

My Green Wet Thumb – My National Treasure

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Sometimes the fun in keeping something comes not from having, but finding out something special about what we have. Just over a year ago, I bought a pair of moss balls (*Cladophora aegagropila*) at the Hamilton & District Aquarium Society's (HDAS) auction. No one else seemed interested, perhaps because of their small size, so I grabbed the pair for under \$5.00, and walked away with quite a bargain. For over a year they have sat in my tank, pretty much ignored. By luck, the fish I have in the tank have moved them from time to time and exposed different sides, and the moss balls can be found in different spots depending on the day. Now they have about doubled in size. So I will be submitting my AHAP Propagation Report on them soon, and thought it would be an interesting topic for *Tank Talk* at the same time.

However, in doing my research, I was surprised to find that I have a "Special Japanese National Treasure" in my tank.

For those of you not familiar with this interesting aquatic growth, the moss ball appears as a round ball of green moss, usually found in local pet stores at about 3 – 5 centimeters in diameter (1 – 2 inches). However, the moss ball isn't actually a moss, but rather many strings of algae tangled together in a radial pattern that forms a green velvet-like ball. Of course we aquarists are all familiar with the potential perils of algae, and the savvy marketing geniuses at the fish stores know this, so rather than calling them "algae balls" (with all the negative connotations that are attached), they have instead labeled them "moss balls".

Moss balls are found in several lakes in Japan, Iceland, Sweden and the United Kingdom. However, the best examples (and usually the most spherical) are found in Lake Akan near Hokkaido, Japan.

In Japan, moss balls are usually called "marimo balls", "mari" coming from the Japanese word for ball and "mo" from the Japanese word for algae. The balls are formed by detached pieces of older moss balls rolling in the shallow edges of large lakes. This rolling eventually forms them into the ball shape and the rolling produced by wave action also keeps the accumulation of mulm and other debris to a minimum. In nature, the balls can grow in size to over 30 cm (12"), and it is believed that the oldest known moss ball is over 100 years in age. In the lake, the moss balls actually sink and rise, seemingly in response to varying light conditions. It has been hypothesized that the algae itself is not buoyant, but rather that in intense light conditions the algae photosynthesizes so rapidly that oxygen bubbles carry it to the surface. As the light levels lessen, the photosynthesis correspondingly decreases and the moss ball sinks.

As it grows, the center of the moss ball becomes hollow, but the inside walls of the ball are also green in colour and packed with dormant chloroplasts which become active in a matter of hours when the ball breaks or is torn apart. The

moss ball propagates by division, starting with a division line from which a piece of moss will break off. At first it is simply an unshaped piece that will eventually become spherical as it experiences the tidal effects of the lake.

Oddly enough, this strain of algae, *Cladophora aegagropila*, was first discovered in 1823 by the Austrian botanist Dr. Anton E. Sauter in Lake Zeller Austria. It was then discovered in Lake Akan in the early 20th century by Tetsuya Kawakami, and by 1921 was declared to be a "Special Japanese National Treasure".

There is also an interesting Japanese legend that surrounds marimo balls. Once upon a time, there was a daughter of the chief of a tribe that lived around Lake Akan. She fell in love with a commoner, but her parents opposed such a union. The daughter and her beloved ran away, but in doing so drowned in the Lake Akan, and their hearts became marimo balls. From that myth, the marimo ball came to be seen as a "love plant", and this combined with both the unique appearance of the marimo ball and its status as a national treasure, captivated the Japanese people. The giving of the marimo ball as a token of love and affection that can capture the heart's desire became quite popular.

Marimo balls began to be sold in jars and bottles to tourists and locals who paid high prices to have their very own "national treasure". Not long after the rise in the marimo balls' popularity, a hydro-electric plant was built on the Akan River flowing into Lake Akan. The Akan River was dammed and the water levels in Lake Akan fell drastically. Dead and decaying marimo balls began to appear, littering the shores of Lake Akan, and the Japanese people were appalled at the mass destruction of one of their national treasures. Due in part to both the destruction of habitat, and the selling of marimo balls as souvenirs, the number of marimo balls rapidly declined. An environmental effort to save the marimo balls of Lake Akan began and an appeal for the people of Japan to return their bottled marimo balls was made. Surprisingly, the Japanese people responded, and a great number of bottled marimo balls were returned, effectively saving the marimo balls of Lake Akan from extinction. The people of Lake Akan, being appreciative of the support and response that they received, held a festival on October 7th, 1950, which was the first of what has become the annual Marimo Festival.

In addition to their status in Lake Akan and Japan, moss balls are a protected species in Iceland as of 2006, where their habitat, Lake Mývatn, is a National Park.

Keeping moss balls is actually very simple. While doing best in a very strong light and kept in a water with a high carbonate hardness, they will grow under lower light and in very soft water. As mentioned, in their natural habitat

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the moss balls are moved by the wave action in the lake, and this ensures that the ball develops in a spherical form, that all sides are exposed equally to light, and that mulm and other debris do not build up on the moss ball. As I mentioned earlier, the fish in my tank seem to move my moss balls regularly, but in some cases you will need to rotate and occasionally clean your moss ball to ensure growth. The easiest way to clean a moss ball is to remove it from the tank and squeeze it like you would a sponge several times.

The moss ball will grow in a wide range of temperatures, but I have experienced the best growth under high lighting and in a coldwater tank. While slow growing in nature, averaging about 5 millimeters per year, in an aquarium they will grow faster if fertilization is added. This particular strain of algae will not adhere to the substrate or other tank decorations. In addition, algae balls are beneficial for algae control as they will tend to “out-compete” other forms of algae, using many of the same nutrients. Should you want to divide an algae ball, you will need to gently divide the ball into two, and then form the new parts into balls by rolling them in your hand.

Your normal “algae eating crew”, fish such as oto cats (*Otocinclus sp.*), Siamese algae eaters (*Crossocheilus siamensis*), and plecos (in my case *Ancistrus sp.* and *Chaetostoma sp.*), do not seem to find this algae appetizing, and I have never experienced the algae ball being eaten by any of my tank inhabitants.

I would highly recommend the addition of moss balls to your tank if you are looking for something adaptable, attractive, with a sense of history, and very interesting.

Latin Name	<i>Cladophora aegagropila</i>
Common Name:	moss balls, marimo balls
Height	30 cm (12")
Width	30 cm (12")
Light	low – very high
Temp	10° – 28°C (50°F – 83°F)
PH	7.0 – 7.8
Hardness	very soft – very hard
Growth	slow
Difficulty	easy
Origins	Japan

Source: www.tropica.com