









## Moth Biodiversity in PA

by Greg Podniesinski

While butterflies are often one of the first things people imagine when we talk about insects or pollinators, their “cousins”, the moths, are often overlooked. Pennsylvania has a great diversity of moths; there are 15 times more moth species than butterfly species in here (2,162 moth versus 155 butterfly). This includes 1,230 species of “macromoths” (wingspans greater than  $\frac{3}{4}$ ”) and 932 micromoths (wingspans less than  $\frac{3}{4}$ ”).

### MOTHS

61 families & 2162 species\* in PA, and counting!  
(\*1230 macromoths + 932 micromoths)

<p><b>Pyralid Moths</b> (Pyralidae, 91 spp, 'micro')</p> 	<p><b>Crambid Snout Moths</b> (Crambidae, 133 spp, 'micro')</p> 	<p><b>Tortricid Moths</b> (Tortricidae, 329 spp, 'micro')</p> 
<p><b>Tiger, Underwing, Tussock Moths</b> (Erebidae, 271 spp, 'macro')</p> 	<p><b>Owlet Moths</b> (Noctuidae, 486 spp, 'macro')</p> 	<p><b>Geometrid Moths</b> (Geometridae, 260 spp, 'macro')</p> 

All images by Pete Woods, Pennsylvania Natural Heritage Program

While many moths are important pollinators (often more efficient pollinators than butterflies), the sheer diversity of moths is crucial for a healthy ecosystem. There is likely one or more moth species whose caterpillars feed on each species of our native plants. Before you panic over caterpillars devouring our fields and woods, realize that the diversity and incredible amount of biomass in the form of caterpillars is an important pillar of the food web in PA ecosystems. Caterpillars are really good at converting the plants they eat into a highly digestible animal fat and protein. Since caterpillars can be found on nearly all species of grasses, wildflowers, trees, and shrubs, that means there is abundance of convenient caterpillar “food packets” for small mammals, songbirds, amphibians, and reptiles. Not to mention the adults often end up on the menu as well, many moths fly only at night and are a favorite bat “snack”.



Now that we are officially into fall, there still is time to catch some of the diversity of moths. Below are some interesting moths whose caterpillars and adults can still be found in our forests and fields this time of year.

**Royal Walnut (aka Regal Moth or Hickory Horn Devil) (*Citheronia regalis*)**

The giant caterpillars are encountered in the fall when they are looking for pupation sites; the caterpillars are fearsome looking but harmless. Preferred caterpillar host plants are hickory and walnut species.



Adult Royal Walnut Moth. Photo Credit by Patrick Coin is licensed under [CC BY-SA 2.5](https://creativecommons.org/licenses/by-sa/2.5/).



Royal Moth caterpillar. Photo Credit by Marcusmacaulay is licensed under [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/).

**Saddleback Caterpillar Moth (*Acharia stimulea*)**

Caterpillars may be encountered in the fall, but this one is one you don't want to play with. The back of its body is covered with hairs that secrete venom (look but don't touch!). It feeds on a variety of oaks, elms, apples, plums, and other plants.



Adult Saddleback caterpillar moth. Photo credit by Wildreturn is licensed under [CC BY 2.0](https://creativecommons.org/licenses/by/2.0/)



Saddleback caterpillar moth caterpillar. Photo credit by Wildreturn is licensed under [CC BY 2.0](https://creativecommons.org/licenses/by/2.0/).

**Woolly Bear or Isabella Tiger Moth (*Pyrrharctia isabella*)**

The caterpillar is a classic fall species and supposed winter fortune teller, a common species people encounter. They overwinter as mature caterpillars and endure frigid temperatures through cryoprotectants in their blood (so don't bring them indoors in the fall to save them from the cold – they don't need saving!). The caterpillars feed on elms, maples, and a variety of herbaceous plants (they're not too picky).



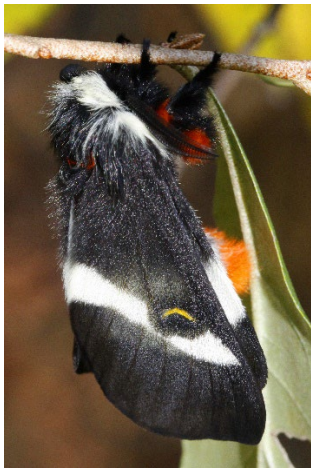
Isabella Tiger Moth. Photo credit by Andy Reago & Chrissy McClarren is licensed under CC BY 2.0.



Woolly bear caterpillar. Photo credit by MrsMaryAnnMeyer is licensed under CC BY 2.0.

### **Buck moth (*Hemileuca maia*)**

Showy adults fly in daytime in the fall during deer season. Caterpillars feed on oaks, especially scrub oaks, the adults however, do not feed at all. The caterpillars are covered in venomous spines and can cause swelling and redness for up to a week (another look and don't touch species).



Left: Adult buck moth. Photo by Judy Gallagher is licensed under CC BY 2.0.



Right: Buck moth caterpillar. Photo by Judy Gallagher is licensed under CC BY 2.0.

### **Maple Spanworm (*Ennomos magnaria*)**

Caterpillars are great twig mimics, and adults fly in the fall and resemble a dry, curled autumn leaf. Despite its name, the caterpillars feed on a variety of hardwood species as well as maples.



Left: Adult Maple Spanworm Moth. Photo by Wildreturn is licensed under CC BY 2.0.

Right: Maple spanworm caterpillar resembling a small twig. Photo by Sara Simpkins is licensed under CC BY-ND-NC 1.0.