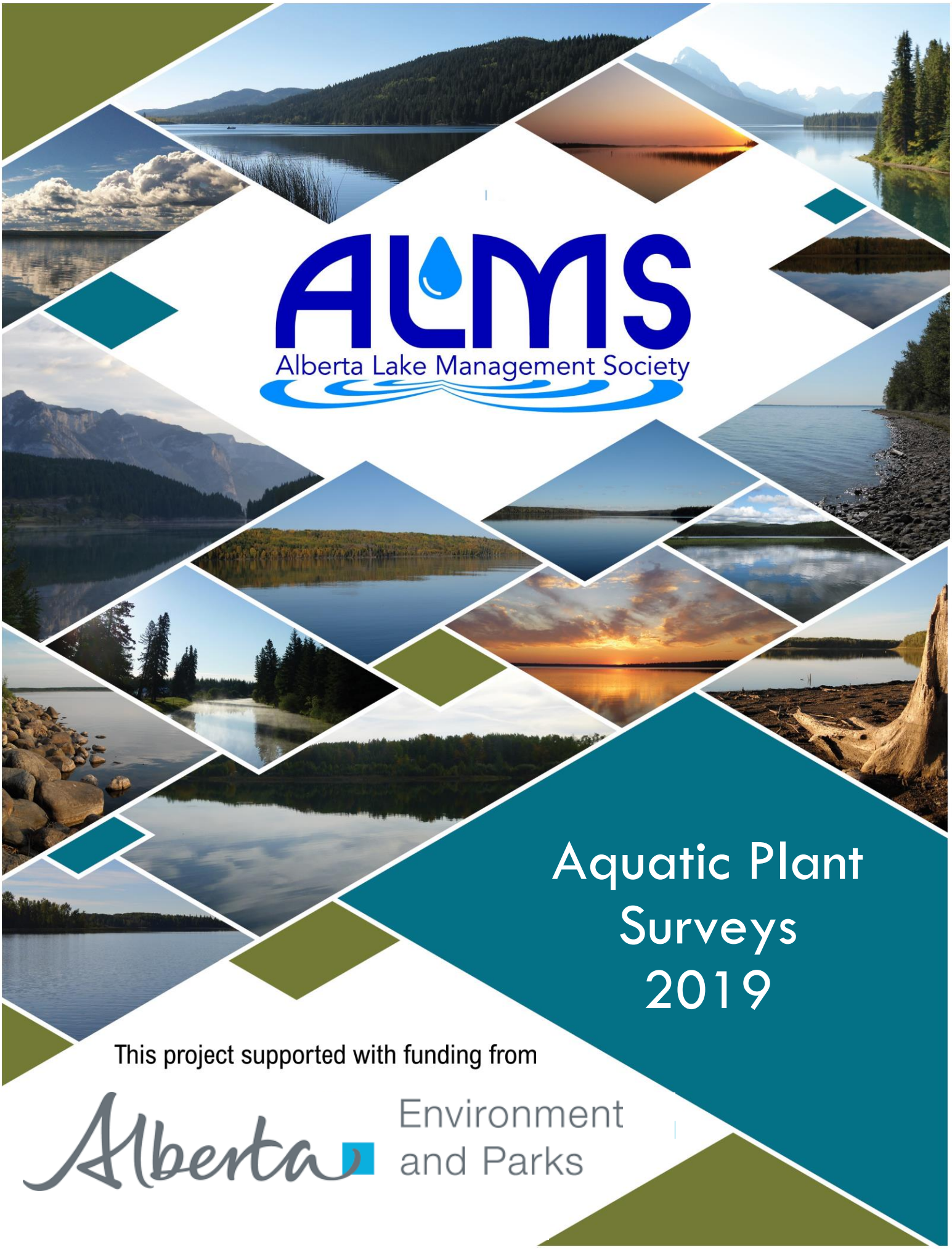

ALMS

Alberta Lake Management Society

Aquatic Plant Surveys 2019

This project supported with funding from

Alberta Environment and Parks

ALBERTA LAKE MANAGEMENT SOCIETY'S OBJECTIVES

The Alberta Lake Management Society (ALMS) has several objectives, one of which is to collect and interpret water quality and biological data on Alberta Lakes. Equally important is educating lake users about their aquatic environment, encouraging public involvement in lake management, and facilitating cooperation and partnerships between government, industry, the scientific community and lake users.

ALMS would like to thank all who express interest in Alberta's aquatic environments and particularly those who have participated in the aquatic plant surveys, or 'bioblitz' events, in 2019. These leaders in stewardship give us hope that our water resources will not be the limiting factor in the health of our environment.

ACKNOWLEDGEMENTS

The aquatic plant surveys were made possible with support from Alberta Environment and Parks.

We would like to thank the volunteers from Wabamun Lake, Half Moon Lake, Antler Lake, Lacombe Lake, Wizard Lake, and Burnstick Lake. We would also like to thank the Alberta Plant Health Lab for their assistance with genetic identification of Watermilfoil specimens, and Sarah Davis Cornet, who coordinated the bioblitz samplings in 2019. The University of Alberta's Plant Herbarium also provided support with specimen preservation. This report has been prepared by Bradley Peter and Caleb Sinn.

INTRODUCTION

Over the years, the Alberta Lake Management Society (ALMS) has conducted many aquatic plant surveys on Alberta lakes. Specifically, ALMS coordinates volunteer based aquatic plant (macrophyte) surveys, or 'bioblitz' events, to engage lake stewards in collecting aquatic plants for the early detection of invasive species. Through 2014 – 2017, seven different lakes were surveyed in collaboration with local volunteers. ALMS also undertakes invasive macrophyte monitoring through the LakeWatch program. In addition, ALMS has also published a macrophyte identification guide, called *Aquatic Plants of Alberta*, which will be updated in 2020. With the bioblitz events, general monitoring, and the macrophyte identification guide, ALMS' primary focus has been to educate Albertans about invasive macrophytes, and identify them in Alberta lakes.

Invasive macrophyte and riparian species of great concern include Eurasian Watermilfoil (*Myriophyllum spicatum*), Flowering Rush (*Butomus umbellatus*), Phragmites (*Phragmites australis australis*), Himalayan Balsam (*Impatiens glandulifera*), Pale Yellow Iris (*Iris pseudacorus*), Purple Loosestrife (*Lythrum salicaria*), Hydrilla (*Hydrilla verticillata*), and Curly Leaf Pondweed (*Potamogeton crispus*).[1, 2] Invasive aquatic plants impact native plant species through habitat competition, which in turn impacts habitat for native fish, invertebrates, waterfowl, and other animals. As invasive aquatic plants are often extremely prolific, they also have the ability to reduce biodiversity, diminish water quality, interfere with recreational activities, and be costly to control and remove.

2019 was the first year ALMS sent Watermilfoil specimens to the Alberta Plant Health Laboratory, who have the capability to genetically differentiate between the native Northern Watermilfoil (*Myriophyllum sibiricum*), and the invasive Eurasian Watermilfoil (*Myriophyllum spicatum*). Such analysis is important for invasive species that are difficult to distinguish morphologically from native species, or for those that hybridize. ALMS will also look to employ eDNA techniques to both detect invasive species in the early stages of their establishment, where invasive species are difficult to detect, but also to detect at-risk species the province is aiming to protect.

In 2019, ALMS conducted macrophyte bioblitz events at six different lakes. Monitoring for Eurasian Watermilfoil also occurred at select LakeWatch lakes (an ALMS lake monitoring program: https://alms.ca/about-lakewatch/), as well as a few other select lakes in Alberta. In total, thirty-two lakes were surveyed for Eurasian Watermilfoil. This report presents the results of the Eurasian Watermilfoil monitoring (Table 1), as well as the results of the bioblitz events that occurred at Wabamun Lake, Wizard Lake, Lacombe Lake, Half Moon Lake, Burnstick Lake, and Antler Lake.

[1] Alberta Government (2020). https://www.alberta.ca/invasive-aquatic-plants.aspx
[2] Alberta Lake Management Society, Aquatic Plants of Alberta (2016).

METHODS

Bioblitz Lakes:

ALMS conducted a single survey for macrophytes (aquatic plants) and macro-algae at each lake in the open water season, as a way to identify the composition of the native plant community and to scan for the presence of invasive species. Multiple sampling locations were chosen to represent the littoral (near shore) habitat across each lake. Locations were chosen prior to each bioblitz. At each sample point, a double sided rake was thrown over the side of a canoe, and collected plants were identified or bagged. If comfortable doing so, staff and volunteers also identified plants which could be seen from the canoe but which were not collected with a rake throw.

Specimens were then brought back to the ALMS office, were there identified, ideally to species level, and enumerated. If a Watermilfoil specimen was collected, it was sent to the Alberta Plant Health Laboratory to genetically differentiate between the native Northern Watermilfoil (*Myriophyllum sibiricum*) and the invasive Eurasian Watermilfoil (*Myriophyllum spicatum*). Many specimens were also preserved by ALMS, and in some cases, were sent the University of Alberta's Plant Herbarium for storage and further analysis.

LakeWatch and Other Lakes Monitored for Eurasian Watermilfoil:

LakeWatch Technicians were tasked with investigating the near shoreline areas of lakes part of the 2019 LakeWatch program. If a Watermilfoil specimen was found, it was collected, then sent to the Alberta Plant Health Laboratory to genetically differentiate between the native Northern Watermilfoil (*Myriophyllum sibiricum*) and the invasive Eurasian Watermilfoil (*Myriophyllum spicatum*). Additional lakes were sampled by ALMS staff, and in some cases, volunteers. If Watermilfoil samples were found at these additional lakes, they were also sent to the Alberta Plant Health Laboratory for genetic analysis. Lakes sampled not part of a bioblitz or LakeWatch program are categorized as 'Other' in Table 1.

Figure 1. Bioblitz volunteers at Lacombe Lake, 2019

RESULTS

Table 1. Sampling information and results of all lakes monitored for Eurasian Watermilfoil by ALMS in summer, 2019. Watermilfoil species identity confirmed genetically by Alberta Plant Health Laboratory.

Lake	County	Sampling Program	Date Collected	Identity
Chip Lake	Yellowhead	Other	June 4	Northern Watermilfoil
Narrow Lake	Athabasca	Other	June 18	Northern Watermilfoil
Half Moon Lake	Strathcona	Bioblitz & LakeWatch	July 5	Northern Watermilfoil
Wabamun Lake	Parkland	Bioblitz & LakeWatch	July 10	Northern Watermilfoil
Antler Lake	Strathcona	Bioblitz & LakeWatch	July 11	Northern Watermilfoil
Crane Lake	Bonnyville	LakeWatch	July 13	Northern Watermilfoil
Lacombe Lake	Lacombe	Bioblitz & LakeWatch	July 13	Northern Watermilfoil
Wizard Lake	Wetaskiwin / Leduc	Bioblitz	July 20	Northern Watermilfoil
Vincent Lake	St. Paul	LakeWatch	July 23	Northern Watermilfoil
Skeleton Lake North Basin	Athabasca	LakeWatch	July 23	Northern Watermilfoil
Skeleton Lake South Basin	Athabasca	LakeWatch	July 23	Northern Watermilfoil
Kehewin Lake	St. Paul / Bonnyville	LakeWatch	July 23	Northern Watermilfoil
Spruce Coulee	Cypress	LakeWatch	August 7	Northern Watermilfoil
Spring Lake	Parkland	Other	August 9	Northern Watermilfoil
Jackfish Lake	Parkland	Other	August 9	Northern Watermilfoil
Mayatan Lake	Parkland	Other	August 9	Northern Watermilfoil
Pigeon Lake	Wetaskiwin	LakeWatch	August 10	Northern Watermilfoil
Burnstick Lake	Clearwater	Bioblitz	August 10	Northern Watermilfoil
Arm Lake	Wainwright	Other	August 11	Northern Watermilfoil
Dillberry Lake	Wainwright	LakeWatch	August 12	Northern Watermilfoil
Mayatan Lake	Parkland	Other	August 17	Northern Watermilfoil
Clear Lake	Wainwright	Other	August 19	Northern Watermilfoil
Sylvan Lake	Red Deer / Lacombe	Other	August 21	Northern Watermilfoil
Pine Lake	Red Deer	Other	August 21	Northern Watermilfoil
Glennifer Lake	Red Deer	Other	August 21	Northern Watermilfoil
Gull Lake	Ponoka / Lacombe	Other	August 21	Northern Watermilfoil
Idano Lake	Parkland	Other	August 22	Northern Watermilfoil
Muir Lake	Parkland	Other	August 22	Northern Watermilfoil
Telford Lake	Leduc	Other	September 4	Northern Watermilfoil
Saunders Lake	Leduc	Other	September 4	Northern Watermilfoil
Hastings	Strathcona	Other	September 4	Northern Watermilfoil
Islet	Strathcona	Other	September 4	Northern Watermilfoil
Coal	Strathcona	Other	September 4	Northern Watermilfoil

Wabamun Lake

ALMS conducted a bioblitz for macrophytes (aquatic plants) and macro-algae at Wabamun Lake on July 10, 2019. Thirty-one sampling locations were chosen before the bioblitz event, and were selected in order to cover a majority of the lake's perimeter.

In total, not including emergents such as rushes and reeds, 14 unique macrophytes were identified. Four additional categories, *Potamogeton* spp., *Chara* spp., Bladderwort (*Utricularia* spp.), and White Water-Crowfoot (*Ranunculus* spp.) were included to categorize individuals which were unidentifiable to species within the *Potamogeton*, *Chara, Utricularia,* or *Ranunculus* genera. An additional group, Aquatic Moss, was also identified. In total, 99 observations were made (Table 4). Identified plants included Arrowhead (*Sagittaria latifolia*), Northern Watermilfoil (*Myriophyllum sibiricum*), Richardson's Pondweed (*Potamogeton richardsonii*), Yellow Pond Lily (*Nuphar lutea*), Spiral Ditch Grass (*Ruppia cirrhosa*), Floating Leaf Pondweed (*Potamogeton natans*), Sheathed Pondweed (*Stuckenia vaginata*), Sago Pondweed (*Stuckenia pectinata*), Flat-Stemmed Pondweed (*Potamogeton zosteriformis*), Coontail (*Ceratophyllum demersum*), Canada Waterweed (*Elodea canadensis*), Water Smartweed (*Persicaria amphibia*), Water Marigold (*Bidens beckii*), and Small Pondweed (*Potamogeton pusillus*). No invasive species were detected in 2019.

Table 2. The number of observations of each plant species during the 2019 bioblitz at Wabamun Lake.

Common Name	# Observations
Chara spp.	24
Northern Watermilfoil	16
Richardson's Pondweed	9
Sheathed Pondweed	9
Bladderwort	6
Sago Pondweed	4
Spiral Ditch Grass	4
Potamogeton spp.	4
Aquatic Moss	4
Flat-Stemmed Pondweed	3
Yellow Pond Lily	3
Coontail	3
White Water-Crowfoot	2
Arrowhead	2
Floating Leaf Pondweed	2
Canada Waterweed	1
Water Marigold	1
Water Smartweed	1
Small Pondweed	1
TOTAL OBSERVATIONS	**99**

Figure 2a. Macrophytes collected at Wabamun Lake on July 10, 2019. Starting from top left and going clockwise: Flat-Stemmed Pondweed (*Potamogeton zosteriformis*), Coontail (*Ceratophyllum demersum*), White Water-Crowfoot (*Ranunculus* spp.), and Bladderwort (*Utricularia* spp.).

Figure 2b. Macrophytes collected at Wabamun Lake on July 10, 2019. Starting from top left and going clockwise: Northern Watermilfoil (*Myriophyllum sibiricum*), *Chara* spp., Floating Leaf Pondweed (*Potamogeton natans*), and Water Marigold (*Bidens beckii*).

Figure 2c. Macrophytes collected at Wabamun Lake on July 10, 2019. Starting from top left and going clockwise: Sheathed Pondweed (*Stuckenia vaginata*), Small Pondweed (*Potamogeton pusillus*), Richardson's Pondweed (*Potamogeton richardsonii*), and Sago Pondweed (*Stuckenia pectinata*).

Figure 2d. Macrophytes collected at Wabamun Lake on July 10, 2019. Starting from top left and going clockwise: Spiral Ditch Grass (*Ruppia cirrhosa*), Yellow Pond Lily (*Nuphar lutea*), and Water Smartweed (*Persicaria amphibia*). Also pictured is the group of volunteers who participated in the bioblitz at Wabamun Lake on July 10, 2019.

Wizard Lake

ALMS conducted a survey for macrophytes (aquatic plants) and macro-algae at Wizard Lake on July 20, 2019, as a way to identify the composition of the native plant community and to scan for the presence of invasive species. Sixty-four sampling locations were chosen before the bioblitz event, and were selected in order to cover a majority of the lake's perimeter.

In total, not including emergents such as rushes and reeds, 10 unique macrophytes were identified. Five additional categories, *Potamogeton* spp., *Chara* spp., Duckweed (*Lemna* spp.), *Stuckenia* spp. and White Water-Crowfoot (*Ranunculus* spp.) were included to categorize individuals which were unidentifiable to species within the *Potamogeton*, *Chara, Lemna, Stuckenia,* or *Ranunculus* genera. Additional groups identified were Cattail (*Typha* spp.), an emergent shoreline plant, Nostoc spp., a filamentous cyanobacteria that can form visible floating spheres or masses and even colonize lawns, and other 'Filamentous Algae,' unidentified further. In total, 189 observations were made (Table 4). Identified plants included Fries' Pondweed (*Potamogeton friesii*), Northern Watermilfoil (*Myriophyllum sibiricum*), Coontail (*Ceratophyllum demersum*), Star Duckweed (*Lemna trisulca*), White-Stemmed Pondweed (*Potamogeton praelongus*), Yellow Pond Lily (*Nuphar lutea*), Arrowhead (*Sagittaria latifolia*), Richardson's Pondweed (*Potamogeton richardsonii*), Sago Pondweed (*Stuckenia pectinata*), and Flat-Stemmed Pondweed (*Potamogeton zosteriformis*). No invasive species were detected in 2019.

Table 3. The number of observations of each plant species during the 2019 bioblitz at Wizard Lake.

Common Name	# Observations
Northern Watermilfoil	51
Flat-Stemmed Pondweed	17
Chara spp.	16
Fries' Pondweed	16
Arrowhead	16
Coontail	12
'Filamentous Algae'	10
Cattail	8
Richardson's Pondweed	8
Sago Pondweed	8
White Water Crowfoot	7
Yellow Pond Lily	6
Stuckenia spp.	5
Star Duckweed	4
Nostoc spp.	2
White-Stemmed Pondweed	1
Duckweed	1
Potamogeton spp.	1
TOTAL OBSERVATIONS	**189**

Figure 3a. Macrophytes collected at Wizard Lake on July 20, 2019. Starting top left going clockwise: Coontail (*Ceratophyllum*), Fries' Pondweed (*Potamogeton friesii*), Arrowhead (*Sagittaria latifolia*), and Flat-Stemmed Pondweed (*Potamogeton zosteriformis*).

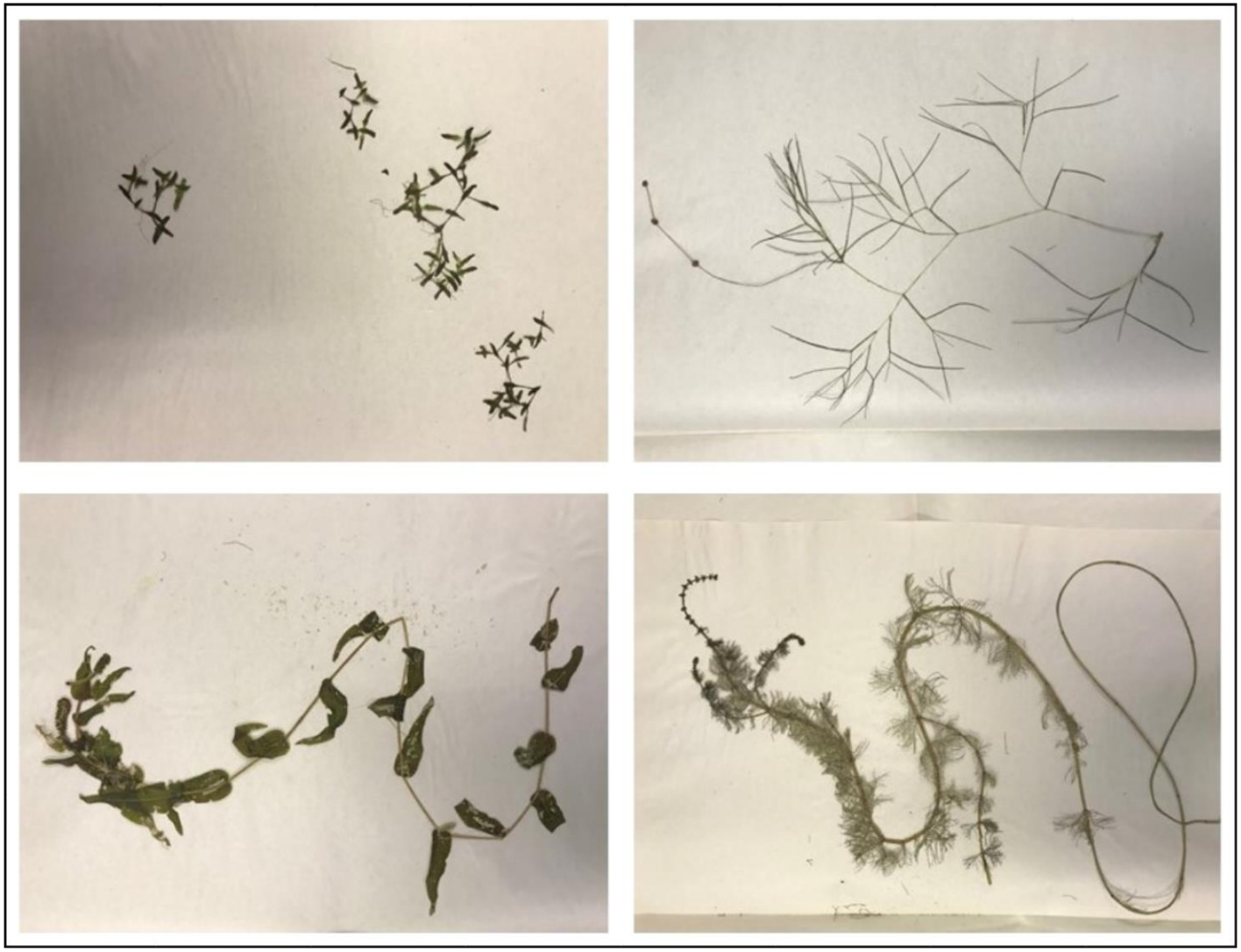

Figure 3b. Macrophytes collected at Wizard Lake on July 20, 2019. Starting top left going clockwise Star Duckweed (*Lemna trisulca*), Sago Pondweed (*Stuckenia pectinata*), Northern Watermilfoil (*Myriophyllum sibiricum*), and Richardson's Pondweed (*Potamogeton richardsonii*).

Figure 3c. Macrophytes collected at Wizard Lake on July 20, 2019. Left is White Water-Crowfoot (*Ranunculus* spp.), and right is White-Stemmed Pondweed (*Potamogeton praelongus*).

Lacombe Lake

ALMS conducted a bioblitz for macrophytes (aquatic plants) and macro-algae at Lacombe Lake on July 13, 2019, to identify the composition of the native plant community and to scan for the presence of invasive species. Forty-nine sampling locations chosen before the bioblitz event, and were selected in order to cover a majority of the lake's perimeter.

In total, not including emergents such as rushes and reeds, 7 unique macrophytes were identified. Three additional categories, *Stuckenia* spp., *Chara* spp., and Bladderwort (*Utricularia* spp.) were included to categorize individuals which were unidentifiable to species within the *Stuckenia*, *Chara* or Utricularia genera. There was also one unknown specimen collected. In total, 132 observations were made (Table 4). Identified plants included Arrowhead (*Sagittaria latifolia*), Northern Watermilfoil (*Myriophyllum sibiricum*), Richardson's Pondweed (*Potamogeton richardsonii*), Yellow Pond Lily (*Nuphar lutea*), Spiral Ditch Grass (*Ruppia cirrhosa*), Fries' Pondweed (*Potamogeton friesii*), and Floating Leaf Pondweed (*Potamogeton natans*). No invasive species were detected in 2019.

Table 4. The number of observations of each plant species during the 2019 bioblitz at Lacombe Lake.

Common Name	# Observations
Bladderwort	28
Stuckenia spp.	24
Chara spp.	8
Yellow Pond Lily	16
Richardson's Pondweed	14
Spiral Ditch Grass	7
Northern Watermilfoil	8
Arrowhead	5
Fries' Pondweed	4
Floating Leaf Pondweed	1
Unknown	1
TOTAL OBSERVATIONS	**132**

Figure 4a. Macrophytes collected at Lacombe Lake on July 13, 2019. Starting from top left and going clockwise: Floating Leaf Pondweed (*Potamogeton natans*), Arrowhead (*Sagittaria latifolia*), *Chara* spp., and Bladderwort (*Utricularia* spp.).

Figure 4b. Macrophytes collected at Lacombe Lake on July 13, 2019. Starting from top left and going clockwise: *Stuckenia* spp., Fries' Pondweed (*Potamogeton friesii*), Richardson's Pondweed (*Potamogeton richardsonii*), and Northern Watermilfoil (*Myriophyllum sibiricum*).

Figure 4c. Macrophytes collected at Lacombe Lake on July 13, 2019. Starting from top left and going clockwise: Yellow Pond Lily (*Nuphar lutea*), Unknown, and Spiral Ditchgrass (*Ruppia cirrhosa*).

Half Moon Lake

ALMS conducted sampling for macrophytes (aquatic plants) and macro-algae at Half Moon Lake on August 14, 2019, to identify the composition of the native plant community and to scan for the presence of invasive species. Eleven sampling locations chosen before the bioblitz event, and were selected in order to cover a majority of the lake's perimeter.

In total, not including emergents such as rushes and reeds, 7 unique macrophytes were identified. One additional category, *Stuckenia* spp., was included to categorize individuals which were unidentifiable to species within the *Stuckenia* genus. In total, 46 observations were made (Table 4). Identified plants included Small Pondweed (*Potamogeton pusillus*), Arrowhead (*Sagittaria latifolia*), Northern Watermilfoil (*Myriophyllum sibiricum*), Richardson's Pondweed (*Potamogeton richardsonii*), Coontail (*Ceratophyllum demersum*), Star Duckweed (*Lemna trisulca*), and Common Duckweed (*Lemna minor*). No invasive species were detected in 2019.

Table 5. The number of observations of each plant species during the 2019 bioblitz at Half Moon Lake.

Common Name	# Observations
Northern Watermilfoil	9
Stuckenia spp.	8
Star Duckweed	8
Coontail	7
Richardson's Pondweed	7
Arrowhead	4
Small Pondweed	2
Common Duckweed	1
TOTAL OBSERVATIONS	**46**

Figure 5a. Macrophytes collected at Half Moon Lake on August 14, 2019. Starting from top left and going clockwise: Coontail (*Ceratophyllum demersum*), Arrowhead (*Sagittaria latifolia*), Small Pondweed (*Potamogeton pusillus*), and Northern Watermilfoil (*Myriophyllum sibiricum*).

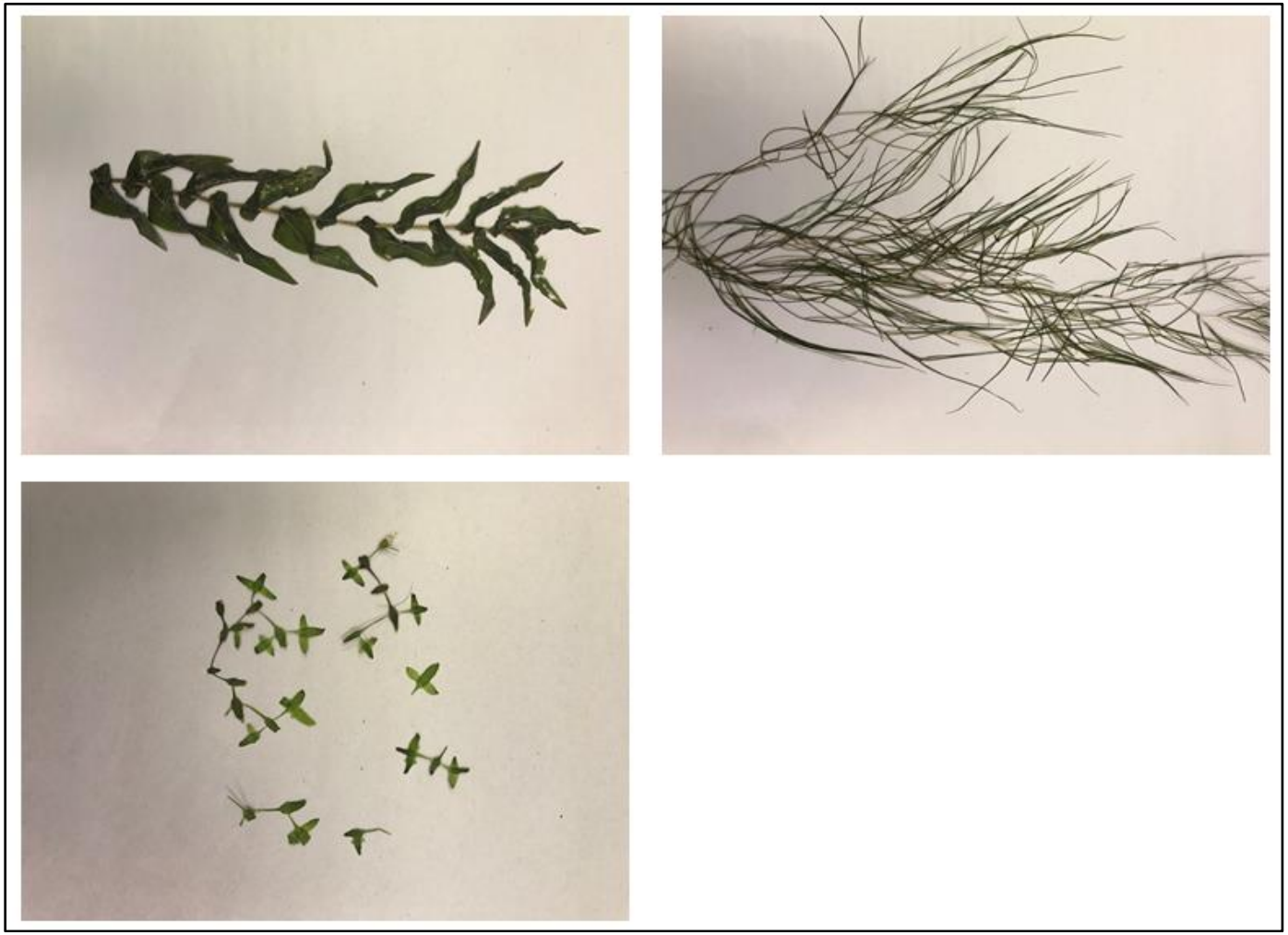

Figure 5b. Macrophytes collected at Half Moon Lake on August 14, 2019. Starting from top left and going clockwise: Richardson's Pondweed (*Potamogeton richardsonii*), *Stuckenia* spp., and Star Duckweed (*Lemna trisulca*).

Burnstick Lake

ALMS conducted a survey for macrophytes (aquatic plants) and macro-algae at Burnstick Lake on August 10, 2019, as a way to identify the composition of the native plant community and to scan for the presence of invasive species. Fifty-six sampling locations chosen before the bioblitz event, and were selected in order to cover a majority of the lake's perimeter.

In total, not including emergents such as rushes and reeds, 11 unique macrophytes were identified. Five additional categories, Bladderwort (*Utricularia* spp.), *Chara* spp., *Nuphar* spp., *Stuckenia* spp., *Potamogeton* spp., and White Water-Crowfoot (*Ranunculus* spp.) were included to categorize individuals which were unidentifiable to species within the *Utricularia*, *Chara, Nuphar, Stuckenia, Potamogeton*, or *Ranunculus* genera. Additional groups identified were *Sparganium* spp., Narrow-Leaf Bur-reed (*Sparganium angustifolium*), Marsh Cinquefoil (*Comarum palustre*), Mare's Tail (*Hippuris vulgaris*), Horsetail (*Equisetum* spp.), Cattail (*Typhus* spp.), and Buckbean (*Menyanthes trifoliate*), which are emergent, shoreline plants, and an unidentified aquatic moss. In total, 184 observations were made (Table 4). Identified plants included Fries' Pondweed (*Potamogeton friesii*), Northern Watermilfoil (*Myriophyllum sibiricum*), Coontail (*Ceratophyllum demersum*), White-Stemmed Pondweed (*Potamogeton praelongus*), Yellow Pond Lily (*Nuphar lutea*), Arrowhead (*Sagittaria latifolia*), Richardson's Pondweed (*Potamogeton richardsonii*), Flat-Stemmed Pondweed (*Potamogeton zosteriformis*), Floating Leaf Pondweed (*Potamogeton natans),* Slender Naiad (*Najans flexilis*), and Canada Waterweed (*Elodea canadensis*). No invasive species were detected in 2019.

Table 6. The number of observations of each plant species during the 2019 bioblitz at Wizard Lake.

Common Name	# Observations
Northern Watermilfoil	41
Yellow Pond Lily	21
Bladderwort	19
Fries' Pondweed	17
Richardson's Pondweed	15
Flat-Stemmed Pondweed	15
Chara spp.	13
Floating Leaf Pondweed	7
White-Stemmed Pondweed	6
Potamogeton spp.	5
White Water Crowfoot	4
Slender Naiad	4
Canada Waterweed	3
Stuckenia spp.	2
Sparganium spp.	2
Narrow-Leaf Bur-reed	1
Nuphar spp.	1
Marsh Cinquefoil	1
Mare's Tail	1
Horsetail	1
Coontail	1
Cattail	1
Buckbean	1
Arrowhead	1
Aquatic Moss	1
TOTAL OBSERVATIONS	**184**

Figure 6a. Macrophytes collected at Burnstick Lake on August 10, 2019. Starting top left going clockwise: Richardson's Pondweed (*Potamogeton richardsonii*), Northern Watermilfoil (*Myriophyllum sibiricum*), Bladderwort (*Utricularia* spp.), and Flat-Stemmed Pondweed (*Potamogeton zosteriformis*).

Figure 6b. Macrophytes collected at Burnstick Lake on August 10, 2019. Starting top left going clockwise Floating Leaf Pondweed (*Potamogeton natans*), Yellow Pond Lily (*Nuphar lutea*), *Stuckenia* spp., and White Water-Crowfoot (*Ranunculus* spp.).

Antler Lake

ALMS conducted a survey for macrophytes (aquatic plants) and macro-algae at Antler Lake on August 8, 2019, as a way to identify the composition of the native plant community and to scan for the presence of invasive species. Nine sampling locations chosen before the bioblitz event, and were selected in order to cover a majority of the lake's perimeter.

In total, not including emergents such as rushes and reeds, 5 unique macrophytes were identified. One additional category, *Stuckenia* spp., was included to categorize individuals which were unidentifiable to species within the *Stuckenia* genus. In total, 33 observations were made (Table 4). Identified plants included Small Pondweed (*Potamogeton pusillus*), Northern Watermilfoil (*Myriophyllum sibiricum*), Coontail (*Ceratophyllum demersum*), Star Duckweed (*Lemna trisulca*), and Common Duckweed (*Lemna minor*). No invasive species were detected in 2019.

Table 7. The number of observations of each plant species during the 2019 bioblitz at Antler Lake.

Common Name	# Observations
Coontail	9
Star Duckweed	9
Common Duckweed	9
Northern Watermilfoil	3
Stuckenia spp.	2
Small Pondweed	1
TOTAL OBSERVATIONS	**33**

Figure 7. Macrophytes collected at Antler Lake on August 8, 2019. Starting top left going clockwise: Star Duckweed (*Lemna trisulca*), Small Pondweed (*Potamogeton pusillus*), *Stuckenia* spp., Coontail (*Ceratophyllum demersum*), and Northern Watermilfoil (*Myriophyllum sibiricum*).