

Memorandum

To: Half Moon Lake Protection & Rehabilitation District Board
From: Meg Rattei, Barr
Subject: Assessment of Half Moon Lake Wild Rice and Response of the Wild Rice to an Application of the Herbicide ProcellaCOR in 2022
Date: February 23, 2024
Project: Half Moon Lake Eurasian Watermilfoil Management
c: Keegan Lund and Dr. Mark Heilman, SePro

The presence of wild rice within Half Moon Lake prevented the Half Moon Lake Protection and Rehabilitation District (District) from obtaining a permit from the Wisconsin Department of Natural Resource (WDNR) to use the herbicide ProcellaCOR to remove Eurasian watermilfoil (EWM) from the lake in 2023. The WDNR informed the District in June 2023 the herbicide ProcellaCOR would not be permitted in any Wisconsin lake containing wild rice. The District was permitted to manually remove Eurasian watermilfoil from the lake in 2023 using diver assisted suction harvesting (DASH). However, DASH removal was ineffective. Consequently, EWM extent in the lake increased from 1.0 acres in October 2022 to 5.8 acres in October 2023. The District proposed herbicide treatment of the EWM in the lake during 2024 using either 2,4-D or fluridone. The WDNR has indicated treatment using either herbicide would not be permitted. An email from WDNR staff on February 15 said "Future herbicide treatments in Half Moon Lake are unlikely to be permitted if there is a potential for the herbicide to reach wild rice areas." Because the presence of wild rice in Half Moon Lake has created challenges for management of the lake's EWM, this memo provides information to the Board about where wild rice has been observed in Half Moon Lake and the response of the wild rice to application of the herbicide ProcellaCOR to an area that contained wild rice in 2022.

2018 Wild Rice

Wild rice was first observed in Half Moon Lake during a whole lake point intercept plant survey completed by the District during June 21 through 23, 2018 (Figure 1). The vast majority of the wild rice plants were located near the creek entrance along the north shoreline near the boat landing on the north end of the lake (Figure 2). Wild rice plants were collected on the sample rake at two sample locations and visually observed at a third sample location. The plant surveyor noted the highest density of wild rice plants was a 2 on a scale of 1 to 3 with most plants having a density of 1 on a scale of 1 to 3 (Figure 3). None of the plants appeared to be dense enough for a profitable human harvest.



Figure 1 Wild Rice (*Zizania palustris*) in Half Moon Lake on June 22, 2018

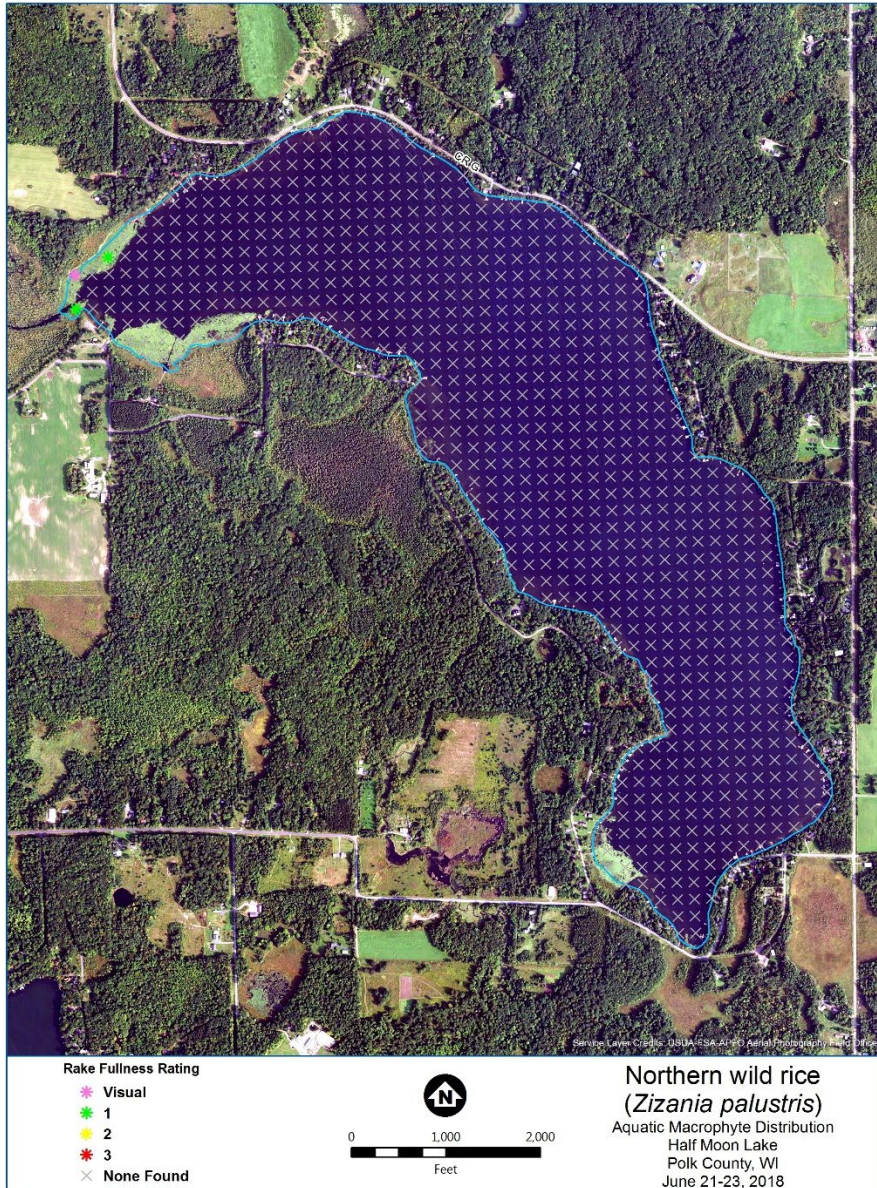


Figure 2 Location of Wild Rice in Half Moon Lake June 22, 2018




| <u>Rating</u> | <u>Coverage</u> | <u>Description</u> |
|---------------|---|--|
| 1 |  | A few plants on rake head |
| 2 |  | Rake head is about 1/2 full Can easily see top of rake head |
| 3 |  | Overflowing Cannot see top of rake head |

Figure 3 Rake fullness rating, rake coverage, and description of rake fullness rating (Source: Endangered Resource Services, LLC, 2021)

2022 Wild Rice

Wild rice was again observed in Half Moon Lake during a whole lake aquatic plant survey completed by the District on July 1, 2022. All wild rice plants were located near the creek entrance along the north shoreline near the boat landing on the north end of the lake (Figure 4). Wild rice plants were collected on the sample rake at one location and this location coincided with one of the locations in which wild rice plants were collected on the sample rake in 2018. The maximum rake density of plants collected in 2022 was 1 on a scale of 1 to 3 (Figure 3). The surveyor didn't see more than 100 to 200 plants in the lake. All plants were goose cropped and it was questionable whether or not the plants would set grain. Consequently, there were no areas on the lake that were suitable for human harvest.

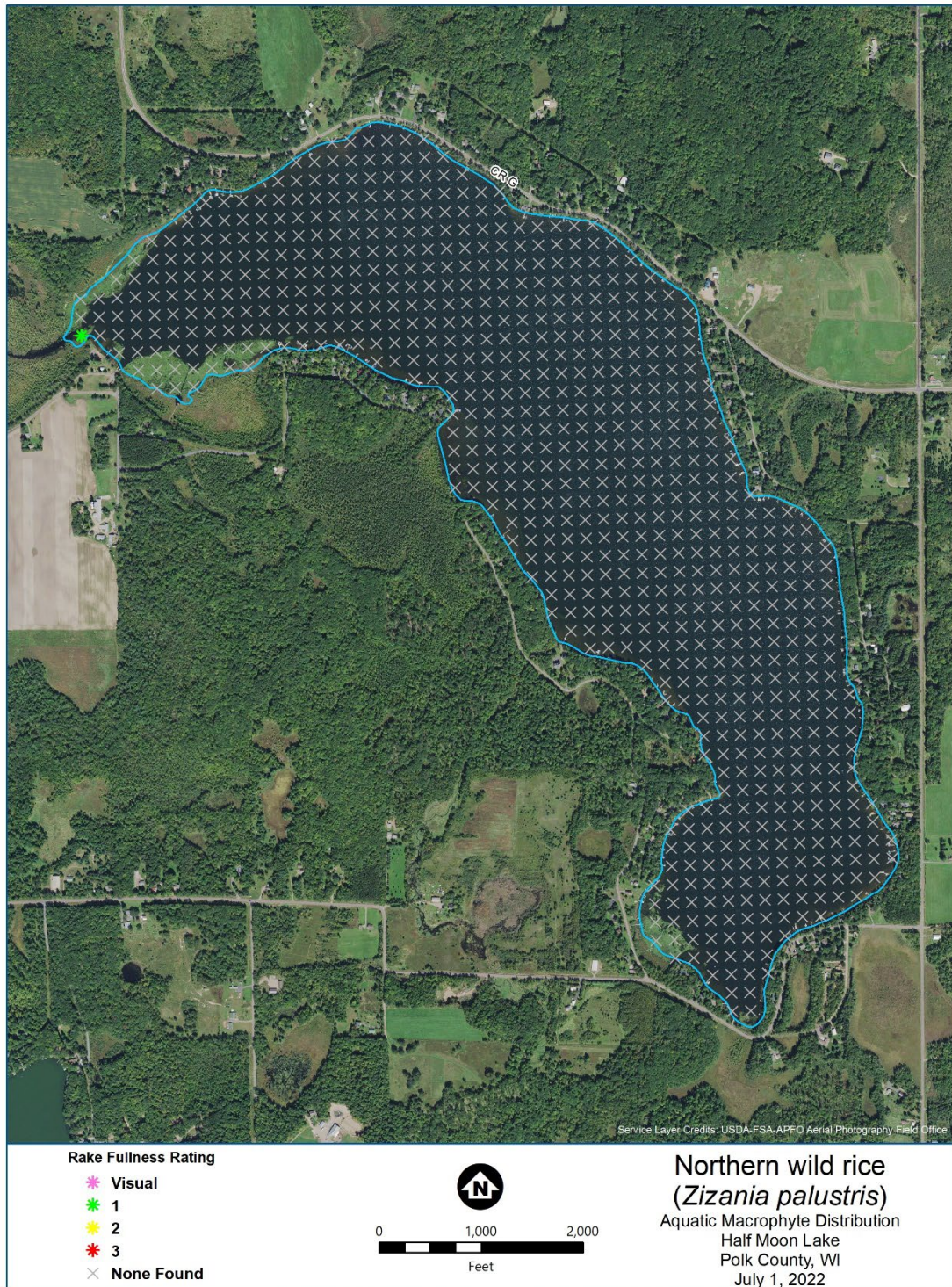


Figure 4 Location of Wild Rice in Half Moon Lake July 1, 2022

To: Half Moon Lake Protection & Rehabilitation District Board
From: Meg Rattei, Barr
Subject: Assessment of Half Moon Lake Wild Rice and Response of the Wild Rice to an Application of the Herbicide ProcellaCOR in 2022
Date: February 23, 2024
Page: 6

2023 Wild Rice

Wild rice was again observed in Half Moon Lake during a whole lake aquatic plant survey completed by the District on July 1, 2023. All wild rice plants were located near the creek entrance along the north shoreline near the boat landing on the north end of the lake. Wild rice plants were collected on the sample rake at one location and this location coincided with the same location in which wild rice plants were collected on the rake in 2022 (Figure 5). The surveyor delineated the boundary of the wild rice plants in the lake and created a map showing the area in which wild rice plants were found (Figure 6). The surveyor estimated there were no more than a few hundred wild rice plants and all plants were goose cropped (Figure 7). The surveyor indicated most wild rice plants seemed unlikely to set grain and no areas were suitable for human harvesting.

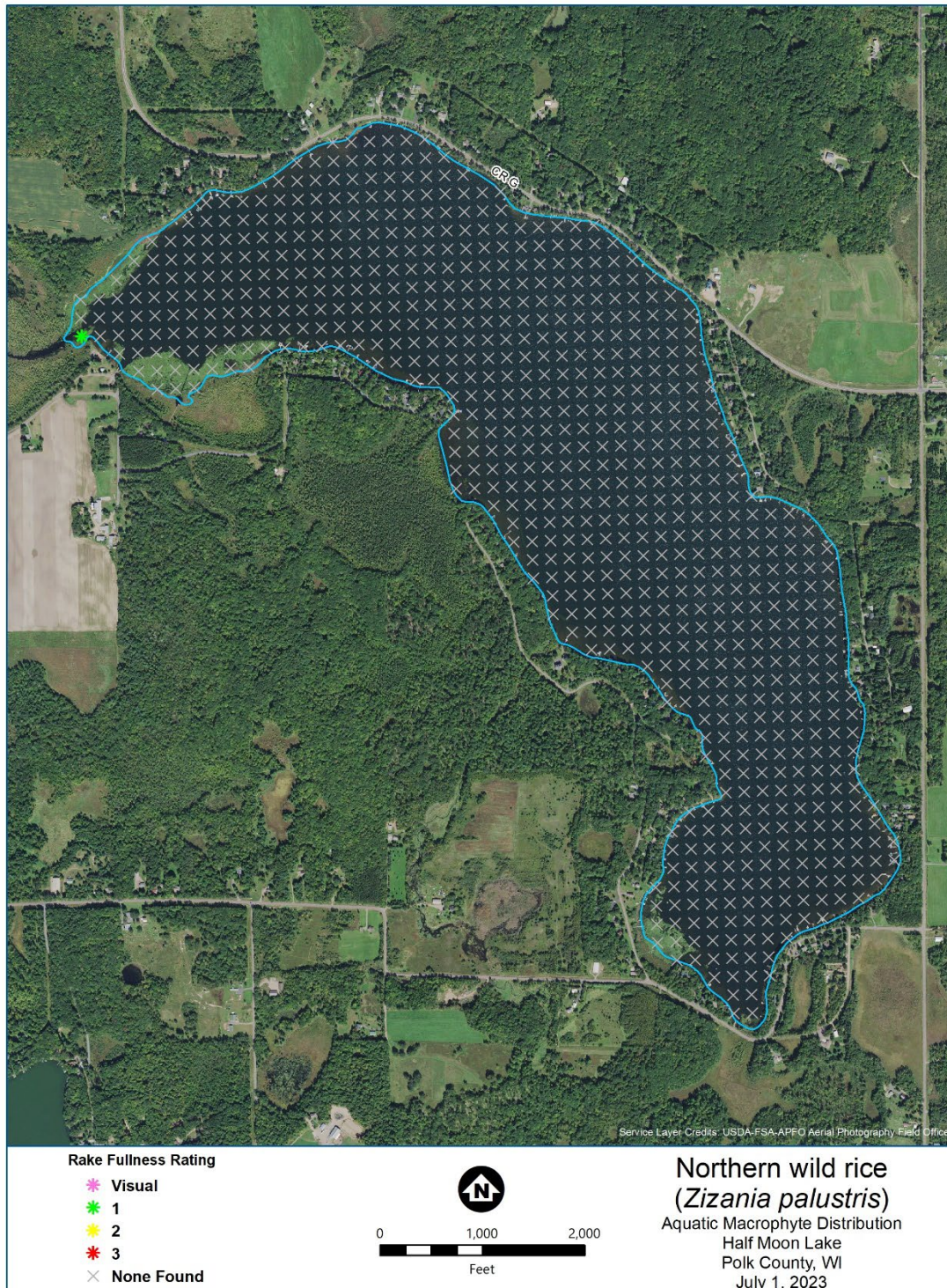


Figure 5 Location of Wild Rice in Half Moon Lake July 1, 2023

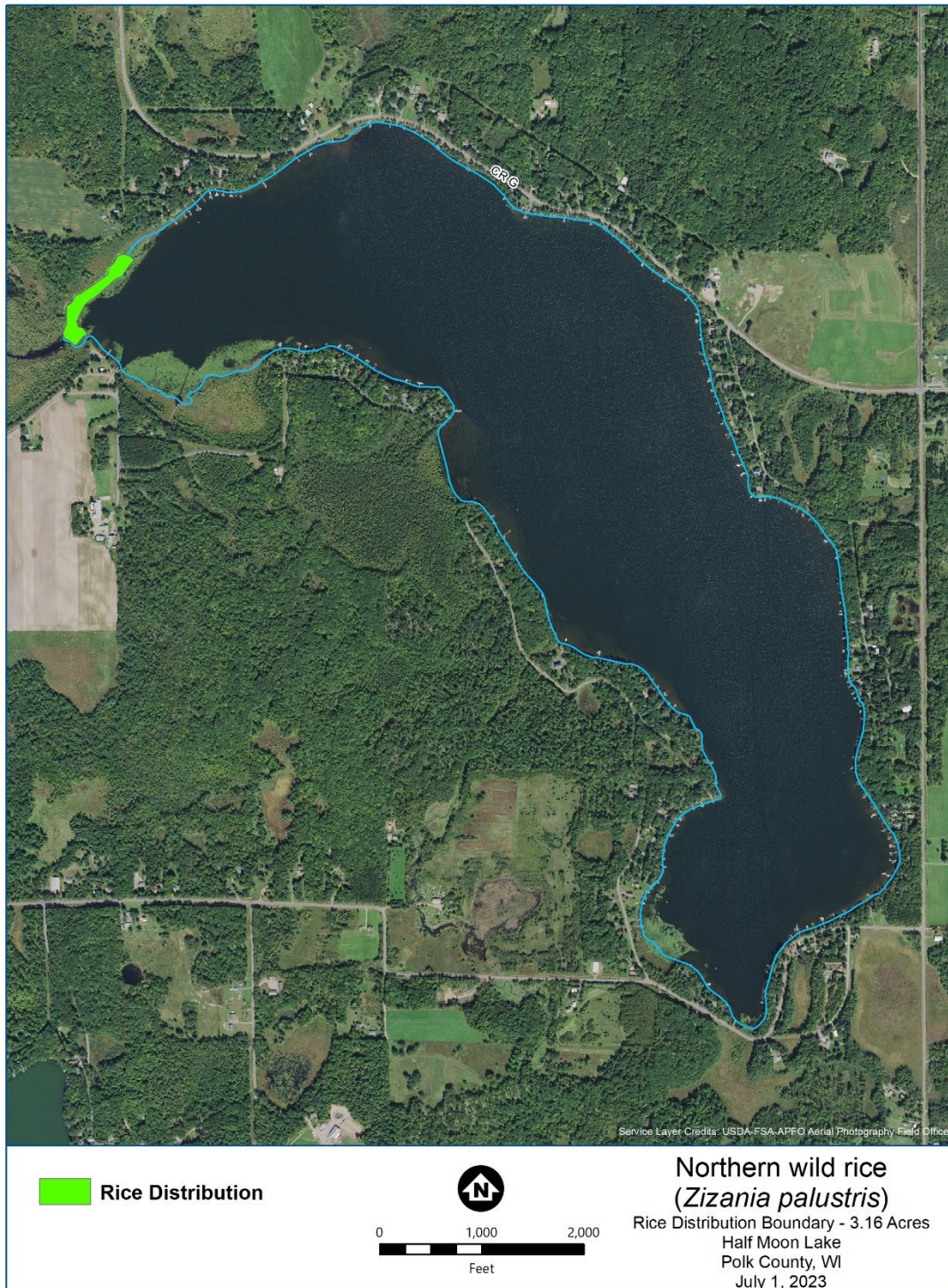


Figure 6 Boundary of Wild Rice Area from Survey Completed on July 1, 2023



Figure 7 Wild Rice (*Zizania palustris*) in Half Moon Lake on July 1, 2023

2022 Half Moon Lake ProcellaCOR Treatment

Eurasian watermilfoil (EWM) was first observed in Half Moon Lake during October 2021. On July 28, 2022 the Half Moon Lake Protection and Rehabilitation District received a WDNR a permit for the removal of 13.71 acres of EWM using ProcellaCOR herbicide. Treatment occurred on August 1. The vast majority (11.09 acres) of the ProcellaCOR treatment area was at or near the area where wild rice had been observed in the lake (Figure 8).

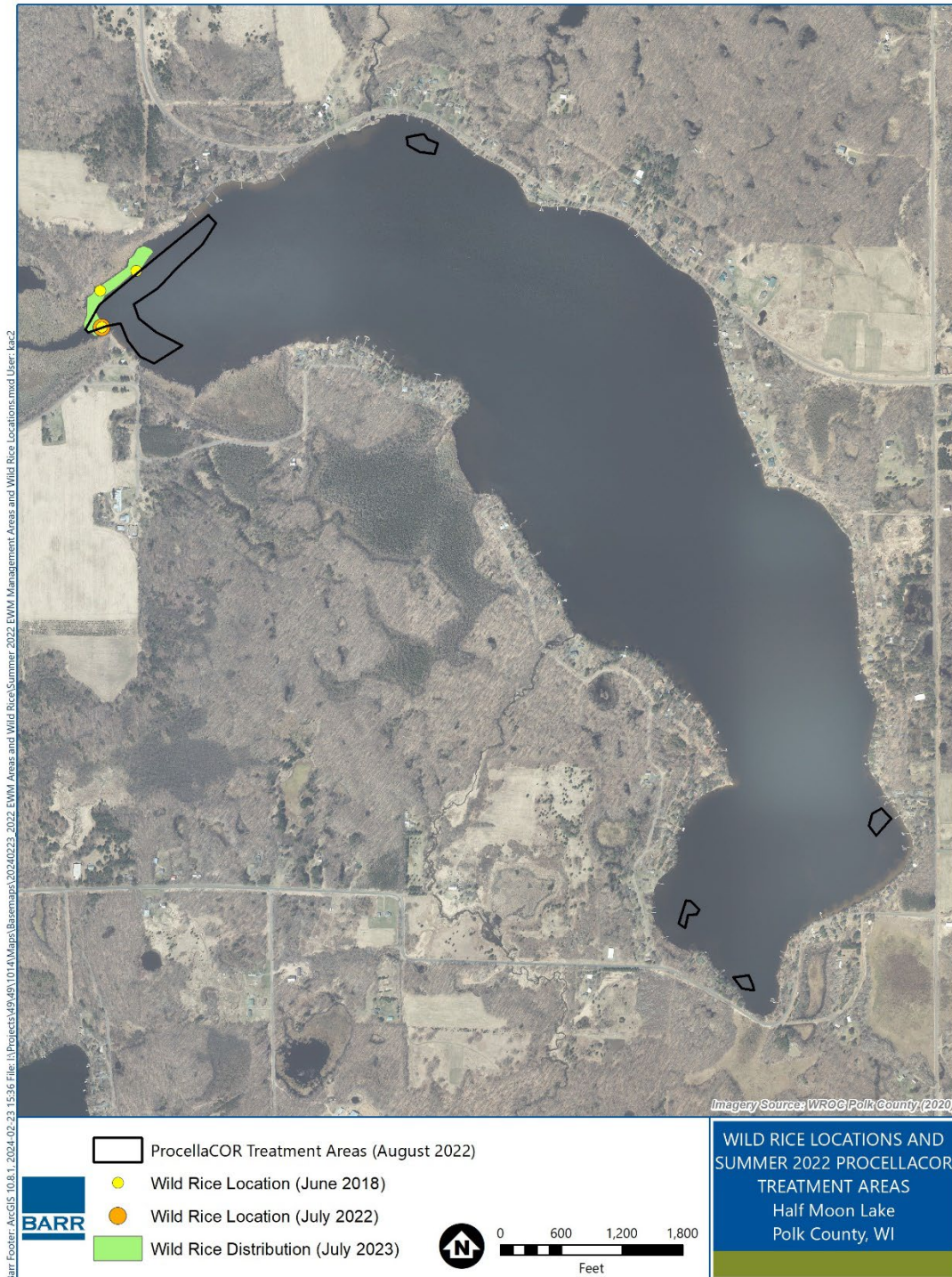


Figure 8 2018, 2022, and 2023 Wild Rice Locations and August 1, 2022 ProcellaCOR Treatment Areas

To: Half Moon Lake Protection & Rehabilitation District Board
From: Meg Rattei, Barr
Subject: Assessment of Half Moon Lake Wild Rice and Response of the Wild Rice to an Application of the Herbicide ProcellaCOR in 2022
Date: February 23, 2024
Page: 11

Post-Treatment Assessment of Half Moon Lake Wild Rice

The 2023 plant survey occurred after the 2022 ProcellaCOR treatment and, hence, provides post-treatment data to assess the response of the wild rice to the 2022 ProcellaCOR treatment. As shown in Figure 9, the area in which wild rice was observed in 2023 coincided with the area in which wild rice had been observed in both 2018 and 2022. The data suggest ProcellaCOR did not adversely impact the wild rice in Half Moon Lake.



Figure 9 2018, 2022, and 2023 Wild Rice Locations Compared with the August 1, 2022 ProcellaCOR Treatment Area Near the Boat Landing