ALDROVANDA FROM NORTHERN UKRAINE

VIKTOR RAKOV
254112, Kiev-112
Dorogozhitska, 15-A, 65,
Ukraine

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Aldrovanda is spread mainly throughout warm and mild climatic zones where the coldest month's average temperature is no lower than -4°C (25°F). It has recently been discovered in the Kiev Reservoir north of the city of Kiev (50° N latitude), and also in the south of Bielorussia. This is interesting because in the northern Ukraine January's average temperature is about -6°C (21°F).

Aldrovanda vesiculosa is reported to be found infrequently throughout the whole Ukraine. In the southern parts of the country it settles in shallow basins in the lower reaches of the Danube and Dnieper Rivers, and in the north it grows in marshy parts of the Shatskiy Lakes, the Kiev and Kremenchug Reservoirs, and in the Pripyat River. *Aldrovanda* has been registered in the Red Data Book of Ukraine and is protected by national environmental law in the Shatskiy and Danube Nature Reserves.

The Kiev Reservoir is situated on the Dnieper River 30 km north of Kiev. The Dnieper's tributaries (the Pripyat River and the Teterev River) also feed the reservoir. The reservoir is 100 km long and has an average width of 8 km, so the entire surface area is 992 km^2. Since its average depth is only 4 meters, the total water volume is 3.7 km^3. Especially shallow water 2.5—3 m deep covers 33—48% of the area and is overgrown with water weeds. The rate of water flow through the reservoir amounts to 9—12 complete exchanges per year. The local climate is moderate, with average annual air temperatures of 6—7°C, and the 500 mm annual rainfall is balanced by the same amount of evaporation. Spring floods begin on March 20—April 15 and stop on June 5—30.

Ice covers the reservoir from December until the middle or end of April (for 2.5—3.5 months). Water temperatures are above 10°C from the middle of April until the end of October, with a maximum temperature of 20—24°C between July and August. The growing period is 6—7 months. Dissolved salts range from 120 mg/l in spring to 380 mg/l in winter. The pH ranges from 6.8—7.2 in winter to 8.0—8.7 in summer.

The *Aldrovanda* population in the upper parts of the Kiev Reservoir was found in 1979 by hydrobiologists V. Gorbik and V. Klokov off Domantovsky island near Zeleny Mis (Green Cape) village. For several years the scientists studied *Aldrovanda* development and its penetration into the communities of other aquatic macrophytes. In their 1985 article, they described the compositions of these communities and collected herbarium specimens from them. They wrote that the plant settles in the open sluggish waters 0.1—0.3 meters deep that had silted sand or peat bottoms.

Usually, *Aldrovanda* grows together with other aquatic plants, including *Salvinia natans*, *Typha angustifolia*, *Hydrocharis morsus-ranae*, *Stratiotes aloides*, *Carex acuta*, and others. Sometimes it grows with another aquatic carnivorous plant—*Utricularia vulgaris* L. A significant increase in the growth of *Aldrovanda* was noted in the Kiev Reservoir during 1979—1981 (Gorbik & Klokov, 1985); it successfully dominated the sunny shallow water areas. They suppose *Aldrovanda vesiculosa* was brought to the Kiev Reservoir from southern Bielorussia by migrating water fowl or by spring floods.

Unfortunately, there is no record about *Aldrovanda* blossoming in the Kiev

Reservoir. Most likely it lacks warmth during its growing season. It is only known that it multiplies vegetatively with the help of its resting buds which winter on the bottom of the water reserve. Usually in winter all Kiev Reservoir gets thickly covered with ice while its shallow areas get frozen through to the very bottom. Nonetheless, the *Aldrovanda* resting buds winter successfully and start growing late April—early May.

In spring 1995 a few specimens of *Aldrovanda* from Kiev Reservoir were given to me for study (through my collegues at work). I placed them in a water tank with low plastic walls and put it in a well sun-lit place. Twice a month I added chlorine-free potable tapwater and rainwater (about 50% of each). As fodder, I used home-cultivated small crabs (Cladocera family)—*Ceriodaphnia dubia* and *Moina* sp. For three months all specimens grew and multiplied, producing branch plants.

Unfortunately, all specimens of *Aldrovanda* given to me were infected with some small pests which developed on their leaves, causing accelerated death of its aging parts. At the end of summer after my three-weeks' absence I found out that *Aldrovanda* were completely veiled by the parasites, as if by a spider web. I decided against fighting the water-weeds and let *Aldrovanda* grow in a small woods pond in a marshy territory where *Utricularia vulgaris* grew successfully. Time will show if *Aldrovanda* survived in a new surrounding.

From my own short experience in *Aldrovanda* cultivating I can give some tips:

1. Inspect thoroughly all specimens of *Aldrovanda* if transplanting them from natural environments into culture. If pests develop, remove the damaged parts.

2. Keep water tanks with *Aldrovanda* in a warm and well lit place, but shade them from direct sunlight during summer months.

3. Use rainwater (or the equivalent) for cultivation. Add a few lumps of peat for slight acidity.

4. For *Aldrovanda* cultivation use 6—8 liter plastic tanks with a wide bottom and low walls.

5. To avoid competition keep *Aldrovanda* apart from other water plants.

6. As fodder use small crabs such as *Ceriodaphnia* and *Moina* which can be easily grown in a separate small tank.

Unfortunately, during the last three years no hydrobiologists visited *Aldrovanda* habitats in the Kiev Reservoir. I visited the site in June 1997 (Figure 1), found the plants, and collected some new information about its surroundings. This investigation will be continued and I will publish its results.

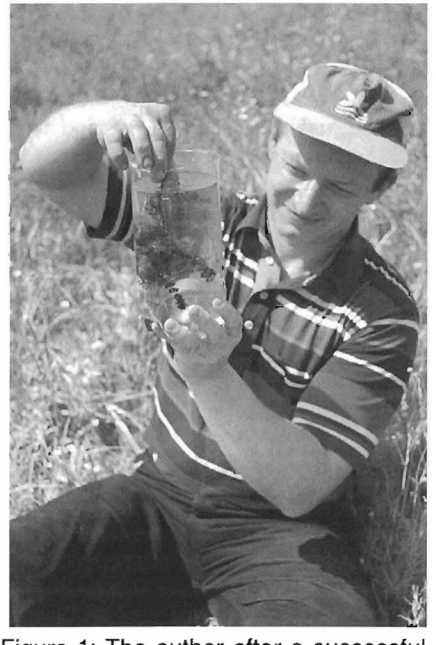


Figure 1: The author after a successful hunt in the Ukraine.

Literature

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