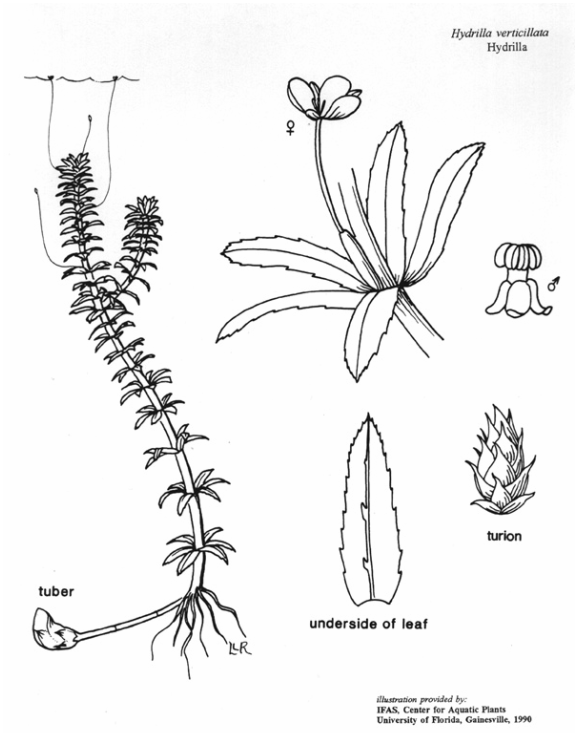
HYDRILLA INFORMATION
David I. Weidman, General Manager

The bane of waterfront property owners on Lake Cypress Springs has reared its ugly head again. As I am sure you are all aware, we are currently experiencing the worst resurgence of hydrilla that we have had since 1997, when the grass carp were stocked. The District is making this bulletin available to let our homeowners know what is going on and to keep them informed.



What is hydrilla? Hydrilla, (*Hydrilla verticillata*), which is native to the warmer areas of Asia, was first discovered in the United States in 1960. A highly specialized growth habit, physiological characteristics, and reproduction make this plant well adapted to life in submersed freshwater environments. Consequently, hydrilla has spread rapidly through portions of the United States and has become a serious weed. Hydrilla could easily be called the perfect aquatic plant because of the extensive adaptive attributes it possesses to survive in the aquatic habitat. These characteristics allow hydrilla to be an aggressive and competitive colonizer of aquatic habitats.

Hydrilla is highly polymorphic; its appearance can vary considerably depending upon the conditions under which it is growing. It grows submersed in water and generally is rooted to the bottom, although sometimes fragments will break loose and survive in a free-floating state. Erect stems can be quite long when the plant grows in deep water. Branching is usually sparse until the plant grows too near the water surface, then branching becomes profuse.

Hydrilla is very efficient at reproducing itself and maintaining itself during adverse conditions. It can reproduce itself in three different ways; these are: fragmentation, tubers, and seed.

Almost 50% of hydrilla fragments that have a single whorl of leaves can sprout a new plant that a new population can grow from, and greater than 50% of fragments with only three whorls of leaves can sprout. This means that small amounts of hydrilla on boat trailers, bait buckets, draglines, and from aquariums can spread the plant from place to place.

Tubers are formed terminally on the roots and in leaf axils. One single subterranean tuber has been shown to produce over 6000 new tubers per m^2. Subterranean tubers can remain viable for several days out of water and for over four years in undisturbed sediment. They also survive ingestion and regurgitation by waterfowl and herbicide applications.

Seed production is probably of minor importance to hydrilla reproduction compared to its successful vegetative reproduction.

Endeavors to benefit sportfish or waterfowl habitat or produce clear water has resulted in deliberate dispersal of hydrilla by individuals unaware of the severe detrimental impacts that can be caused by the plant. Detrimental impacts caused by hydrilla far outweigh beneficial impacts and it is usually more difficult to manage than native plant populations.

Hydrilla is managed differently in different types of waters, depending on water uses. Therefore, different methods or a combination of methods are used, depending on the desired end result. In recreational waters, the goal is usually to improve the environment by selectively controlling hydrilla amongst native vegetation. Management methods include herbicides, grass carp, and mechanical removal. Insects have been released for classical biological control agents and others are under study.

Each of these control methods has pros and cons. Applications of herbicides are expensive, run the risk of impacting beneficial native plants, and involve the introduction of chemicals to the water that we ultimately drink. Mechanical removal is very costly, up to $1000.00 per acre six times per growing season and can result in fragmentation, and, as stated above, fragmentation is one of the ways that hydrilla reproduces itself. Grass carp are a very effective method of control, but because they are non-specific herbivores, an adequate method of recapturing the fish has not been developed. In addition, because stocking rates for partial control have not been established, the State is reluctant to grant a permit for grass carp in large multi-purpose lakes, like Lake Cypress Springs, where aquatic vegetation is desirable for sportfish and waterfowl habitat.

Now that everyone is suffering from information overload on hydrilla, let me give some history of hydrilla in Lake Cypress Springs.

Hydrilla has been a problem in Lake Cypress Springs for over 20 years. Herbicides were used in the beginning to attempt to control it, but the problem continued to grow. In 1996 a survey of the lake's vegetation showed 434 surface acres out of 3500 surface acres infested with hydrilla (13.5%). Then in 1997, after much arguing with TP&W, the District obtained a permit to stock 2,170 triploid grass carp (non-reproducing). The carp were stocked and in approximately two years, we saw a significant reduction in the amount of hydrilla on the lake. With that reduction came an increase in lyngbia wollei algae, a decrease in water clarity, and a documented reduction in the fishery. The District then had to control the resulting infestation of lyngbia wollei algae. Lyngbia wollei is resistant to chemical treatment and the grass carp will not eat it. The only way to impact the lyngbia wollei is to reduce the available nutrients.

At the same time the District was dealing with the lyngbia wollei algae, the District was having to deal with the continued increase in American Lotus on the west end of the reservoir. At about this time, the State passed a law that required that a plan for control of aquatic vegetation be submitted and approved by TP&W for the treatment, control, or removal of any aquatic vegetation on public waters. This law made it more difficult for the District to attempt to control the various noxious aquatic vegetations and algae that were infesting Lake Cypress Springs. The State was unwilling to allow for a reduction in the levels of aquatic vegetation on the reservoir, so getting approval for treatment became more difficult.

The District learned that Dr. Michael Smart with the U.S. Army Corps of Engineers Aquatic Research Facility in Lewisville had been involved in eco-system restoration projects. This is where native plants are reintroduced into a reservoir in an attempt to restore the balance to the aquatic ecosystem. In July of 2003, the District entered into a cooperative agreement with the U.S. Army Corps of Engineers to start a test planting program to determine if ecosystem restoration would be successful on Lake Cypress Springs. At the same time, the District approached TP&W with a proposal to remove some of the American Lotus, replacing it with an equal amount of reintroduced native vegetation. TP&W approved the District's plan and we commenced cutting the lotus. The District also started introducing native plants in areas that were significantly impacted by the algae.

We are beginning to see results from the ecosystem restoration, but any attempt to adjust an entire ecosystem will take time.

Now it appears that we are coming full circle with the reemergence of hydrilla. The District, the Board, and the Staff are committed to making the ecosystem restoration program a success and protecting the quality of Franklin County's most valuable resource. The long term benefits are tremendous to a lake when it has a balanced aquatic habitat. That being said, we cannot let a noxious exotic weed get out of control. The District has always stated that we will keep all control options open. But, those options cannot set back the gains made in ecosystem restoration.

I have contacted the State to ascertain what would be required to obtain a permit to do a limited stocking of grass carp to maintain population levels at a number to control the hydrilla, but not irreversibly damage the introduced natives. TP&W has scheduled a lake wide vegetation survey for the end of July. That is the first step in obtaining a stocking permit for grass carp. TP&W will then review the survey and, based on the results and the level of hydrilla infestation, will determine how willing they will be to approve an application for stocking of grass carp. This process could well take until the first of the year.

The District is contemplating a proposal to work cooperatively with severely impacted property owners on a limited herbicidal treatment. This potential control method must also wait on TP&W to complete the survey and to review the findings. By the time the

TP&W survey is complete, it will be too late in the year to attempt a herbicidal application and get optimal results. The District does not want to introduce chemicals in the water, water that we drink, unless maximum benefit will be derived.

We are also advising waterfront property owners that if they are going to attempt manual removal of the hydrilla, that all efforts should be made to contain the fragmented plants to prevent spreading. One way to accomplish this is to cut the hydrilla as close to the lake bottom as possible, or to break the stems off as close to the bottom, and to wrap the area being removed in netting to prevent fragments from floating away.

The Franklin County Water District is concerned with the reemergence of hydrilla and providing impacted homeowners with some relief, but not at the expense of the long term quality of Lake Cypress Springs.