Polyphemus Caterpillars and Moth Care Guide

Disclaimer: This guide is based on our personal experience of raising Polyphemus moths for the last year. During this time, we did a lot of research on the stages of the moth’s life cycle. We also made many personal observations that are included in this guide. We are certain that your experience will be different. We hope all of the information in this guide is scientifically and technically accurate, however we are just kids and pretty new at this. We hope you enjoy your experience!

HOW WE GOT STARTED

We found a Polyphemus moth at a vending machine at a rest stop between North Carolina and Tennessee. We had a bug cage with us, and we didn’t want anyone to step on the moth, so we picked her up and put her in the cage. While she was in the bug cage, she flapped around and laid about 120 eggs. When we got to our grandparents’ house, we let her go. We kept the eggs and took them back home to our house in Kentucky.

EGGS

The eggs were very small and had a white center with a brown dot in it and a brown ring around the egg. Only 30 hatched. We learned that if the egg has not been fertilized by the male it will be white and dead.
When you get your eggs, just put them into an empty container. Do not put leaves into this container until the caterpillars begin emerging. Leaves off-gas a small amount of carbon dioxide, which will kill the caterpillars inside the eggs. Last year, our caterpillars emerged 10 days after we got them. We learned that it could be as long as 16–20 days.

THE CONTAINER

Once the caterpillars hatched, we put them in a 10 gallon aquarium. The container that you use should not have any holes in it or the caterpillars will escape. The caterpillars begin to poop as they eat. When the container gets dirty you need to clean it. When you clean it, you can take the leaves out (with the caterpillars on them, put them in a safe place (like a paper grocery bag)), clean your container, and then put the caterpillars back into the container. We tried to clean out the container once a week when the caterpillars were little, then twice a week when they were in their final in-star stages. Each time we cleaned the container, we counted the caterpillars to make sure we didn't accidentally miss any. When you clean out the container you use water but no soap. If there is just a bit of soap left behind, it might harm one of the caterpillars.

FEEDING THE CATERPILLARS

When the baby caterpillars hatch, they will eat their eggs. The caterpillars will be very little. We read that they like oak leaves best, but
that they will also eat maple, elm and ash and other types of leaves. We put several varieties of leaves in the aquarium, and they went straight to the oak. At first we put the oak branches into a small water container. However caterpillars are attracted to the water and will drown. We learned that if we put in just enough leaves each day, the leaves would stay fresh long enough for the caterpillars to eat them. If you do put the branches in water, make sure to use plastic wrap and tape over the water container to prevent the caterpillars from getting to the water.

**FIVE IN-STAR STAGES**

The caterpillars will have five in-star stages. Since the skin of a caterpillar does not grow as they grow, each in-star stage includes the shedding of their skin and face plate. Just before it molts, the caterpillar will be very still. Then it will shed its skin, and the new face plate will be white. It will darken within a day. You should always collect the things in the container so you can make a collection.
SPINNING THE COCOON

One by one the caterpillars will have their last (fifth) in-star. Soon they will spin their cocoons, after two months of filling up on food and growing. They will spin the cocoon by wrapping leaves around their bodies and then spinning the silk until they are fully enclosed. They will be off to sleep for nine months in their new little house. We put them in our garage during this time because it is very important that their temperature is the same as the outdoors. Otherwise, they will hatch too soon (if they are in your warm house) and will not be able to mate with other wild Polyphemus moths (which are still in their cocoons until May).

POLYPHEMUS MOTHS!

The Polyphemus moths will eclose (come out of their cocoons) in mid to late May when the outdoor temperatures are warm. We moved them from the aquarium to a butterfly/moth enclosure so they would have mesh to hold on to after they hatched. When they hatch they will spray this liquid that smells like coffee. This is the liquid they use to get out of the cocoon.
Now you let their wings dry. Do you see how wide the male’s antennae are? The female’s antenna are very narrow. This is one way you can tell them apart. Also, the female is smaller than the male. She usually will not fly until after she’s mated, but the males can fly as soon as their wings have dried out. The female takes a day to harden so she can mate.

You don’t want to let your moths go during the day! Squirrels and cats and birds love moths. Let your moths go at dark, unless you plan to mate the female.

Once the moth hatches, it is fun to cut open the cocoon and see the pupa shell inside. This pupa is male. You can tell by looking at where the wide antennae were.
MATING

After the moths hatch, the next step is to let the male moths go. If you want to continue raising moths (or give away their eggs), you can make a cage for the female moths to mate.

You will need two frisbees, duct tape, plastic chicken wire, and string. The chicken wire has to be big enough so they can mate through it (at least .5 by .5 inch, but not big enough for the female to escape). You put one frisbee on a flat surface, then you wrap chicken wire on the inside of the frisbee. Use the duct tape to tape the wire together (make sure to tape the inside too so the moths don’t get stuck). Then you get string and tie the frisbee to the chicken wire. Then you put Pin Oak and a female moth in it. You take the other frisbee and tie it on the chicken wire. Now you tie the cage on a sturdy place on your deck.

The female will send out her pheromones and mate with a wile male who scents her pheromones. The moths usually mate after 12 am, so you have to get up and check during that night. If a male has mated with the female, you can bring the cage inside so they do not have to worry about anything eating them. They stick together for a whole day (ours stuck together for 17 hours). Our males died shortly after mating. You could let the male go. Our research showed that some males can mate again after their first mating. Caterpillars usually do not mate with...
their siblings, so that is why you let the males you have raised go the
day after they’ve hatched (when their wings are dry).

**NEW GENERATION**

Once the female moth has finished mating, you can get a large paper
grocery bag and put her in it. Make sure to clip the top of the bag.
Now the female will go crazy in the bag as she lays her eggs (this is
normal) and she has done her part, so let her go for she has just made
a new generation of Polyphemus moths!!

You can now cut the paper
where the eggs have been glued
by the female and give them
away.

Now that you have raised Polyphemus moths for a year, can you answer
these questions?

1. How did these moths get the name “Polyphemus”?
2. How many male moths eclosed from your cocoons? How many females?
   We had a 2:1 (male:female) ratio.
3. Did you notice a similarity between the caterpillar’s feet and the
   moth’s feet?
4. Did any of your pupa (in the cocoons) not develop to a moth? Can you
   figure out why?
5. Were you able to watch the female lay an egg? How cool was it?