2022 Lake Rim Submerged Aquatic Vegetation (SAV) Survey
NC Division of Water Resources

Introduction

Hydrilla, (*Hydrilla verticillata*), is one of the most economically and ecologically damaging invasive plants in the world and can lead to many undesirable outcomes. These include the forming of dense monocultures that crowd out native vegetation, reducing the habitat quantity and quality for aquatic organisms, clogging of municipal water intakes and severely impacting recreational activities such as boating and swimming. For these reasons, it is considered a federal and state noxious weed which prohibits the import, sale and movement of Hydrilla without a permit. Hydrilla was first found in Lake Rim in the summer 2016. Herbicide applications were conducted that fall. Since then, the Wildlife Resources Commission (WRC) and the Aquatic Weed Control Program (AWCP) have worked together to manage Hydrilla in the reservoir. More information concerning past management activities can be found on the AWCP online database (NCDEQ-DWR :: Aquatic Weed Control (ncwater.org)).

Methods

The AWCP completed a full-lake survey of Lake Rim on November 2nd. Using a point intercept method, a total of 31 points were sampled in 2022 (Figure 1). Three rake tosses were conducted at pre-determined points along the shoreline to determine presence/absence of SAV as well as quantify rake coverage. Rake coverage was quantified using a scale from 0 to 4 (0 = no vegetation; 1 (Trace) = <25%; 2 (Sparse) = 25% - 50%; 3 (Moderate) = 50% - 75%; 4 (Dense) = 75% - 100%). Additionally, a recording fathometer (SONAR) was used to map and record the bottom. Roughly 5.5 miles of SONAR were logged. The SONAR data was uploaded to a third-party company, Biobase, to quantify the depth and biovolume data. Biovolume is a percentage of the water column taken up by vegetation, when vegetation is present. All of this was then combined with the rake-toss data using GIS software to estimate coverage.

Results

SAV was found at 30, or 97%, of the rake toss points (Figure 2). Species found during the survey include Bladderwort (*Utricularia spp.*), Hydrilla (*Hydrilla* verticillata), and Sandhills Milfoil (*Myriophyllum laxum*) (Table 1; Figures 3-6). All these species have been found during previous surveys.

Hydrilla acreage decreased from 2021 to 2022. The estimated coverage in 2021 was 1.2 acres and in 2022 the estimated coverage was 0.5 acres (Figure 7). Sandhills Milfoil acreage also decreased from 2021 to 2022. The estimated coverage in 2021 was 21 acres and in 2022 the estimated coverage was 9.5 acres (Figure 8).

Other native aquatic vegetation observed during the survey were Spatterdock (*Nuphar lutea*), Water Lilly (*Nymphaea odorata*) and Watershield (*Brasenia schreberi*).

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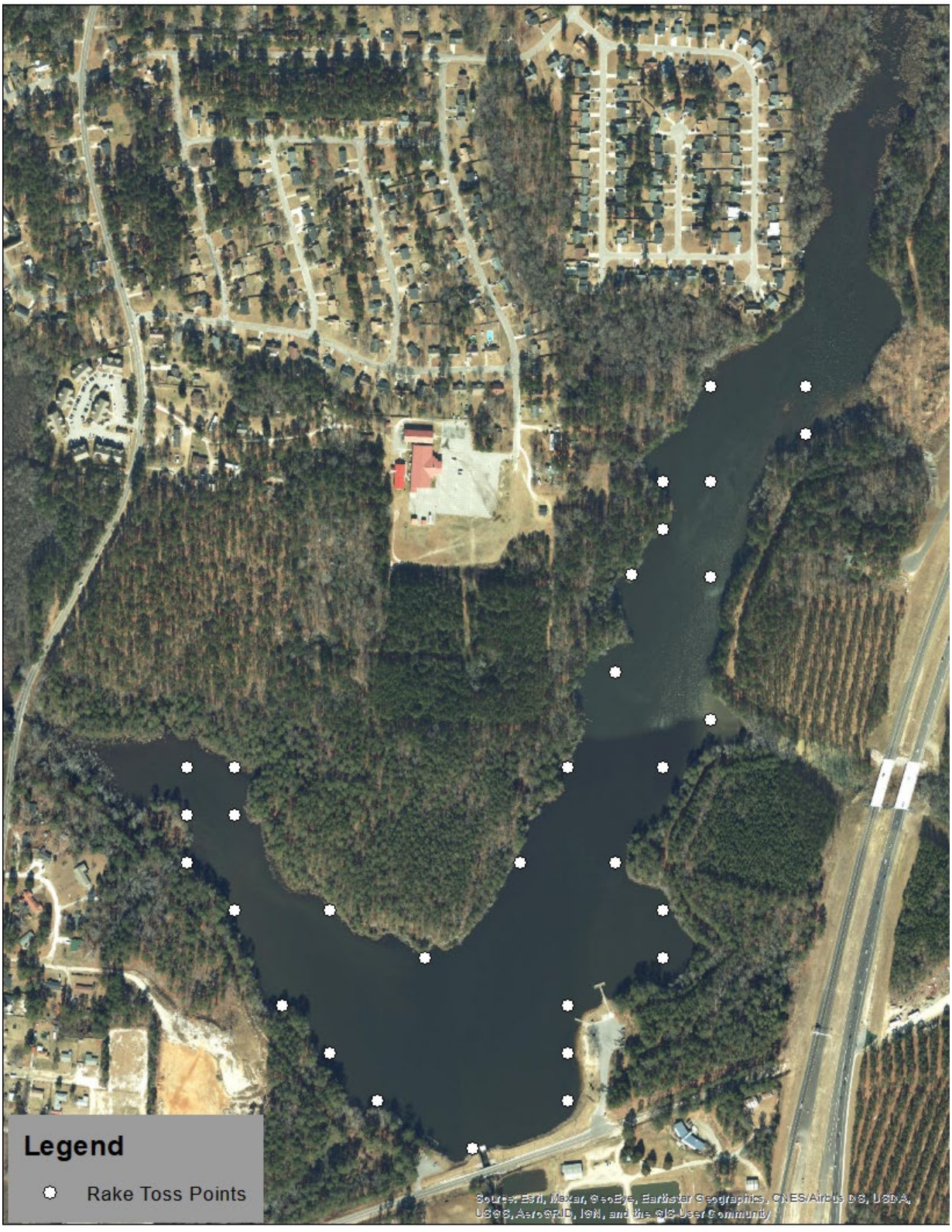

Figure 1. Map showing pre-determined rake toss points.

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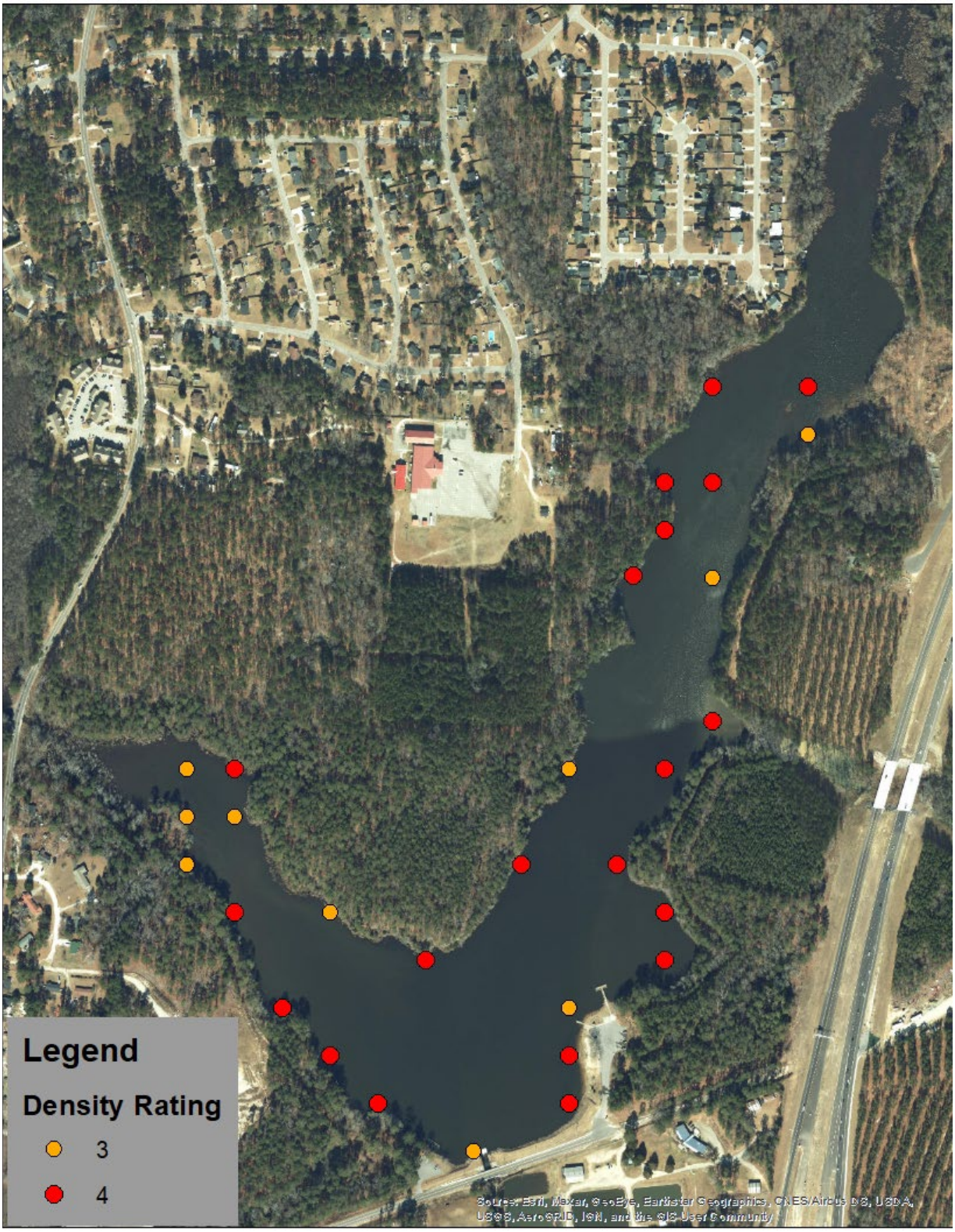

Figure 2. Map showing location of SAV and associated density ratings.

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Species	Total	Density Rating							
		Trace (1)		Sparse (2)		Moderate (3)		Dense (4)	
		Number of points	%	Number of points	%	Number of points	%	Number of points	%
Bladderwort (*Utricularia spp .*)	27	15	56%	12	44%	-	-	-	-
Hydrilla (*Hydrilla verticillata*)	1	1	100%	-	-	-	-	-	-
Sandhills Milfoil (*Myriophyllum laxum*)	8	4	50%	3	38%	-	-	1	13%
Vegetated points	30	-	-	-	-	10	33%	20	67%

Table 1. Species abundance during 2022 Lake Rim survey.

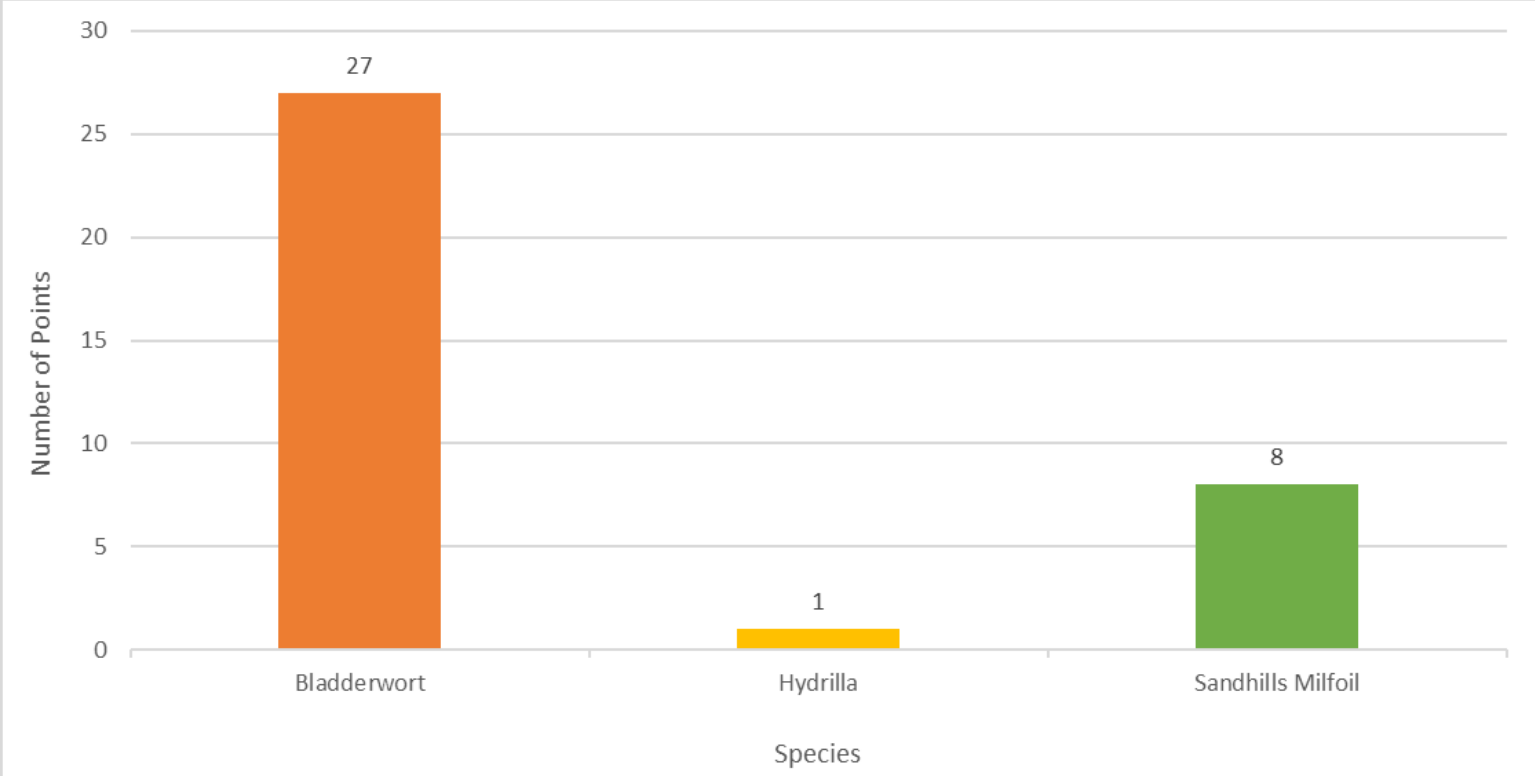

Figure 3. Relative abundance during the 2022 Lake Rim survey.

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Figure 4. Map showing Bladderwort locations and density ratings.

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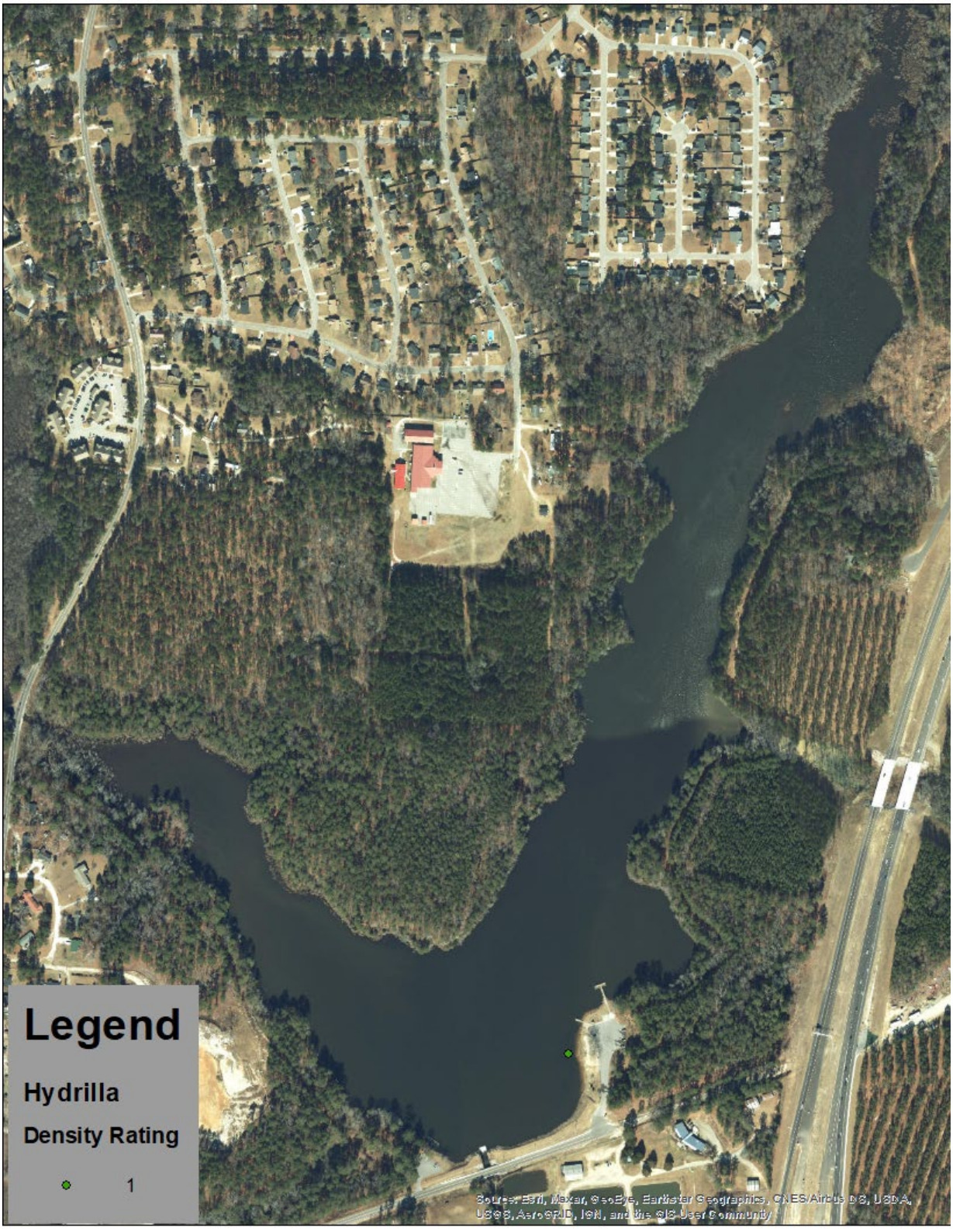

Figure 5. Map showing Hydrilla location and density rating.

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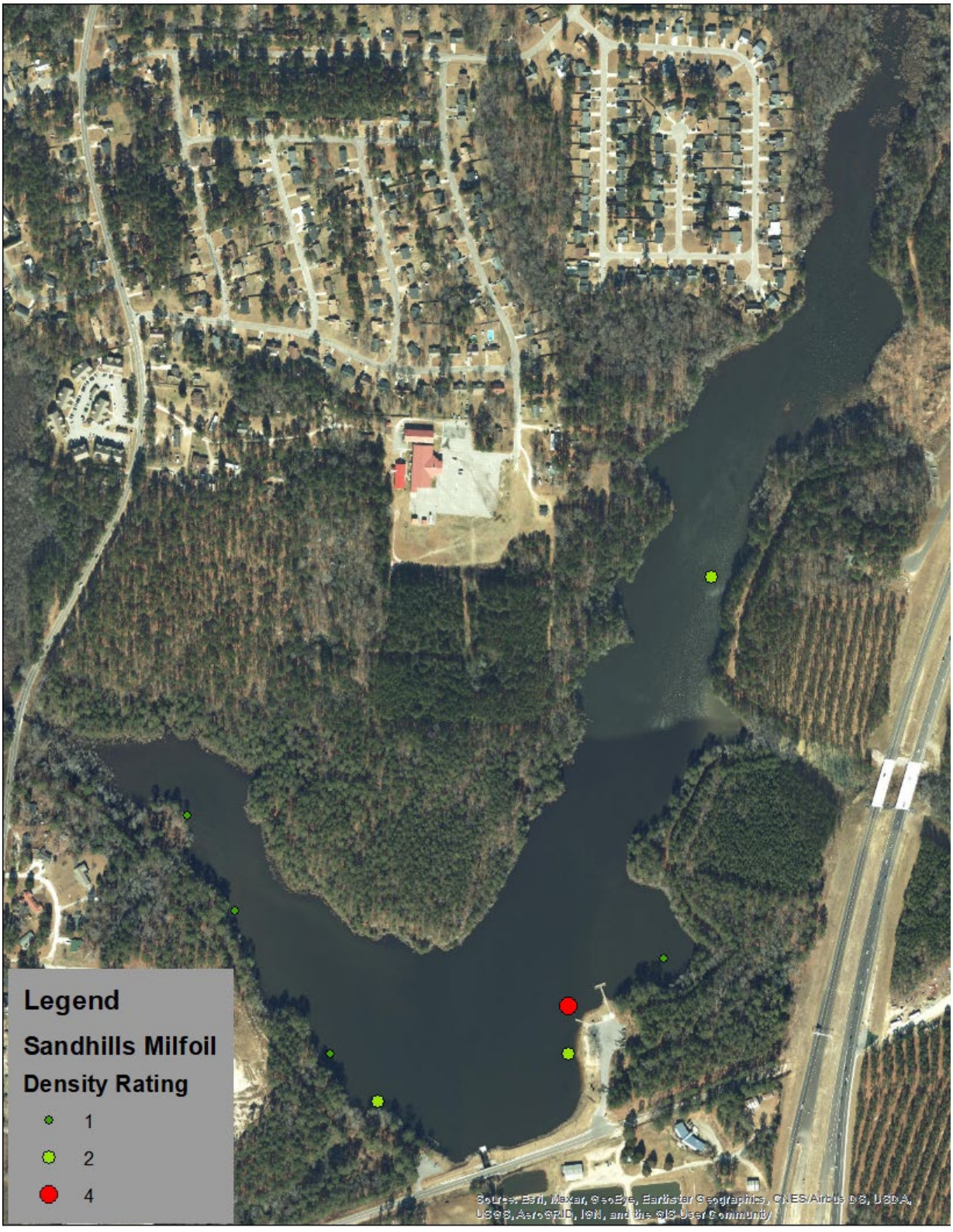

Figure 6. Map showing Sandhills Milfoil locations and density ratings.

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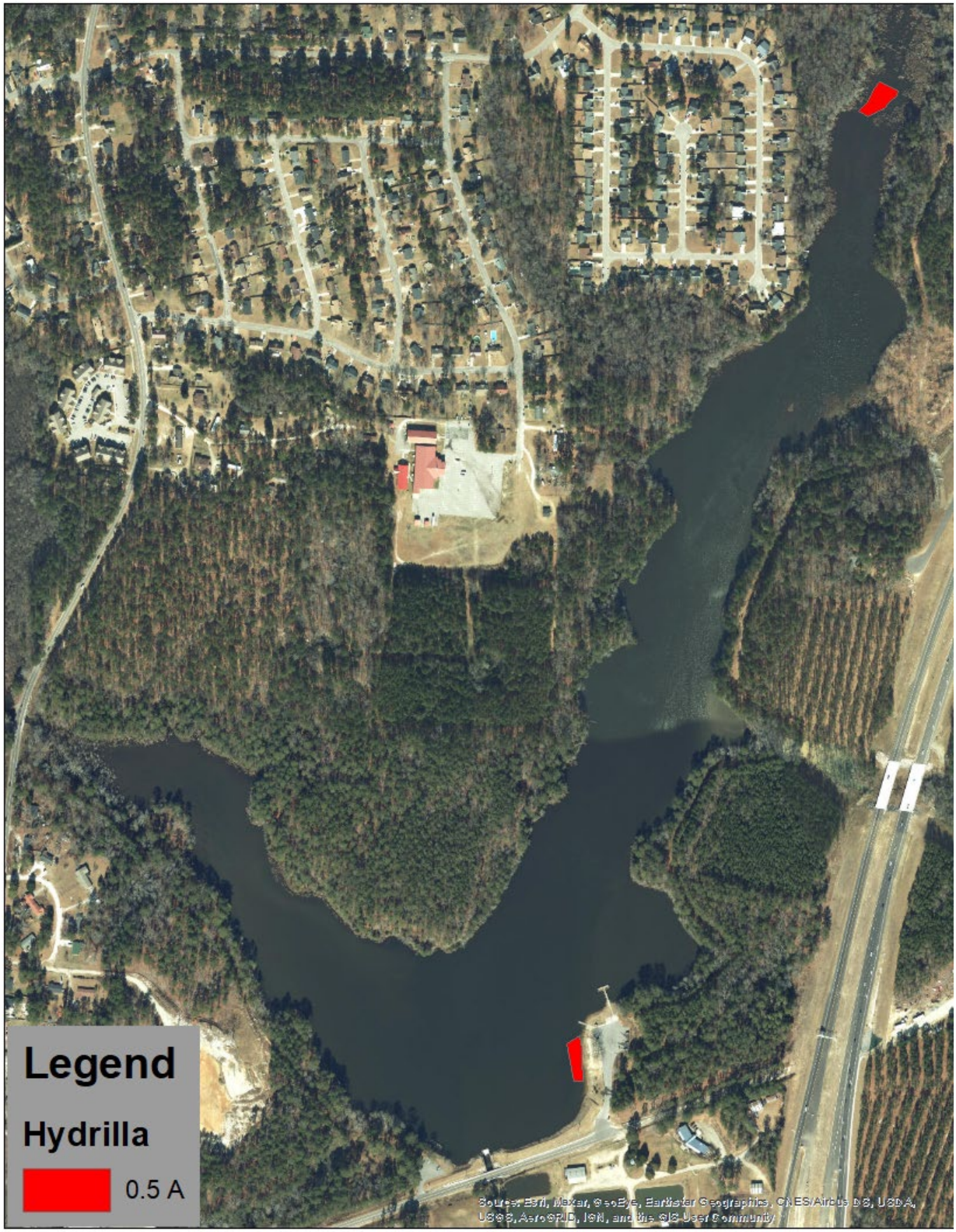

Figure 7. Map showing coverage of Hydrilla (0.5 acres).

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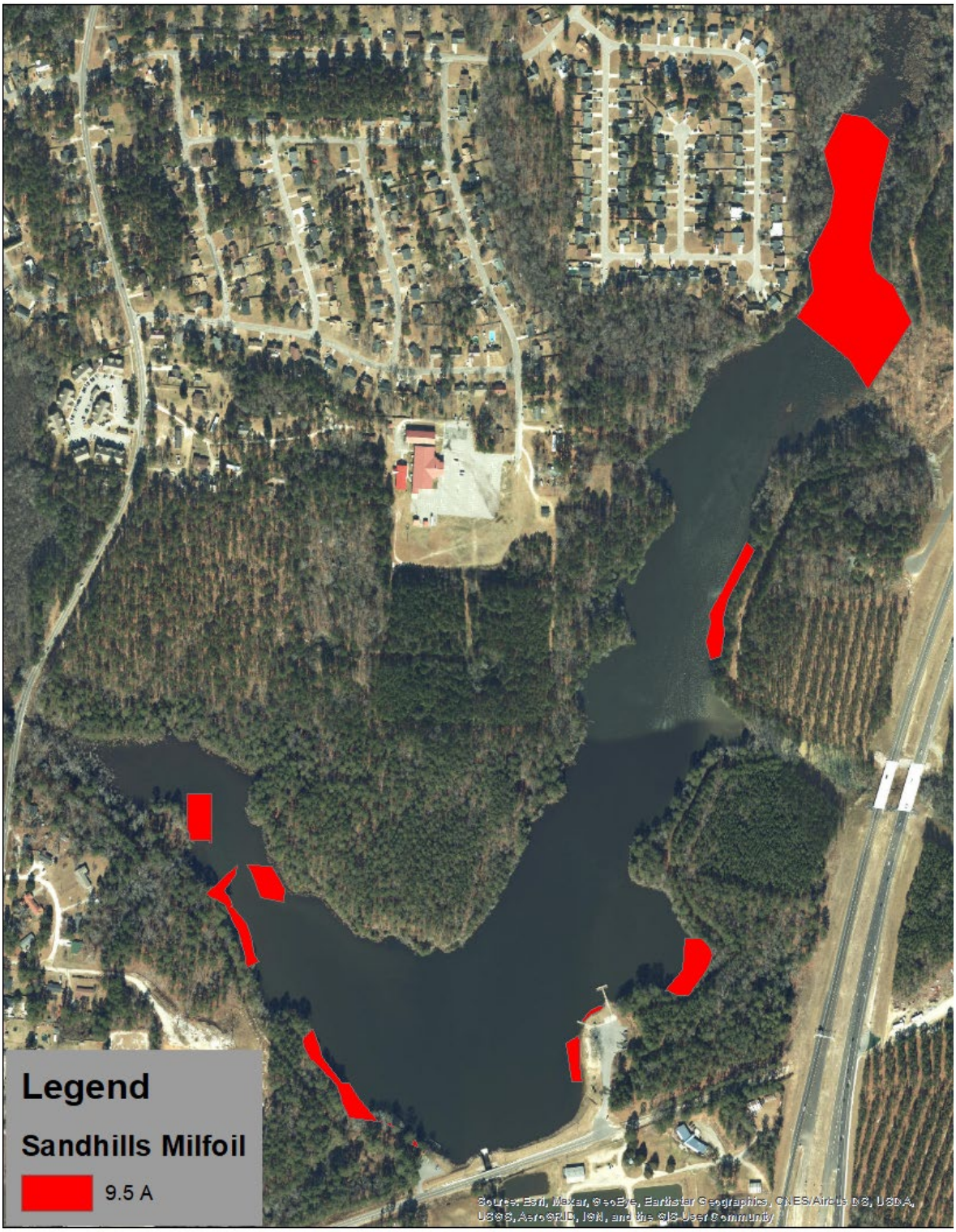

Figure 8. Map showing coverage of Sandhills Milfoil (9.5 acres).