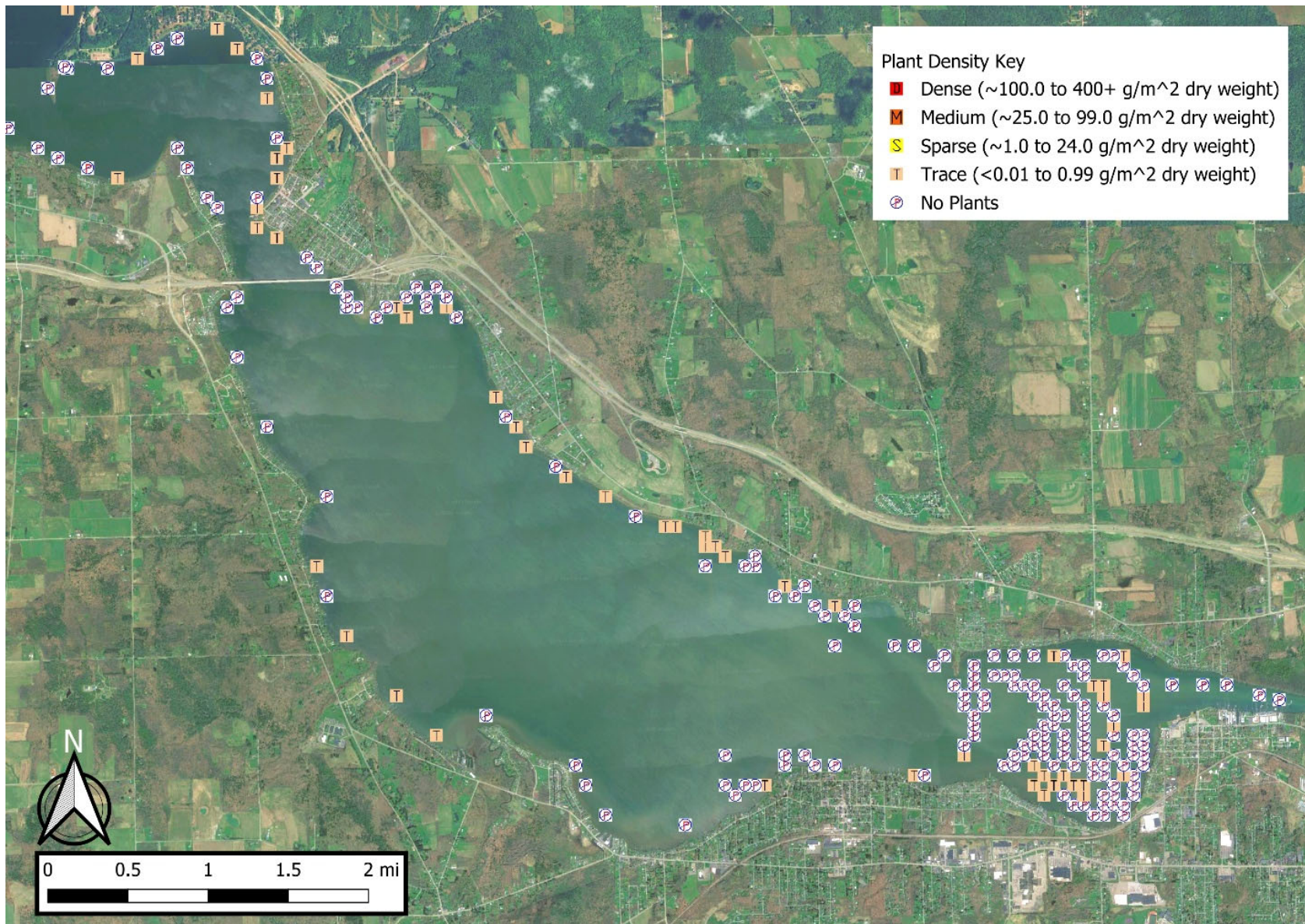


Figure A.36. Abundance of *Potamogeton crispus* in the South Basin of Chautauqua Lake, 2025.

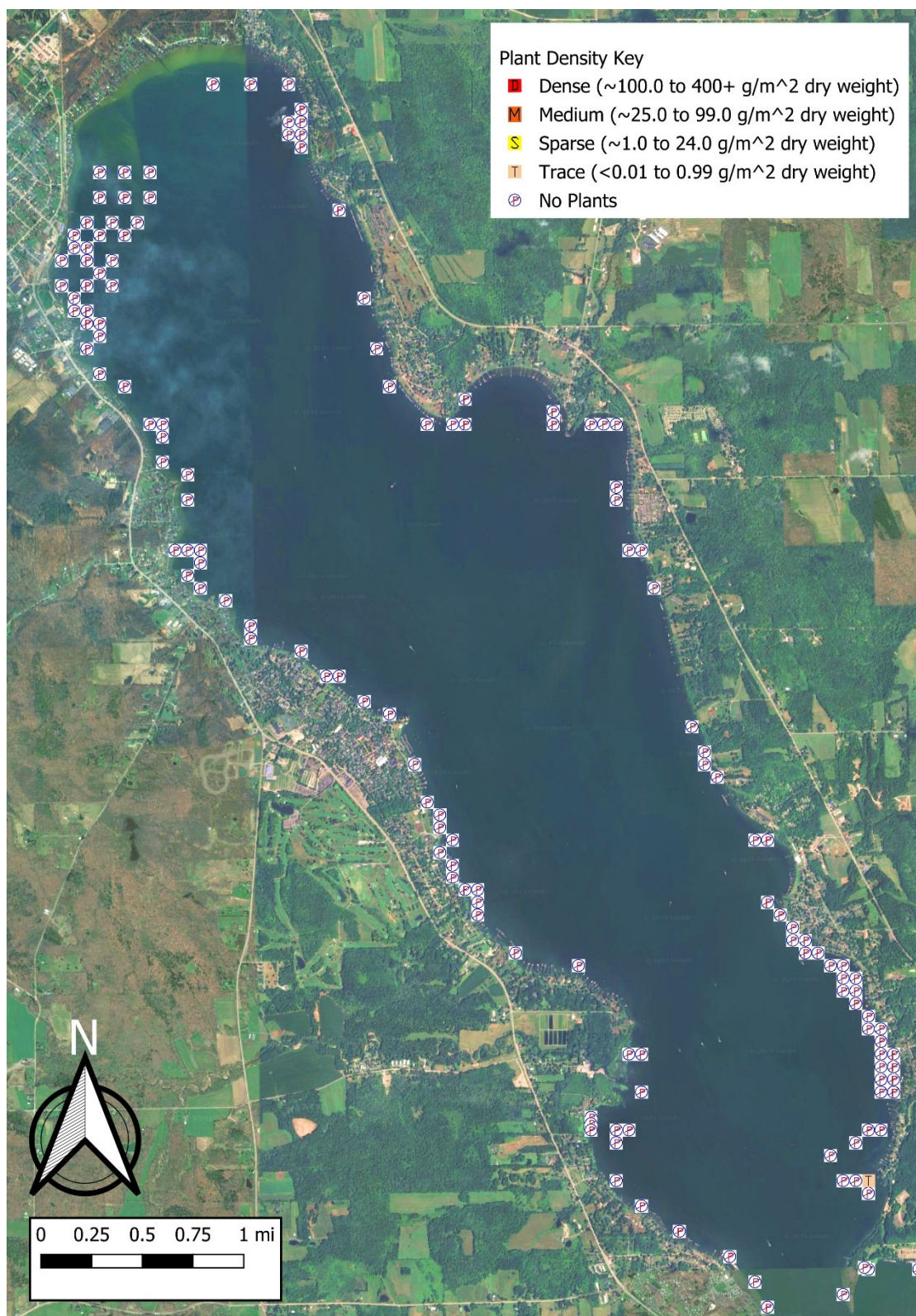


Figure A.37. Abundance of *Potamogeton foliosus* in the North Basin of Chautauqua Lake, 2025.

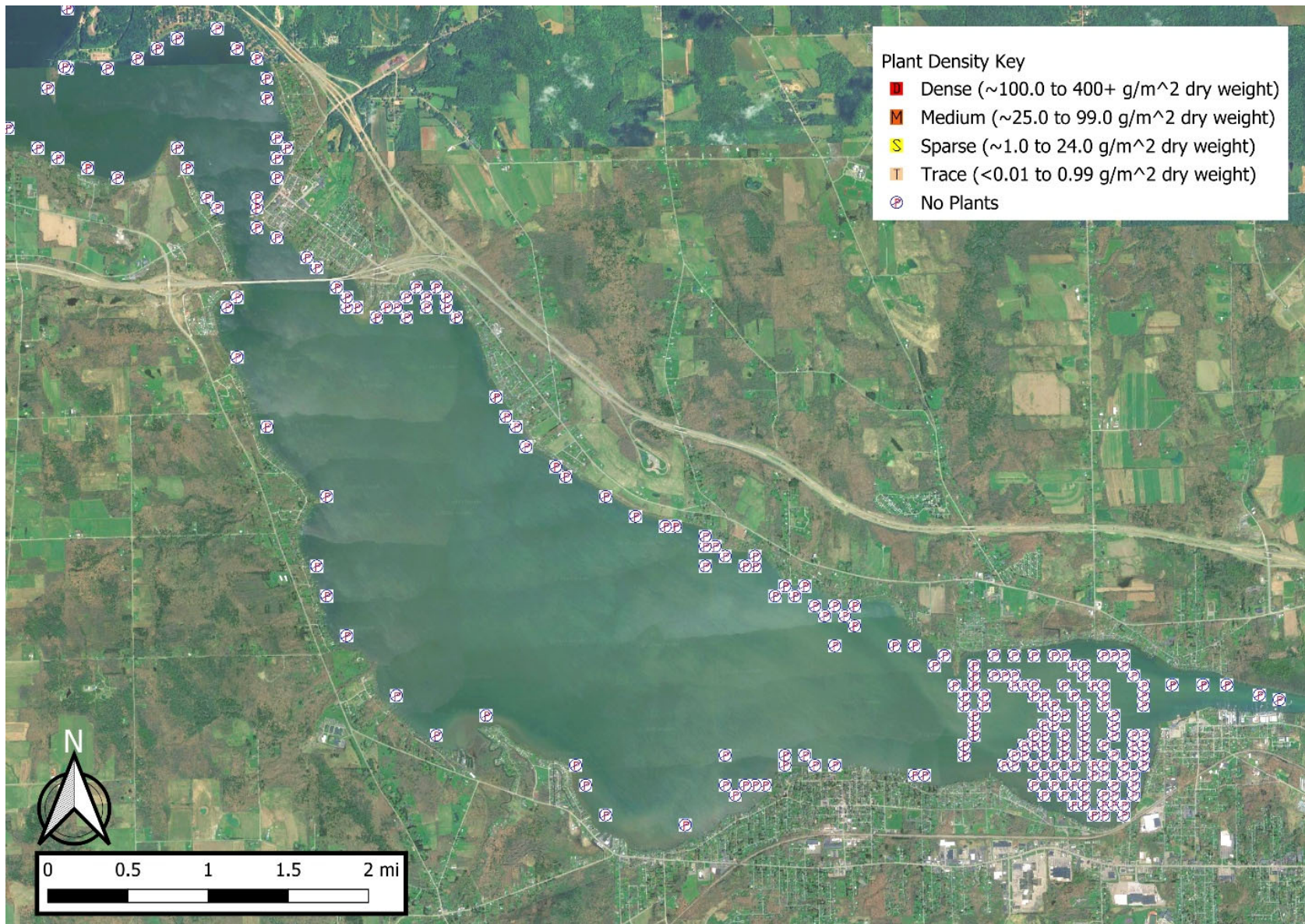


Figure A.38. Abundance of *Potamogeton foliosus* in the South Basin of Chautauqua Lake, 2025.

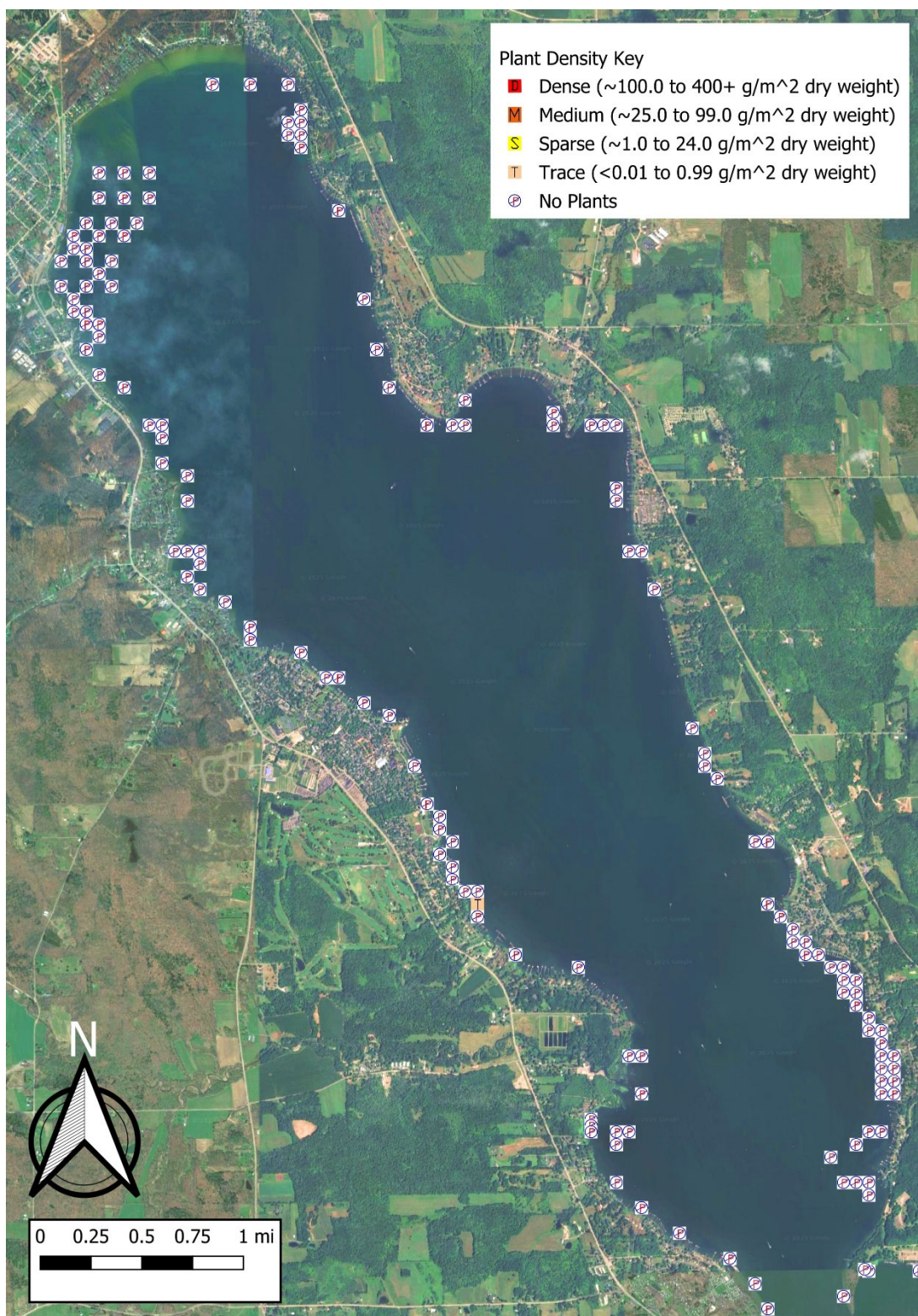


Figure A.39. Abundance of *Potamogeton hillii* in the North Basin of Chautauqua Lake, 2025.

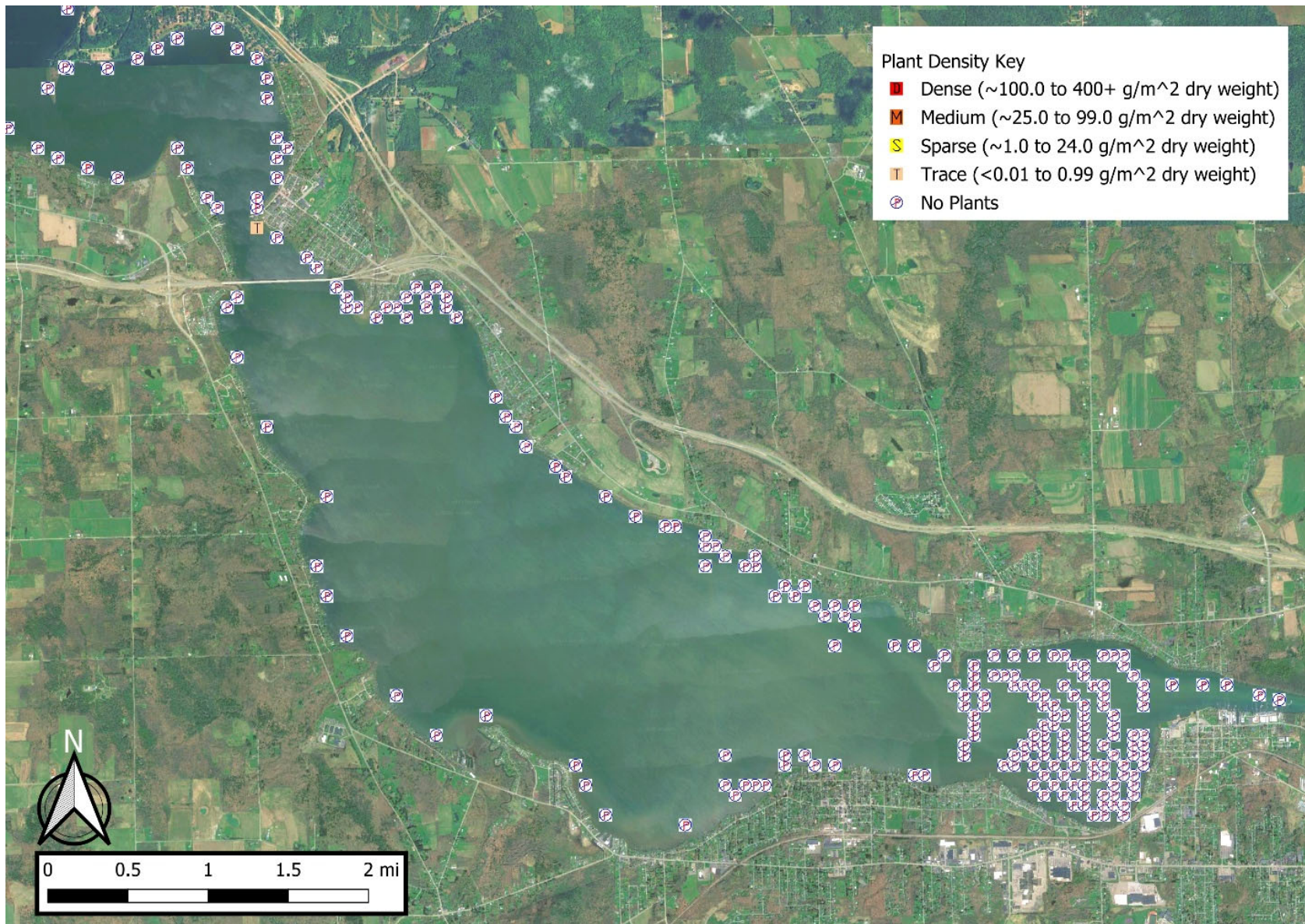


Figure A.40. Abundance of *Potamogeton hillii* in the South Basin of Chautauqua Lake, 2025.

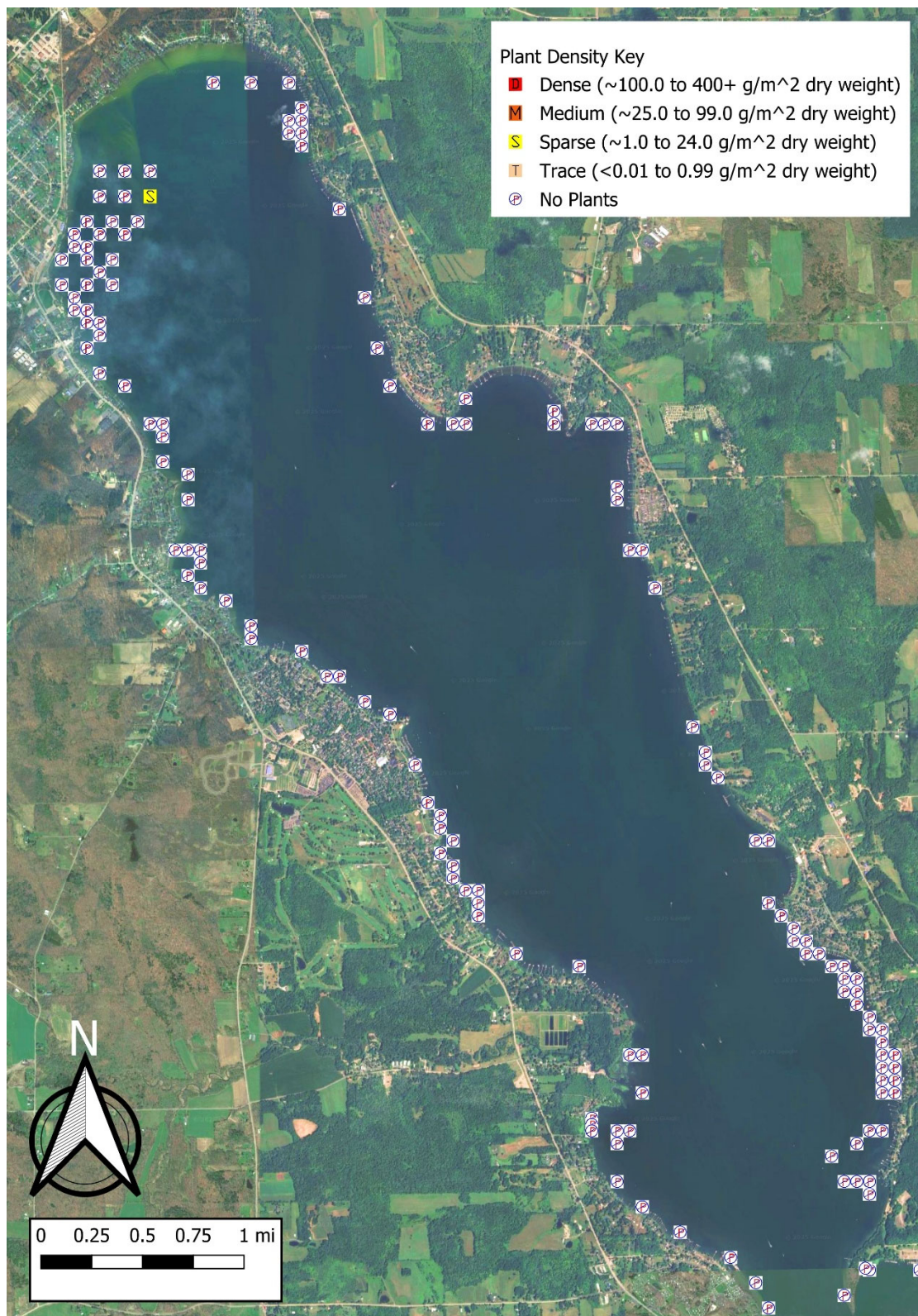


Figure A.41. Abundance of *Potamogeton nodosus* in the North Basin of Chautauqua Lake, 2025.

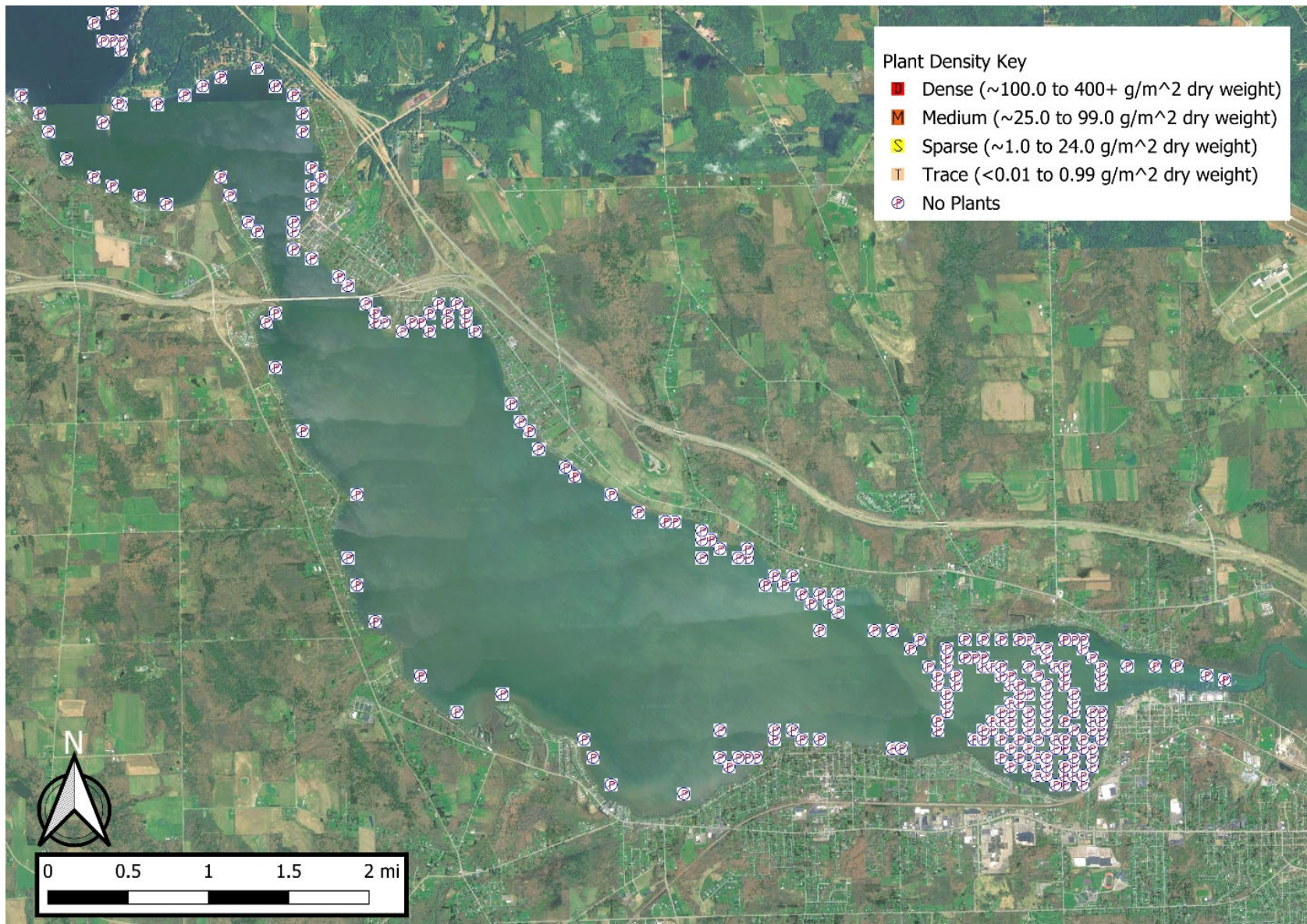


Figure A.42. Abundance of *Potamogeton nodosus* in the South Basin of Chautauqua Lake, 2025.

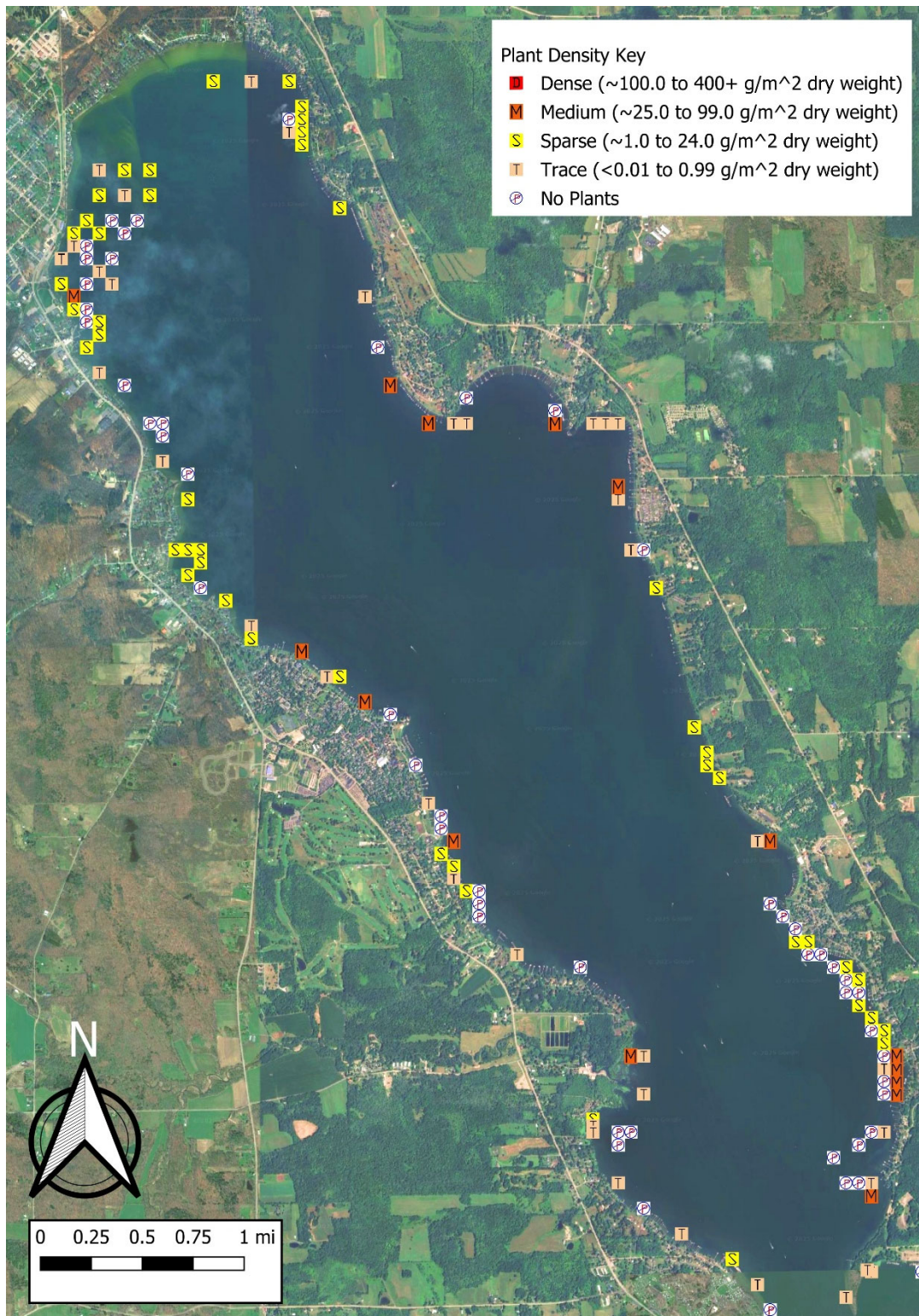


Figure A.43. Abundance of *Potamogeton praelongus* in the North Basin of Chautauqua Lake, 2025.

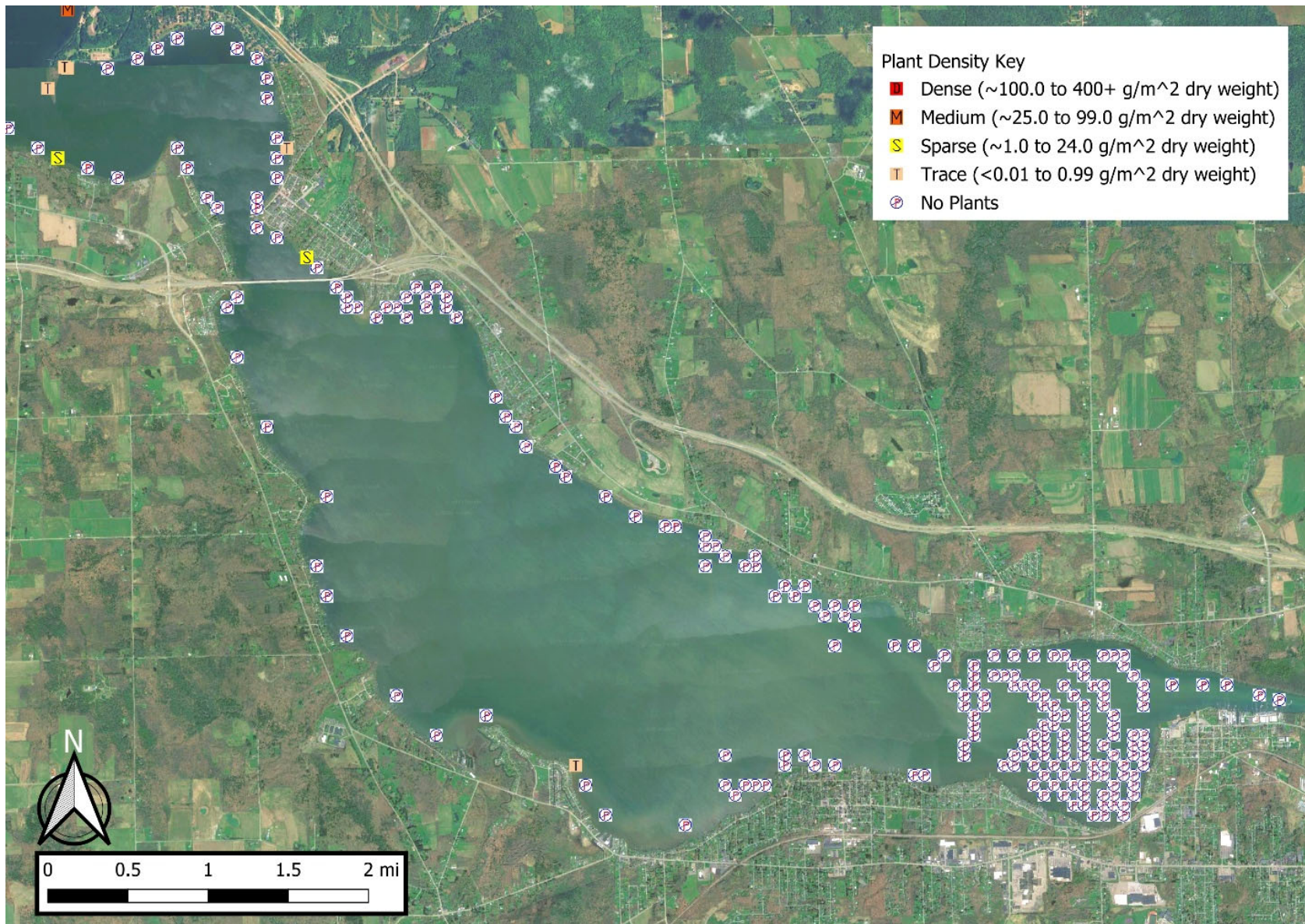


Figure A.44. Abundance of *Potamogeton praelongus* in the South Basin of Chautauqua Lake, 2025.

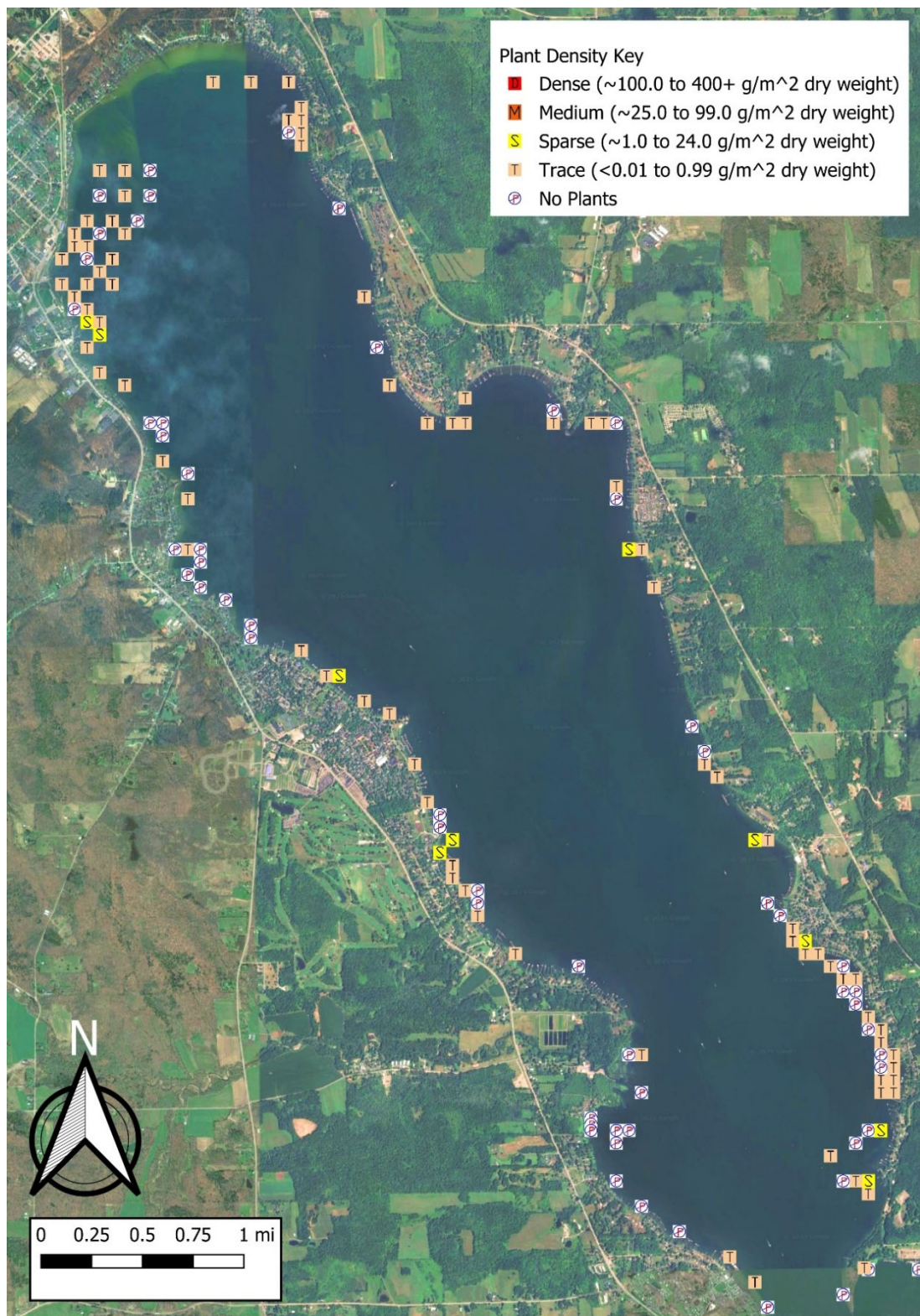


Figure A.45. Abundance of *Potamogeton pusillus* in the North Basin of Chautauqua Lake, 2025.

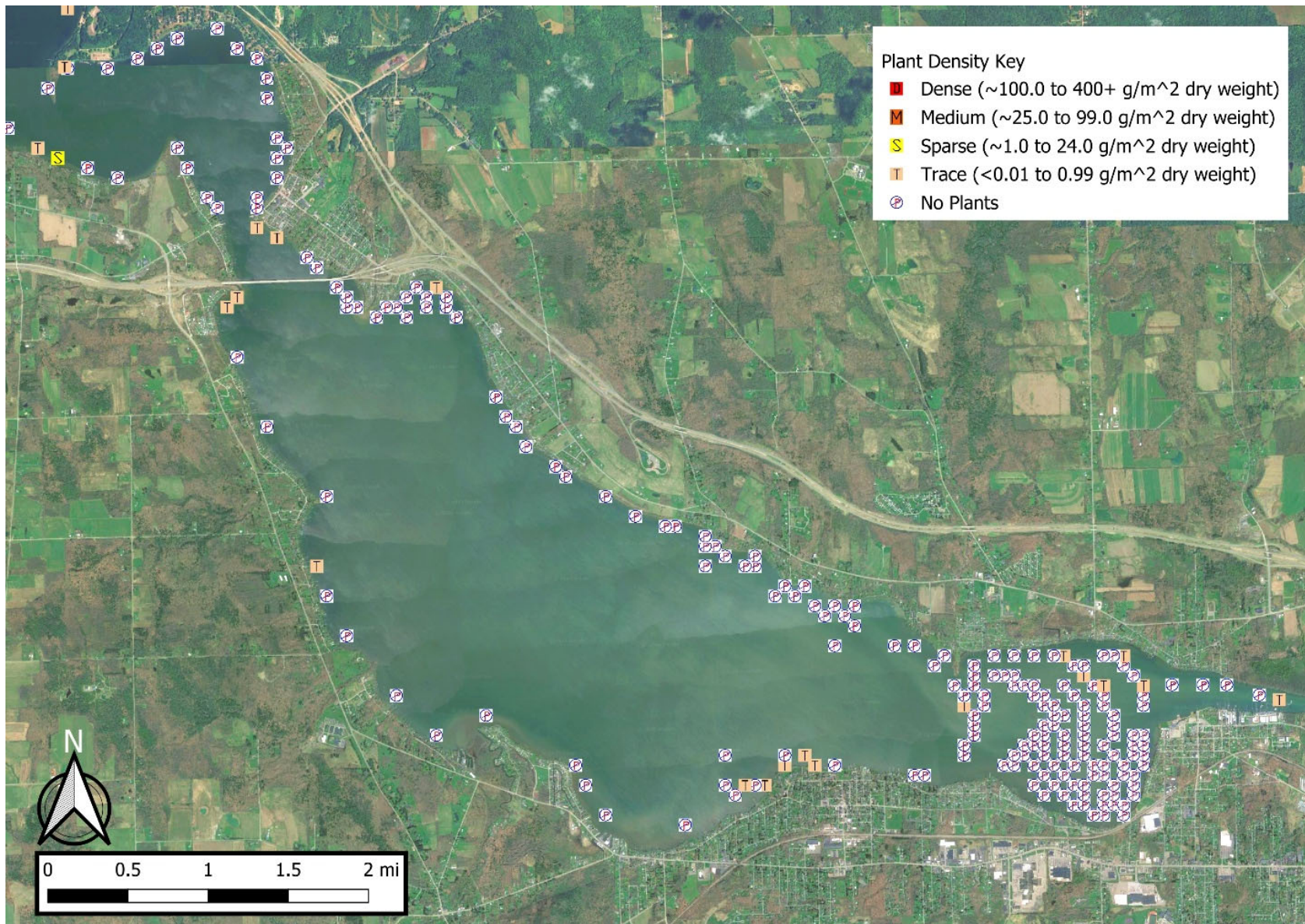


Figure A.46. Abundance of *Potamogeton pusillis* in the South Basin of Chautauqua Lake, 2025.

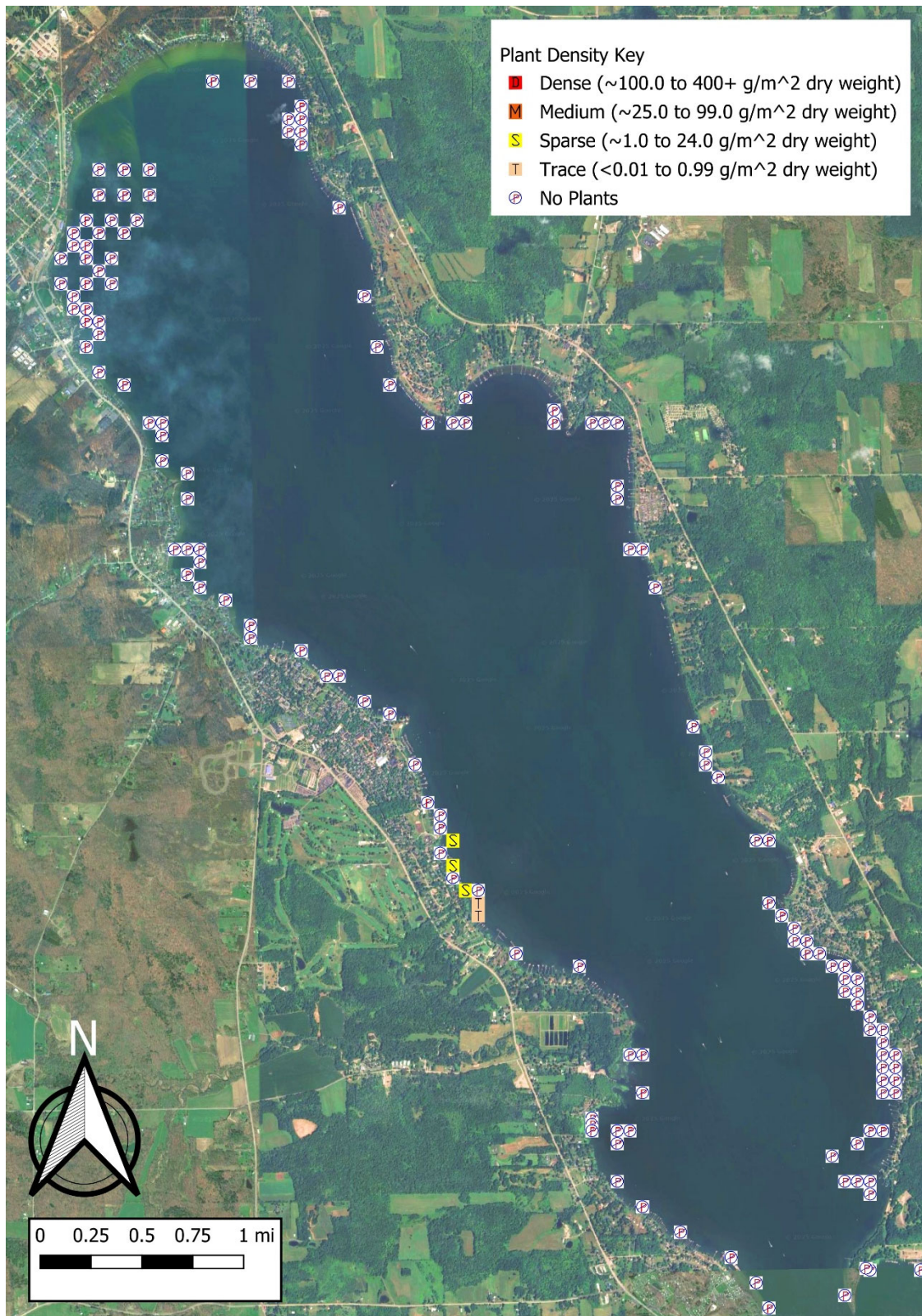


Figure A.47. Abundance of *Potamogeton richardsonii* in the North Basin of Chautauqua Lake, 2025.

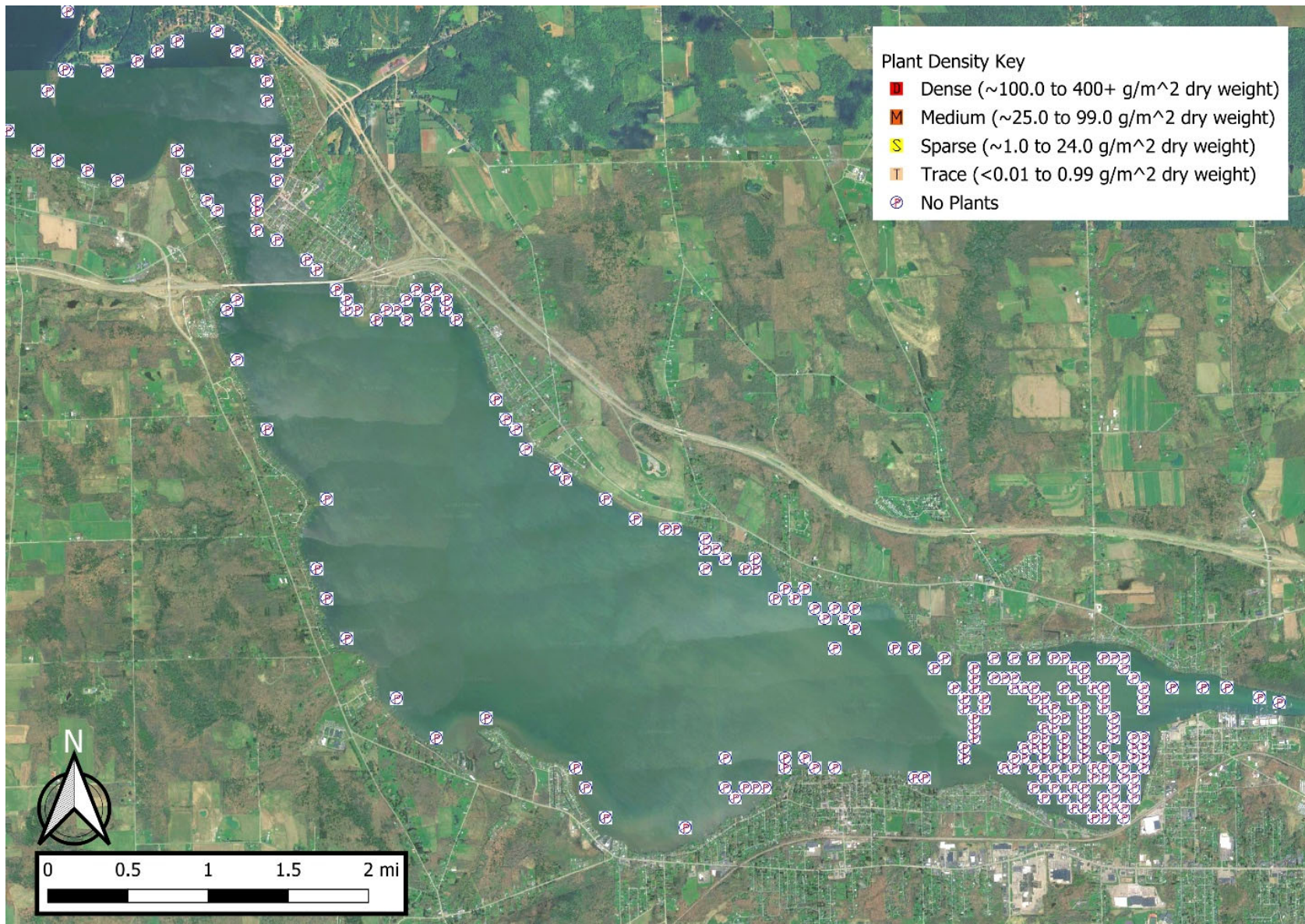


Figure A.48. Abundance of *Potamogeton richardsonii* in the South Basin of Chautauqua Lake, 2025.

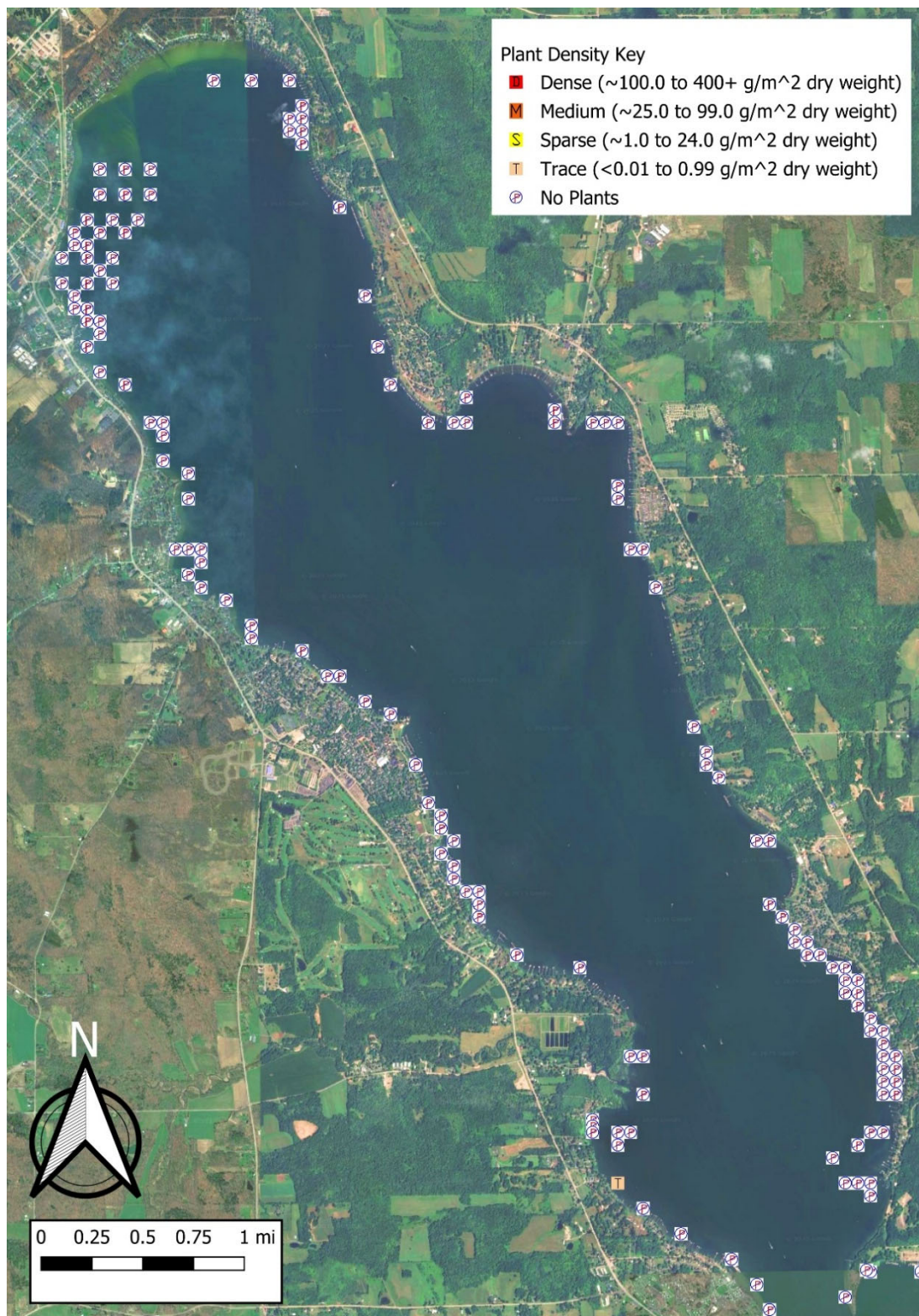


Figure A.49. Abundance of *Potamogeton robbinsii* in the North Basin of Chautauqua Lake, 2025.

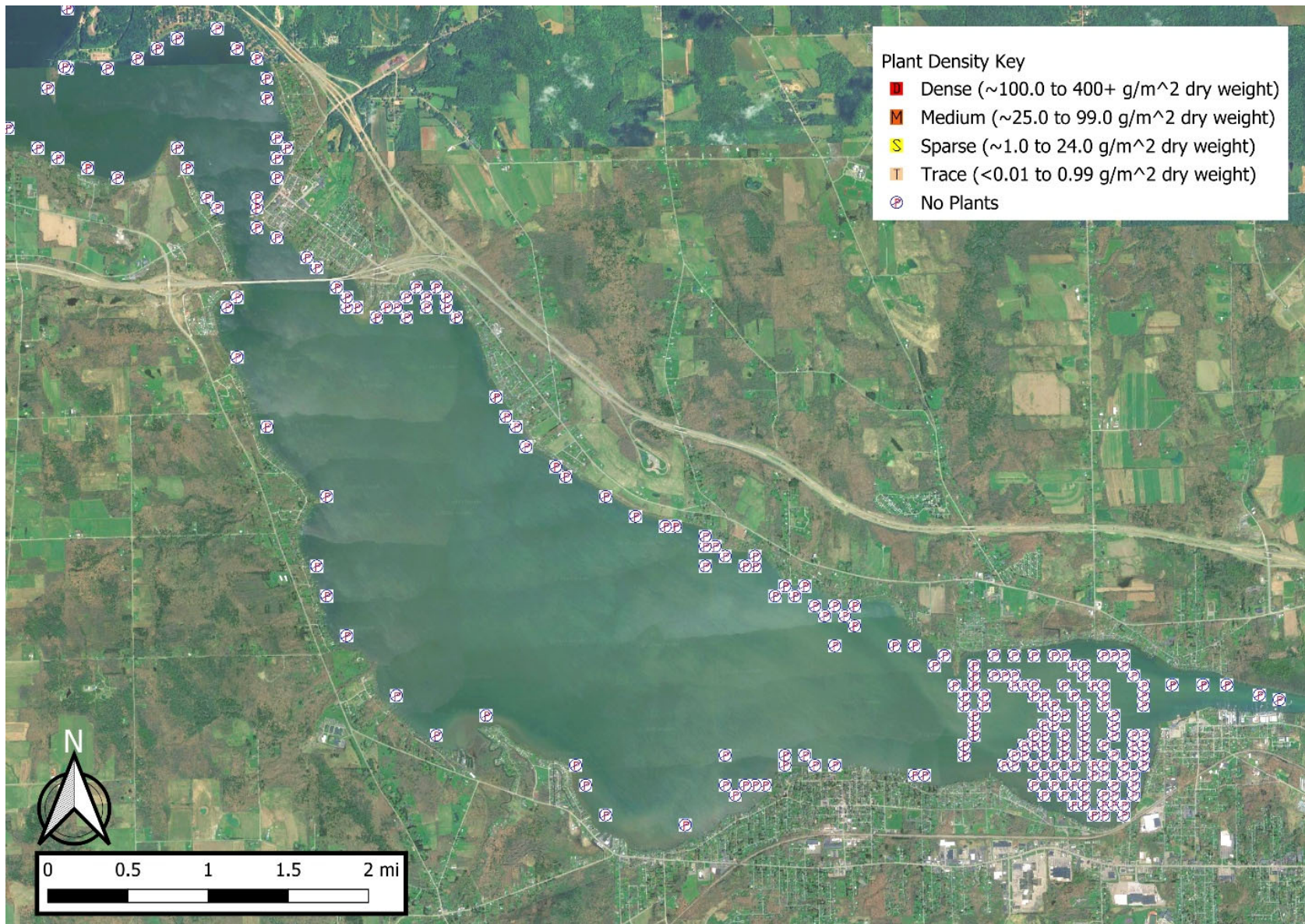


Figure A.50. Abundance of *Potamogeton robbinsii* in the South Basin of Chautauqua Lake, 2025.

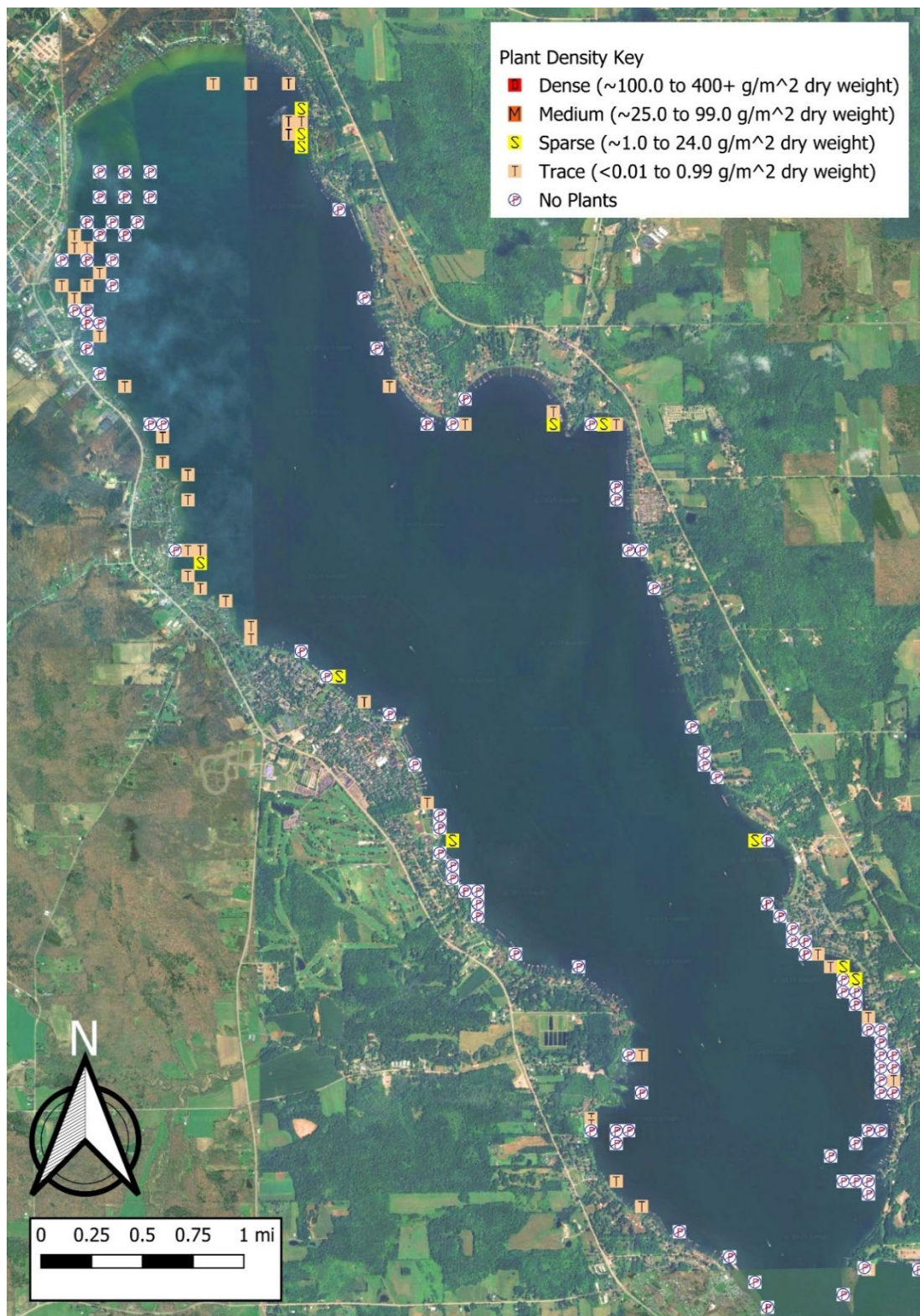


Figure A.51. Abundance of *Potamogeton zosteriformis* in the North Basin of Chautauqua Lake, 2025.

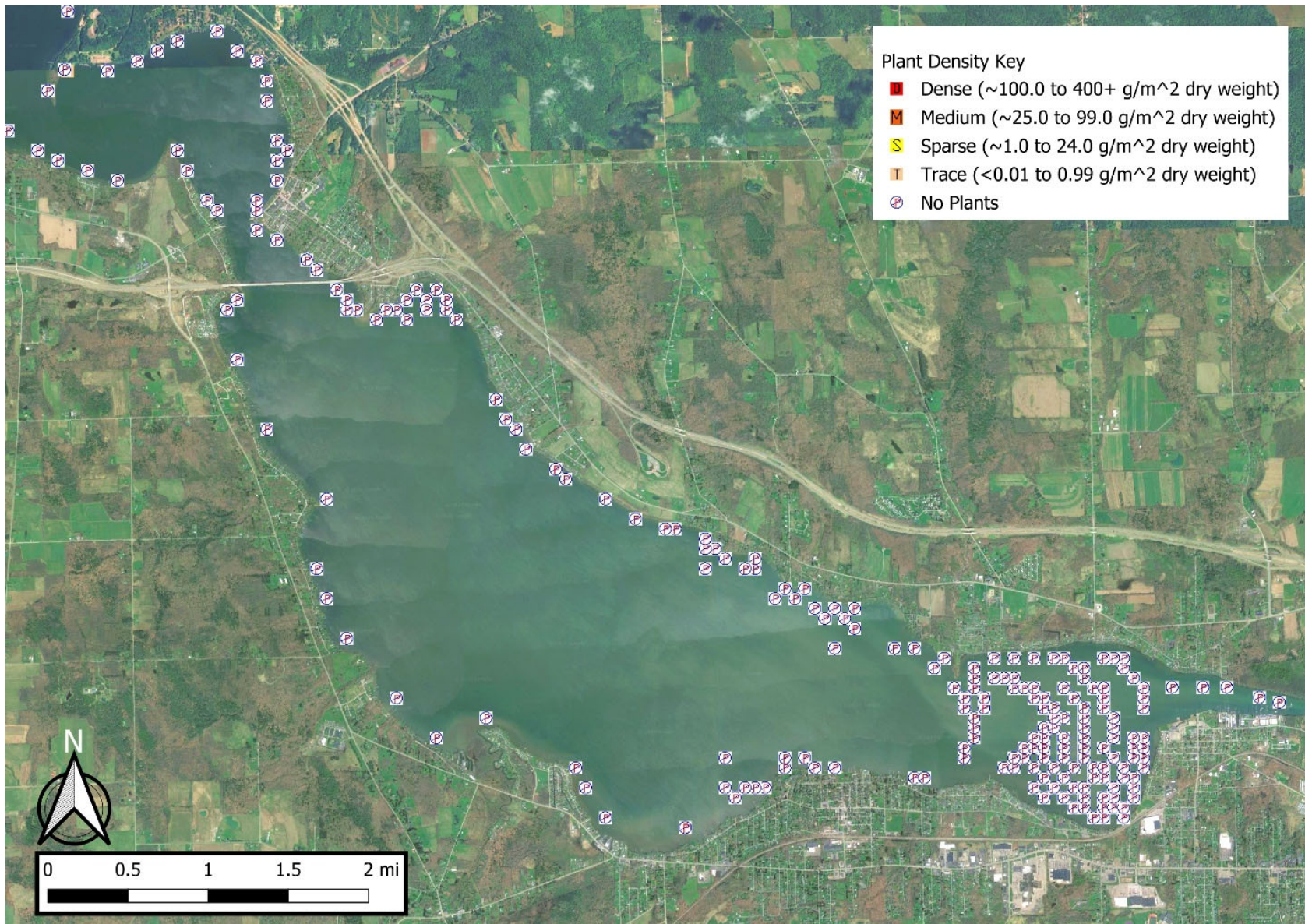


Figure A.52. Abundance of *Potamogeton zosteriformis* in the South Basin of Chautauqua Lake, 2025.

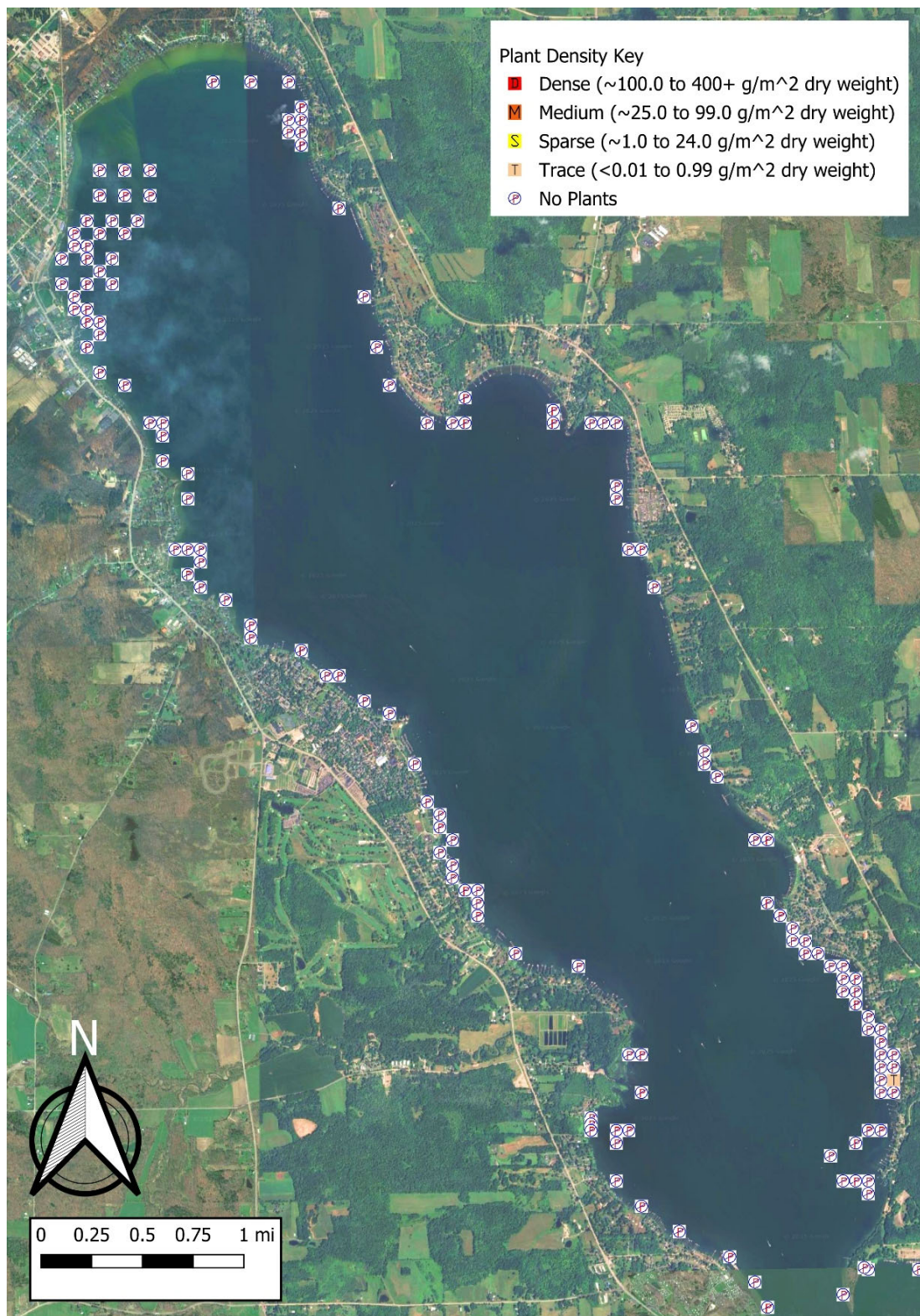


Figure A.53. Abundance of *Ranunculus trichophyllus* in the North Basin of Chautauqua Lake, 2025.

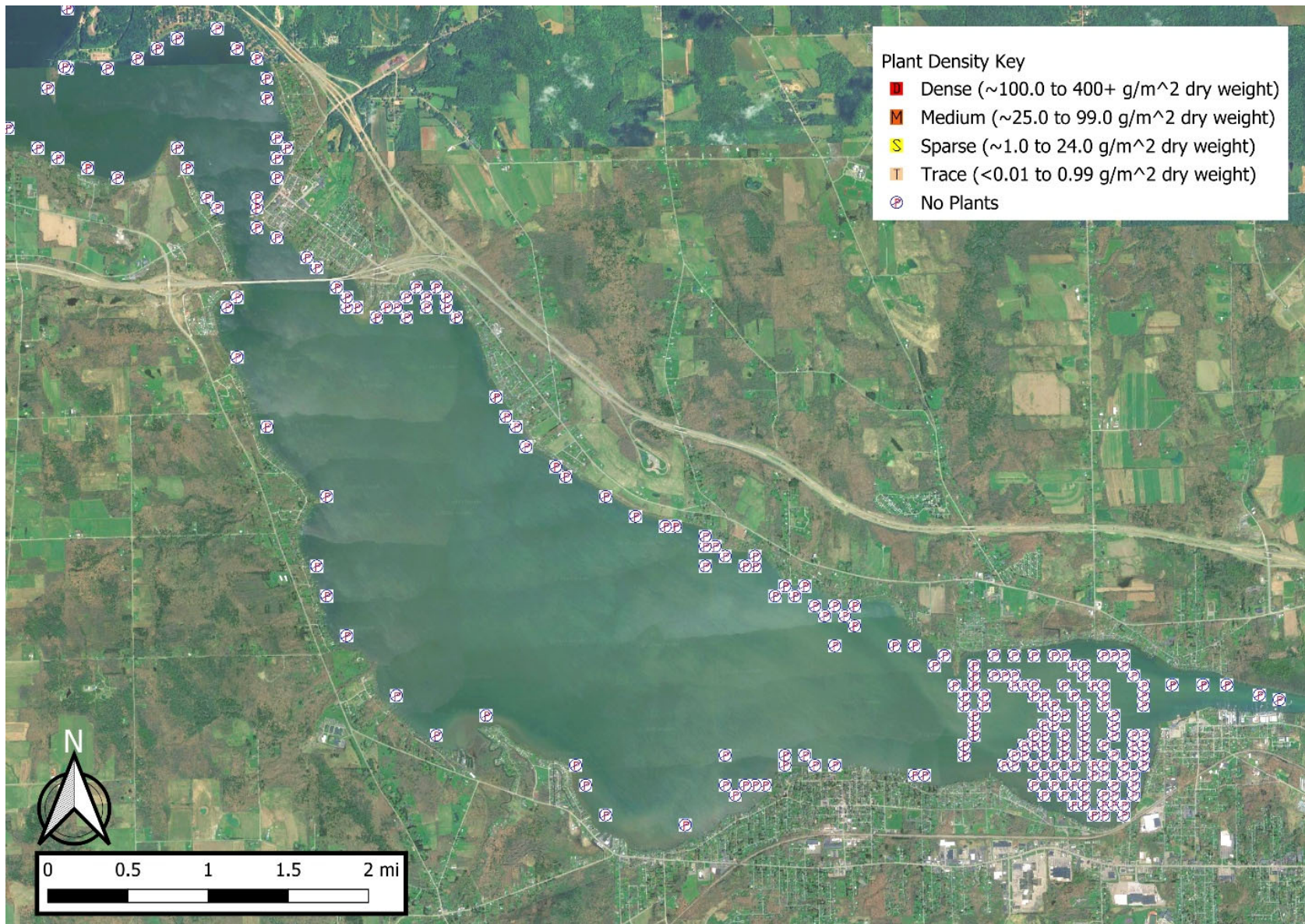


Figure A.54. Abundance of *Ranunculus trichophyllus* in the South Basin of Chautauqua Lake, 2025.

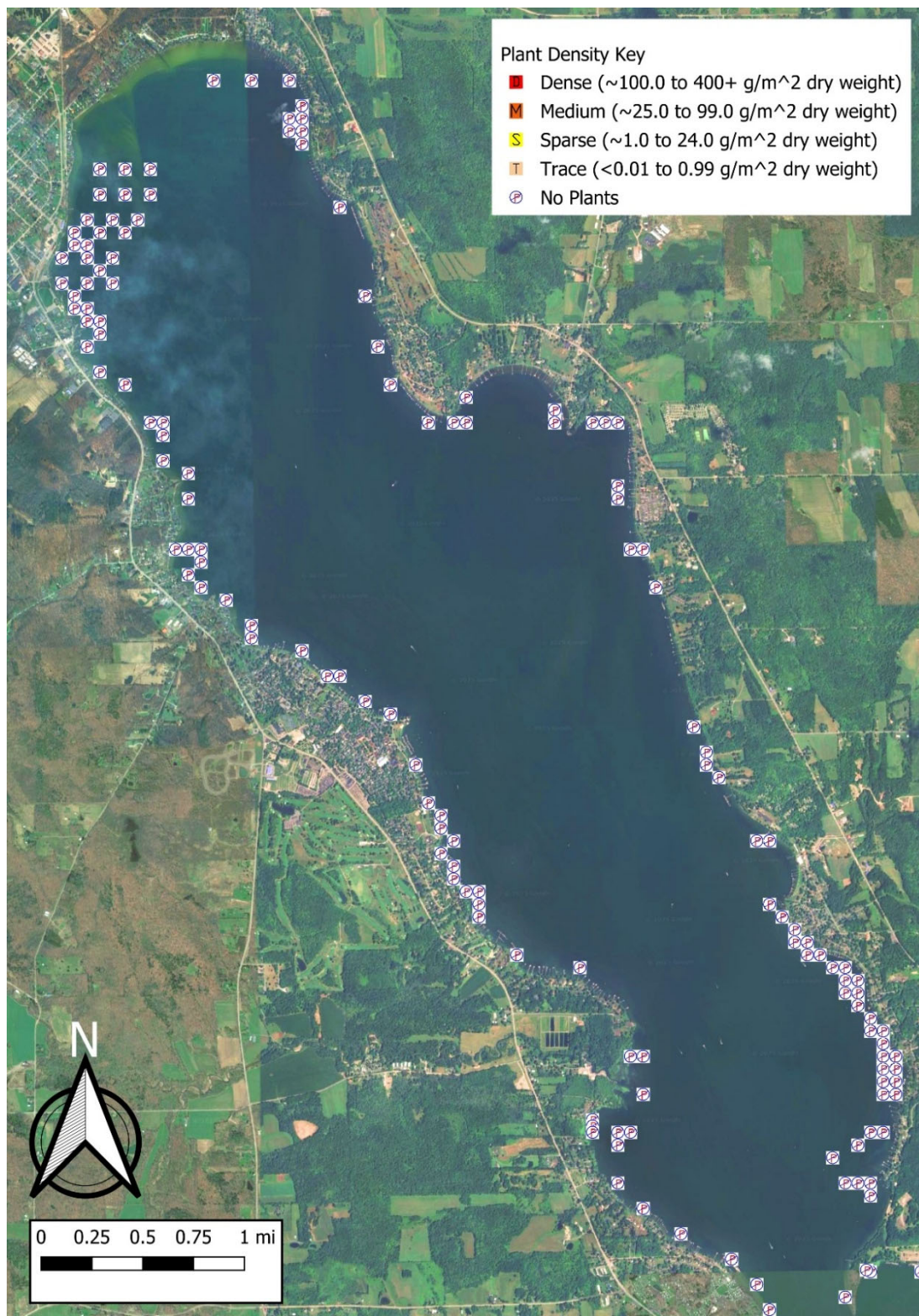


Figure A.55. Abundance of *Scirpus acutus* in the North Basin of Chautauqua Lake, 2025.

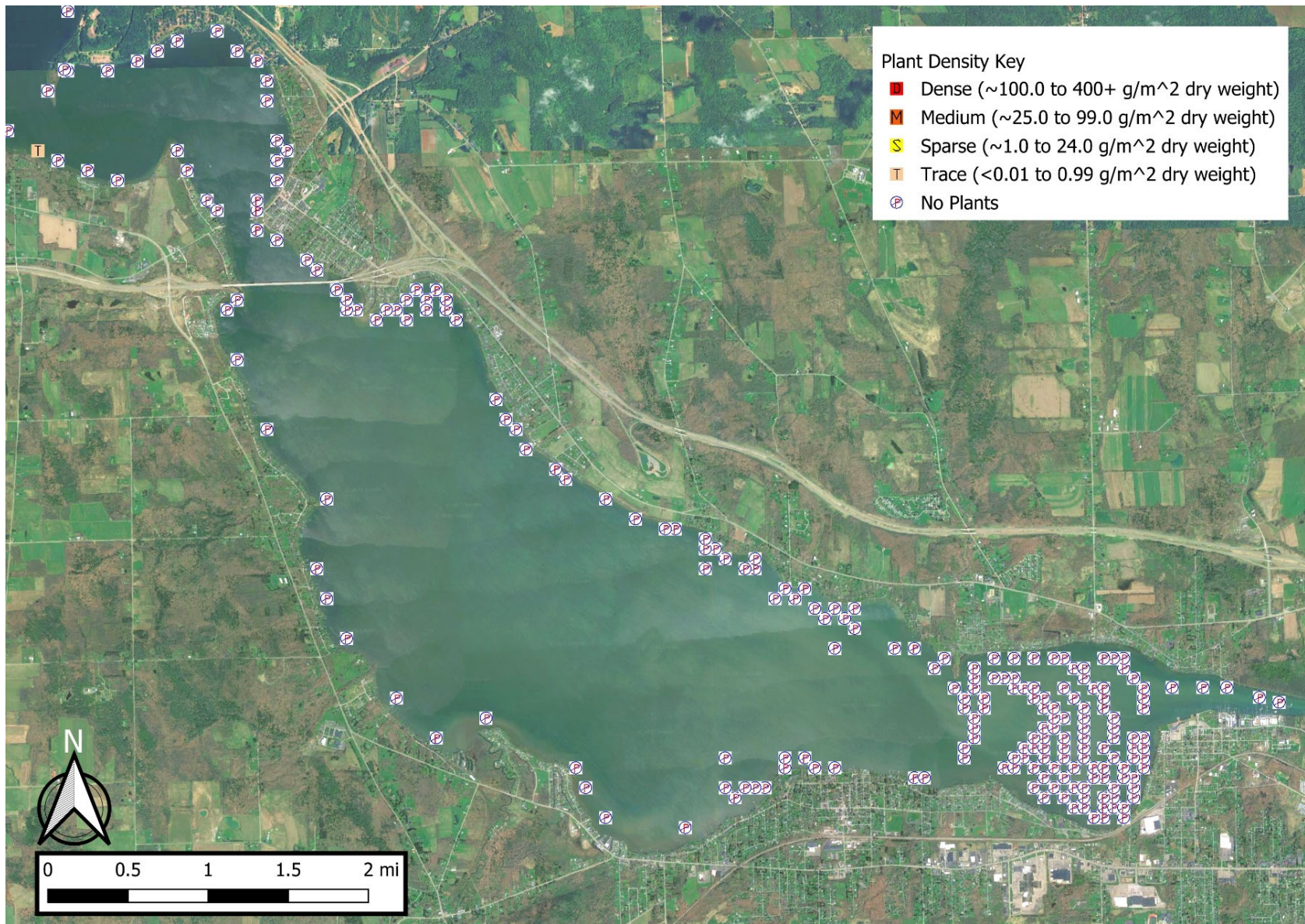


Figure A.56. Abundance of *Scirpus acutus* in the South Basin of Chautauqua Lake, 2025

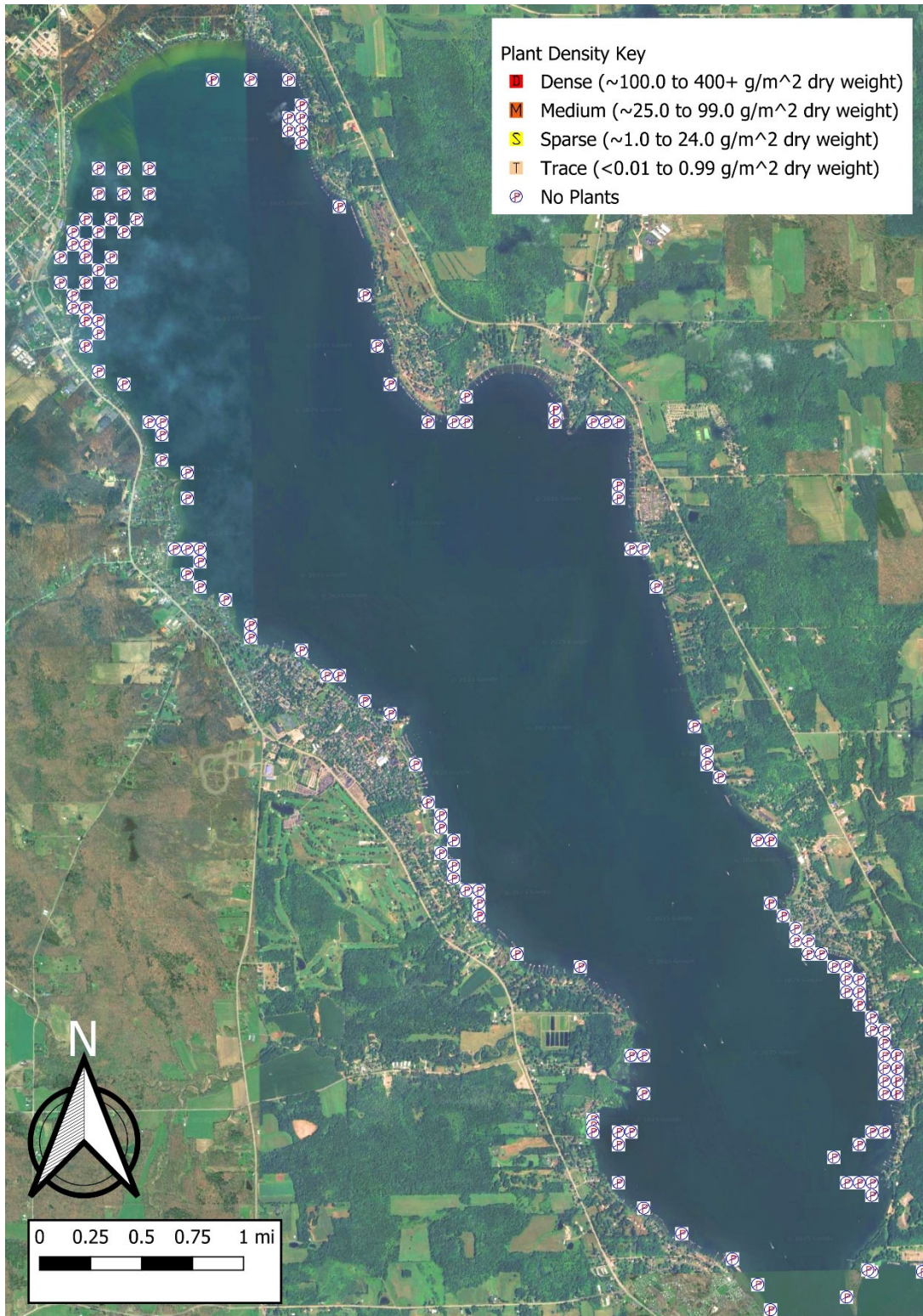


Figure A.57. Abundance of *Spirodela polyrhiza* in the North Basin of Chautauqua Lake, 2025.

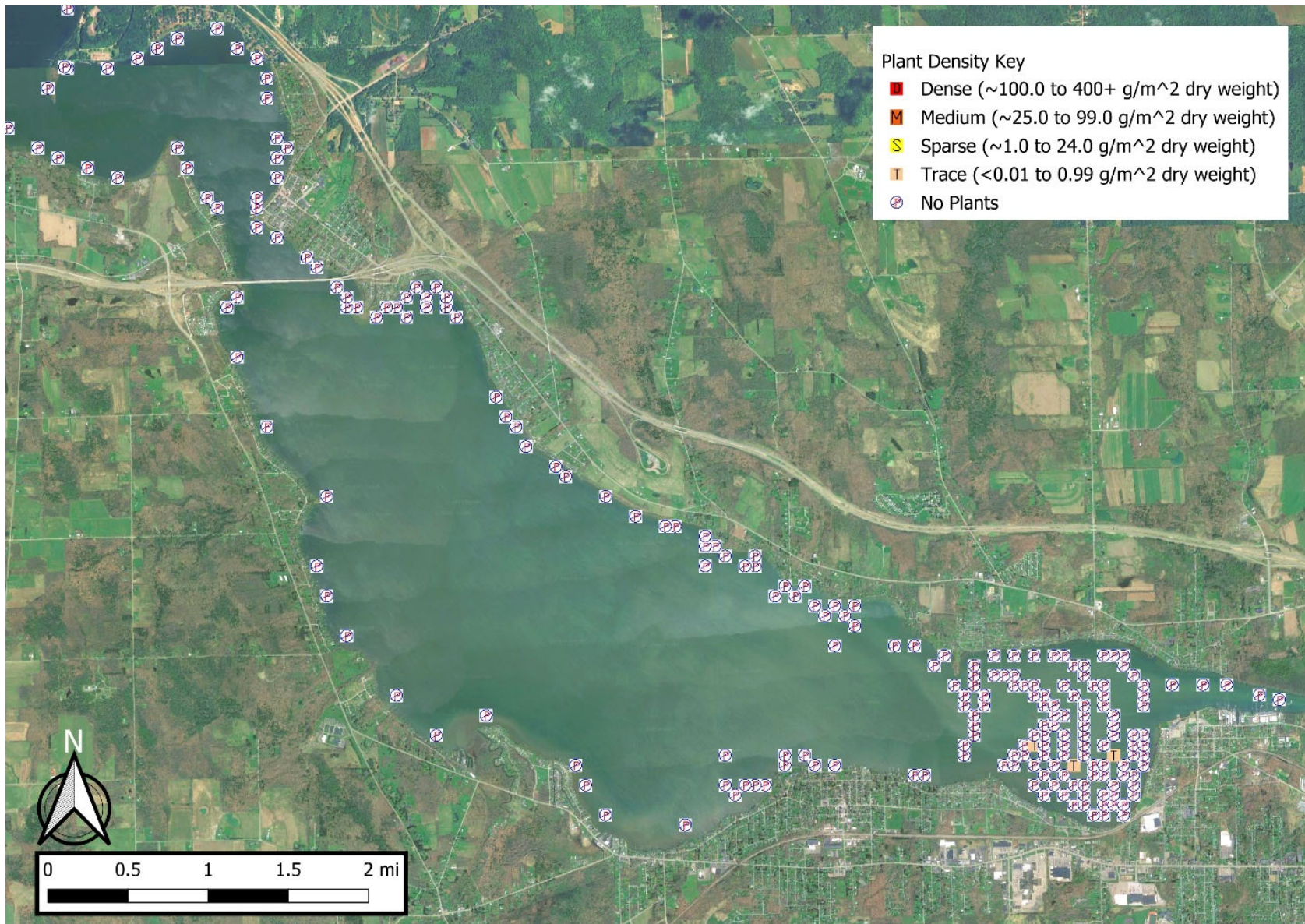


Figure A.58. Abundance of *Spirodela polyrhiza* in the South Basin of Chautauqua Lake, 2025.

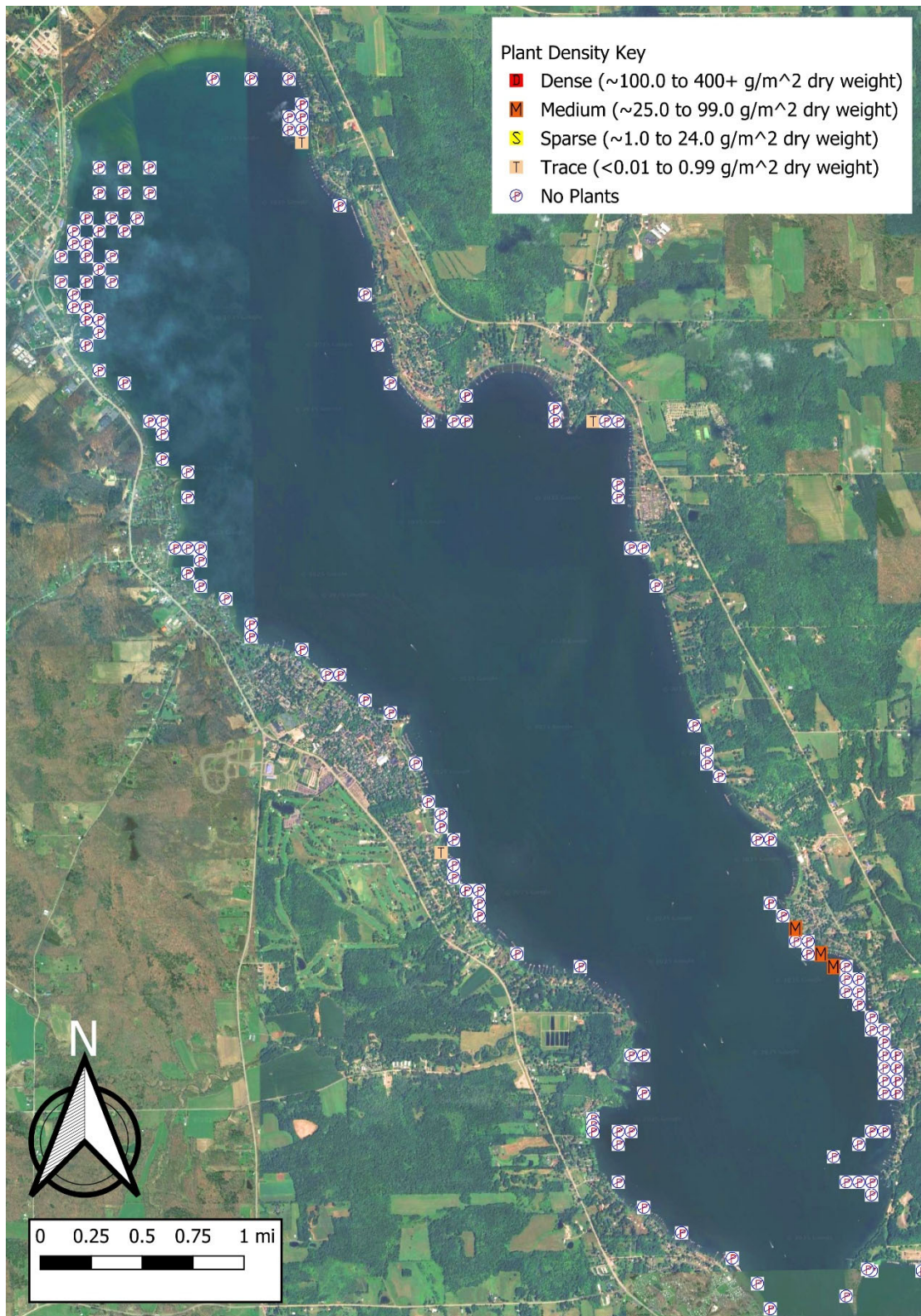


Figure A.59. Abundance of *Stuckenia pectinata* in the North Basin of Chautauqua Lake, 2025.

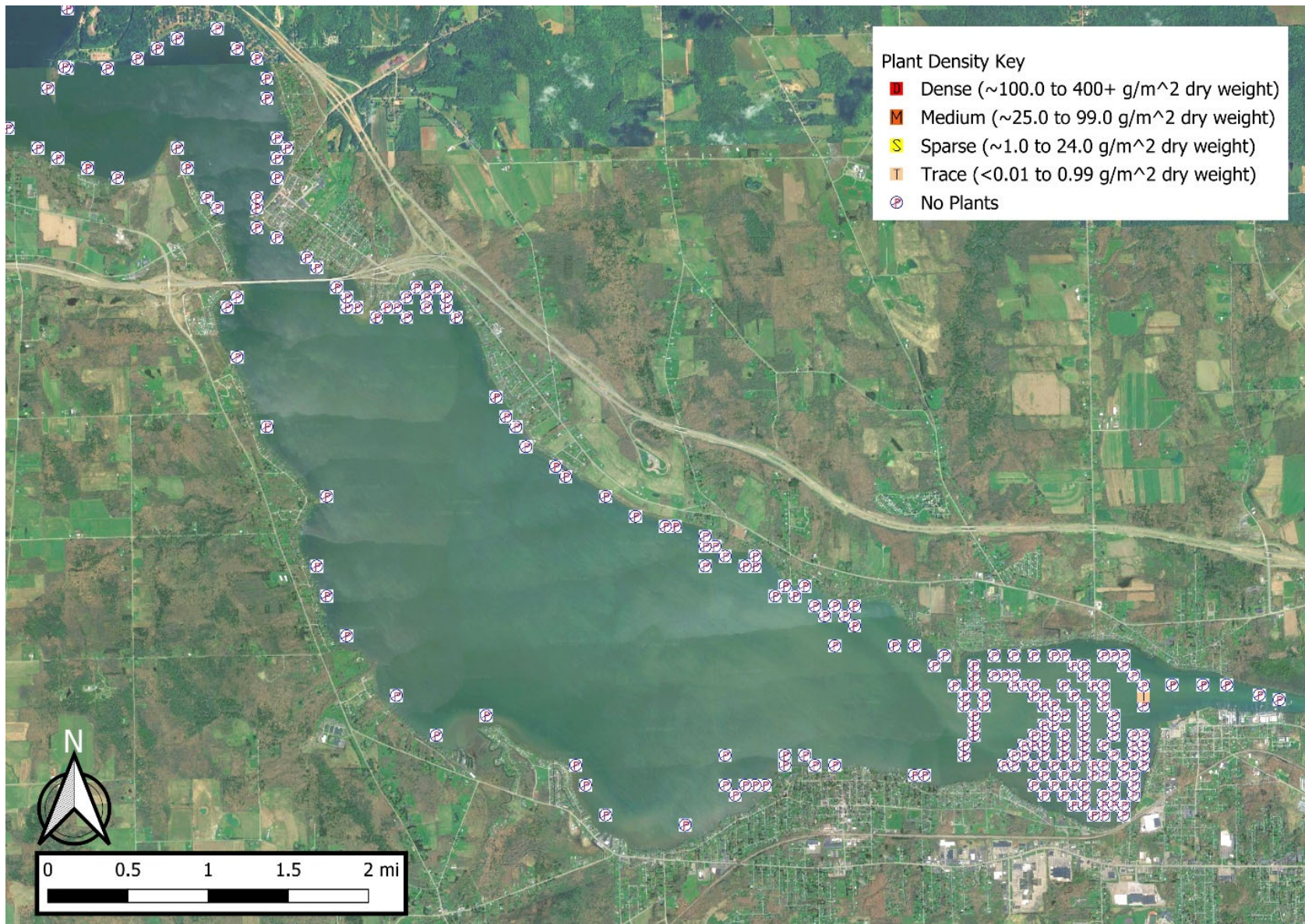


Figure A.60. Abundance of *Stuckenia pectinata* in the South Basin of Chautauqua Lake, 2025.

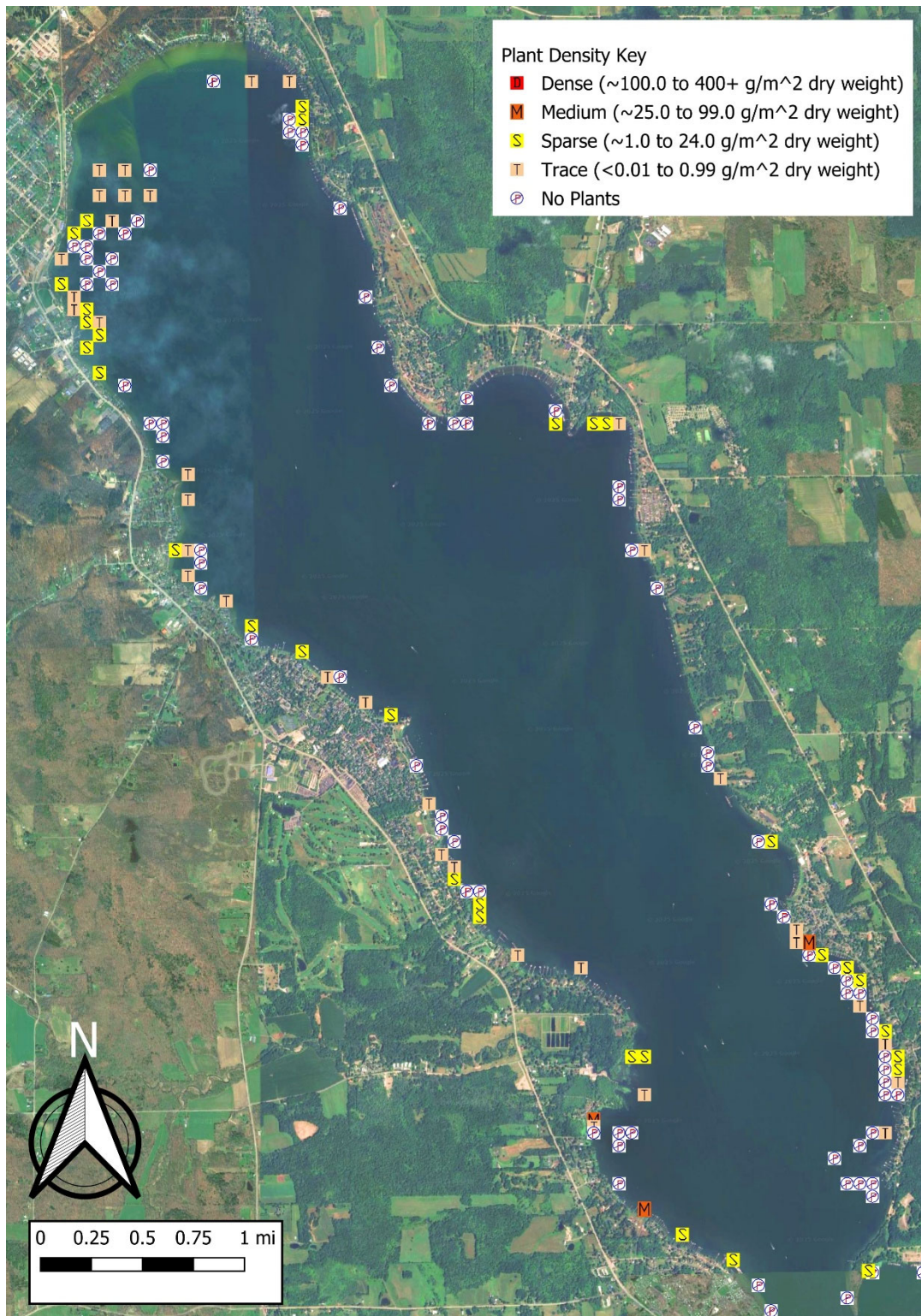


Figure A.61. Abundance of *Vallisneria americana* in the North Basin of Chautauqua Lake, 2025.

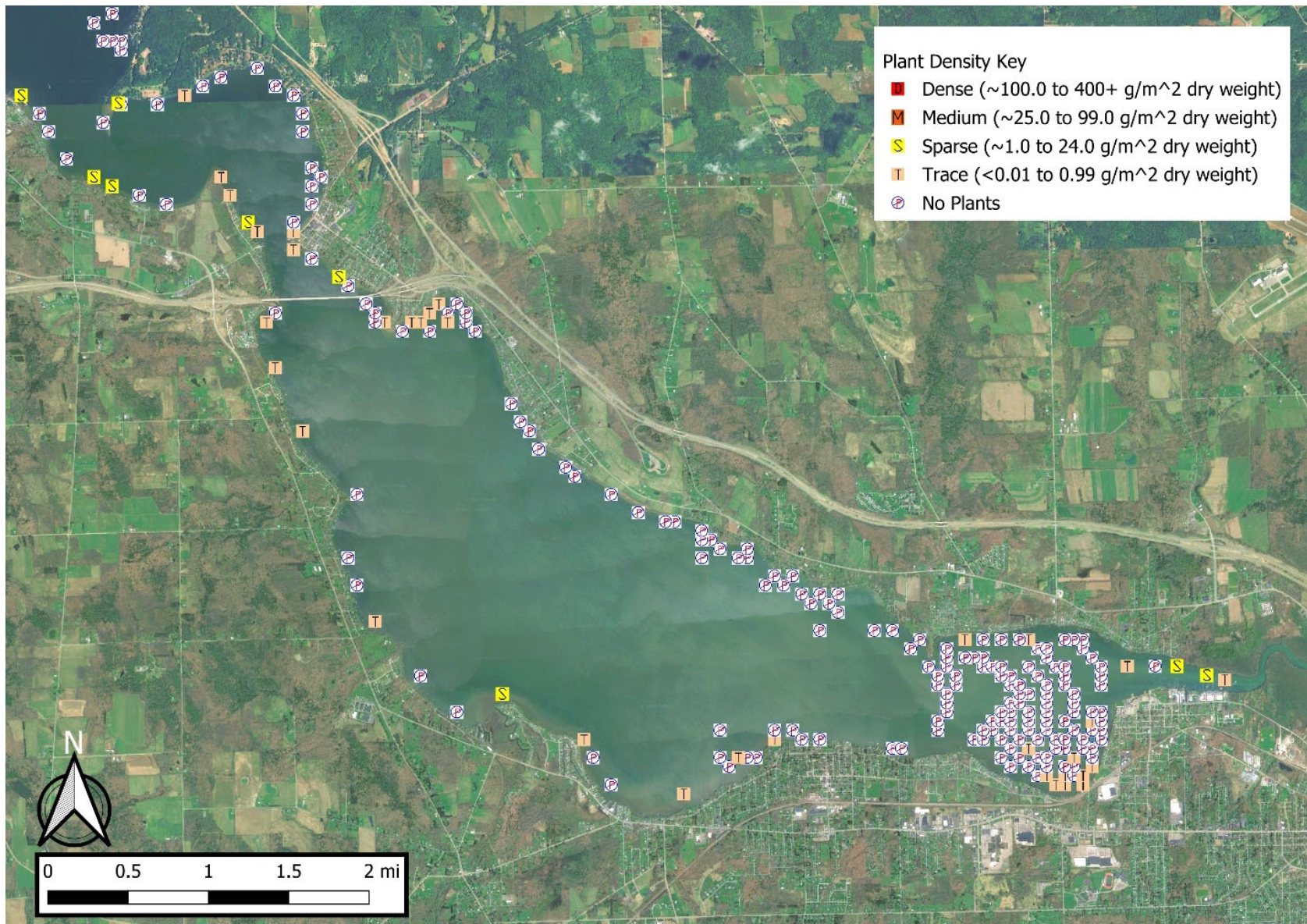


Figure A.62. Abundance of *Vallisneria americana* in the South Basin of Chautauqua Lake, 2025.

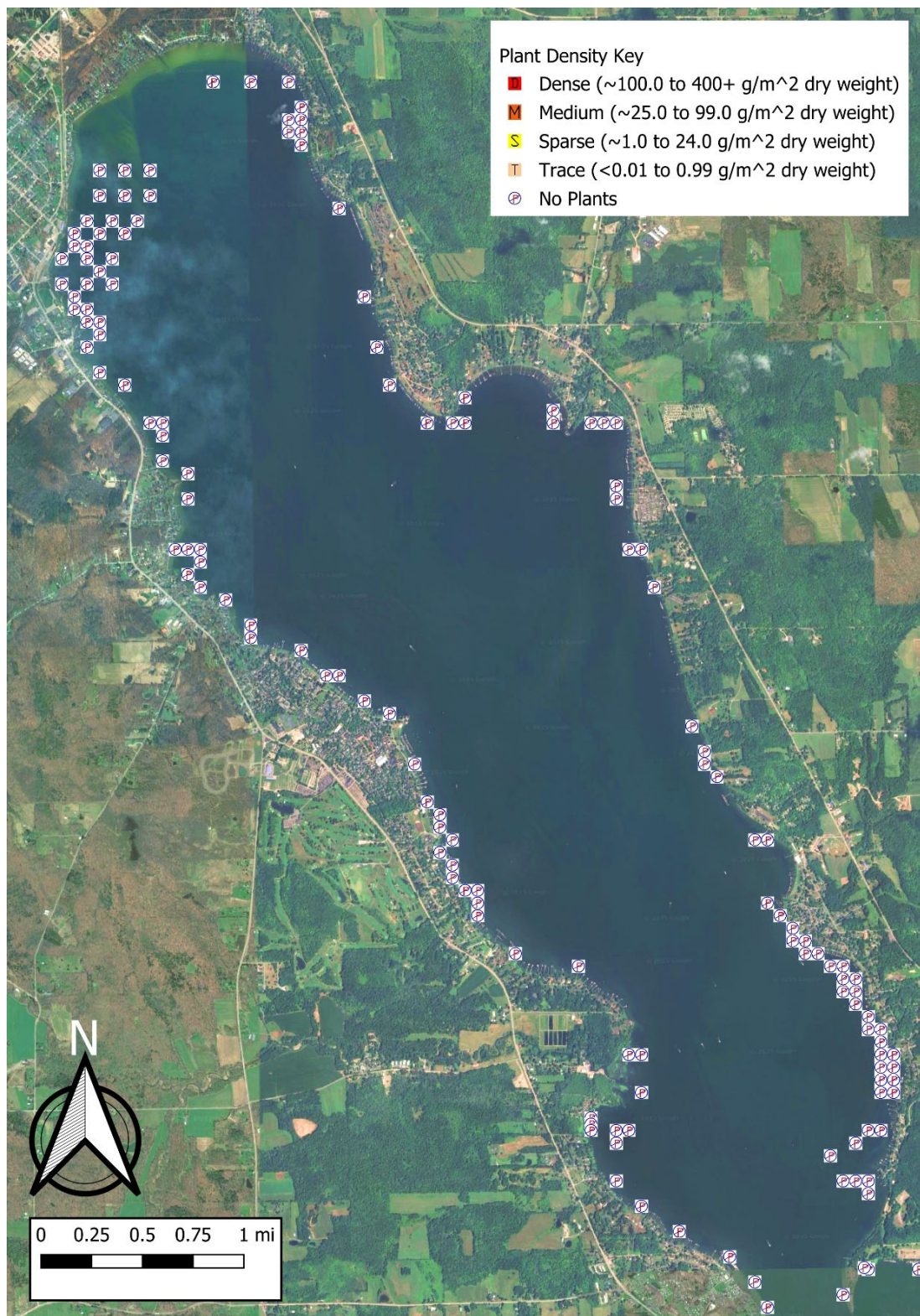


Figure A.63. Abundance of *Wolffia columbiana* in the North Basin of Chautauqua Lake, 2025.

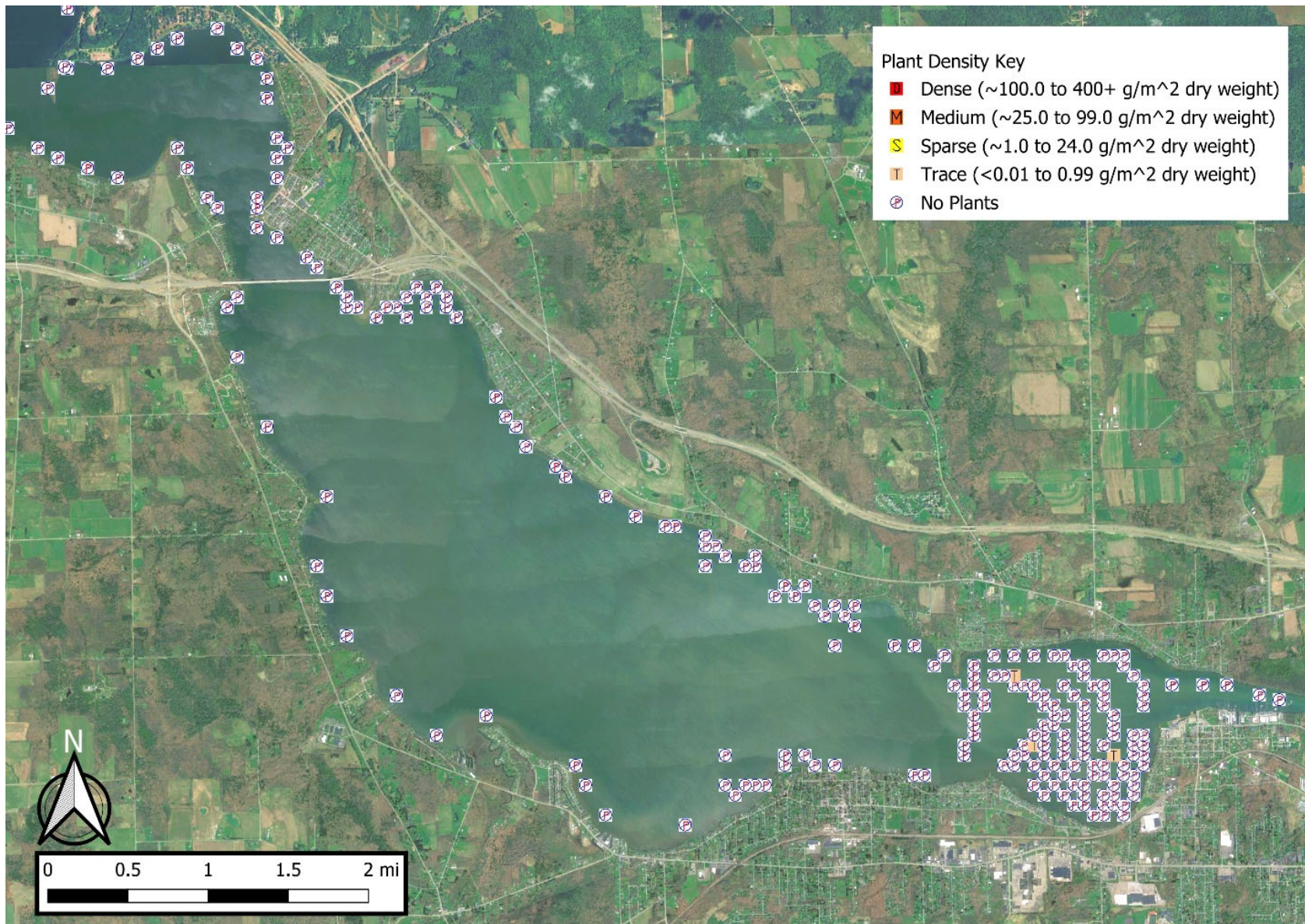


Figure A.64. Abundance of *Wolffia columbiana* in the South Basin of Chautauqua Lake, 2025

Appendix B: Data Sheet

Map ID #	Date Sampled in 2025	NAD27 X cord EAST Y/T	NAD27 Y cord NORTH	PIRTRAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitellopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosterifolius	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrrhiza	Struckonia pectinata	Valisneria americana	Wolffia columbiana
1	8/17	641200	4662300	1	M	3	99	0.01																											0.01	
1	8/17	641200	4662300	2	M	3	70	10						0.01	20																					0.01
2	8/17	641000	4662300	1	M	3	15	70							15																					0.01
2	8/17	641000	4662300	2	M	3	5	80							15																					
3	8/17	640900	4662300	1	M	3	3	96	0.01						1																				0.01	
3	8/17	640900	4662300	2	M	3	3	90	0.01						1																					0.01
4	8/17	640700	4662400	1	M	3	50	45						0.01	5																					
4	8/17	640700	4662400	2	M	3	30	60							10																					
5	8/17	640800	4662400	1	M	3	15	70						0.01	15																					
5	8/17	640800	4662400	2	M	3	15	65							20																					0.01
6	8/17	641000	4662400	1	S	2	65	23					2		10																					
6	8/17	641000	4662400	2	S	2	30	40					25		5																					0.01
7	8/17	641100	4662400	1	M	3	50	45							5																					
7	8/17	641100	4662400	2	M	3	50	45							5																					
8	8/17	641200	4662400	1	M	3	35	45						0.01	20																					
8	8/17	641200	4662400	2	M	3	30	30	0.01				0.01	40				0.01		0.01																0.01
9	8/17	641300	4662500	1	M	3	45	25	0.01				0.01	30																						
9	8/17	641300	4662500	2	M	3	50	15	0.01				0.01	35																						
10	8/17	641100	4662500	1	M	3	40	55	0.01				0.01	5																						0.01
10	8/17	641100	4662500	2	M	3	10	75					0.01	15																						
11	8/17	641000	4662500	1	M	3	15	70	0.01						15																					
11	8/17	641000	4662500	2	M	3	2	80	0.01				0.01	18																						
12	8/17	640800	4662500	1	S	2	85	10	0.01						5							0.01														
12	8/17	640800	4662500	2	S	2	35	40	0.01				0.01	25																						
13	8/17	640600	4662500	1	M	3	25	70							5																					
13	8/17	640600	4662500	2	M	3	20	65							15																					
14	8/17	640400	4662500	S	1	T	1	4	15						80							1														
14	8/17	640400	4662500	S	2	T	1	24	25				1		50																					
15	8/17	640300	4662600	1	S	2	5	90						0.01	5																					
15	8/17	640300	4662600	2	S	2	10	70						0.01	20							0.01														
16	8/17	640500	4662600	1	S	2	45	55							0.01																					
16	8/17	640500	4662600	S	2	T	1	15	55	25					4							1														
17	8/17	640700	4662600	S	1	T	1	70	20	2				1	5							2														
17	8/17	640700	4662600	2	T	1	20	70		1					2							2														
18	8/17	640800	4662600	1	S	2	0.01	40							60						0.01															
18	8/17	640800	4662600	2	S	2	20	75							5																					
19	8/17	641100	4662600	1	M	3	0.01	45							55																					
19	8/17	641100	4662600	2	M	3	5	70					0.01	0.01	25																					0.01
20	8/17	641300	4662600	1	M	3	20	50							30																					
20	8/17	641300	4662600	2	M	3	25	45							30																					
21	8/17	641300	4662700	1	M	3	60	35	0.01						5																					

Figure B.1. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRTRAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitellopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrhiza	Struckenia pectinata	Vallisneria spiralis	Wolffia columbiana	
21	8/17	641300	4662700	2	M	3			50		35		0.01			15																					
22	8/17	641200	4662700	1	M	3			0.01		20		0.01			80																					
22	8/17	641200	4662700	2	M	3			5		65		0.01			30					0.01																
23	8/17	641000	4662700	1	D	4					95					5																					
23	8/17	641000	4662700	2	D	4					99					1																					
24	8/17	640900	4662700	1	D	4					95		0.01		0.01	5																					
24	8/17	640900	4662700	2	D	4		0.01			80				0.01	20																					
25	8/17	640600	4662700	1	T	1					90					9						1															
25	8/17	640600	4662700	2	T	1		1			85					10						1														3	
26	8/17	640400	4662700	1	T	1					90											5															
26	8/17	640400	4662700	S	2	T	1		40		54				1	5						5															
27	8/17	640000	4662800	1	S	2			30		5				0.01	65																					
27	8/17	640000	4662800	2	S	2			5		10				0.01	85																					
28	8/17	640100	4662800	1	T	1			15		20					65																					
28	8/17	640100	4662800	2	T	1			10		80					10																					
29	8/17	640300	4662800	1	S	2			70		25				0.01	5						0.01															
29	8/17	640300	4662800	2	M	3			35		25		0.01		0.01	40						0.01															
30	8/17	640500	4662800	1	D	4			25		38				0.01	37																					
30	8/17	640500	4662800	2	D	4			25		30				0.01	45																					
31	8/17	640700	4662800	1	D	4		0.01		30			0.01	0.01		70																		0.01			
31	8/17	640700	4662800	2	D	4		0.01		90						10																					
32	8/17	640900	4662800	1	S	2		0.01		15						85																					
32	8/17	640900	4662800	2	M	3		5		65		0.01				30																					
33	8/17	641000	4662800	1	D	4					99		0.01			1																					
33	8/17	641000	4662800	2	D	4			8		90		0.01			2																					
34	8/17	641200	4662800	1	M	3			25		70		0.01			5																					
34	8/17	641200	4662800	2	M	3			25		60		0.01			15		0.01																			
35	8/17	641400	4662800	1	M	3			45		5					45																					
35	8/17	641400	4662800	2	M	3			35		5		10			50					0.01																
36	8/17	641400	4662900	1	M	3			10		80		5			5		0.01																			
36	8/17	641400	4662900	2	M	3			25		70		0.01			5																					
37	8/17	641300	4662900	1	M	3			10		30		0.01			60																					
37	8/17	641300	4662900	2	M	3			25		65		0.01			10																					
38	8/17	641100	4662900	1	D	4			5		80		0.01	0.01	0.01	15																		0.01		0.01	
38	8/17	641100	4662900	2	D	4			5		70		0.01	0.01	0.01	25																		0.01		0.01	
39	8/17	640800	4662900	1	D	4					50					50																					
39	8/17	640800	4662900	2	D	4			20		50					30																					
40	8/17	640600	4662900	1	D	4			5		55				0.01	40																					
40	8/17	640600	4662900	2	D	4			1		34				0.01	65																					
41	8/17	640400	4662900	1	S	2			5		65				0.01	30																					
41	8/17	640400	4662900	2	S	2			80		15					5																					

Figure B.2. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRTRAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas gracilipensis	Najas minor	Nitella flexilis	Nitellopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrhiza	Stuckenia pectinata	Vallisneria americana	Wolffia columbiana	
42	8/17	640200	4662900	1	S	2			98		2		0.01			0.01																					
42	8/17	640200	4662900	2	M	3			45		20					35																					
43	8/17	640100	4662900	1	T	1					1					99																					
43	8/17	640100	4662900	2	S	2		0.01		0.01					0.01	100																					
44	8/16	639600	4662900	1	M	3		5		0.01					0.01	95		0.01																			
44	8/16	639600	4662900	2	M	3		25		5		0.01			0.01	70						0.01															
45	8/16	639600	4663000	1	T	1		30			5					70																					
45	8/16	639600	4663000	2	T	1					5					95																					
46	8/17	640200	4663000	1	S	2		1		1					0.01	98																					
46	8/17	640200	4663000	2	S	2		5		0.01						95																					
47	8/17	640300	4663000	1	M	3		0.01		5				0.01		95																		0.01		0.01	
47	8/17	640300	4663000	2	M	3		1		0.01				0.01		99																		0.01		0.01	
48	8/17	640400	4663000	1	D	4		1		4					0.01	95																					
48	8/17	640400	4663000	2	D	4		5		35						60																					
49	8/17	640600	4663000	1	M	3		15		55						30																					
49	8/17	640600	4663000	2	M	3		5		70						25																					
50	8/17	640800	4663000	1	M	3		0.01		85						15																					
50	8/17	640800	4663000	2	S	2				10					0.01	90																					
51	8/17	641000	4663000	1	M	3		20		75					0.01	5						0.01															
51	8/17	641000	4663000	2	M	3		0.01		90		0.01				10						0.01															
52	8/17	641300	4663000	1	M	3		10		70						20																				0.01	
52	8/17	641300	4663000	2	M	3		5		90		0.01				5																					
53	8/17	641400	4663000	1	M	3		2		93						5																					
53	8/17	641400	4663000	2	M	3		1		95						4																					
54	8/17	641400	4663100	1	M	3		5		95		0.01				0.01			0.01																		
54	8/17	641400	4663100	2	M	3		3		95						2			0.01																		
55	8/17	641300	4663100	1	D	4		1		95						4																					
55	8/17	641300	4663100	2	M	3		0.01		98						2																					
56	8/17	641100	4663100	1	M	3		0.01		100						0.01																					
56	8/17	641100	4663100	2	M	3		2		95						3																					
57	8/16	640800	4663100	1	D	4		0.01		45						55																					
57	8/16	640800	4663100	2	D	4		0.01		60						40																					
58	8/16	640600	4663100	1	D	4		30		30					0.01	40																					
58	8/16	640600	4663100	2	D	4		5		70					0.01	25																					
59	8/16	640400	4663100	1	M	3		2		60					0.01	38																					
59	8/16	640400	4663100	2	D	4		5		50					0.01	45																					
60	8/16	640300	4663100	1	M	3				45						55																					
60	8/16	640300	4663100	2	D	4		0.01		70						30																					
61	8/16	639700	4663100	1	T	1				99						1																					
61	8/16	639700	4663100	2	T	1		1								99																					
62	8/16	639700	4663200	1	T	1										100																					

Figure B.3. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRTRAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitelopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrhiza	Stuckenia pectinata	Vallisneria americana	Wolffia columbiana
62	8/16	639700	4663200	S	2	T	1				1					99																				
63	8/16	640400	4663200		1	D	4		5		50					45																				
63	8/16	640400	4663200		2	M	3		25		60					15																				
64	8/16	640500	4663200		1	D	4		5		60					35																				
64	8/16	640500	4663200		2	D	4		0.01		70					30																				
65	8/16	640800	4663200		1	M	3		1		80					19																				
65	8/16	640800	4663200		2	M	3		5		80					15																				
66	8/16	641100	4663200		1	D	4		0.01		99					1																				
66	8/16	641100	4663200		2	M	3		0.01		100					0.01						0.01														
67	8/16	641100	4663300		1	D	4		0.01		95					5																				
67	8/16	641100	4663300		2	M	3				95					5																				
68	8/16	640800	4663300		1	D	4		0.01		90					10																				
68	8/16	640800	4663300		2	D	4				70					30																				
69	8/16	640600	4663300		1	M	3		5		60					35																				
69	8/16	640600	4663300		2	M	3		5		55			0.01		40																				
70	8/16	640500	4663300		1	M	3		5		30					65																				
70	8/16	640500	4663300		2	M	3		2		60	0.01		0.01		38																				
71	8/16	639700	4663300		1	M	3				0.01					100																				
71	8/16	639700	4663300		2	S	2		25		5					70																				
72	8/16	639600	4663400		1	S	2		5		55			0.01		40											0.01									
72	8/16	639600	4663400		2	S	2		10		15			0.01		75											0.01									
73	8/16	639800	4663400		1	M	3		2		0.01					98																				
73	8/16	639800	4663400		2	M	3		1		0.01					99																				
74	8/16	640400	4663400		1	D	4		15		5					80																				
74	8/16	640400	4663400		2	M	3		20		60					20																				
75	8/16	640500	4663400		1	M	3		0.01		10			0.01		90																				
75	8/16	640500	4663400		2	M	3		30		0.01			0.01		70																				
76	8/16	640800	4663400		1	D	4				100					0.01																				
76	8/16	640800	4663400		2	M	3		5		70	0.01				25																				
77	8/16	641000	4663400		1	M	3		5		95					0.01																				
77	8/16	641000	4663400		2	M	3		2		98					0.01																				
78	8/16	641400	4663400		1	T	1		40		59																									
78	8/16	641400	4663400		2	T	1		9		75					15																				
79	8/16	641400	4663500	S	1	T	1		4		30					35																			30	
79	8/16	641400	4663500	S	2	T	1		5		35					35																			25	
80	8/16	641000	4663500		1	T	1		5		40					50																				
80	8/16	641000	4663500		2	T	1		90		3					2																				
81	8/16	640700	4663500		1	M	3		90		3					7																				
81	8/16	640700	4663500		2	M	3		60		5					35																				
82	8/16	640400	4663500		1	S	2		35		5					60																				
82	8/16	640400	4663500		2	S	2		75		10					15																				

Figure B.4. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRTRAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitellopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbianii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrhiza	Stuckenia pectinata	Vallisneria americana	Wolffia columbiana	
83	8/16	640300	4663500	1	T	1			35		30					35																					
83	8/16	640300	4663500	2	S	2			5		5					90																					
84	8/16	639800	4663500	1	T	1			80		20																										
84	8/16	639800	4663500	2	T	1			15		60		5			20																					
85	8/16	639600	4663500	1	T	1			54		45	1																									
85	8/16	639600	4663500	2	S	2			30		70				0.01	0.01																					
86	8/16	639500	4663600	1	O	0																															
86	8/16	639500	4663600	2	T	1			50		50																										
87	8/16	639700	4663600	1	O	0																															
87	8/16	639700	4663600	2	T	1			20		80																										
88	8/16	640100	4663600	1	O	0																															
88	8/16	640100	4663600	2	S	2			95		3					2																					
89	8/16	640200	4663600	1	S	2			5		15					80																					
89	8/16	640200	4663600	2	M	3			2							98																					
90	8/16	640300	4663600	1	M	3			10		0.01					90																					
90	8/16	640300	4663600	2	M	3			10		0.01					90																					
91	8/16	640600	4663600	1	M	3			50		15			0.01	35																						
91	8/16	640600	4663600	2	M	3			15		5					80																					
92	8/16	640900	4663600	1	T	1			50		40					10																					
92	8/16	640900	4663600	2	T	1			9		40					50						1															
93	8/16	641000	4663600	1	T	1			4		65											30					1										
93	8/16	641000	4663600	2	T	1			25		60					5						10															
94	8/16	641400	4663600	1	T	1					99																1										
94	8/16	641400	4663600	S	2	T	1				19					80										1											
95	8/16	641300	4663700	S	1	T	1				98					2																					
95	8/16	641300	4663700	2	S	2			20		55					25																					
96	8/16	640800	4663700	1	M	3			5		60					35											0.01										
96	8/16	640800	4663700	2	M	3			5		65					30																					
97	8/16	640100	4663700	1	M	3			1		60		0.01	0.01	39																					0.01	
97	8/16	640100	4663700	2	M	3			5		50		0.01	0.01	45																					0.01	
98	8/16	640000	4663700	1	S	2			40		10					50																					
98	8/16	640000	4663700	2	M	3			10		5					85																					
99	8/16	639900	4663700	1	S	2			0.01		10					90																					
99	8/16	639900	4663700	2	S	2			95		5					0.01																					
100	8/16	639700	4663700	S	1	T	1		80		18			1																							
100	8/16	639700	4663700	2	T	1			15		80					5																					
101	8/16	639700	4663800	1	M	3			50		50			0.01	0.01																						
101	8/16	639700	4663800	2	M	3			20		80			0.01	0.01																						
102	8/16	640700	4663800	1	M	3			40		40	0.01				20																					
102	8/16	640700	4663800	2	M	3			45		45					10																					
103	8/16	640800	4663800	1	D	4			5		80					15																					

Figure B.5. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRIRAM Rating	Rate tows #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Eelodea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitellopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrhiza	Stuckenia pectinata	Valisneria americana	Wolffia columbiana	
103	8/16	640800	4663800		2	M	3		5		85					10																					
104	8/16	641200	4663900		1	M	3		0.01		95					5																					
104	8/16	641200	4663800		2	M	3				99					1																					
105	8/16	641200	4663900		1	M	3		0.01		80					20																					
105	8/16	641200	4663900		2	M	3		1		80		0.01			19					0.01						0.01										
106	8/16	641100	4663900		1	M	3				90		1			9																					
106	8/16	641100	4663900		2	M	3		1		90		7			2																					
107	8/16	641000	4663900		1	M	3		0.01		95		0.01			5																					
107	8/16	641000	4663900		2	M	3		0.01		95		0.01	0.01		5																					
108	8/16	640600	4663900		1	M	3		5		75		5			15																					
108	8/16	640600	4663900		2	M	3		5		65		5			25											0.01									0.01	
109	8/16	640500	4663900		1	M	3		9		65		1			25																					
109	8/16	640500	4663900		2	M	3		1		95		0.01			4					0.01																
110	8/16	640300	4663900		1	M	3		2		90					8																					
110	8/16	640300	4663900		2	M	3		10		80					10																					
111	8/16	640100	4663900		1	M	3		1		75					24																					
111	8/16	640100	4663900		2	M	3		10		90					0.01																					
112	8/16	639900	4663900		1	M	3		9		90					1																					
112	8/16	639900	4663900		2	M	3		2		95		0.01			3																				0.01	
113	8/17	639400	4663900		1	S	2		15		80					5																					
113	8/17	639400	4663900		2	M	3		3		95					2																					
114	8/17	639300	4663800		1	S	2		40		40					20																					
114	8/17	639300	4663800		2	S	2		45		40					15																					
115	8/17	639100	4664000		1	M	3		1		4					95																					
115	8/17	639100	4664000		2	M	3		0.01		10					90																					
116	8/17	638900	4664000		1	S	2		2		95					3																					
116	8/17	638900	4664000		2	S	2		40		50					10																					
117	8/17	638300	4664000		1	T	1				100																										
117	8/17	638300	4664000		2	T	1		10		80		1			4	5																				
118	8/17	638500	4664200		1	T	1				100																										
118	8/17	638500	4664200		2	O	0																														
119	8/17	638400	4664300		1	O	0																														
119	8/17	638400	4664300		2	O	0																														
120	8/17	638500	4664400		1	S	2		85		10					5																					
120	8/17	638500	4664400	S	2	T	1		30		40					30																					
121	8/17	638300	4664400		1	S	2		5		10					85																					
121	8/17	638300	4664400		2	S	2		1		19					80					0.01																
122	8/17	638200	4664300		1	O	0																														
122	8/17	638200	4664300		2	O	0																														
123	8/17	638100	4664400		1	O	0																														
123	8/17	638100	4664400		2	O	0																														

Figure B.6. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRIRAM Rating	Rate tows #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Eloidea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitellopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrhiza	Stuckenia pectinata	Valisneria americana	Wolffia columbiana	
124	8/17	638000	4664600		1	M	3				2					98																					
124	8/17	638000	4664600		2	M	3				5					95																					
125	8/18	637900	4664500		1	O	0																														
125	8/18	637900	4664500		2	O	0																														
126	8/18	637800	4664600	S	1	T	1				39					60						1															
126	8/18	637800	4664600		2	S	2		15		15					70						0.01															
127	8/18	637700	4664500		1	O	0																														
127	8/18	637700	4664500		2	T	1				100																										
128	8/18	637500	4664800		1	O	0																														
128	8/18	637500	4664800		2	T	1				100																										
129	8/18	637500	4664900		1	S	2		10		0.01				0.01	90																					
129	8/18	637500	4664900		2	S	2				1				0.01	99																					
130	8/18	637400	4664800		1	T	1				100																										
130	8/18	637400	4664800		2	T	1				100																										
131	8/18	637200	4664900		1	S	2		1		99																										
131	8/18	637200	4664900		2	S	2		90		9											1															
132	8/18	637000	4664800		1	T	1									100																					
132	8/18	637000	4664800		2	T	1		40		60																										
133	8/18	637100	4665000		1	T	1				95					4						1															
133	8/18	637100	4665000		2	T	1				50											50															
134	8/18	637000	4665000		1	T	1															100															
134	8/18	637000	4665000		2	O	0																														
135	8/18	637000	4665100		1	T	1				100																										
135	8/18	637000	4665100		2	T	1		5		90											5															
136	8/18	636700	4665200		1	T	1		20		35											45															
136	8/18	636700	4665200		2	T	1		35		29			1								35															
137	8/18	636600	4665200		1	T	1				90											10															
137	8/18	636600	4665200		2	T	1				85											15															
138	8/18	636300	4665300		1	T	1				100																										
138	8/18	636300	4665300		2	T	1				100																										
139	8/18	636000	4665500		1	T	1		8		89			1								2															
139	8/18	636000	4665500		2	T	1				95											5															
140	8/18	635600	4665700		1	T	1				100																										
140	8/18	635600	4665700		2	T	1				95											5															
141	8/18	635500	4665800		1	O	0																														
141	8/18	635500	4665800		2	O	0																														
142	8/18	635200	4666000		1	T	1															100															
142	8/18	635200	4666000		2	O	0																														
143	8/18	635100	4666200		1	S	2				100					0.01																					
143	8/18	635100	4666200		2	S	2		1		99					0.01						0.01															
144	8/18	635000	4666300		1	T	1				100																										

Figure B.7. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRTRAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Eloidea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitelopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrrhiza	Stuckenia pectinata	Vallisneria americana	Wolffia columbiana
144	8/18	635000	4666300	2	T	1					100					3						0.01														
145	8/18	634900	4666500	1	S	2			2		95					15						0.01														
145	8/18	634900	4666500	2	S	2			10		75					0.01		0.01																		
146	8/11	634500	4667300	1	M	3			100		0.01				0.01	0.01		0.01																		
146	8/11	634500	4667300	2	M	3			90		5				0.01	5																				
147	8/11	634400	4667400	1	M	3			10		90					0.01		0.01																		
147	8/11	634400	4667400	2	M	3			20		80					0.01						0.01														
148	8/11	634400	4667500	1	M	3			70		20				0.01	10																				
148	8/11	634400	4667500	2	M	3			75		22		0.01		0.01	3		0.01																		
149	8/11	634300	4667600	1	M	3			48		45		2		0.01	5		0.01																		
149	8/11	634300	4667600	2	M	3			55		40		0.01		0.01	5		0.01									0.01									
150	8/11	634100	4667600	1	M	3			60		40		0.01		0.01	0.01																				0.01
150	8/11	634100	4667600	2	M	3			45		55				0.01	0.01																				
151	8/11	634000	4667500	1	M	3			70		20				0.01	10																				0.01
151	8/11	634000	4667500	2	M	3			70		25				0.01	5																				
152	8/11	634200	4667500	1	M	3			20		70					10																				
152	8/11	634200	4667500	2	M	3			35		50					15																				
153	8/11	634200	4667400	1	M	3			70		5					25																				
153	8/11	634200	4667400	2	M	3			90		1				0.01	9																				0.01
154	8/11	634000	4667300	1	S	2			2		68					30		0.01				0.01														
154	8/11	634000	4667300	2	S	2			20		45					35																				
155	8/11	633900	4667400	1	S	2			5		10		20		0.01	50																				15
155	8/11	633900	4667400	2	M	3			37		15		10		0.01	39					0.01															
156	8/11	633800	4667400	1	M	3		0.01	55		35				0.01	10																				
156	8/11	633800	4667400	2	M	3		1	50		40					9																				0.01
157	8/11	633700	4667300	1	S	2			20							80																				
157	8/11	633700	4667300	2	M	3			65		0.01		5		0.01	30																				
158	8/11	633500	4667400	1	M	3			9		90		0.01		0.01	0.01																				1
158	8/11	633500	4667400	2	S	2		0.01	98						0.01	2		0.01																		
159	8/11	633400	4667400	1	T	1			100																											
159	8/11	633400	4667400	2	O	0																														
160	8/11	633400	4667500	1	M	3			10		0.01					90																				
160	8/11	633400	4667500	2	M	3			10		0.01					90																				
161	8/11	633300	4667600	1	M	3			50		0.01				0.01	50																				
161	8/11	633300	4667600	2	M	3			60		0.01					40																				
162	8/11	633100	4667800	1	M	3			65		5		0.01		0.01	30																				
162	8/11	633100	4667800	2	M	3			70		5		0.01		0.01	25																				
163	8/11	633000	4667900	1	M	3			60		25		3			5										5										2
163	8/11	633000	4667900	2	M	3			55		25		10		0.01	5										1										4
164	8/11	632700	4668100	1	S	2			85		10		3			2																				
164	8/11	632700	4668100	2	S	2			85		10		2			3					0.01						0.01									

Figure B.8. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRTRAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas gracilirepens	Najas minor	Nitella flexilis	Nitellopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton prelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polytriza	Stuckenia pectinata	Vallisneria americana	Wolffia columbiana		
165	8/11	632500	4668200	1	M	3		0.01		90		9						1																				
165	8/11	632500	4668200	2	M	3		0.01		75		23				0.01		0.01				0.01		0.01			2								0.01			
166	8/11	632500	4668400	1	T	1				60												40																
166	8/11	632500	4668400	2	T	1		1		89												5													5			
167	8/11	632500	4668500	1	T	1				100																												
167	8/11	632500	4668500	2	O	0																																
168	8/11	632700	4668700	1	T	1				90												10																
168	8/11	632700	4668700	2	T	1				99												1																
169	8/11	632700	4668900	1	T	1				95												5																
169	8/11	632700	4668900	2	T	1				90												10																
170	8/11	632800	4669000	1	T	1				89								1				5			5													
170	8/11	632800	4669000	2	T	1		5		80												15																
171	8/11	632700	4669100	1	O	0																																
171	8/11	632700	4669100	2	O	0																																
172	8/11	632600	4669500	1	T	1		84		5				1								10																
172	8/11	632600	4669500	2	T	1		90		10																												
173	8/11	632600	4669700	1	M	3				100																												
173	8/11	632600	4669700	2	M	3		5		95																												
174	8/11	632500	4669900	1	T	1		99		1																												
174	8/11	632500	4669900	2	M	3		90		10																												
175	8/11	632300	4670000	1	T	1				99												1																
175	8/11	632300	4670000	2	T	1		14		85				1																								
176	8/11	632100	4670200	1	T	1				20												80																
176	8/11	632100	4670200	2	S	2		40		60																												
177	8/11	631700	4670100	1	S	2		100		0.01						0.01																						
177	8/11	631700	4670100	2	T	1		100																														
178	8/11	631500	4670000	1	M	3				3		95				2																						
178	8/11	631500	4670000	2	M	3				18		80				2																						
179	8/11	631300	4669900	1	S	2		50		15		0.01				25		7				0.01													3			
179	8/11	631300	4669900	2	S	2		5		45		10				40																						
180	8/11	631000	4669800	1	T	1				100																												
180	8/11	631000	4669800	2	T	1		100																														
181	8/11	630600	4669800	1	S	2		95		4															0.01					1								
181	8/11	630600	4669800	2	S	2		20		60		1				19																						
182	8/11	630568	4669814	1	S	2		5		80				0.01		1		4									0.01									10		
182	8/11	630568	4669814	2	S	2		35		15		0.01				15		0.01								0.01	0.01									35		
183	8/11	630400	4669600	1	O	0																																
183	8/11	630400	4669600	2	T	1				20						5		60								15												
184	8/11	630600	4670400	1	M	3										45						0.01				55	0.01											
184	8/11	630600	4670400	2	M	3		5				0.01				15									80	0.01												
185	8/11	630600	4670500	1	M	3						2		0.01		72		15					0.01			1	10											

Figure B.9. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled In 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRTRAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitellopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrhiza	Stuckenia pectinata	Vallisneria americana	Wolffia columbiana
185	8/11	630600	4670500	2	M	3							0.01		0.01	75	20				0.01					5										
186	8/11	630500	4670500	1	S	2							3		0.01	65	30									2										
186	8/11	630500	4670500	2	S	2							39			60	1									0.01										
187	8/11	630400	4670500	1	O	0																														
187	8/11	630400	4670500	2	O	0																														
188	8/11	630300	4670700	1	T	1							90														10									
188	8/11	630300	4670700	2	T	1							10			80										10										
189	8/11	630500	4670800	1	O	0																														
189	8/11	630500	4670800	2	O	0																														
190	8/11	630600	4670900	1	T	1					19		70		1	10																				
190	8/11	630600	4670900	2	T	1					2		98																							
191	8/11	630700	4670900	1	S	2							70			5										3	20									2
191	8/11	630700	4670900	2	S	2							15			40	7									1	35									2
192	8/11	630800	4671200	1	M	3		5			10		0.01		0.01	10										75	0.01									
192	8/11	630800	4671200	2	M	3		1			25		0.01		0.01	14	0.01									60	0.01									
193	8/11	630700	4671200	1	T	1									1												99									
193	8/11	630700	4671200	2	T	1					50					2		47									1									
194	8/11	630700	4671300	1	T	1					50				1	28	20										1									
194	8/11	630700	4671300	2	O	0																														
195	8/11	630800	4671300	1	M	3		1			7		0.01			2										90	0.01				0.01					
195	8/11	630800	4671300	2	M	3		10			20		0.01		0.01	5	0.01									65	0.01				0.01	0.01				0.01
196	8/11	630800	4671400	1	M	3					5		25			10										55	0.01									5
196	8/11	630800	4671400	2	M	3		20					10													60	0.01									
197	8/11	630700	4671400	1	T	1									100																					
197	8/11	630700	4671400	2	T	1					40															60										
198	8/11	630700	4671500	1	O	0																														
198	8/11	630700	4671500	2	O	0																														
199	8/11	630800	4671500	1	M	3					1		0.01		0.01	15	7									75	1									1
199	8/11	630800	4671500	2	M	3					0.01		0.01		0.01	20	30									45	0.01									5
200	8/11	630700	4671600	1	M	3		2			40		25		0.01	12	0.01	1								20										0.01
200	8/11	630700	4671600	2	M	3		1			65		10		0.01	20										4	0.01									0.01
201	8/11	630700	4671700	1	M	3					2		65			3		0.01								20										10
201	8/11	630700	4671700	2	M	3					15		55		0.01	15	0.01	0.01								10	0.01									5
202	8/11	630600	4671700	1	O	0																														
202	8/11	630600	4671700	2	O	0																														
203	8/11	630600	4671800	1	M	3		85			2				0.01	10										3					0.01					
203	8/11	630600	4671800	2	M	3		15			65				0.01	15										5	0.01									
204	8/11	630500	4671900	1	M	3		95								1										4										
204	8/11	630500	4671900	2	M	3		90								0.01										10										0.01
205	8/11	630500	4672000	1	T	1									1	95																				
205	8/11	630500	4672000	S	2	T	1	14								85																				

Figure B.10. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRIRAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Eloidea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitelopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrhiza	Stuckenia pectinata	Valisneria americana	Wolffia columbiana	
206	8/10	630400	4672000	1	O	0																															
206	8/10	630400	4672000	2	T	1								10			90																				
207	8/10	630400	4672100	1	O	0																															
207	8/10	630400	4672100	2	T	1		75							1	15						15															
208	8/10	630500	4672100	1	M	3		15			35		2	0.01	3											5	0.01				5					35	
208	8/10	630500	4672100	2	M	3		15			65		2	0.01	0.01							15				3	0.01				5					10	
209	8/10	630400	4672200	1	S	2		1			10					2										35					22					30	
209	8/10	630400	4672200	2	S	2					20			0.01	1										45					9					25		
210	8/10	630300	4672200	1	M	3		13			2					0.01																			85		
210	8/10	630300	4672200	2	M	3		10			5		0.01	0.01		0.01										0.01				0.01					85		
211	8/10	630200	4672300	1	M	3		2			15					0.01										0.01					0.01				75	8	
211	8/10	630200	4672300	2	M	3		5			10					0.01										0.01				0.01					85	0.01	
212	8/10	630100	4672300	1	T	1						89						10									1										
212	8/10	630100	4672300	2	T	1						100																									
213	8/10	630100	4672400	1	M	3																				40	10									50	
213	8/10	630100	4672400	2	M	3										2	0.01									40	8									50	
214	8/10	630000	4672400	1	M	3		2			60		3													32	0.01									3	
214	8/10	630000	4672400	2	M	3		1			60		1	0.01			0.01									38	0.01										
215	8/10	630000	4672500	1	M	3		3			2		0.01			0.01		2								0.01									93		
215	8/10	630000	4672500	2	M	3					0.01		0.01	0.01		0.01	1	0.01								0.01											
216	8/10	629900	4672600	1	O	0																															
216	8/10	629900	4672600	2	O	0																															
217	8/10	629800	4672700	1	O	0																															
217	8/10	629800	4672700	2	O	0																															
218	8/10	629800	4673200	1	M	3							35			8		2									50									5	
218	8/10	629800	4673200	2	M	3						50				10	0.01	2								35	0.01									3	
219	8/10	629700	4673200	1	S	2					50		15			15		15								3	2										
219	8/10	629700	4673200	2	M	3					35		15			30		10								5				5							
220	8/10	629400	4673700	1	S	2						60				3		0.01								32	3									2	
220	8/10	629400	4673700	S	2	T	1					50		1		25																				24	
221	8/10	629300	4673800	1	M	3					0.01		93			2		0.01								5	0.01										
221	8/10	629300	4673800	2	S	2		13			35		50	0.01		2		0.01									0.01										
222	8/10	629300	4673900	1	S	2						98				2																					
222	8/10	629300	4673900	2	S	2					10		40			0.01										50											
223	8/10	629200	4674100	1	S	2					35		50			10										5											
223	8/10	629200	4674100	2	M	3					0.01		35			5										60											
224	8/10	628900	4675200	1	S	2						40				0.01	35	14							10	1											
224	8/10	628900	4675200	2	S	2					10		60			1	20	0.01							9	0.01											
225	8/10	628800	4675500	S	1	T	1					5					75	5								5										10	
225	8/10	628800	4675500	S	2	T	1	15				5					50	15								5										10	
226	8/10	628700	4675500	1	S	2					1		10			9	20	55								5											

Figure B.11. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRIRAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitellopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrhiza	Stuckenia pectinata	Valisneria americana	Wolffia columbiana		
226	8/10	628700	4675500	2	S	2	0.01	1			0.01		25		0.01	15	12	15								2	30											
227	8/10	628600	4675900	1	M	3		1			99		0.01			0.01	0.01	0.01								0.01												
227	8/10	628600	4675900	2	S	2		0.01			90				0.01	10		0.01																				
228	8/10	628600	4676000	1	M	3		2			60		0.01			1										37	0.01											
228	8/10	628600	4676000	2	M	3					20					0.01										80	0.01											
229	8/10	628600	4676500	1	M	3		13			70		15		1	0.01										1					0.01					0.01		
229	8/10	628600	4676500	2	M	3		9			90		1		0.01																0.01					0.01		
230	8/10	628500	4676500	1	M	3		60			25				0.01	0.01											0.01					1				14		
230	8/10	628500	4676500	2	M	3		25			50				0.01	0.01										2				8					15			
231	8/10	628400	4676500	1	S	2		20					45		0.01		10	2								5	0.01							3		15		
231	8/10	628400	4676500	2	S	2					60		1		0.01	10	0.01	4									0.01							5		20		
232	8/10	628100	4676500	1	M	3		15			0.01				0.01	0.01										70	0.01				15				0.01			
232	8/10	628100	4676500	2	M	3		5			10					10										55	0.01				10				10			
233	8/10	628100	4676600	1	M	3					50		50		0.01	0.01														0.01								
233	8/10	628100	4676600	2	M	3					50		50		0.01			0.01																				
234	8/10	627400	4676700	1	T	1							100																									
234	8/10	627400	4676700	2	S	2					45		20			35												0.01										
235	8/10	627400	4676500	1	M	3		23			50		0.01			25										0.01	0.01				2							
235	8/10	627400	4676500	2	M	3		50			40					8										2				0.01								
236	8/10	627300	4676500	1	S	2					5		60			15										15	5											
236	8/10	627300	4676500	2	M	3					1		99		0.01												0.01											
237	8/10	627100	4676500	1	M	3					4					1										95	0.01											
237	8/10	627100	4676500	2	M	3					40				0.01											60	0.01											
238	8/10	626800	4676800	1	M	3					5		0.01													95				0.01								
238	8/10	626800	4676800	2	M	3		0.01			5		0.01					0.01								95	0.01			0.01								
239	8/10	626700	4677100	1	O	0																																
239	8/10	626700	4677100	2	T	1		100																														
240	8/10	626600	4677500	1	S	2					99					1												0.01										
240	8/10	626600	4677500	2	S	2		33			65					0.01										2	0.01											
241	8/10	626400	4678200	1	M	3		1			65		14			0.01											20											
241	8/10	626400	4678200	2	M	3		0.01			45		40			0.01											15											
242	8/10	626100	4678700	1	M	3		43			42		0.01		0.01												14				1							
242	8/10	626100	4678700	2	M	3		50			30		0.01			1										10	0.01				7				2			
243	8/10	626100	4678800	1	M	3		55			15		3					0.01								25	0.01				2							
243	8/10	626100	4678800	2	M	3		50			20				0.01	0.01		0.01																				
244	8/10	626000	4678800	1	M	3		50			50					0.01										28					2							
244	8/10	626000	4678800	2	M	3		9			90				0.01											0.01					1							
245	8/10	626000	4678900	1	M	3		3			95				0.01	0.01															2							
245	8/10	626000	4678900	2	M	3		65			34				0.01	0.01											0.01				1							
246	8/10	626100	4678900	1	M	3		25			30		0.01		0.01	10		0.01								25	0.01			0.01						10		
246	8/10	626100	4678900	2	M	3		10			45		5		0.01	0.01		5								35										0.01		

Figure B.12. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRTAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitellopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrrhiza	Stuckenia pectinata	Valisneria americana	Wolffia columbiana		
247	8/10	626100	4679000	1	M	3		50			20		2		3	5	0.01									13	0.01				2					5		
247	8/10	626100	4679000	2	M	3		25			25				5	0.01		3								20	0.01				20					2		
248	8/10	626000	4679200	1	M	3		60			30		2		0.01	0.01		0.01								8	0.01									0.01		
248	8/10	626000	4679200	2	M	3		79			13		2		0.01		0.01									5	0.01				1							
249	8/10	625700	4679200	1	M	3		25			25		0.01		0.01	50										0.01				0.01						0.01		
249	8/10	625700	4679200	2	M	3		24			35		0.01		0.01	40		0.01								1	0.01				0.01							
250	8/10	625400	4679200	1	M	3		60			30				0.01	9										0.01					1							
250	8/10	625400	4679200	2	M	3		60			25				0.01	10		0.01								5	0.01				0.01							
251	8/10	624500	4678500	1	T	1						25				15	14				1					20									25			
251	8/10	624500	4678500	2	T	1						35			1	2										35	3											
252	8/10	624700	4678500	1	M	3					1	20			0.01	70	4									5	0.01											
252	8/10	624700	4678500	2	M	3					5	10			0.01	80	1	0.01								4	0.01											
253	8/10	624900	4678500	1	M	3					0.01	3			0.01	95	0.01	0.01								2											0.01	
253	8/10	624900	4678500	2	M	3					2	3			0.01	85	0.01									10												
254	8/10	624900	4678300	1	M	3						2			0.01	93									3	2											0.01	
254	8/10	624900	4678300	2	M	3					1	5			0.01	85	0.01								7	2											0.01	
255	8/10	624700	4678300	1	S	2					2	43				42	0.01	0.01								5	0.01										8	
255	8/10	624700	4678300	2	S	2		2			0.01	35				25	0.01	30								3	0.01										5	
256	8/10	624500	4678300	1	S	2	0.01	1			0.01	40				40	0.01									10											9	
256	8/10	624500	4678300	2	S	2	0.01					35				45										15											5	
257	8/10	624400	4678100	1	M	3		5			2	81			0.01	5		0.01								5	0.01										2	
257	8/10	624400	4678100	2	M	3		5			5	70			0.01	18		0.01									0.01										2	
258	8/10	624600	4678100	S	1	T	1					10			1	70	1	7									1									10		
258	8/10	624600	4678100	S	2	T	1	4				2			1	75	16	1																			1	
259	8/10	624800	4678100	1	M	3		0.01			0.01	70			0.01	30																						
259	8/10	624800	4678100	2	M	3					5	70			0.01	25		0.01																				
260	8/10	624700	4678000	1	S	2		10			10	30				50	0.01																					
260	8/10	624700	4678000	2	M	3		5			5	20			0.01	70											0.01											
261	8/9	624500	4678000	1	M	3		10			7	40			0.01	40		0.01								3												
261	8/9	624500	4678000	2	M	3		40			5	30				20		0.01								5												
262	8/9	624300	4678000	1	M	3		10			75	0.01				1		0.01								10	0.01					0.01					4	
262	8/9	624300	4678000	2	M	3		25			45	10				0.01		0.01								15					0.01						5	
263	8/9	624400	4677900	1	M	3		30			70				0.01	0.01		0.01																				
263	8/9	624400	4677900	2	M	3		10			75	0.01				15		0.01									0.01											
264	8/9	624300	4677900	1	M	3		34			65	0.01			0.01	1										0.01						0.01						
264	8/9	624300	4677900	2	M	3		44			55	0.01			0.01	1										0.01	0.01				0.01							
265	8/9	624600	4677800	1	M	3					5	5				90	0.01	0.01																				
265	8/9	624600	4677800	2	M	3		45			5	25			0.01	25	0.01										0.01											
266	8/9	624400	4677800	1	M	3		50			35	10				5		0.01																				
266	8/9	624400	4677800	2	M	3		5			60	30				5		0.01																				
267	8/9	624200	4677800	1	T	1		2			16	20			1		5				1					25	5										25	

Figure B.13. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRIRAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Eloidea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitellopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrhiza	Stuckenia pectinata	Vallisneria americana	Wolffia columbiana	
267	8/9	624200	4677800	2	T	1				5	5					2	40									1										46	
268	8/9	624500	4677700	1	M	3			50		25		0.01		0.01	25	0.01									0.01					0.01						
268	8/9	624500	4677700	2	M	3			50		9		1		0.01	40										0.01					0.01						
269	8/9	624600	4677600	1	M	3			3		2	60			0.01	35										0.01											
269	8/9	624600	4677600	2	M	3			25	0.01	34					41	0.01										0.01										
270	8/9	624400	4677600	1	M	3			48		50	0.01				2		0.01																			
270	8/9	624400	4677600	2	M	3			14		85	0.01			0.01	1		0.01														0.01					
271	8/9	624200	4677600	1	M	3			0.01		65					1										29	0.01				0.01					3	
271	8/9	624200	4677600	2	M	3	0.01	0.01			85	0.01	0.01													10									5		
272	8/9	624300	4677500	1	M	3	1	0.01			0.01				0.01											99	0.01										
272	8/9	624300	4677500	2	S	2			2		3				0.01											94					1					0.01	
273	8/9	624300	4677400	1	S	2	0.01								0.01		2									80										15	
273	8/9	624300	4677400	2	S	2						48									2					50										0.01	
274	8/9	624400	4677400	1	S	2			4		50	25			0.01	0.01		1									0.01									20	
274	8/9	624400	4677400	2	S	2	2	13		45		0.01			0.01	0.01	0.01	0.01									0.01									40	
275	8/9	624400	4677300	1	S	2	0.01					10			0.01		0.01	40									0.01									50	
275	8/9	624400	4677300	2	S	2			5						0.01		5				20						25									45	
276	8/9	624500	4677300	1	S	2									0.01	13	0.01	0.01								85	0.01									2	
276	8/9	624500	4677300	2	S	2									0.01	15	0.01									80	0.01									5	
277	8/9	624500	4677200	1	M	3		35			10		13		0.01		0.01									35	2			0.01						5	
277	8/9	624500	4677200	2	M	3		10		0.01	43				0.01			10								30	2									5	
278	8/9	624400	4677100	1	S	2					75	1			0.01		0.01	1								15	1									7	
278	8/9	624400	4677100	2	M	3		4			50	1			0.01											35	0.01									10	
279	8/9	624500	4676900	1	S	2		15		25					20	10	0.01	15								5	0.01									10	
279	8/9	624500	4676900	2	S	2	0.01				20	0.01			0.01	40	0.01	15									0.01									25	
280	8/9	624700	4676800	1	M	3		10			80	0.01			0.01	10											0.01				0.01						
280	8/9	624700	4676800	2	M	3		2			98				0.01	0.01											0.01										
281	8/9	624900	4676500	1	T	1											100																				
281	8/9	624900	4676500	2	T	1										50	50																				
282	8/9	625000	4676500	1	T	1		100																													
282	8/9	625000	4676500	2	O	0																															
283	8/9	625000	4676400	1	M	3		2			98					0.01															0.01						
283	8/9	625000	4676400	2	D	4		0.01			100				0.01	0.01															0.01						
284	8/9	625000	4676200	1	M	3		40			60					0.01															0.01						
284	8/9	625000	4676200	2	M	3		0.01			97					1											0.01	0.01			2						
285	8/9	625200	4676100	1	M	3		0.01			99				0.01	1															0.01						
285	8/9	625200	4676100	2	M	3		0.01			100				0.01	0.01															0.01						0.01
286	8/9	625200	4675900	1	S	2						40					2									40					3					15	
286	8/9	625200	4675900	2	S	2					0.01	40														60	0.01									0.01	
287	8/9	625100	4675500	1	S	2						50			10		0.01	0.01									35									5	
287	8/9	625100	4675500	2	S	2		5			5				5		2	1									5									77	

Figure B.14. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRIRAM Rating	Rate tows #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Eloidea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trilineata	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitellopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrrhiza	Stuckenia pectinata	Valisneria americana	Wolffia columbiana			
288	8/9	625200	4675500	1	M	3			5		50		25		0.01	5		10								2	0.01								2				
288	8/9	625200	4675500	2	S	2			5		50		2		1	5		10								26										0.01			
289	8/9	625300	4675500	1	M	3			45		29				0.01	25										0.01													
289	8/9	625300	4675500	2	M	3			65		15				0.01	15		0.01				0.01				5													
290	8/9	625300	4675400	1	M	3			2		50				0.01	1										42													
290	8/9	625300	4675400	2	M	3			4		70					1										20													
291	8/9	625200	4675300	1	M	3			25		70		0.01		0.01			0.01								3													
291	8/9	625200	4675300	2	M	3			10		85				0.01											5											0.01		
292	8/9	625300	4675200	1	M	3			50		50				0.01																								
292	8/9	625300	4675200	2	M	3			80		20		0.01		0.01	0.01		0.01				0.01																	
293	8/9	625500	4675100	1	M	3			35		60				0.01	0.01		0.01								5													
293	8/9	625500	4675100	2	M	3			14		70				0.01	1										15											0.01		
294	8/9	625700	4674900	1	M	3		0.01			45		10			2		35								1											7		
294	8/9	625700	4674900	2	M	3			0.01		45		8		0.01	0.01		45																			2		
295	8/9	625700	4674800	1	M	3			20		60		15		0.01			0.01								5													
295	8/9	625700	4674800	2	M	3			13		80		2		0.01	2	0.01	0.01								2													
296	8/9	626100	4674700	1	M	3					2		3		0.01	15	1									75	0.01										4		
296	8/9	626100	4674700	2	M	3					8		30		0.01	30		0.01								30	0.01										2		
297	8/9	626300	4674500	1	M	3			1		90		7		0.01	2		0.01									0.01										0.01		
297	8/9	626300	4674500	2	M	3					90		2		0.01	5	0.01	1								2											0.01		
298	8/9	626400	4674500	1	M	3		0.01			30				0.01	25		25								10	2												
298	8/9	626400	4674500	2	M	3			1		20		1		0.01	5		3								60	10												
299	8/9	626600	4674300	1	M	3			3		22		3			15		0.01								55	0.01										0.01		
299	8/9	626600	4674300	2	M	3			1		15		0.01		0.01	4	0.01	0.01								80	0.01												
300	8/9	626800	4674200	1	S	2						13				15	70										0.01										2		
300	8/9	626800	4674200	2	M	3						15				2	80	0.01									0.01										3		
301	8/9	627000	4673800	1	O	0																																	
301	8/9	627000	4673800	2	T	1					99																1												
302	8/9	627100	4673500	1	S	2			40		15		0.01			45		0.01								0.01													
302	8/9	627100	4673500	2	M	3	0.01		3		10					85	0.01	0.01								1	0.01											0.01	
303	8/9	627200	4673400	1	T	1									100																								
303	8/9	627200	4673400	2	O	0																																	
304	8/9	627200	4673300	1	O	0																																	
304	8/9	627200	4673300	2	O	0																																	
305	8/9	627300	4673200	1	M	3			1		33		1			5		0.01								50	5												
305	8/9	627300	4673200	2	M	3		0.01			20		1		0.01	4										55	0.01	20											
306	8/9	627200	4673100	1	S	2			0.01		10		10			10	55	10								0.01	2										3	0.01	
306	8/9	627200	4673100	2	M	3	0.01				10		34		0.01	0.01	10									5	40										1		
307	8/9	627300	4673000	1	M	3					55		20			0.01	0.01	0.01								25	0.01	0.01										0.01	
307	8/9	627300	4673000	2	M	3					60		15			5										5	0.01	15											
308	8/9	627300	4672900	1	M	3		0.01			40		35			15		0.01									0.01											10	

Figure B.15. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRIRAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Eloidea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitelopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrrhiza	Stuckenia pectinata	Valisneria americana	Wolffia columbiana	
308	8/9	627300	4672900	2	M	3					50		40			3		0.01								2	0.01									5	
309	8/9	627400	4672800	1	M	3					10				0.01	75									15	0.01											
309	8/9	627400	4672800	2	M	3					25				0.01	60									5	0.01	10										
310	8/9	627500	4672800	1	T	1			100																												
310	8/9	627500	4672800	2	O	0																															
311	8/9	627500	4672700	1	S	2			8				2				75				0.01							0.01								15	
311	8/9	627500	4672700	2	S	2			2				5			3	80						0.01													10	
312	8/9	627500	4672600	1	S	2			35							25	35										0.01									5	
312	8/9	627500	4672600	2	S	2			10							5	40										0.01		5							40	
313	8/12	627800	4672300	1	M	3					95				0.01	4									1	0.01										0.01	
313	8/12	627800	4672300	2	M	3		3			90					5									2	0.01										0.01	
314	8/12	628300	4672200	1	M	3							10			90																				0.01	
314	8/12	628300	4672200	2	M	3							5			95																				0.01	
315	8/12	628700	4671500	1	M	3		5		5		5										0.01														25	
315	8/12	628700	4671500	2	M	3		3		15		20				2		0.01								60										5	
316	8/12	628800	4671500	1	M	3			0.01		60		35		0.01	0.01		0.01								55			0.01			0.01				5	
316	8/12	628800	4671500	2	M	3			0.01		50		35		0.01	0.01		0.01								0.01	0.01									15	
317	8/12	628800	4671200	1	S	2			0.01		25				0.01						70					1											4
317	8/12	628800	4671200	2	S	2			1		9				0.01						80															10	
318	8/12	628400	4671000	1	M	3		5		25		0.01				1		4								5				0.01						60	
318	8/12	628400	4671000	2	M	3		10		10		3		0.01	0.01		1								2					0.01						74	
319	8/12	628400	4670950	1	M	3		38		60					1	0.01									1					0.01						0.01	
319	8/12	628400	4670950	2	D	4		40		60		0.01		0.01	0.01		0.01		0.01							0.01					0.01					0.01	
320	8/12	628400	4670900	1	S	2		13		85				0.01	2																						
320	8/12	628400	4670900	S	2	T	1		15		25		5		1		1				3				50												
321	8/12	628600	4670900	1	T	1									100																						
321	8/12	628600	4670900	2	T	1									1	99																					
322	8/12	628700	4670900	1	O	0																															
322	8/12	628700	4670900	2	T	1										100																					
323	8/12	628600	4670800	1	O	0																															
323	8/12	628600	4670800	2	O	0																															
324	8/12	628600	4670500	1	M	3		45		50		3				0.01									2					0.01	0.01						
324	8/12	628600	4670500	2	M	3		42		15		40				2					0.01				1					0.01	0.01						
325	8/12	628800	4670300	1	M	3		30		25		0.01			0.01	0.01																0.01				45	
325	8/12	628800	4670300	2	M	3		10		35		5		0.01	0.01		0.01		0.01			0.01									0.01					50	
326	8/12	629100	4670100	1	M	3		10		28		5		0.01	50		0.01								2											5	
326	8/12	629100	4670100	2	M	3		1		15		45				25		0.01																		14	
327	8/12	629500	4669900	1	M	3		5		0.01		15				35		5								10	0.01									30	
327	8/12	629500	4669900	2	M	3				5		10				30		5							25	0.01										25	
328	8/12	629700	4669700	1	M	3		8				50				40										2	0.01										
328	8/12	629700	4669700	2	M	3		9		1		50				40											0.01										

Figure B.16. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRTRAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitellopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrrhiza	Stuckenia pectinata	Vallisneria americana	Wolffia columbiana		
329	8/12	629800	4669500	1	T	1			100																													
329	8/12	629800	4669500	2	T	1			100																													
330	8/12	630000	4669200	1	M	3			1						0.01	99																						
330	8/12	630000	4669200	2	M	3			5		0.01				0.01	95	0.01																					
331	8/12	630300	4669000	1	S	2					0.01							40														0.01			60			
331	8/12	630300	4669000	2	S	2												25									5								70			
332	8/12	630500	4668900	1	M	3		1					55			5	2										20	0.01							17			
332	8/12	630500	4668900	2	M	3					0.01		1			0.01	5								50	5									39			
333	8/12	630800	4668800	1	T	1		75							1	24																						
333	8/12	630800	4668800	2	O	0																																
334	8/12	631100	4668700	1	T	1																99																
334	8/12	631100	4668700	2	T	1		15			5											80																
335	8/12	631700	4669000	1	M	3		75			23					0.01																				2		
335	8/12	631700	4669000	2	M	3		70			30						0.01																					
336	8/12	631800	4668800	1	M	3		48			47		0.01		0.01	5																				0.01		
336	8/12	631800	4668800	2	M	3		18			45		0.01	0.01	0.01	35				0.01															2			
337	8/15	632000	4668500	1	M	3		87			10				0.01	2																				1		
337	8/15	632000	4668500	2	M	3		90			0.01				0.01	0.01																				10		
338	8/15	632100	4668400	1	S	2		40			15		10			30																				5		
338	8/15	632100	4668400	2	S	2		25			25		20			20																				10		
339	8/15	632300	4667500	1	M	3		9			90		0.01			1	0.01											0.01										
339	8/15	632300	4667500	2	M	3		39			60		0.01			1	0.01											0.01										
340	8/15	632200	4667400	1	M	3		70			29		0.01			1												0.01										
340	8/15	632200	4667400	2	M	3		80			18		0.01		0.01	2													0.01							0.01		
341	8/15	632300	4666900	1	M	3					29		70			1																				0.01		
341	8/15	632300	4666900	2	M	3					13		85			0.01																				2		
342	8/15	632600	4666200	1	M	3					10		89			1	0.01																			0.01		
342	8/15	632600	4666200	2	M	3		3			10		80			5	0.01																			2		
343	8/15	633200	4665500	1	S	2		20			70					10																						
343	8/15	633200	4665500	2	S	2		2			90					8																						
344	8/15	633100	4664800	1	S	2		45			35				0.01	20	0.01					0.01						0.01										
344	8/15	633100	4664800	2	S	2		20			70				0.01	10	0.01				0.01	0.01																
345	8/15	633200	4664500	1	M	3		70			5				0.01	25	0.01																					
345	8/15	633200	4664500	2	M	3		70			5		0.01			25																						
346	8/15	633400	4664100	1	M	3		70			0.01				2	28	0.01					0.01														0.01		
346	8/15	633400	4664100	2	M	3		80			0.01				2	18	0.01																					
347	8/15	633900	4663500	1	M	3		15			80				0.01	5	0.01					0.01																
347	8/15	633900	4663500	2	M	3		10			85					4	0.01																					
348	8/15	634300	4663100	1	M	3		90			5				2	3	0.01					0.01																
348	8/15	634300	4663100	2	M	3		65			20				10	5	0.01																					
349	8/15	634800	4663300	1	M	3		1			87		5			1	1																				5	

Figure B.17. Data sheet transcribed from Chautauqua Lake plant survey August 2025

Map ID #	Date Sampled in 2025	NAD27 X cord EAST 17T	NAD27 Y cord NORTH	PIRTRAM Rating	Rake toss #	Johnson Rating	Abundance #	Alisma sp.	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Fontinalis sp.	Heteranthera dubia	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nitellopsis obtusa	Potamogeton crispus	Potamogeton foliosus	Potamogeton hillii	Potamogeton nodosus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Scirpus acutus	Spirodela polyrrhiza	Stuckenia pectinata	Valisneria americana	Wolffia columbiana	
349	8/15	634800	4663300		2	M	3		10		55		10			5	15				3															2	
350	8/15	635700	4662800		1	S	2		25		70		0.01		0.01	0.01		0.01								5										0.01	
350	8/15	635700	4662800		2	S	2		57		40				0.01	0.01																				2	
351	8/15	635800	4662600		1	M	3		100		0.01		0.01		0.01	0.01																					
351	8/15	635800	4662600		2	M	3		85						0.01	15																					
352	8/15	636000	4662300		1	M	3		95		0.01					5																					
352	8/15	636000	4662300		2	M	3		100		0.01				0.01																						
353	8/15	636800	4662200		1	M	3				0.01					100																					
353	8/15	636800	4662200		2	M	3		10		5					85																				0.01	
354	8/15	637300	4662500		1	M	3				2				0.01	98																					
354	8/15	637300	4662500		2	M	3		5		35				0.01	60																					
355	8/15	637600	4662600		1	M	3		60		30		5		0.01	5						0.01					0.01										
355	8/15	637600	4662600		2	M	3		70		20		5		0.01	5																					
356	8/15	637500	4662600		1	M	3		20		35				0.01	45																					
356	8/15	637500	4662600		2	M	3		20		40		0.01			40												0.01									
357	8/15	637400	4662600		1	M	3		25		0.01				0.01	75																				0.01	
357	8/15	637400	4662600		2	M	3		40						0.01	60												0.01									
358	8/15	637200	4662600		1	S	2				70					30																					
358	8/15	637200	4662600		2	M	3		20		35				0.01	45																					
359	8/16	637200	4662900		1	T	1				100																										
359	8/16	637200	4662900		2	T	1				90								10																		
360	8/16	637800	4662800		S	1	T	1	15		15				1	65																				2	
360	8/16	637800	4662800		2	S	2		45		10					45											0.01										
361	8/16	637800	4662900		1	T	1									100																					
361	8/16	637800	4662900		2	S	2		75		0.01				0.01	25																					
362	8/16	638000	4662900		S	1	T	1	40		45					14											1										
362	8/16	638000	4662900		2	S	2		85		5					10											0.01										
363	8/16	638100	4662800		1	S	2		35		5		0.01			60											0.01										
363	8/16	638100	4662800		2	T	1		50		5							2	3								40										
364	8/16	638300	4662800		1	M	3		20		70					10																					
364	8/16	638300	4662800		2	M	3		14		85					1																					
365	8/16	639100	4662700		1	M	3		5		35				0.01	60						0.01															
365	8/16	639100	4662700		2	M	3		10		80				0.01	10																					
366	8/16	639200	4662700		1	M	3		25		50				0.01	25																					
366	8/16	639200	4662700		2	M	3		10		70				0.01	20																					
EX 1	8/18	641687	4663608		1	M	3		35		40		5			20																				0.01	
EX 1	8/18	641687	4663608		2	M	3		3		85		2			10																					
EX 2	8/18	641996	4663608		1	M	3		39		60		0.01			1																					
EX 2	8/18	641996	4663608		2	M	3		35		60		0.01			5																					
EX 3	8/18	642235	4663608		1	M	3		10		85		1			3																				1	
EX 3	8/18	642235	4663608		2	S	2		0.01	0.01	50		10			5																				35	

Figure B.18. Data sheet transcribed from Chautauqua Lake plant survey August 2025. The EX indicates the sites sampled near the Celeron Marina.

Map ID #	Date Sampled in 2025		NAD27 X cord EAST 17T		NAD27 Y cord NORTH		PIRTRAM Rating		Rake toss #		Johnson Rating		Abundance #		Alisma sp.		Ceratophyllum demersum		Chara vulgaris		Elodea sp.		Fontinalis sp.		Heteranthera dubia		Lemna minor		Lemna trisulca		Myriophyllum spicatum		Najas flexilis		Najas guadalupensis		Najas minor		Nitella flexilis		Nitellopsis obtusa		Potamogeton crispus		Potamogeton foliosus		Potamogeton hillii		Potamogeton nodosus		Potamogeton praelongus		Potamogeton pusillus		Potamogeton richardsonii		Potamogeton robbinsii		Potamogeton zosteriflorus		Ranunculus trichophyllus		Scirpus acutus		Spirodela polyrrhiza		Stuckenia pectinata		Vallisneria spiralis		Wolffia columbiana																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
EX 4	8/18	642563	4663507	1	M	3		5			60		30		0.01	5						5								2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

Figure B.19. Data sheet transcribed from Chautauqua Lake plant survey August 2025. The EX indicates the sites sampled near the Celeron Marina.