

Finformation

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November 2004



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**Last Meeting of 2004:
November 19
Sallie Boggs: Secrets of a
Grandmaster Breeder
(Plus raffle and auction!)**

**CONTACT THE
NEWSLETTER**

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COVER IMAGE

Cover image by Bill Shenefelt.

MEMBERSHIP

DUES are \$20 a year per family or street address.
To become a member, write to us or see Steve Gibbs at the next meeting.
Visit WWW.GPASI.ORG

General Meetings are held at the **Phipps Garden Center** in Mellon Park at the Corner of **5th and Shady Avenues.**
DOORS OPEN AT 7 PM

General Meetings
Nov. 19

Board of Directors Meetings
7 p.m. at Elmer's Aquarium in Monroeville:
Dec. 13

All members and suggestions for discussion are welcome. Contact a board member for meeting confirmation.

NEWSLETTER/WEB TEAM

Thanks to these members who help with *Finformation* and the website:
Nancy Frieze, Mailing
Connie Yarris, Exchange Typist
Terrence Trasatti, Printing Facilitator

Upcoming GPASI Events

November Meeting

At our November 19 meeting, Sallie Boggs will discuss "Secrets of a Grand Master Breeder." Sallie has been a member of our club for many years, having served as president, as BAP chair, and in other positions of leadership. She is a sought-after speaker in other clubs, and we're glad to have the opportunity to hear her talk about breeding batik loaches and other fish.

Sallie is a retired professor emerita of the University Pittsburgh School of Medicine, where she taught and researched cancer and stem cell biology for 30 years. An internationally known aquarist and Grand Master Breeder of tropical fish, Sallie brings over 50 years experience to her speaking and writing about breeding aquarium fish. As an advanced Toastmaster, she has spoken at numerous aquarium clubs, workshops, and conventions in the U.S. and Canada. Breeding fish, raising the fry, and documenting the process in photos and articles is Sallie's passion. Her special interests are breeding oddballs, fish that are rarely bred or are difficult to breed. As a retired scientist, she can't resist experimenting with her fish and has developed a number of devices and trade secrets that she shares with her audiences. She has bred hundreds of species of freshwater and marine fish and has given talks coast to coast in the US and in Canada on her fish-collecting, breeding and fish-keeping experiences.

No Meeting in December

Please remember that, as always, there is no regular meeting in December. Save your auction items for January's meeting!



Happy Thanksgiving!

Holiday Party

The GPASI Holiday party will be Sunday, January 9 at the North Hampton Volunteer Fire Hall. The doors will open at 1:00 and the party will start at 2:00.

The party offers great food, a big raffle (with fish as well as supplies), and plenty of time for catching up with or getting to know other members. Bring your family and friends.

The club will provide turkey, ham, soft drinks, and coffee. Please bring a covered dish you would like to share. If you touch base with Jim Davidson, he can tell you what other people plan to bring, so that we have some variety. You can reach Jim at (412) 781-3938 or <Jim308@bellatlantic.net>.

If you would like to donate fish or new supplies to the raffle (which goes toward rental of the hall for the day), please bring them along.

Directions to the North Hampton VFD

PA Turnpike Exit 4, Butler Valley. Go north (Route 8). At the first light at East and West Hardies road, turn left. Take the first left onto North Pioneer. The fire hall is on the right.

AHAP Article

Care and Feeding of *Aldrovanda vesiculosa*

Photos and Story by William Wells

Aldrovanda vesiculosa is a target species in GPASI's AHAP program. It belongs to AHAP's Class B, "Most Large Surface & Free Floating Type Plants." It is a pure aquatic, rootless plant that grows as occasionally branching strands at the water's surface. One of the things that make it unusual is that it is a carnivorous plant. *Aldrovanda vesiculosa* is a monotypic species, i.e. there is only one member of the genus. It is classified as being in the family *Droseraceae* which includes the Venus Fly Trap (*Dionaea muscipula*). *Aldrovanda* has traps that look similar to those on *Dionaea*. The common name for *Aldrovanda* is the waterwheel plant due to its leaves being arranged like the spokes of a wheel. Unlike many of the common aquarium plants such as *Ceratophyllum demersum* (Hornwort) or *Anubias barteri* it cannot just be thrown in to any tank and do well. Its exacting requirements make it worthy of its target designation in the AHAP program. To find the requirements of any species we must look at the locations where it occurs naturally.

Aldrovanda has a wide distribution, being found in Europe, Africa, Australia, Japan and China. The climate in these regions ranges from temperate to sub-tropical. Interestingly the *Aldrovanda* native to these different climatic regions are different from each other, although all are still members of the same species. Lets look at the *Aldrovanda* found in Europe first since Europe has a temperate climate similar to that of the U.S.A. *Aldrovanda* is currently found only in a few areas in eastern Europe including western Russia and the Ukraine, although it used to have a wider distribution. Within the past 35 years it has become extinct in France, Germany, Italy and Slovakia. It is considered critically endangered in the countries where it can still be found. Its decline is largely due to habitat destruction and pollution. The European variety has the following characteristics:

1. A light green color. Although a Hungarian strain has a slight pink tint.
2. It propagates almost exclusively by apical branching.
3. Its flowers rarely produce viable seed.
4. It requires a winter dormancy where the main stem dies off and turions are produced.

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~ There can be no club without its members. If there is anything that you would like to do for GPASI, just let one of us know. We'd be happy to have you as part of the team. ~

I have found little information about the African strain other than it grows in the temperate region of Africa and is similar to the European strain. In Australia *Aldrovanda* is considered rare and threatened. The climate where *Aldrovanda* is found in Australia ranges from tropical in the north to sub-tropical in the south. There are several differences between the Australian and European *Aldrovanda*. The characteristics of the Australian *Aldrovanda* include the following:

1. Red color in the leaves and stem.
2. While it can propagate vegetatively in the same manner as the European strain this is not its sole manner of propagation.
3. Its flowers often produce viable seed.
4. It does not require a winter dormancy.

While all the Australian *Aldrovanda* has red color there are 3 Australian color forms:

1. Northeasters (tropical) has a light red color.
2. Southeastern (sub-tropical) medium red color.
3. Southwestern (sub-tropical) red-purple color.

In all cases the light needs to be very strong to develop the red color. While the Australian strain does not require a dormancy period it can go dormant (not just die) in colder weather. If the temperature gets cold enough, below 65°F (18°C), it will produce resting turions much the same as the European strain. But, unlike the European strain the main stem will stay alive as long as the temperature does not get too cold. The Japanese strain is native to a subtropical climate in both Japan and sub-tropical areas of China and south east Asia. It was virtually extinct in Japan, but has been successfully reintroduced in many areas. It is similar to the European strain with the exception that it is more likely to produce viable seed. In every location where *Aldrovanda* is found there is slow moving soft water with a low pH.

We have looked at the general climate, now let's look at the specifics of the water in which *Aldrovanda* grows. In all the areas where *Aldrovanda* is found there is a lot of leaf litter and usually peat; these release humic and tannic acids into the water. These acids have been found to be beneficial to the growth and development of *Aldrovanda*, especially in helping it come out of dormancy in the spring. Also decomposing peat and leaf litter cause an increase in CO₂. They also contribute to low pH. *Aldrovanda* typically grows at a pH 6-7.2. *Aldrovanda* prefers to grow where it can get a lot of light. Like most plants its growth rate is affected by temperature; it grows best when in warm water around 80°F (27°C). It is usually found with other "companion" plants which are considered to be beneficial to *Aldrovanda* by reducing nitrogen and phosphorus thereby reducing the likelihood of algae which could smother *Aldrovanda*. *Aldrovanda* can be a very fast growing plant. As it grows the old part of the stem dies off. This is different from many other aquatic plants, such as Hornwort, where the old stem remains for a long time. *Aldrovanda* needs to grow rapidly to overcome the loss of the older portion of the plant. The growth rate can be maximized by providing full sun (or equivalent lighting if grown indoors), warm water and high CO₂ levels. The loss of the older portion of the stem seems to be a mechanism for dealing with algae which otherwise could cover the plant and cause its demise. Algaecides can not be used because they will kill *Aldrovanda*. Also snails cannot be used to eat the algae because they will eat the soft *Aldrovanda*. If it is in good conditions it will grow much faster than the old portion dies off. The other way to tell if *Aldrovanda* is doing well is if it is branching. Frequent branching indicates it is in ideal conditions. The typical mode of reproduction is by forming branches and the branches separating from the mother plant. For the strains that require a dormancy period the temperature should be gradually reduced in the fall. As the temperature falls below 60 - 65°F (15-18°C) turions will form.

Turions (from the latin meaning shoot) are modified shoot apices. They look like a small dark gray-green tightly wrapped leaf bud with no stem. In the European strain the turions fall off the mother plant which rapidly decays afterward. In the Australian strain the mother plant will remain alive as long as the temperature does not get too cold. These turions sink so that they will reach depths where the water won't freeze. They are resistant to freezing temperatures, but should not actually be frozen. In the spring as the water gets warmer they open up and rise to the surface where

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they resume normal growth. It is not unusual to lose some turions due to fungus over the winter. *Aldrovanda* grows in waters that have limited nitrogen available. *Aldrovanda* needs a lot of nitrogen to support its rapid growth; in order to get enough nitrogen it is carnivorous. Although *Aldrovanda* has high nitrogen requirements due to its rapid growth habit just adding nitrogen fertilizer to the water is not good for it. High nitrogen levels promote algae growth which is bad for *Aldrovanda*. Also it is not well adapted to getting its nitrogen from the water. It does well with other plants that are heavy nitrogen feeders as they will out compete algae for nitrogen. *Aldrovanda* gets the nitrogen it needs from the protein in its prey. Its typical prey items are: *Daphnia* spp., large copepods (such as cyclops), small mosquito larvae, small crustaceans and baby snails. When potential prey brushes against trigger hairs on the trap the trap quickly closes. The trap forms a watertight seal along the edges. It will trap anything of an appropriate size so small fish fry are definitely on the menu. However, it cannot harm adult fish. In fact, items 3/16 of an inch (5 mm) are bigger than the typical trap on *Aldrovanda*. Although it will not eat adult fish it is still not a good idea to keep *Aldrovanda* in the typical aquarium. No matter which region of the world in which *Aldrovanda* grows it is typically found in open water areas of swamps where there is very soft acidic water with little nitrogen available. This is very different from the typical aquarium environment. Which leads us to the question of how a hobbyist can grow it.



Cross section of *Aldrovanda* showing the wheel structure

I have found that *Aldrovanda vesiculosa* does well when kept outdoors in the Pittsburgh area. I have both the Japanese and southwestern Australian strains. They were acquired from a responsible source that propagates them in the U.S.; they were not collected from the wild. Since I do not have a pond, I keep mine in small containers ranging from shallow trays to 5 gallon (19 liter) buckets. The water in the trays is filtered through long fiber sphagnum moss, which gives the water a light tan color. As companion plants there are several *Sarracenia* species (pitcher plants) growing in pots filled with sphagnum moss set in the trays. In the buckets I have *Eichhornia crassipes* (water hyacinth) as a companion plant. The water in the containers is rain water; RO water is added when there is not enough rain. The water parameters are for all my *Aldrovanda* are pH 6.0-6.4, 10-30 ppm KH, 0 GH, 0 mg/L $\text{NH}_3/\text{NH}_4^+$, 0 mg/L NO_2^+ , 0 mg/L PO_4 , 0 mg/L free iron, 0 mg/L chelated iron, 18-20 ppm, calculated CO_2 . The calculated CO_2 concentration may be higher than the actual value due to the humic and tannic acids present. All parameters were measured with hobbyist test kits so they are not as accurate as a laboratory analysis, but there are definitely few nutrients present. All containers are kept in full sun, although the *Eichhornia* provides about 50% shade. No fertilizer is ever added although there are a few prey, like cyclops, for them to feed on. In the fall I let the temperate Japanese strain stay outside as the weather gets colder to induce formation of the resting turions, but I bring them in if there is danger of a frost. After turions have formed they are kept at 40°F (4°C) until spring. To recover them from dormancy I place them in water at a temperature of about 70°F (21°C). At this temperature the turion will open up and begin to grow in a few days.



A long strand of *Aldrovanda* with a turion beginning to form

I am growing my southwestern Australian strain in a 30 gal. (114 liter) aquarium over the winter. I have filled the tank with RO water passed through large pot of long fibered sphagnum moss. The substrate is Fluorite gravel. I will add some *Cryptocoryne* spp. as well as aquatic *Utricularia* spp. as companion plants. The tank has 96 watts of compact fluorescent light with a color temperature of 6700 K; the light is on 10 hours a day. Filtration is from a sponge filter. I will also add periodic feedings of monia (Russian *Daphnia*). I will also add occasional supplemental iron. I hope to see rapid growth of *Aldrovanda* under these conditions.

Aldrovanda vesiculosa is an attractive, unusual aquatic plant that can be quite rewarding to keep. It will have a high growth rate, but only if its needs are met. If you are willing to make the effort to provide what it needs it will produce many new plants by vegetative propagation. Propagation will earn 20 points and fulfill a target in GPASI's AHAP program. It is definitely worth trying. ■

For bibliography, see page 6.

Bibliography

“Ecological requirements and recent European distribution of the aquatic carnivorous plant *Aldrovanda vesiculosa* L.- A Review,” *Folia Geobotanica et Phytotaxonomica* 30: 53-61(1995), Lubomír Adamec.

“How to grow *Aldrovanda vesiculosa* outdoors,” *Carnivorous Plant Newsletter* 26: 85-88, Lubomír Adamec.

“Photosynthetic characteristics of the aquatic carnivorous plant *Aldrovanda vesiculosa*,” *Aquatic Botany* 59: 297-306 (1997), Lubomír Adamec.

“Will the Rare Aquatic Carnivorous Plant *Aldrovanda vesiculosa* Survive in Europe?” *Aquaphyte Newsletter* (Univ. Florida, Gainesville, FL, USA) 17: 4-5 (1997), Lubomír Adamec.

“*Aldrovanda vesiculosa*: Description, distribution, ecology and cultivation,” *Carnivorous Plant Newsletter* 26: 73-82, Christian Breckpot.

“A Method for Growing *Aldrovanda*,” *Carnivorous Plant Newsletter* 31: 113-115 (2002), Douglas W. Darnowski.

Upcoming Events of Interest

11/19-21 Ohio Cichlid Assoc Show + Auction, Strongsville, OH
(440) 236-6301 Marc DeWerth

Reptile Swaps by Expo Mart - Monroeville, PA. Call Herb Ellerbach - 412-361-0835

Events in 2005

6/4-5 Cafe Workshop + Auction, Columbus, Ohio 614-836-5640 – Mike Wilson

Member News

Call for Leadership and Help

It's the time of the year when we start to work on identifying members who can help next year in the leadership of the club. A number of people consistently work so that we can meet monthly and have special events. But we need help! Too many of us are doing multiple jobs. We also need some folks who are willing to provide leadership for the club.

If you are interested in helping to advance the club by serving in some capacity, please talk to Jean Grace, Marlene Scholze, Cavan Allen, or Joe Krajcovic. We'll be happy to find ways to use your enthusiasm, skills, and talent. The club exists because members are willing to spend time and energy making events happen and making opportunities available.

Please don't hesitate to ask for more information. We are counting on some members to come forward and keep the club moving in the right direction.

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The following national businesses and our local sponsors (listed on the back cover) have given GPASI the fuel it needs to have a great year. Please support all our sponsors and thank them for helping to make our show and our club a success.

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BUY

Barb Jurich would like to buy some non-leaking 10-gallon tanks.
<jurichbandj@hotmail.com>

Jeff Lipsitz is looking to buy a couple of lionhead goldfish. cgarml@aol.com

Mike Parahus wants to buy up to 6 long-finned white cloud mountain minnows. He'd like a mix of males and females and is not interested in the "golden" variety. He would also like to buy up to 6 *Rasbora brigittae*. (724) 843-0584.

SELL

I have a very beautiful 13 inch red devil male for whom I would like to find a new home. He is 12 years old and very personable. Needless to say, he is not a good playmate for most fish that I could place in his tank. If we could find a large female I would keep him but other than that I would like to get him a home with someone who would have an appropriate tank for him with appropriate tank members. I would like him to go to a 75 gal tank minimum. I live in Greensburg and would sell him for \$30 or best offer. My contact information is as follows: Don Young, 724-925-0225. or email me at koiforjoy@aol.com

Epiplatys dageti two pair, one breeding pair and one young pair at \$6.00 a pair. Pete Scaletto at 412 788-4897 or email at Peatspawn@hotmail.com

Walter Roth has plastic bags to sell in 100 count packages. Sizes are 6 x 12", 8 x 15", 10 x 20". Call (724) 449-9651.

Sharon Serbin designs and creates fish-related art: stained glass mosaic tables and wall hangings; tile mosaic floors; and hand-painted T-shirts and other clothes items. E-mail sjserbin@pgh.net or page her at (412) 949-3106.

Ross and Laura Cronkhite still have assorted tanks, plus airline and fittings, a few nets, and a supply of 5 gallon buckets and 4 and 5 quart ice cream buckets, and assorted stands. Contact (412) 233-0996 or lauross@libcom.com

To let other members know about aquarium-related items you'd like to buy, sell, or trade, contact Jean Grace at (412) 441-1106 or jgrace@pitt.edu.

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