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The Lessons We Learned from Salvinia

The invasion of *Salvinia molesta* in freshwater lakes and marshes across the state caught the attention of the media, policy makers and the general public. This water plant took over Lake Wilson practically as we watched, while the Division of Aquatic Resources (DAR) and other agencies proved that emergency funding and action can make a difference. What isn't clear is what could have been done to avert this problem in the first place, and how we can prevent other super pests from invading.

The story of *Salvinia* is a familiar one. Like many super pests, *Salvinia*'s invasive qualities had been documented time and again, from as early as the 1930's when it was introduced to Sri Lanka where it quickly expanded beyond control. India, Southeast Asia, Australia, New Zealand, South Africa and many states in the southern United States also experienced *Salvinia*'s devastating invasions. In 1983 the U.S. Department of Agriculture listed *Salvinia* as a Federal Noxious Weed, a designation that legally prohibits its importation and transport across state lines.

Despite being a Federal Noxious Weed, *Salvinia* still made it into the state. According to the Hawaii Department of Agriculture (HDOA), the first documented record of *Salvinia* in the state was in 1991, although some estimate that it may have been present since the 1980's. The documentation of this species was not enough to add it to the State Noxious Weed List, a list of close to 80 species that are considered controllable by HDOA, which would have restricted the movement of this pest from infested to non-infested areas within the state.

More opportunities to get a jump on the problem were lost over the next eleven years. Botanists documented the presence and cultivation of *Salvinia* in 1996, and in 1997 a DAR newsletter story about the cleanup of invasive water hyacinth in Lake Wilson reported the presence of *Salvinia* in the lake. Records from 1999 show that *Salvinia* was found in several ponds and water gardens in the state and that only some of these were intentionally introduced and cultivated.

With all this *Salvinia* floating around the state, why didn't we do something about it? Part of the reason lies in existing laws, agency mandates and funding. Neither HDOA nor DAR have a

dedicated rapid response team with the emergency funding to go after newly established pests. Another part of the reason is simply because it is hard to imagine that a problem can get so bad, when it seems that a plant is “behaving” for ten years or more before exploding in numbers.

Returning to the question of what could have been done to prevent the *Salvinia* invasion, the answer may be “perhaps nothing”, but this doesn’t mean that we are destined to see pest after pest invade our state. The first piece of good news is that the Invasive Species Committees of Hawaii have coalesced to address the need for rapid response teams. There is an Invasive Species Committee on every island, consisting of government and non-government agencies and private businesses that work together to control the most threatening new invaders. The committees have been successful in securing federal, state, county and private monies to fund rapid response field crews.

Second, a tool to help screen out future plant pests has been developed. The Weed Risk Assessment System is a screening process that uses a series of questions and a scoring system to determine if a plant will be invasive in Hawaii. The system was modified from systems already in use in Australia and New Zealand, where it has shown tremendous capacity for protecting these island countries from new invasive plants.

If we had a screening system like the Weed Risk Assessment in place, we would have seen the potential of this pest. Dr. Curt Daehler, of the University of Hawaii Department of Botany and his team put *Salvinia* through the Weed Risk test, and it scored 26, which would indicate that it would be invasive in Hawaii. Plants that scored a 1 or in negative numbers are non-pests. One example would be the plumeria, which scored -5, designating it as a non-pest. The invasive forest pest *Miconia* scored a 14, and is considered a pest, although it did not score as high as *Salvinia*.

While these are two positive solutions to help address the problem, we still have a lot of work to do. For instance, both the Federal and State Noxious Weed laws were devised and implemented before the economy went global, before the age of information. We need to look at these laws and ask ourselves if there is a better way of doing things today. People have to push for better pest prevention laws and systems like the Weed Risk Assessment, and there has to be support for early detection and rapid response programs. Until then, we will continue to see more super pests like *Salvinia* grabbing the headlines.

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