

## How to Pin Butterflies and Moths

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Refer: <https://www.markdubois.info/ASIW/PDF/PinLepidoptera.pdf>

**Note:** As a judge for 4-H entomology projects for a number of years, I have often encountered collections with poorly mounted butterflies and moths (Lepidoptera). I developed these notes to help students understand how Lepidoptera should be spread.

The time to relax a specimen may take several days (up to a couple of weeks). The time to properly spread a relaxed specimen may take 30 minutes (be patient). A properly spread and preserved specimen should last at least 500 years in a well curated scientific collection.

**Relaxing the specimens.** See figure at left (plastic container which can be sealed).



Unless specimens are freshly caught and killed, they will typically be preserved in a dry state. Therefore, you first need to relax them (soften them for pinning). This is accomplished with a relaxing chamber. In the example shown here, layers of damp paper towels are placed in an air tight plastic container. I also added a few moth balls to reduce the chance of mold growing on the specimens while they are relaxing. This process may take from several days to two weeks or more depending on the size of the specimen and the amount of moisture. You want to achieve a warm and very moist environment (roughly 100% humidity) without having

standing water (which will ruin the specimens). Molds grow well in this environment (don't forget to add moth balls.

I place the specimens in their original papers or glassine envelopes in the relaxing chamber. In the image to the right of this paragraph, you will note layers of these specimens. Do not place more specimens in the chamber than you can pin. Dried specimens can remain in that state for years (as long as they are protected from carpet beetles and other damaging insects).



When are the insects relaxed enough to pin? Typically, I touch their antenna with a small pin. If the antennae are soft and flexible, the specimen is ready to be removed from the chamber and pinned.

**Remove each specimen from the chamber and spread the wings on a spreading board.**

You will note that I first insert a #3 insect pin through the center of the thorax. I typically use #3 insect pins for medium sized Lepidoptera. For very large specimens (such as the size of a Cecropia moth), consider using a larger pin (perhaps a #7). For smaller specimens (such as Lycaenidae), consider using a smaller pin (perhaps a #0). If you use smaller pin sizes, make certain the pinning surface is not too hard to



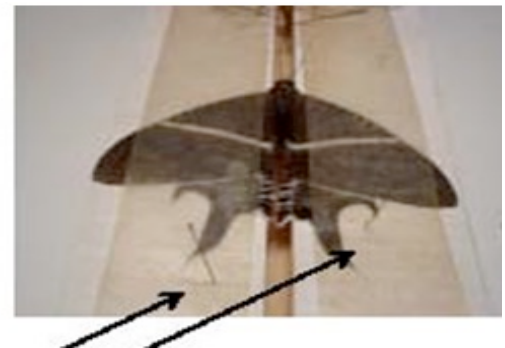
accept such a pin without bending it. Typically, I never use pins thinner than #0 as they bend too easily. I place the specimen on a spreading board. Note the board is lined with ruled paper – so I can align the wings properly. I use waxed paper to hold the wings in place while they dry.

As part of the spreading process, I cover one side of the specimen's wings with waxed paper and hold the wings down by pinning the paper to the soft wood (I use balsa wood on spreading boards)

of the spreading board. Be careful not to push the pin through the wing itself. I usually place the pins near the wings to hold them in place while the specimen is drying.



I next hold the other wings in place as well. Both sides are now positioned properly to begin the spreading process. Note the location of the temporary pins holding the wings to the spreading board surface. Use as many pins as you need to hold the wings down. You may also need to hold the abdomen in place by putting a pin on each side (if the groove to hold the abdomen is too large). These pins might be arranged thusly:



With the wings held to the spreading board surface, I then begin the process of moving the wings into position. I find this works best to position the wings on one side first, anchor them in place, then move to the other side. In this photo, I have begun work on the right side of the specimen first. Note that the posterior edge of the front wing is moved to form a right angle with the body of the moth.



Once the wings are positioned, I place a number of pins around the edge of the wings, pinning through the waxed paper directly. This holds the wing in place without damaging the specimen.



As you can see from the nearly finished example, both left and right sides should be properly aligned. You may also need to place pins to position the antennae as well. Once the specimen has been spread, let it dry for at least 2 weeks before placing in the collection.

In the event the specimen is placed in the collection before it is completely dry, the wings will eventually droop and you will need to repeat this process.