

2022 DWR Submerged Aquatic Vegetation Survey Report

William B. Umstead State Park

Introduction

Hydrilla, (*Hydrilla verticillata*), is one of the most economically and ecologically damaging non-native, 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. The Aquatic Weed Program (AWCP) and the NC Division of Parks & Recreation (DPR) have worked together to manage Hydrilla in the three lakes within the park (Big Lake, Reedy Creek Lake and Sycamore Lake). More information concerning past management activities can be found on the AWCP online database ([NCDEQ-DWR :: Aquatic Weed Control \(ncwater.org\)](https://ncwater.org/)).

Methods

The AWCP completed a full-lake survey of Big Lake was completed on October 12th, 2022. Using a point-intercept method, a total of 30 points were sampled (Figure 1). At Big Lake three rake tosses were conducted at pre-determined points throughout the lake 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. Approximately 3.5 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. At Reedy Creek Lake and Sycamore Lake a visual survey was completed. The survey of Reedy Creek Lake was completed on October 13, 2022, and the survey of Sycamore Lake was completed on October 12th, 2022. Approximately 1.2 miles of SONAR were logged at Sycamore Lake.

Results

Big Lake

SAV was found at 29, or 97%, of the points sampled (Figure 2). Species found during the survey include Chara (*Chara spp.*), Hydrilla (*Hydrilla verticillata*), and Southern Naiad (*Najas guadalupensis*) (Figures 3 – 5).

The estimated coverage of Hydrilla in 2022 is 21 acres (Figure 6). Other aquatic vegetation observed during the survey was Cattail (*Typha spp.*) and Common Rush (*Juncus spp.*).

2022 DWR Submerged Aquatic Vegetation Survey Report

William B. Umstead State Park

Reedy Creek Lake

The visual inspection of Reedy Creek Lake found no vegetative Hydrilla during 2022. There was no other SAV found during the survey. Other aquatic vegetation found during the survey was Cattail (*Typha spp.*), Common Rush (*Juncus spp.*) and Parrotfeather (*Myriophyllum aquaticum*).

Sycamore Lake

The visual inspection of Sycamore Lake found only a handful of Hydrilla plants growing at the upper end of the lake (Figure 6). There was no other SAV observed during the survey.

2022 DWR Submerged Aquatic Vegetation Survey Report

William B. Umstead State Park

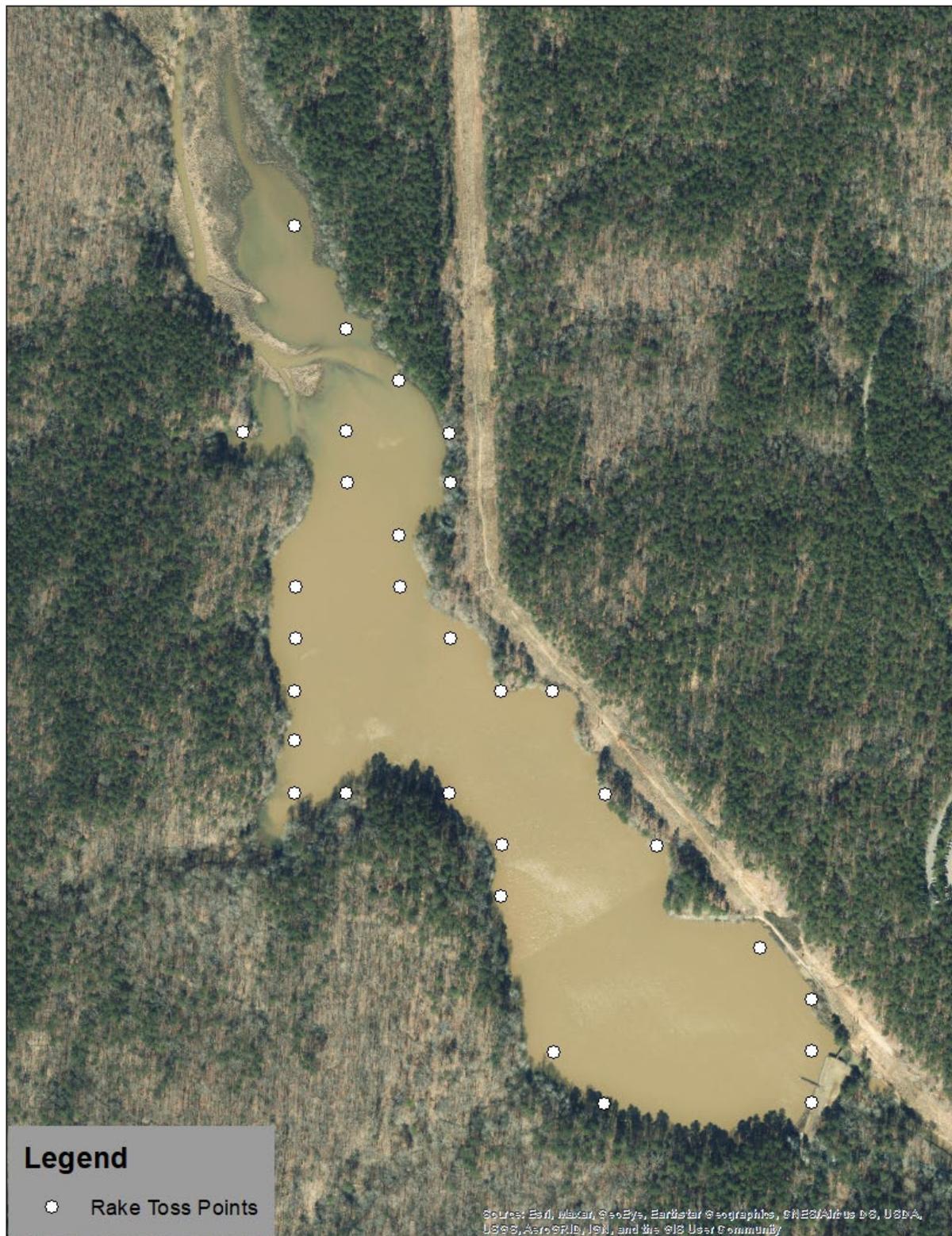


Figure 1. Map showing pre-determined rake toss points at Big Lake.

2022 DWR Submerged Aquatic Vegetation Survey Report

William B. Umstead State Park

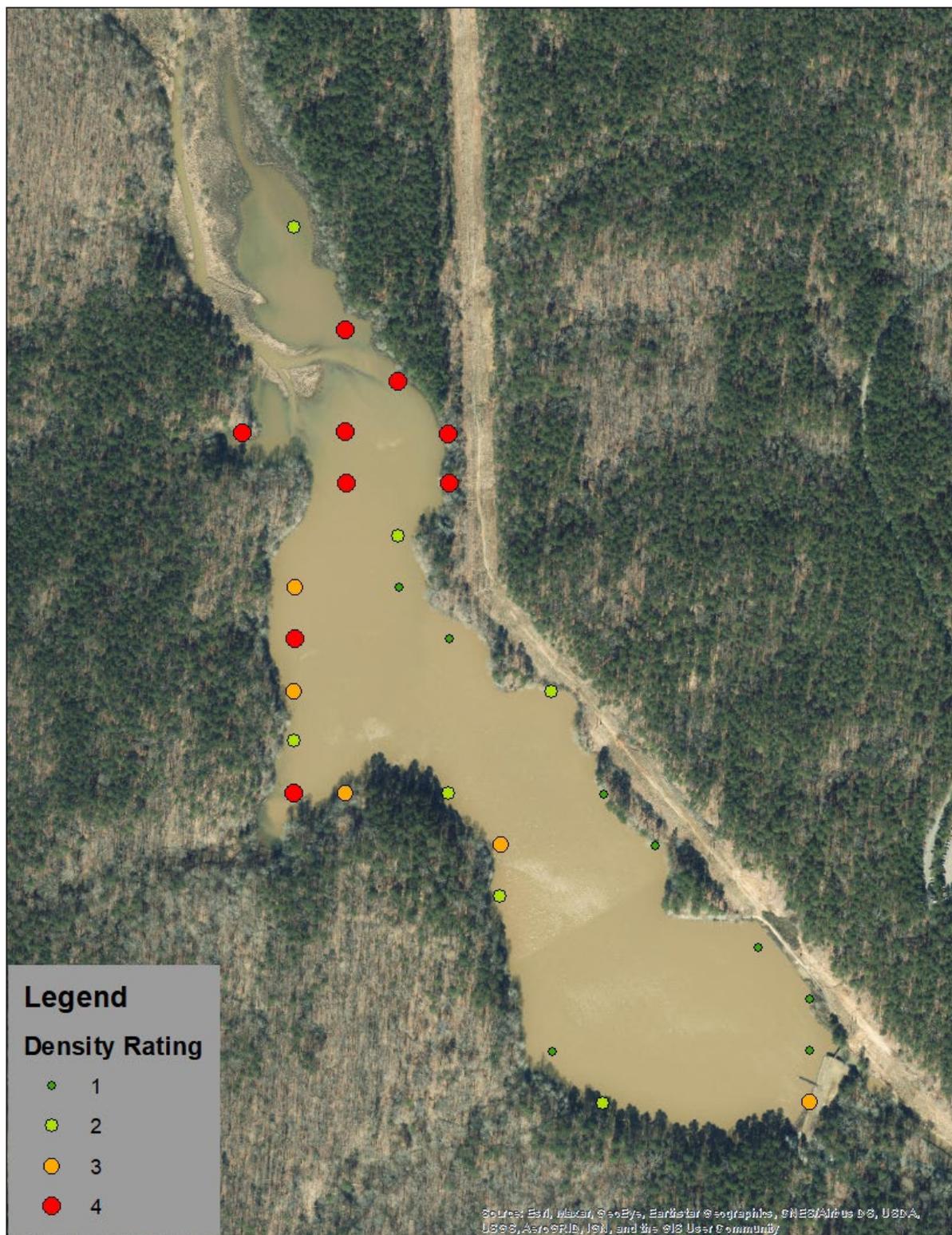


Figure 2. Map showing location and density of SAV.

2022 DWR Submerged Aquatic Vegetation Survey Report

William B. Umstead State Park



Figure 3. Map showing location and density rating of Chara.

2022 DWR Submerged Aquatic Vegetation Survey Report

William B. Umstead State Park

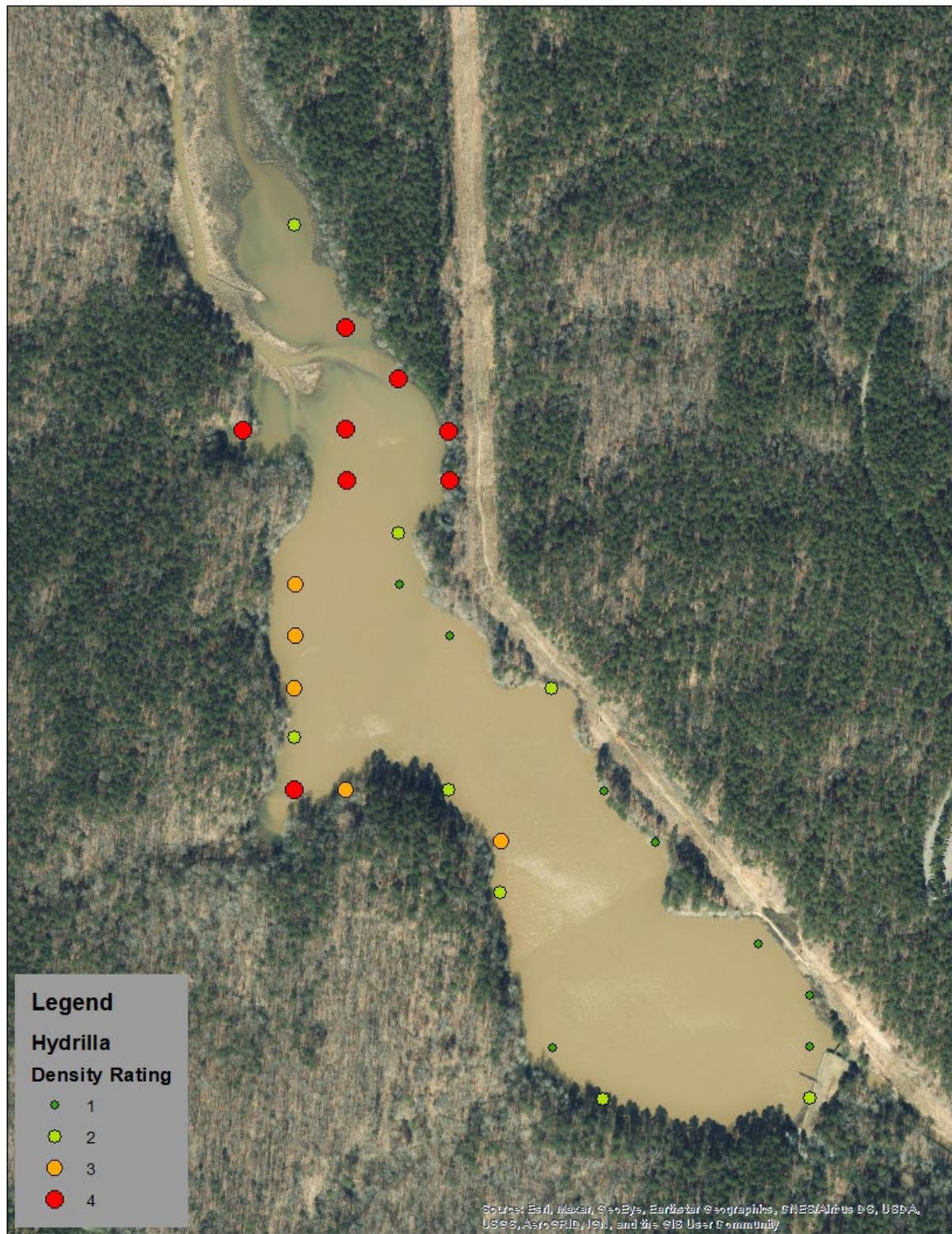


Figure 4. Map showing location and density rating of Hydrilla.

2022 DWR Submerged Aquatic Vegetation Survey Report

William B. Umstead State Park



Figure 5. Map showing location and density rating of Southern Naiad.

2022 DWR Submerged Aquatic Vegetation Survey Report

William B. Umstead State Park

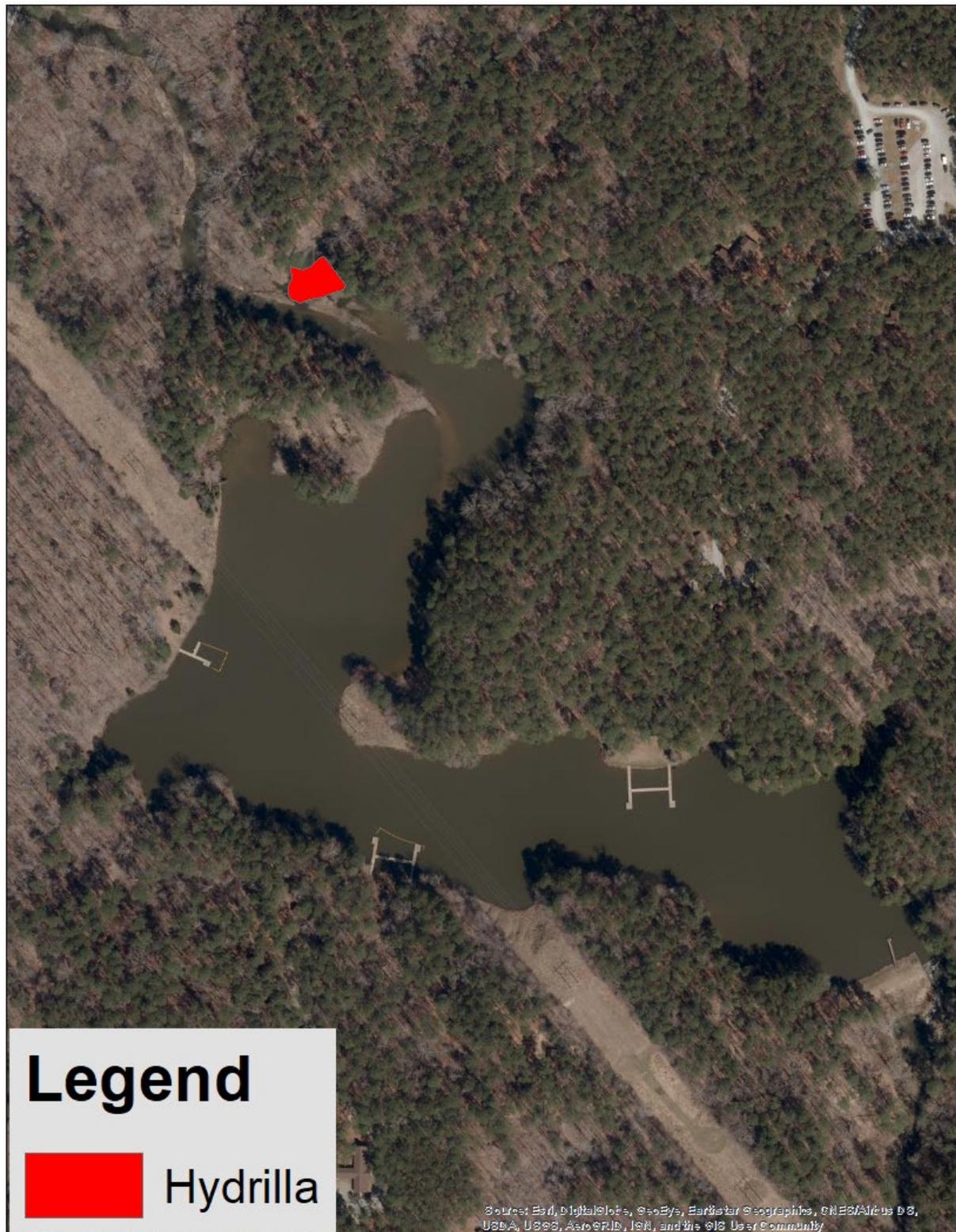


Figure 6. Map showing Hydrilla coverage in Sycamore Lake in 2021 (~0.1 acres).