Invasive Ghosts of Seasons' Past / New Practices for Seasons' Futures

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Ambitious actions continue to occur throughout the watershed to remediate negative water quality impacts from activities of yesteryear, including attempts to control the spread of invasive species throughout the Owasco Lake watershed. Despite challenges of navigating a public health crisis, those efforts have managed to remain throughout 2020. An example of this protection determination is on display at the town of Owasco highway department facility, located on the northeastern corner of the Owasco lake.

More than a generation ago, the town of Owasco expanded their Water Filtration Plant and Highway Department operations behind their East Lake Road facility. As the town constructed parking and material storage areas, they inadvertently filled and impacted an onsite regulated wetland. The wetland, A-18, is a regulated 47.5 acre seasonally flooded, palustrine forested wetland (code PFO1E), and a small section of the Southern-most portion of this wetland was impacted by the Town's public works activities.

In 2018, inspectors from the NYS Department of Environmental Conservation visited the site to discuss the water filtration plant operations and noticed the wetland violation. In response, the town was issued a draft consent order to restore and protect 0.29 acre of the regulated wetland and reestablish an additional 0.45 acre adjacent site. A restoration plan prepared by GHD Consulting (Buffalo) was approved in the Spring of 2020.

The total area of land planned for restoration might not seem significant. Yet, for a busy public works facility like Owasco's, losing nearly a quarter of their operational space is a serious hardship. To make matters more difficult, along with removing decades of compacted street millings and debris, and installing protective guardrails, the town was also required to remove and control the notorious invasive plants common reed, (*Phragmites australis*), and Japanese Knotweed (*Fallopia japonica*) within the restoration areas. Unfortunately, these invasive plants are increasingly common throughout the Owasco Lake Watershed.

Originally, the NYS DEC scientists were unaware that Japanese Knotweed was spreading within the project footprint. Upon notification, we incorporated control of this plant into the town's "schedule of compliance." Knotweed grows in large stands and is abundant throughout the Owasco Flats, along the Owasco Inlet from Groton to Moravia, and can be seen behind the mini-mart on the traffic circle near Emerson Park. Knotweed prefers habitat along stream banks and upland sites alike. It spreads from rhizomes (or "runners"), horizontal stems that creep through the ground. It does not spread very successfully from seed. Typically, the top part of Knotweed's rhizomes create a thick mat on the surface of the soil that easily breaks apart. They become the plant's principal means of spreading and reproduction when pieces of that mat wash downslope or downstream.

A visual survey of the site made clear that Phragmites has also taken hold in much of the wetland behind the highway department. Like Knotweed, this plant grows and spreads quickly, rapidly colonizing wet areas, and easily out-competing native plants, such as cattails. Phragmites also spreads through rhizomes that reach deep into wet soil. It is a prolific seeder and is notoriously difficult to eradicate, so much so that scientists suggest we give up trying to eradicate it and learn how to manage it.

By the end of July of 2020, all Phragmites discovered at the restoration site were disposed of in an upland bunker nearby. The Knotweed was carefully excavated by highway staff and transported, as required, to the Auburn landfill. Even with the dry conditions and little rainfall this summer, it was amazing (and humbling) to discover where Phragmites and Knotweed persisted. Phragmites runners grew more than 35 feet in just a matter of weeks, and Knotweed stems kept reappearing many yards away from their primary cluster.

That same month, the town highway department staff had reached native soil and constructed two stable, rock-lined drainage channels. By the end of August, the new protective guardrail was installed and staff had placed the new wetland delineation signage to prevent future encroachment into the restored areas. Our final compliance work was completed this fall after the town highway staff layered new topsoil, hydro seeded the site, and planted 45 species of native grasses, herbaceous plants, shrubs, and trees.

Hundreds of staff hours have gone into this important wetland and watershed protective effort and the work will continue. The consent order requires monitoring of the site for 5 years to ensure plant survival and keep invasive plants at bay, and requires replanting when and where necessary. Two principal management approaches for the invasive plants will be deployed: targeted herbicide application of Phragmites along the edge of the remediation site, and mechanical arresting of Knotweed growth at the locations where it was excavated.

State law requires the town of Owasco to apply for a wetland permit to conduct the herbicide application, and we'll proceed with that process as a five-year project beginning in 2021. We'll try a new approach with the Knotweed, adopting a technique pioneered in Britain: laying a ¼ inch screen on the soil in the early Spring to effectively girdle and discourage the emerging stems.

This project illustrates the expensive, sensitive, and hard work that is involved with conserving the upland wetland complexes in the Owasco Lake Watershed. Nevertheless, these wetland areas are vital to the health and vigor of the dynamic Owasco Lake ecosystem. From the very beginning, the Town of Owasco has worked to achieve a successful fulfillment of their legal and environmental obligation to restore the impacted wetland and provide a terrific demonstration of remediation and invasive plant management for the entire Owasco Lake Watershed.

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