Management of *Clematis vitalba* at 'Suez Pond'

Assessment of monitoring and control using manual methods

A Wild Work Report for Passage Tidy Towns

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Wild Work is a SECAD initiative

1 Introduction.

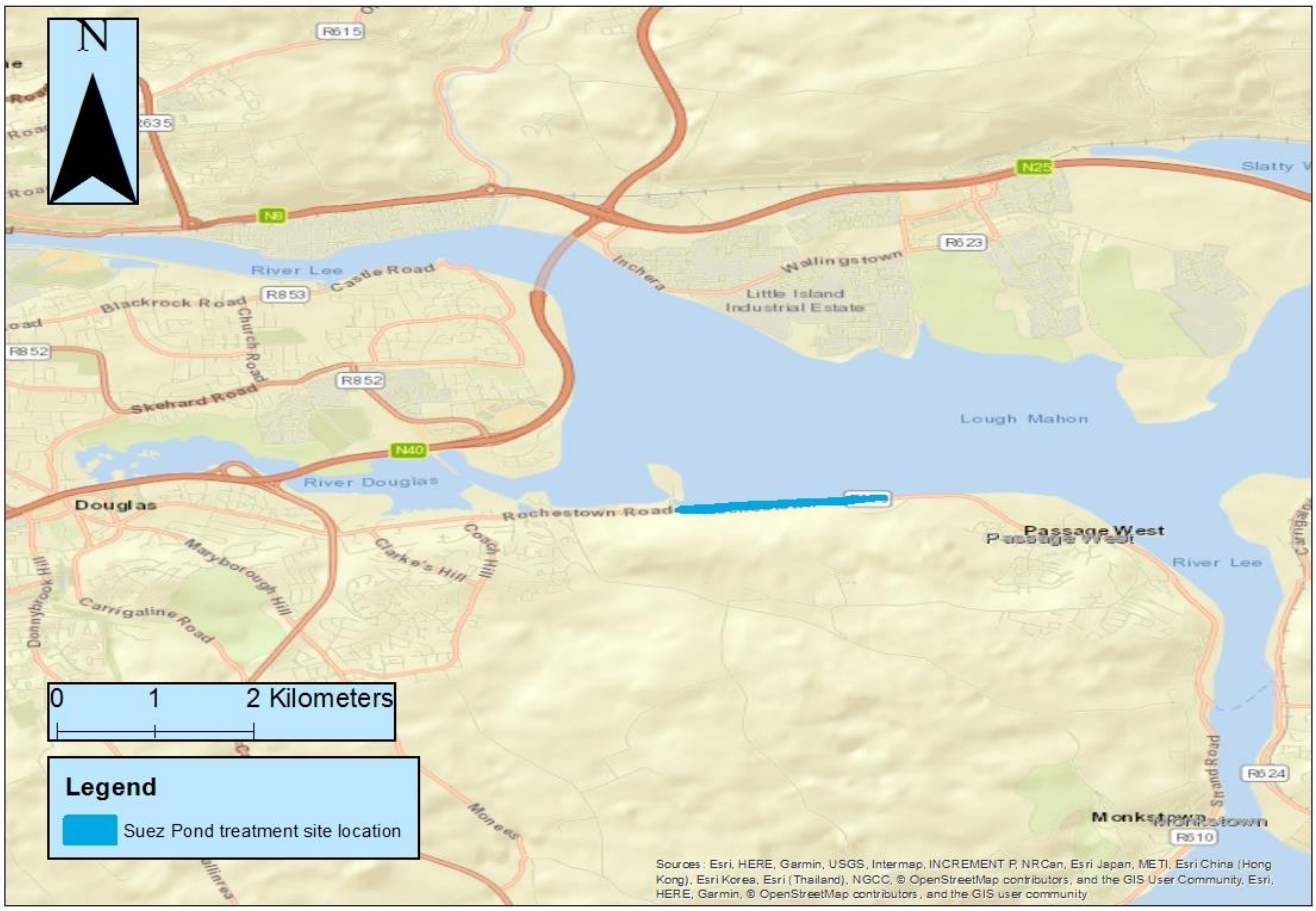

Figure 1 - Location of Suez Pond

The site known locally as the 'Suez Canal' or 'Suez Pond', is a linear excavated area in which a freshwater pond and other habitats have formed. The pond is an important place for local biodiversity (Flynn, 2010) and is situated adjacent to a walkway and cycleway known locally as 'The Line'. The pond is surrounded by semi-natural woodland habitats. There is an infestation throughout the woodland habitats of the non-native vine *Clematis vitalba;* known locally as 'Mile-A-Minute' because of how fast it grows. It is also known by other common names such as Traveller's Joy, as it is found along roadsides; and Old Man's Beard because of its fluffy seed heads. The plant will be referred to as Clematis throughout this report.

Working on behalf of Passage Tidy Towns, Wild Work are implementing a programme of work that will introduce a system of monitoring and control of Clematis using manual methods.

As far as the author is aware, the documentation of such work in Ireland has not previously been done. This project is pioneering in that sense, particularly in the Cork area.

This project aims not only to control Clematis at Suez Pond, but to learn from the experience and to share what is learned with others. Clematis is not considered native in Ireland, but it is native to the Southern England. It is a problematic species in different parts of the world, especially New Zealand (CABI - Invasive Species Compendium, 2018). It is the view of the author, that given that the plant is native to many other parts of Europe and that we have such a suitable climate, it may be that Clematis has always been destined to become a member of Ireland's native flora, given enough time.

At present in the Cork harbour area the plant appears to be very problematic, displaying invasive characteristics. However, there is insufficient research in Ireland to be able to determine how problematic it really is. Therefore, this project is about trying to understand what effects manual management methods can have in areas with Clematis infestations, how successful manual management can be and the most efficient ways to go about it. The project does not expect to eradicate the plant, but rather to manage in such a way that the existing native species of flora and fauna associated with Suez Pond can benefit.

Treatment took place in October / November 2018. An assessment of the effectiveness of the treatment methods was made in July 2019. This report was updated following that assessment and the findings of that assessment are in the Assessment Results section below.

1.1 Integrating the local community into the project.

Wild Work have created a template in Suez Pond that can be continued by local community volunteers. As part of the project, community volunteers have been integrated into the work and made aware of what needs to be done so that they themselves can take on responsibility for doing the work going forward.

The provisional plan is for Passage Tidy Towns to continue to manage the clematis with support from SECAD's Tús Biodiversity Team.

2 About Clematis.

Environmental Requirements

Clematis vitalba can grow in a variety of habitats and is commonly associated with degraded and disturbed areas (Beekman, 1980).

Light is an important factor for its growth and it thrives in areas with an abundance of light such as along forest boundaries (Bungard, Morton, McNeil, & Daly, 1998).

It is generally found in Europe where annual rainfall is more than 800 mm (Atkinson, 1984)

2.1 Invasive characteristics.

Clematis thrives along forest margins where light gaps allow it to grow into a dense, light-absorbing canopy that suppresses all vegetation underneath (CABI - Invasive Species Compendium, 2018).

According to a 2016 publication by Ireland's Dept. of Agriculture, Food and the Marine (DAFM, 2016), Clematis has '*escaped into our natural environment and is particularly invasive in the southern half of Ireland. It can invade a range of habitats including agricultural land, long grass, fence lines, waste land, open spaces, roadsides, and forest edges. It can grow up to 7 times faster than ivy. Stems can grow several metres in a single season. The vines can form a dense, light absorbing canopy that suppresses all vegetation beneath it and can be so vigorous that the weight of the foliage and stems breaks the supporting trees. One plant can blanket an area of 180 sq. metres*'. The publication also suggests that complete eradication of Old Man's Beard from a site may take several years and control requires continued monitoring and follow-up over a number of years to deal with re-growth and subsequent seedling germination. The small seeds can be spread unintentionally on shoes, clothes and machinery. The plant is capable of vegetative regeneration, so it is important that hanging vines do not come in contact with the ground (DAFM, 2016)

2.2 Safety considerations.

Contact with Clematis can cause irritant dermatitis of the skin (CABI - Invasive Species Compendium, 2018). From the author's personal experience with manual control of the plant that involved pulling and cutting, a skin rash can easily and quickly occur and may take several weeks to clear. This is more likely to happen when the plant has sap flowing through it, so Clematis is safer to work on outside of the growing season if possible and appropriate clothing should always be worn.

2.3 Uses.

Species of the genus Clematis have been used traditionally to make medicine for the treatment of various ailments (Chawla, Kumar, & Sharmac, 2012). In different parts of Europe, Clematis has also been used for making ropes and baskets (Johnson, 2001)

Thanks to the survival of old gastronomic traditions, in Central Italy *Clematis vitalba* is commonly used as a wild vegetable (Pieroni, 1999)

3 Deciding on what approach to take.

The preferred approach for weed control, of plants such as Clematis, is Integrated Pest Management (IPM) whereby a range of different control methods are used dependent on a site's requirements. Methods might include manually cutting plants or chemical methods such as herbicide application. These methods are used together to minimize negative environmental, economic and social impacts associated with the work (KingCounty.Gov, 2010). According to a National Roads Authority publication on management of noxious weeds in Ireland, Clematis can be controlled by mechanical/manual control and herbicide application, typically relying on a combination of both (NRA, 2010).

The King County Noxious Weed Programme advises the following methods for manual control:

- Cut vines on trees or fences at about waist height, follow the vine back to the root and dig it out.
- Upper vines can be left on the trees since they will die back or can be removed if it is safe and feasible to do so.
- Make sure remaining vines are not touching the ground because Old Man's Beard can form roots at stem nodes.
- Vines growing along the ground should be dug up and removed.
- Pull small plants and seedlings when the soil is damp during winter or spring.
- Although plants can be dug up year-round, it is ideal to do so during the winter, when most plants are dormant, to minimize disturbance to the surrounding vegetation (KingCounty.Gov, 2010).

Attempts to eradicate Clematis from an area once it has been established can be futile. This can sometimes simply come down to a lack of available resources, or existing resources running out (Ogle, La Cock, Arnold, & Mickelson, 2000) .

The use of sheep to eat Clematis regrowth and seedlings has been used as a method of control (Ogle, La Cock, Arnold, & Mickelson, 2000), though this is not a method that would be suited to most places where Clematis occurs in Cork today.

3.1 Opting against chemical control.

Use of chemical control methods to help achieve eradication has not been deemed suitable for Suez Pond. This is due to several factors which include: limited financial and labour resources available for the project; the sensitive nature of the Suez Pond in terms of flora and fauna; the proximity of the site to a popular recreation amenity; and the likelihood of seeds spreading back into the site from elsewhere meaning complete eradication will most likely be impossible in any case.

Instead, the aim of this project has been to introduce a method of controlling Clematis manually, using techniques that will be largely, albeit not completely successful, but can easily be maintained and or implemented by others elsewhere. Bringing a balance back to the ecosystem by introducing sustainable long-term management is the main aim of the work.

Figure 2 - Wetland/woodland habitat in the treatment site, where Clematis has yet to take over completely

4 Methods used.

The Clematis infestations at Suez Pond can be categorised into two different types:

- Type 1 - Clematis on the ground growing horizontally
- Type 2 - Clematis growing vertically, mainly up trees

Figure 3 - Infestation type 1 and 2 - Clematis growing horizontally and vertically.

4.1 Infestation type 1 - Clematis on the ground growing horizontally.

Excluding areas that are important for wetland birds (see note below), four main areas exist where Clematis growth can be described as carpeting the ground.

It is possible to pull and remove plants manually, but this method would be far too labour intensive.

Two of the four areas have been selected as areas to manage and the other two will be left alone for comparison.

The two areas have been cut with strimmers.

Clippings have been raked and put into brash piles.

The process will be repeated in 2019 as required.

The idea is to see if there will be any positive effect from this form of management in terms of the type of flora habitat that will develop in the two managed areas.

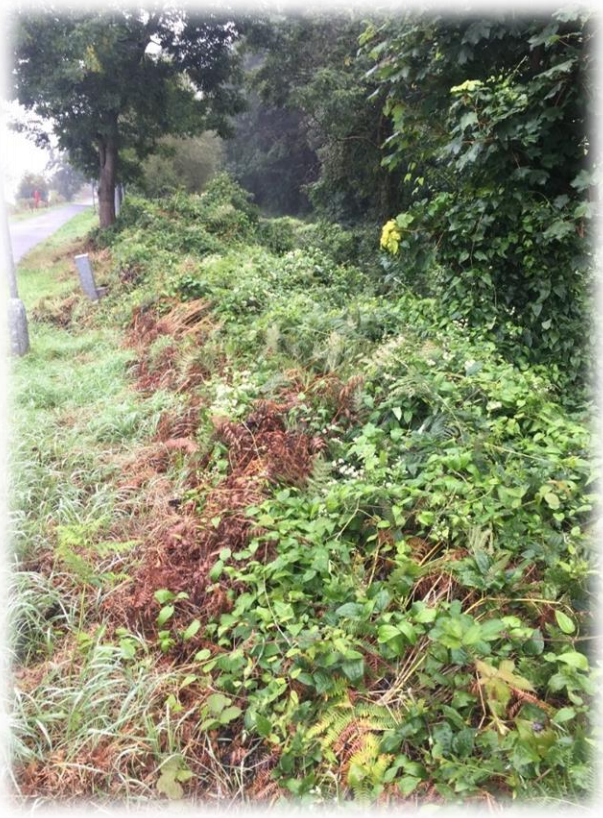

Figure 4 - Clematis on the ground growing horizontally.

Important note:

Along the 'The Line' walkway and cycleway there is a bank of vegetation that is acting as a barrier between land and sea. Important mudflat habitat (part of a designated Special Protection Area) exists for wading birds on the harbour side of this feature and the cutting of this vegetation could create disturbance for birds as well as removing an important barrier that is protecting the birdlife from further disturbance in future. Because of this, none of these areas with carpeting clematis have been worked on. Special Protection Areas (SPAs) are areas designated under a European Directive, commonly known as the Birds Directive, aimed at protecting wild birds and their habitats.

Figure 5 - Clematis carpets providing a barrier for wetland birds.

4.2 Infestation type 2 - Clematis growing vertically, mainly up trees.

Figure 6 - Example of extreme Clematis infestation in trees - located on the roadside opposite Suez Pond.

As shown in figure 3, there are places near Suez Pond where Clematis has taken a very strong foothold. Within the confines of the Suez Pond treatment site, there are a few isolated places where this extreme carpeting is beginning to occur. This is due to a lack of management over a good number of years.

To achieve quick success, the approach taken was to cut all Clematis vines that grew on trees. More than 100 trees were treated. This way, it was intended that over 90% of the Clematis could be brought under control. The Clematis vines were cut using hand-held loppers and shears. All the Clematis vegetation has been left in the treetops.

Care was taken not to cut the vines of native species such as Honeysuckle (*Lonicera periclymenum)* and/or Ivy (*Hedera helix*).

Labour requirement: It is difficult to quantify the amount of time that it takes to manually tackle a Clematis infestation with this approach. It depends on the type of infestation, the terrain, accessibility to the vines etc. However, it is worth noting that progress can be quicker than generally expected.

Figure 7 - Clematis vines that have been cut.

5 Expected results.

The site will be monitored throughout the next year and the effects of the manual control methods will be documented.

It is expected that more light will get into the woodland floor and the pond itself. This should have a positive effect on the habitats.

The Clematis should be easy to keep under control in terms of its spread up trees.

It is more difficult to determine the expected rate of success for the horizontal infestations of Clematis.

6 Assessment results.

Infestation type 1 - Clematis on the ground growing horizontally.

The two areas were cut with strimmers.

Clippings were raked and put into brash piles.

- The difference between the two areas treated as above and the two control areas was negligible.

Infestation type 2 - Clematis growing vertically, mainly up trees.

The Clematis vines were cut using hand-held loppers and shears.

- Where this method was used there was complete die-back of Clematis in the canopy above where cuts were made.

Figure 8 - Tree October 2018 with obvious fruiting Clematis in canopy.

Figure 9 - Tree July 2019 with canopy open and dead Clematis vines.

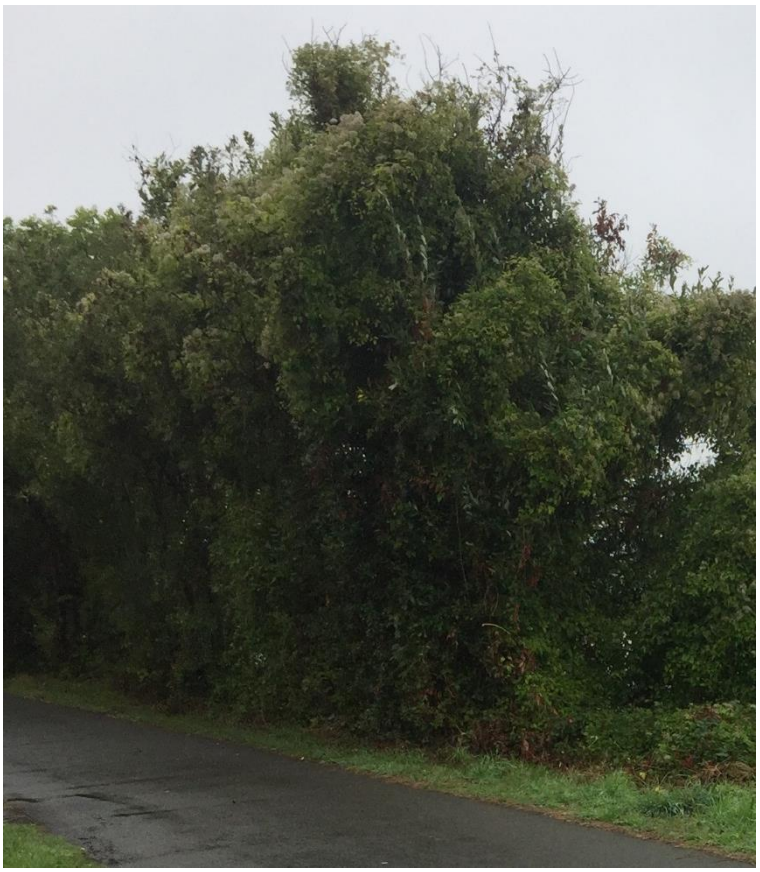

Figure 10 - Hedgerow 2018 with obvious fruiting Clematis in canopy.

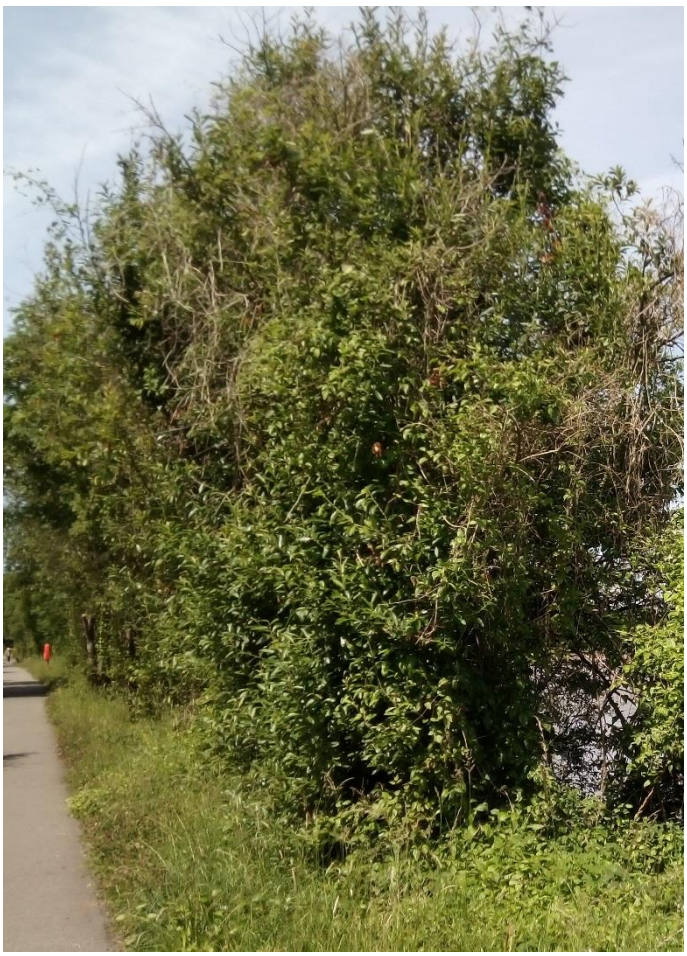

Figure 11 - Hedgerow 2019 with dead Clematis vines in canopy.

7 Recommendations.

Follow up Clematis control work to be carried out as required.

All results should be documented and shared with others interested in learning more about Clematis control in Ireland.

General education and awareness sessions about biodiversity associated with Suez Pond should be run to help raise awareness of this project.

Figure 12 - Species rich grassland habitat in the treatment site, where Clematis has yet to invade.

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