



Summary Report of 2022 Apple Snail Removal

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Job No: J22-005

Project Title: Invasive Species Removal of Apple Snails

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## **1.0 Introduction**

In 2019, the Mobile Bay National Estuary Program (MBNEP) published the *Three Mile Creek Watershed Invasive Species Control Plan* with the purpose of removing, or controlling, invasive plant and animal species within the Three Mile Creek Watershed. The control plan states that, “The Island Apple Snail is the animal species with the highest concentration and presumably highest risk in Three Mile Creek Watershed.” (Page 25) The plan suggests that the best course for reduction is a combination of “chemical, physical and biological treatment methodologies in and around Langan Lake.” (Page 26) This Watershed drains an area of 30.1 square miles and stretches approximately 14 miles from west of the University of South Alabama east across northern Mobile and portions of the City of Prichard to its confluence with the Mobile River.

The Island Apple Snail (*Pomacea maculata*) is thought to have been introduced to the lakes at Langan/Municipal Park (LMP) in the early 2000s as an inadvertent aquarium release. The preponderance of pink snail eggs coating emergent vegetation and infrastructure around the lakes was noticed around 2003. The Alabama Department of Conservation and Natural Resources, Wildlife and Freshwater Fisheries Division initiated concerted chemical eradication/control efforts with copper sulfate. They also attempted trapping and sporadic volunteer snail removal efforts in 2008.

In 2020, MBNEP hired Osprey Initiative, LLC to mechanically remove Apple Snails from LMP. While snail numbers were reduced over time, they were not able to achieve eradication. After a partial success in 2020, the next year was modified to add chemical treatment. The project was extended into 2022 to build on the success of 2021.

### **1.1 Purpose**

This report provides a summary of the 2022 chemical treatment and manual removal efforts to significantly reduce the Apple Snail population in the Three Mile Creek watershed, particularly Langan/Municipal Park (LMP).

## **2.0 Invasive Species Removal**

This project required the manual removal of Apple Snails at LMP by Osprey Initiative twice a week for the 8-month project period in 2022 from March 11th through October 27<sup>th</sup> and included two once-a-week full sweeps of the lake in November. Additionally, American Sport Fish performed 2 trips per month to Langan/Municipal Park (LMP) for the same 8-month period for herbicide, Clipper (Flumioxazin), and molluscicide, Earthtec QZ (Copper sulfate pentahydrate), application. Data from the manual clean-ups was used to focus chemical treatments in high-density areas. Data was tracked based on eggs and snails (live snails, recently dead snails, and long-time dead snails). The lake was broken

out into 10 zones where this data was tracked, shown in Map 1 and Figure 2, along with 66 hot spot zones identified by an egg density of 5 or more eggs or 2 or more live snails within a 3-foot radius.

## **2.1 Langan/ Municipal Park (LMP)**

*Site Description* – Langan Park, also known as Municipal Park, is a 720-acre municipal park in the Spring Hill neighborhood of Mobile, Alabama, USA. The Park opened in 1957 and is home to a wide range of species biodiversity. Three Mile Creek and 12 Mile Creek flow into Langan Lake which is part of the Three Mile Creek Watershed.

*Site Discussion* – This site yields the most snail activity throughout the Three Mile Creek Watershed due to its unique habitat characteristics including: shallow waters, slow water flow, high submerged aquatic vegetation (SAV) concentrations, and hard substrate to lay eggs on.

## **2.2 Three Mile Creek Watershed Exploration**

*Site Description* – Three Mile Creek drains a total of 30.1 square miles. The primary channel flows through about 14 miles of Mobile and dumps into Mobile River before reaching Mobile Bay. It has a wide diversity of substrate, water flows, as well as vegetation.

*Site Discussion* – The watershed has a few additional hot spots of Apple Snail activity encompassing Tricentennial park and Mobile Infirmary. These are defined as zones 11 through 14 on Map 2. These zones will require further regular treatment to duplicate the success achieved at LMP.

## **2.3 Results**

We saw a decrease in snail and egg numbers during the 2022 project season in comparison to the 2021 manual removal efforts. We believe the significant manual and chemical removal efforts from last year and continued into this year furthered the decline in population. We hope to continue to see this falling population trend in 2023.

### 3.0 Apple Snail Data Collection Breakdown

#### Langan Lake Quarterly Snails Removed

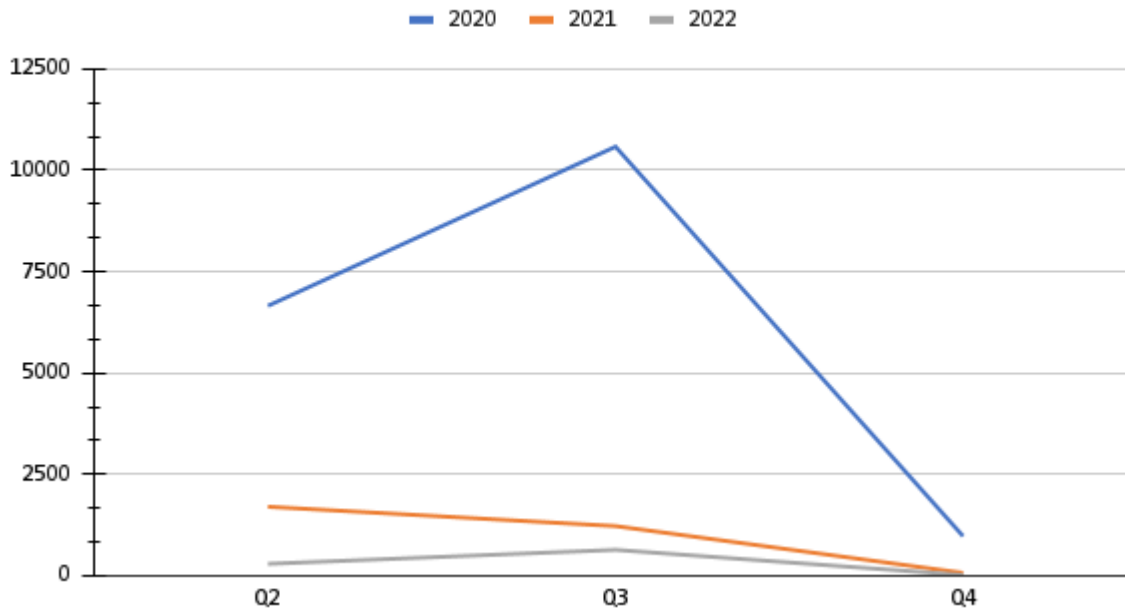


Figure 1: Quarterly breakdown of adult snails removed each year at LMP

#### Langan Lake Quarterly Eggs Removed

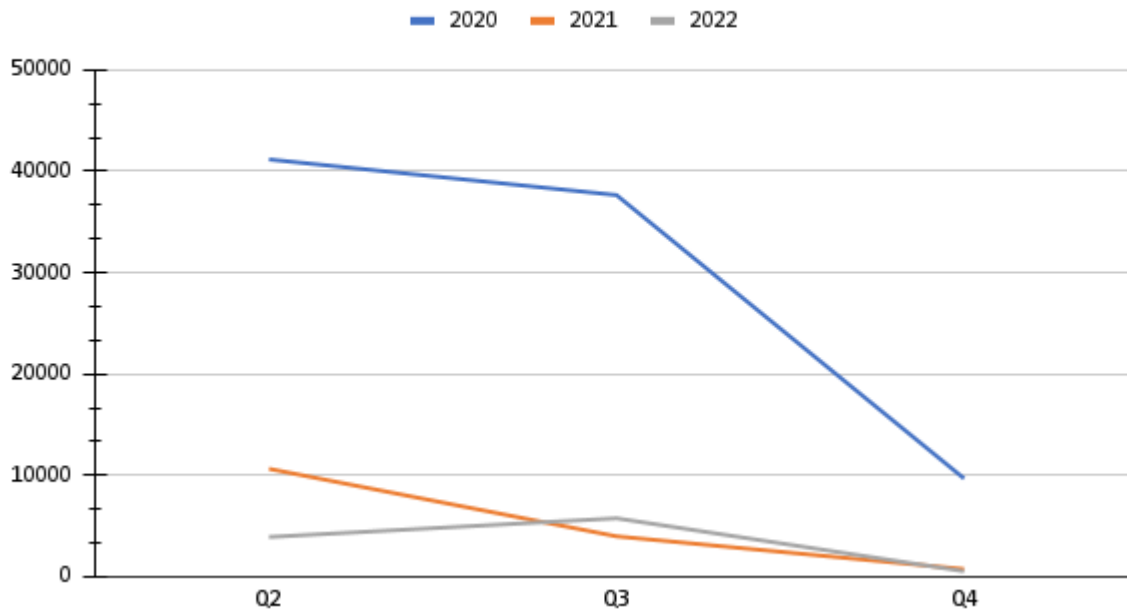


Figure 2: Quarterly breakdown of egg sacs removed each year at LMP

### 3MC Watershed Eggs Removed by Zone

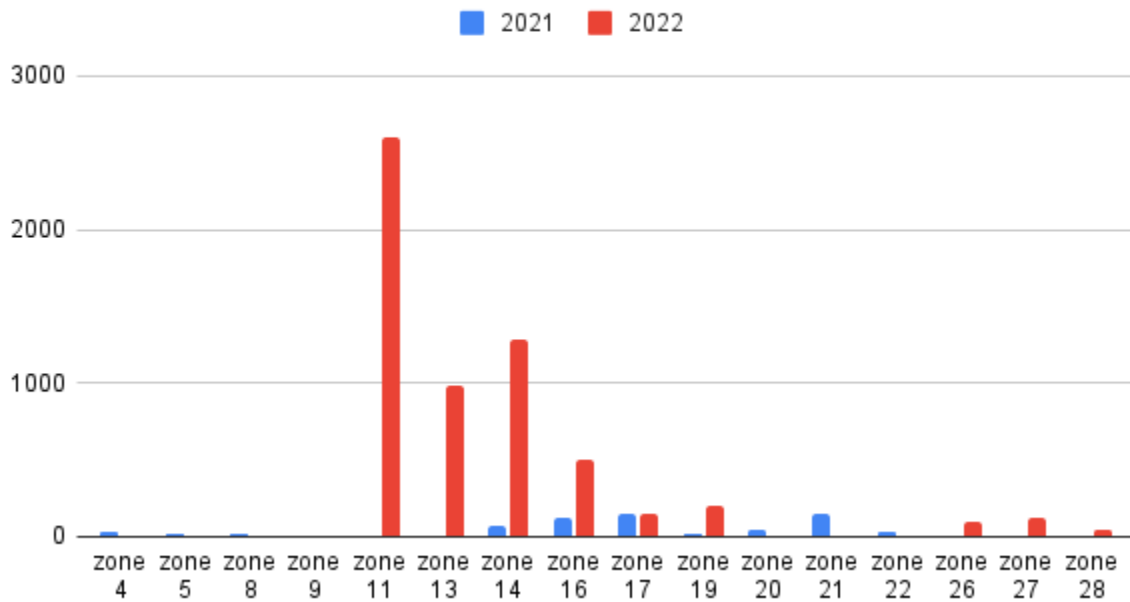


Figure 3: Eggs removed in 2021 and 2022 throughout the 3MC watershed by zone (Ref: Map 2)

### 3MC Watershed Snails Removed by Zone

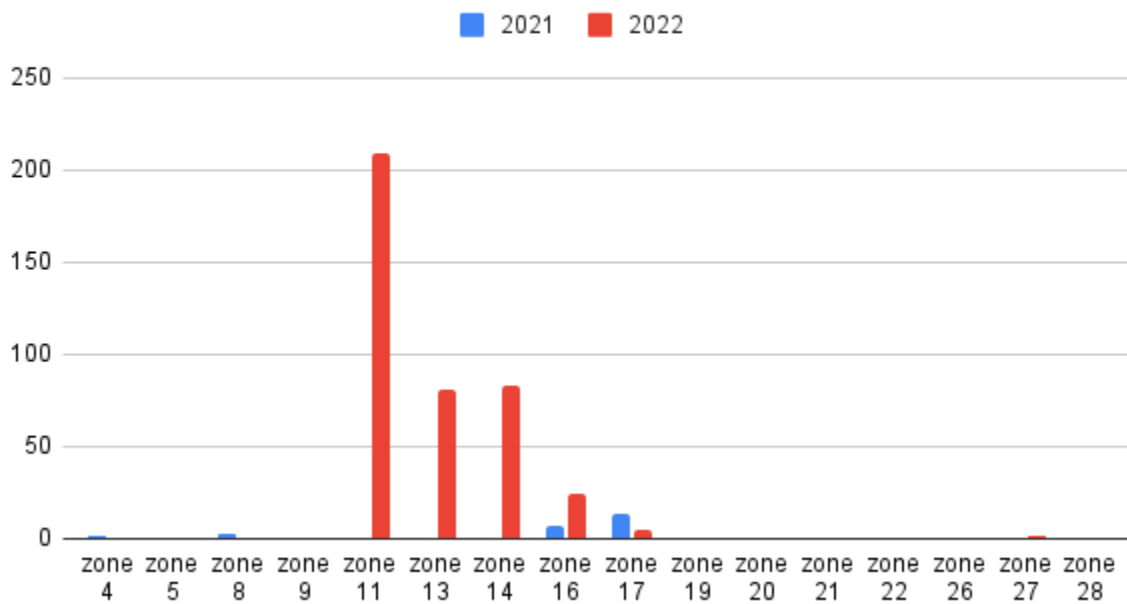
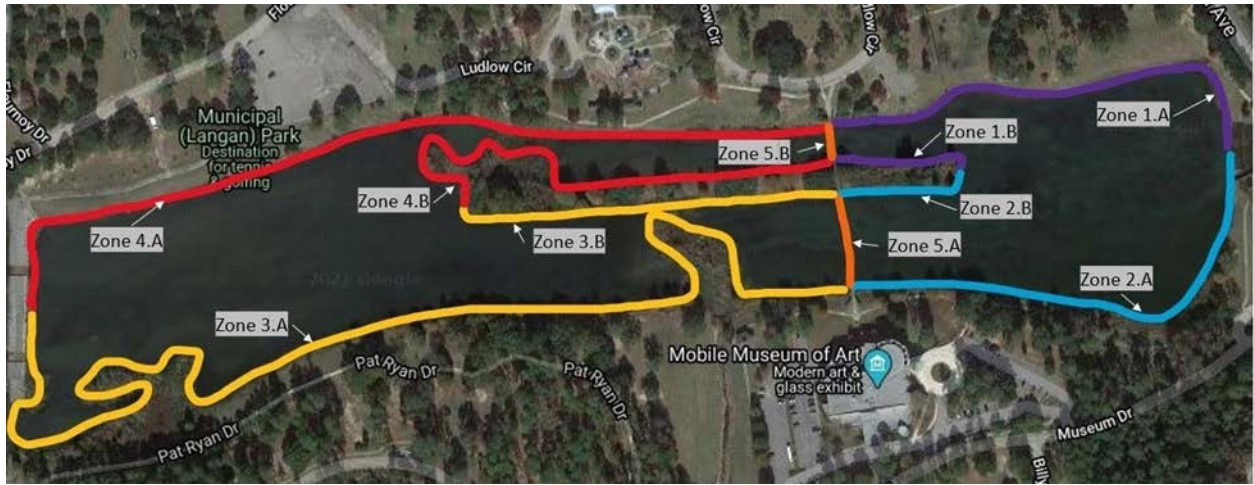
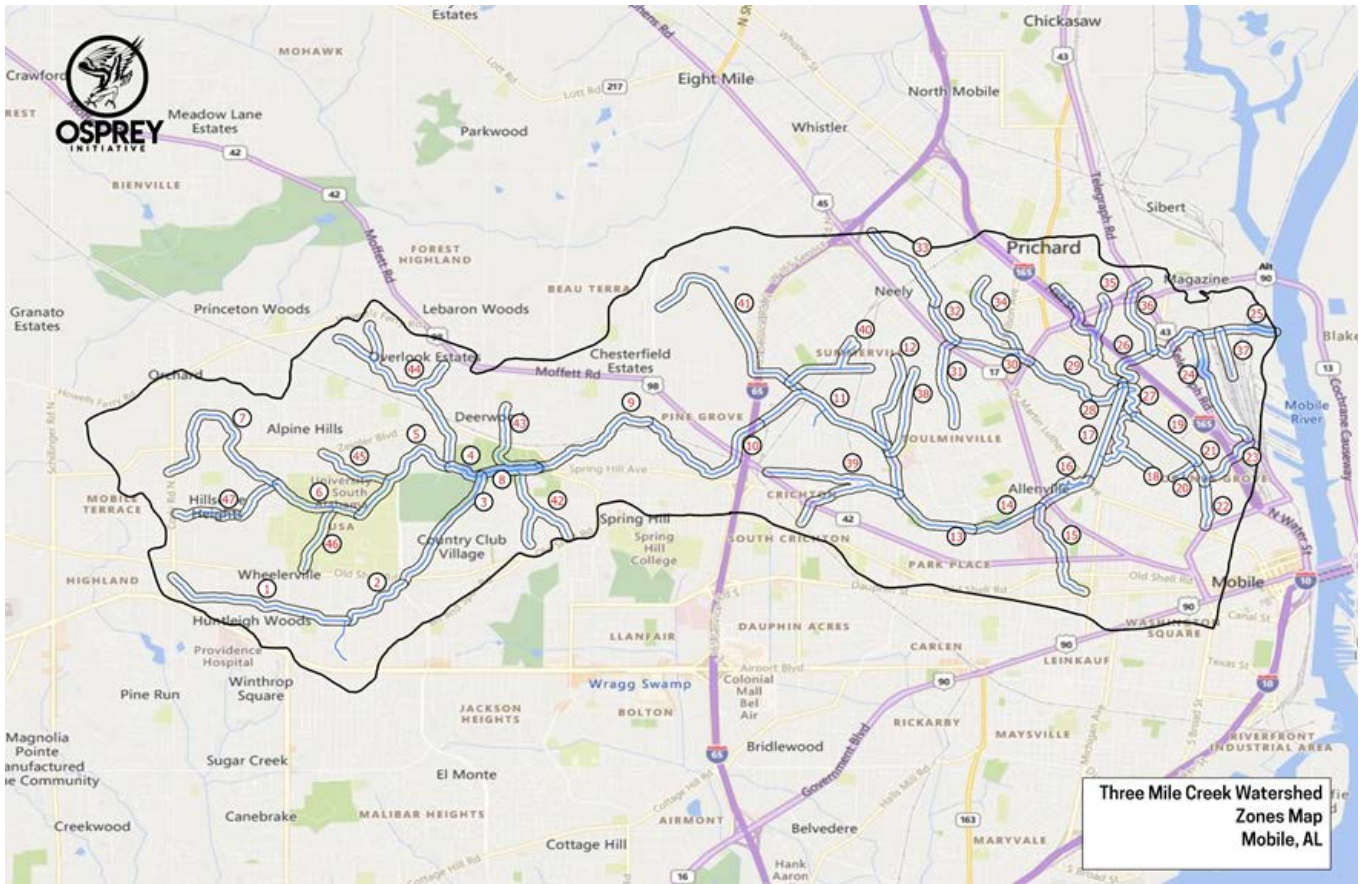


Figure 4: Snails removed in 2021 and 2022 throughout the 3MC watershed by zone (Ref: Map 2)



Map 1: Langan Lake broken into the ten zones.



Map 2: Three Mile Creek Watershed Zone Map

#### **4.0 Conclusion**

The 2022 efforts to remove Apple Snails via mechanical and chemical methods saw a decrease in the overall numbers of both snails and eggs within LMP. With the three-year data set of Apple Snail removal, the downward trend shows that the combined effort of mechanically removing the snails and eggs along with the chemical treatment of the breeding ground provides an effective approach to removing the invasive species from the environment. The waterway running through Tricentennial park in the Three Mile Creek watershed, also defined as Osprey's zones 11 and 13 (ref: Map 2), will require concentrated efforts next season due to the density of eggs and snails recorded this year. With more regular mechanical and chemical treatment of the Three Mile Creek watershed, Osprey projects that the population of the Apple Snails will continue to decrease.