Supplementary Information for “Suppression efficacy of Remotely-Piloted Aircraft Systems-based herbicide application on invasive *Phragmites australis* in wetlands”

Grace K. Lew-Kowal1, Derek T. Robinson2, Janice M. Gilbert3, and Rebecca C. Rooney4

1Grace Lew-Kowal Graduate Student (ORCID: 0009-0005-8277-8741), Biology, University of Waterloo, Waterloo, ON, Canada; 2Derek Robinson Associate Professor (ORCID: 0000-0002-4293-1095), Geography and Environmental Management, University of Waterloo, Waterloo, ON, Canada; 3Janice Gilbert Wetland Ecologist, Executive Director, Invasive *Phragmites* Control Centre, Langton, ON, Canada; 4Rebecca Rooney Associate Professor (ORCID: 0000-0002-3956-7210), Biology, University of Waterloo, Waterloo, ON, Canada

Table S1. Treatment dates and weather parameters during the remotely piloted aircraft system (RPAS)-based herbicide application at two pilot sites used for on-the-ground vegetation surveys. Temperature and relative humidity were measured with an Extech RH300 hygro-thermometer (Extech Instruments, Waltham, MA, USA). Wind direction and wind velocity were measured with a Kestrel 1000 anemometer (Kestrel Instruments, Boothwyn, PA, USA).

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| **Site** | **Date of treatment** | **Temperature (°C)** | **Relative humidity (%)** | **Wind direction** | **Wind velocity (kph)** |
| Baie du Doré | September 1, 2022 | 25.0 | 53.6 | west | 1.7 |
| Rondeau Provincial Park | September 14, 2022 | 23.0 | 63.4 | south | 5.0 |

Table S2. Equations and associated references used to calculate plant diversity metrics. The variable s represents a given species identified in the quadrat and pi represents the proportion of a given species in the quadrat.

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| **Plant diversity metric** | **Equation** | **Reference** |
| Species richness |  | Fisher et al. 1943 |
| Pielou’s evenness |  | Pielou 1975 |
| Simpson’s reciprocal diversity |  | Hill 1973 |
| Shannon-Weiner diversity |  | Shannon 1948 |
| Mean coefficient of conservatism |  | Kutcher and Forrester 2018 |

Table S3. List of vegetation species identified in experimental control and treatment plots at Baie du Doré and Rondeau Provincial Park wetlands in the year before (2022) and year after (2023) remotely piloted aircraft system (RPAS)-based herbicide treatment to Phragmites australis.

|  |  |  |  |
| --- | --- | --- | --- |
| **Site** | **Year** | **Treatment type** | **Species** |
| Baie du Doré | 2022 | control | *Elodea canadensis* |
|  | *Lemna minor* |
|  | *Myriophyllum sibiricum* |
|  | *Najas flexilis* |
|  | *Phragmites australis* |
|  | *Potamogeton natans* |
|  | *Typha* x *glauca* |
|  | 2022 | treatment | *Lemna minor* |
|  | *Lycopus americanus* |
|  | *Myriopyllum sibiricum* |
|  | *Najas flexilis* |
|  | *Phragmites australis* |
|  | *Potamogeton zoteriformis* |
|  | *Typha* x *glauca* |
|  | 2023 | control | *Ceratophyllum demersum* |
|  |  |  | *Geranium robertianum* |
|  |  |  | *Impatiens capensis* |
|  |  |  | *Lemna minor* |
|  |  |  | *Phragmites australis* |
|  |  |  | *Typha* x *glauca* |
|  | 2023 | treatment | *Carex* spp. |
|  | *Ceratophyllum demersum* |
|  | *Erechtites* spp. |
|  | *Impatiens capensis* |
|  | *Lemna minor* |
|  | *Lemna trisulca* |
|  | *Persicaria lapathifolia* |
|  | *Phragmites australis* |
|  | *Utricularia vulgaris* |
| Rondeau Provincial Park | 2022 | control | *Bidens tripartita* |
| *Boehmeria cylindrica* |
|  | *Carex* spp*.* |
|  | *Cephalanthus occidentalis* |
|  | *Cicuta bulbifera* |
|  | *Galium labradoricum* |
|  | *Hydrocharis morsus-ranae* |
|  | *Impatiens capensis* |
|  | *Lemna minor* |
|  | *Persicaria amphibia* |
|  | *Phragmites australis* |
|  | *Prunella vulgaris* |
|  | *Thelypteris palustris* |
|  | 2022 | treatment | *Bidens tripartita* |
|  |  |  | *Cephalanthus occidentalis* |
|  |  |  | *Cicuta bulbifera* |
|  |  |  | *Circaea lutetiana* |
|  |  |  | *Cornus sericea* |
|  |  |  | *Hydrocharis morsus-ranae* |
|  |  |  | *Lemna minor* |
|  |  |  | *Lemna trisulca* |
|  |  |  | *Persicaria amphibia* |
|  |  |  | *Phragmites australis* |
|  | 2023 | control | *Bidens tripartita* |
|  | *Boehmeria cylindrica* |
|  | *Carex* spp*.* |
|  | *Cephalanthus occidentalis* |
|  | *Cicuta bulbifera* |
|  | *Circaea lutetiana* |
|  | *Hydrocharis morsus-ranae* |
|  | *Impatiens capensis* |
|  | *Leersia oryzoides* |
|  | *Lemna minor* |
|  | *Lemna trisulca* |
|  | *Mimulus ringens* |
|  | *Persicaria amphibia* |
|  | *Persicaria lapathifolia* |
|  | *Phragmites australis* |
|  | *Sium suave* |
|  | *Sparganium eurycarpum* |
|  | 2023 | treatment | *Bidens tripartita* |
|  | *Cicuta bulbifera* |
|  | *Hydrocharis morsus-ranae* |
|  | *Leersia oryzoides* |
|  | *Lemna minor* |
|  | *Sparganium eurycarpum* |
|  | *Zizania aquatica* |