

# Common Butterflies and Moths (Order Lepidoptera) in the Wichita Mountains and Surrounding Areas

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## Introduction

With over 11,000 species described in the U.S. and Canada, butterflies and moths are among the most common and familiar insects. With few exceptions, the adults have two pairs of wings covered with minute and easily dislodgeable scales. The mouthparts consist of a long, flexible, and coiled proboscis that is used to absorb nectar. Butterflies and skippers are diurnal, while most moths are nocturnal.

The Lepidoptera undergo a full metamorphosis. The larva has a well developed head, with opposable mandibles designed for chewing and six simple eyes arranged in a semicircle, on each side of the head. The first three segments (the thorax) each bears a pair of segmented legs that end in a single claw. The abdomen consists of ten segments. In most families there is a pair of prolegs (false legs) on abdominal segments three through six and ten. The fleshy, unsegmented prolegs are end in minute crochets arranged in various patterns. The crochets help the larva to grasp the leaves or stems of their food plant, and are best seen under a microscope. Crochet arrangements are unique at the family level and are useful for identification purposes. The larvae in most species are plant feeders and many species are agricultural pests.

The scientific name of a plant or animal consists of the genus and species, written in *italics*. The genus is written in full the first time that it is mentioned in a paper (e.g. *Pieris rapae*). Thereafter, it is abbreviated to its initial (e.g. *P. rapae*). If another genus with the same initial is mentioned in the same section, both genera are spelled out to avoid confusion. The genus name followed by "sp." (for one species) or "spp." (for more than one species) indicates that the writer is not sure about a species.

Less than 2% of known species in the U.S. have approved common names. Relying on only common names for individual species may lead to confusion, since more than one common name may exist for the same species, or the same name may be used for more than one species. Using the scientific name, which is the same in any language or region, eliminates this problem. Furthermore, only scientific names are used in the scientific literature. Common names are not capitalized.

All photos in this guide were taken by the author using a Canon PowerShot SX110 IS camera.

## Family Pieridae (sulfurs and whites)

Pierids are common, mostly medium-sized, yellowish or white butterflies. The cloudless sulphur, *Phoebis sennae* has greenish-yellow or lemon yellow wings with a spot resembling a misshapen 8 on each forewing and two smaller round spots on each hindwing (Fig. 1). These spots may be indistinct or absent in some individuals.



Figure 1. Cloudless sulphur, *Phoebis sennae*

The cabbage white butterfly, *Pieris rapae*, has white wings with a dark area bordering the tip of the forewings, which also bear one or two small dark spots. The larva, known as the imported

cabbageworm, is a pest of cruciferous crops. The alfalfa butterfly or orange sulfur, *Colias eurytheme*, has yellow-orange wings with dark borders and a small dark dot near the front edge of the forewing. The larva feeds on plants in the family Fabaceae, such as clover and alfalfa, and is known as the alfalfa caterpillar.

### Family Nymphalidae (brush-footed butterflies)

This family includes some of the most colorful and familiar mid-sized butterflies. Nymphalids walk using their middle and hind legs, while the small front legs are held close to the body. The caterpillars have a conical or angular head, often with branched, spine-like projections that may also be present on the abdomen (Fig. 4).

The heliconians (formerly in the Family Heliconiidae) are mostly tropical butterflies that are represented in the U.S. by seven species, most found in Florida and southern Texas. The gulf fritillary, *Agraulis vanillae*, is the only species in the genus *Agraulis* and the only heliconian found in Oklahoma. It is not related to other fritillaries. The wings are mostly bright orange. The front wings are relatively long and narrow and have three white or silvery dots with black border near their front edge (Fig. 2).



Figure 2. Gulf fritillary, *Agraulis vanillae*

Eggs are laid singly on leaves and tendrils of passion flower plants, *Passiflora* spp (Fig. 3). When abundant, the larvae (Fig. 4) can defoliate a vine in a few days. When ready to pupate, the caterpillar attaches itself to a vine or other

available surface. The color of the chrysalis ranges from brownish to silvery (Fig. 5).



Figure 3. Gulf fritillary egg



Figure 4. Gulf fritillary larva



Figure 5. Gulf fritillary pupa

The variegated fritillary, *Euptoieta claudia* has brownish wings covered with dark markings, including a row of dark dots and a wavy dark line along the margins of the forewings and

hindwings (Fig. 6). The larvae feed on a wide range of herbaceous plants. This species is found throughout Oklahoma.



Figure 6. Variegated fritillary, *Euptoieta claudia*

The silvery checkerspot, *Chlosyne nycteis*, is rather uncommon in the area, which appears to be near the western edge of its geographic range. The wings of this small butterfly have a pattern of black and orange on both forewings and hindwings (Fig. 7). The larva is reported to feed on sunflower, black-eyed Susan, and other plants in the Compositae (Asteraceae) family.



Figure 7. Silvery checkerspot, *Chlosyne nycteis*

The wings of the question mark, *Polygonia interrogationis*, butterfly have irregular, ragged edges, which are most noticeable when the wings are folded (Figs. 8 - 9). The anterior wings are orange, with seven black spots on the forewings. The posterior wings are dark, and end in a short tail. The wing margins have a light violet tinge. On the underside of each hind

wing there are two small silvery marks that together resemble a question mark (Fig. 9), which explains this species' common name.



Figure 8. Question mark, *Polygonia interrogationis*



Figure 9. Question mark, *Polygonia interrogationis*

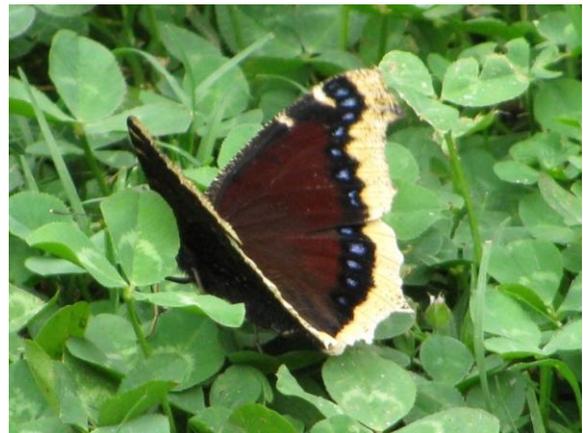


Figure 10. Mourning cloak, *Nymphalis antiopa*

The Mourning cloak, *Nymphalis antiopa*, is a fairly large, familiar butterfly (Fig. 10). The

wings are dark brownish red, with a row of bluish or purplish dots alongside the yellowish or creamy border. The larvae feed on the foliage of various deciduous trees.

The red admiral, *Vanessa atalanta*, is another familiar species. The wings are dark brown, with two diagonal orange bands on the forewings and a bright orange band alongside the outer edge of the hind wings. There are also irregular white spots between the orange bands and the tip of the forewings (Fig. 11).



Figure 11. Red admiral, *Vanessa atalanta*

The American lady, *Vanessa virginiensis*, and the painted lady, *V. cardui*, are similar in appearance. Both have a black and orange pattern on the upper surface of the wings. However, there are two large eyespots on the underside of the American lady hindwings (Fig. 12), but only a row of four small eyespots on the underside of the painted lady hindwings.



Figure 12. American lady, *Vanessa virginiensis*

The buckeye, *Junonia coenia*, is a striking medium-sized butterfly. The body and most of the wings are light brown. On each forewing there is a short diagonal white bar, two small parallel orange bars near the front edge, a large eyespot within the base of the diagonal white bar, and a minute eyespot near the wing tip. Each posterior wing has a large eyespot and a smaller one near its outer edge, and an orange band between the eyespots and the wing margin (Fig. 13.)



Figure 13. Buckeye, *Junonia coenia*

The Texas crescent, *Anthanassa texana*, is a small butterfly. The mostly black wings, have wavy orange marks near the body (Fig. 14). The forewings have a shallow indentation on the outer edge. The geographic range of this southern species reaches the southern edge of Oklahoma. Although not common locally, it is occasionally sighted in our area.



Figure 14. Texas crescent, *Anthanassa texana*

The hackberry emperor, *Asterocampa celtis*, wing color varies from brownish to orange, with a dark area on the forewing tips. There are also 11 irregular white dots on the forewings and a row of round dark spots near the outer margin of the hindwings. A very small eyespot may be present among the white spots (Fig. 15).



Figure 15. Hackberry emperor, *Asterocampa celtis*

The goatleaf leafwing, *Anaea andria*, is the only representative of this small genus in our area. In the male the wings are bright orange (Fig. 16). However, the underside is mostly brownish, and the folded wings resemble a dead leaf. These butterflies overwinter as adults and may be seen flying on warm winter days.



Figure 16. Goatleaf leafwing, *Anaea andria*

The common wood nymph, *Cercyonis pegala*, is a medium-sized nymphalid that is easily identified. The wings are light brown, with a yellow patch on the outer half of the forewings, each enclosing two large eyespots. When the

wings are folded five or six very small eyespots become visible on the underside of the hindwings (Figs. 17 - 18). The larva feeds on native grasses.



Figure 17. Common wood nymph, *Cercyonis pegala*



Figure 18. Common wood nymph

The body of the monarch butterfly, *Danaus plexipus*, formerly in the family Danaidae, is black, with white dots. The wings are bright orange, with black veins and black borders covered with white spots (Fig. 19). The viceroy butterfly, *Limenitis archippus*, is a monarch mimic. It is smaller than the monarch and has a black band across its posterior wings. Both species occur in our area. The larvae feed solely on milkweeds, *Asclepias* spp., ingesting and storing toxic cardiac glycosides that deter predators. The monarch is well known for its massive seasonal migrations to and from Central Mexico and western California. Recently their numbers have been declining along with the loss of milkweeds and overwintering habitats.



Figure 19. Monarch butterfly, *Danaus plexipus*

### Family Gelechiidae (gelechiid moths)

This is a large family of very small moths and larvae with diverse feeding habits. Most species are leaf miners, leaf folders, leaf skeletonizers, borers, and gall makers. Some species also feed on seeds and stored grain, including corn and wheat. Agricultural pest species include the Angoumois grain moth, pink bollworm, and potato tuberworm.



Figure 20. Redbud leaffolder, *Fascista cercerisella*, larva feeding on redbud leaf

The redbud leaffolder adult, *Fascista cercerisella*, is a small dark brown moth, with two white spots on each forewing. The moth is seldom seen, but the larva is common wherever redbuds grows. The larva is 1/2 - 3/4 inch long, with alternating black and white bands (Fig. 20). It feeds on the leaves of the eastern redbud, *Cersis canadensis*, the Oklahoma state tree, and lives inside a folded portion of leaf, which it seals with silk strands (Fig 21). Two or more

larvae may live on the same leaf. This larva is a typical skeletonizer, feeding on the surface of the leaf and leaving the veins intact. Infested redbuds may be found from May through October. Infested leaves turn brown and fall early, but total defoliation is uncommon, and mature redbuds recover. This moth may have three generations per year.



Figure 21. Redbud leaffolder larva inside folded redbud leaf

### Family Cossidae (carpenterworm moths)

This family consists of about 45 species in the U.S. The Carpenterworm moth, *Prionoxystus robiniae*, is 1 - 1½ inches long, grayish, with mottled, irregular black patches on the forewings (Fig. 22).



Figure 22. Carpenterworm moth, *Prionoxystus robiniae*

At rest the wings are kept folded over the abdomen. Despite their large size, these cryptic moths are not easily seen when resting on oak

tree trunks (Fig. 23). The larvae is a wood borer that can attack various species of trees, including ornamental and fruit trees such as apricot, ash, birch, cottonwood, elms, maple, oak, pears, and willow.



Figure 23. Carpenterworm moth on post oak trunk

#### Family Pterophoridae (plume moths)

Plume moths are small and delicate, with wings that are split lengthwise into two or three feather-like sections. The T-moth or morning glory plume moth, *Emmelina monodactyla*, is easily recognized by its distinctive long, thin legs and T shape when at rest (Fig. 24). Its color varies from whitish to greyish. The larva feeds mainly on various plants in the morning glory family (Convolvulaceae).



Figure 24. T-moth or morning glory plume moth, *Emmelina monodactyla*

#### Family Pyralidae (snout moths)

This is the second largest family in the order Lepidoptera. Most pyralids are small, rather inconspicuous. The labial palps protrude forward, hence the family common name. The larvae of several species are agricultural pests, including the European corn borer, melonworm, Indian meal moth, sugarcane borer, and Mediterranean flour moth.



Figure 25. Melonworm moth, *Diaphania hyalinata*

The melonworm moth, *Diaphania hyalinata*, have a unique wing color pattern. When at rest, the center of the wings is pearly white, with a dark brown border along the periphery (Fig. 25). The head, thorax, and last abdominal segments are dark brown. The abdomen ends in a brush or tuft of elongate scales that serves to dissipate sex pheromones. The larva feeds on wild and cultivated cucurbits, including cantaloupe and squash. It prefers the foliage, but may also feed on the surface of the fruit.

#### Family Geometridae (geometers, inchworms)

At rest these small moths keep their wings fully extended and flat against the substrate. The wings are mostly greyish, brownish, or silvery, often with wavy lines. The white spring moth, *Lomographa vestaliata* has almost unmarked white wings (Fig. 26). The moth in Fig. 27 is either the southern emerald moth, *Synchlora frondaria*, or the wavy-lined emerald moth, *S. aerata*.



Figure 26. White spring moth, *Lomographa vestaliata*



Figure 27. *Synchlora* sp.

The male spring cankerworm moth, *Paleacrita vernata* has greyish or greyish-brown wings with irregular dark markings, but the 3/8 inch long females are wingless (Fig. 28).



Figure 28. Fall cankerworm moth, *Paleacrita vernata*, female

After pupating in the soil, the adults emerge in spring, and females crawl up the trunks of trees and release pheromones that attract males. The larvae (cankerworms) feed on the foliage of various deciduous trees and shrubs, including elms, birches, maples, and oaks.

Most Lepidoptera larvae have five pairs of prolegs, on abdominal segments 3 - 6 and 10. Geometrid larvae only have two pairs, on the sixth and tenth abdominal segments (Fig. 29), and are known as inchworms, measuring worms, or loopers. In some species there is a second pair of very small prolegs on the fifth abdominal segment. The gap between the two pairs of prolegs precludes the crawling motion common to most other caterpillars. Geometrid larvae therefore crawl by raising the hind part of the body, moving it close to the thoracic legs, and then raising and moving the front part of the body forward, in a looping fashion.



Figure 29. A geometrid larva

### Family Saturniidae (giant silkworm and royal moths)

In this family belong some of the largest and most striking moths in the U.S. Some species have a six inch wingspan and are highly prized by collectors. Among the best known are the cecropia moth, polyphemus moth, luna moth, and io moth. With a 5 - 5½ inches wingspan the polyphemus moth, *Antheraea polyphemus*, is one of the largest saturniid species in our area. This moth is light brown, with a reddish tinge, a large eyespot on each hindwing, and a smaller one on each forewing. The robust body is

covered with a dense coat of long brown hairs. When the hindwings are extended the eyespots resemble owl's eyes and may distract, confuse, or deter predators (Fig. 30). The male has well-defined plumose or feather-like antennae, clearly seen in Fig. 31. The antennae in females is much thinner. The larvae feed on the leaves of a wide range of deciduous trees. This moth is occasionally attracted to outside lights.



**Figure 30. Polyphemus moth, *Antheraea polyphemus*, male**



**Figure 31. Polyphemus moth, male**

The oakworm moth, *Anisota* sp. is rusty brown, with a conspicuous white spot near the center of the forewings. The dorsal surface of the thorax is tightly covered with fine, hair-like scales that give it a fuzzy or velvety appearance (Fig. 32). Wing span is about two inches. The larva has long black spines on the dorsal surface of the body and abdomen and feeds on oak foliage.



**Figure 32. Oakworm moth, *Anisota* sp.**

### **Family Sphingidae (hawk or sphinx moths)**

Sphinx moths have a robust and streamlined body that tapers posteriorly, with long and narrow anterior wings and smaller posterior wings. These moths are fast fliers that often hover over flowers, resembling hummingbirds in size, appearance, and flight pattern. The large larvae, commonly known as hornworms, often have a conspicuous curved spine or bump on the dorsal surface of the eight abdominal segment.

The tobacco hornworm moth, *Manduca sexta*, is a large and robust mostly greyish moth (Fig. 33). The abdomen has eight bright yellow patches on each side that are displayed during flight.



**Figure 33. Tobacco hornworm moth, *Manduca sexta***

The mature larva is robust, green, about four inches long, and has a well-developed "horn" (Fig. 34). It feeds on the foliage of wild and

cultivated solanaceous plants, including tomato and tobacco. It pupates buried in the soil, inside a hardened earthen cocoon.



**Figure 34. Tobacco hornworm, *Manduca sexta***

The Hagen's sphinx, *Ceratomia hageni*, is a medium-sized moth with cryptic, greyish wings and a 3.5 inches wingspan. The scales at the center of the thorax form a light gray, oval patch encircled by a u-shaped, dark brown band (Fig. 35). The larva feeds on leaves of the osage orange or Bois d'arc tree, a native species.



**Figure 35 Hagen's sphinx, *Ceratomia hageni***

The vine sphinx, *Eumorpha vitis*, has a 3½ - 4½ inches wingspan. The forewings are mostly dark brown, with two white bands that converge at the tips and are bisected by three parallel white lines (Fig. 36). The larvae feed on plants in the grape family.



**Figure 36. Vine sphinx, *Eumorpha vitis***

The day-flying clearwing or hummingbird moth, *Hemaris* sp. is a bumblebee mimic (Fig. 37). It uses its long proboscis to extract nectar from various wild flowers. The thorax and last two abdominal segments are covered with yellow hair-like scales. The rest of the abdomen is black, including a tuft of black hair-like scales attached at its tip. The center of the wings is transparent, and the wingspan is about 2 inches.



**Figure 37. Hummingbird moth, *Hemaris* sp.**

### **Family Notodontidae (prominents)**

The white-dotted prominent, *Nadata gibbosa*, is a medium-sized, robust moth, with a rusty or brownish coloration (Fig. 38). Long hair-like scales on the front end of the pronotum form a distinctive peak. At rest the wings are held roof-like. Each forewing has two conspicuous transverse lines and two small white dots near the center. The Larvae feed on the foliage of oaks and other deciduous trees.



Figure 38. White-dotted prominent, *Nadata gibbosa*

### Family Erebiidae (= Arctiidae) (tiger moths)

The family Arctiidae was recently reclassified to subfamily Arctiinae under the family Erebiidae. Tiger moths are often colorful, small to medium-sized, with a 1 - 3 inches wingspan. The wings often have various stripe patterns over a white, black, or red background color. The larvae are covered with long hairs arranged in tufts. The common saltmarsh caterpillar, *Estigmene acrea* (Fig. 39), feeds on native and cultivated plants, including some vegetable and field crops. The adult, known as the acrea moth, has white wings covered with black specks, and has a wingspan of almost two inches.



Figure 39. Saltmarsh caterpillar, *Estigmene acrea*

The scarlet-winged lichen moth, *Hypoprepia miniata*, has pink or red forewings, each with two bluish or silvery stripes running parallel to the anterior and posterior wing edges. Between

these two stripes there is a third, shorter stripe (Fig. 40). The larva feeds on lichens growing on tree trunks.



Figure 40. Scarletwinged lichen moth, *Hypoprepia miniata*

The striking figured tiger moth, *Grammia figurata*, has black forewings, each with an ivory or whitish longitudinal bar that forms V or U-shaped mark at its end (Fig. 41). The hindwings are black with a red center. The thorax is covered with fine black hairs and whitish hairs that form two longitudinal parallel stripes.

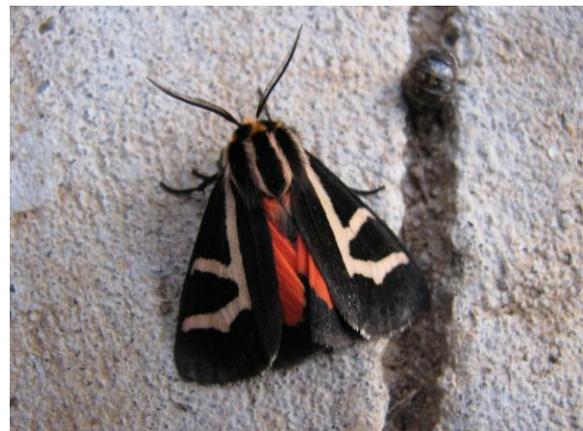


Figure 41. Figured tiger moth, *Grammia figurata*

The Arge tiger moth, *Grammia arge*, has white forewings with a pinkish tinge and numerous triangular black markings (Fig. 42). The hindwings are mostly white, with a few small black markings. Forewings and hindwings often have a narrow pinkish band along their margin (Figs 43). Long black hairs form three longitudinal stripes along the coat of long white hairs that cover the thorax.



Figure 42. Arge tiger moth, *Grammia arge*



Figure 45. Parthenice tiger moth



Figure 43. Arge tiger moth

The parthenice tiger moth, *Grammia parthenice*, has black wings with a complex pattern of overlapping white lines and bands. The hind wings are reddish, with several black blotches mostly near the outer margins. The long hairs growing on the thorax form three black ellipsoids with whitish edges (Figs. 44 - 45).

The wings of the harnessed moth, *Apanthesis phalerata*, are black, with several straight bands forming the pattern shown in Fig. 46. This moth has a 1¼ - 1½ inches wingspan. The larvae feed on various plants, including clover, dandelion, corn, and plantain.



Figure 46 *Apanthesis* sp.



Figure 44. Parthenice tiger moth, *Grammia parthenice*



Figure 47. Red-tailed specter moth, *Euerythra phasma*

The red-tailed specter moth, *Euerythra phasma*, has white wings overlaid by greyish longitudinal and transverse bands that, when the moth is at rest, form an H-like pattern (Fig. 47). The bands lack the white scales that cover most of the body and wings, revealing the wing venation. The top of the abdomen is mostly red.

**Family Noctuidae (underwing moths)**

With almost 3,000 species the Noctuidae is the largest Lepidoptera family in the U.S. and Canada. Most species are rather robust, with a wingspan of one to two inches. A few species, such as the black witch moth, are much larger. Most moths are dull grey, brown, or greenish. The larvae of some species are well-known agricultural and garden pests, including cutworms, armyworms, loopers, and the corn earworm.

The fall armyworm moth, *Spodoptera frugiperda*, is greyish, with an oval or pear-shaped silver patch on the forewings. Next to this patch there is a small, pointed whitish mark (Fig. 48). The larva is tan, brown or green, with a dark lateral stripe, four dark dots on the eighth abdominal segment, and a whitish, inverted Y-shaped suture on the head (Fig. 49). This is a mostly southern species that feeds on a wide range of wild and cultivated plants, including corn, grasses, cotton, alfalfa, and clover.



Figure 48. Fall army worm moth, *Spodoptera frugiperda*



Figure 49. Fall army worm, *Spodoptera frugiperda*

The cabbage looper moth, *Trichoplusia ni*, is dark grey, with a crest of hairs on the pronotum and a silver mark on the forewings that vaguely resembles the outline of a rabbit's head 50.



Figure 50. Cabbage looper moth, *Trichoplusia ni*



Figure 51. Cabbage looper, *Trichoplusia ni*

The larva (Fig. 51) is green, has only two pairs of prolegs on abdominal segments five and six,

and moves in a looping way, as previously described for inchworms (Geometridae). The cabbage looper is a common and widespread agricultural pest that feeds on many wild and cultivated plants, including most cruciferous crops, beet, cantaloupe, celery, bean, lettuce, pepper, potato, squash, and tomato.

*Alypia octomaculata* is a small and striking, day-flying moth (Figs. 52 - 53), and an atypical noctuid that looks more like a butterfly. The body and legs are mostly black. The wings are black, each with two large white or yellowish patches. Each side of the head is bordered by a tuft of long white or yellowish hairs, and a conspicuous brush of orange or reddish hairs covers each tibia. The antennae are flattened and gradually widen toward the tip. The larva feeds on Virginia creeper, wild grape, and other vines.



Figure 52. Eight-spotted forester, *Alypia octomaculata*



Figure 53. Eight-spotted forester, *Alypia octomaculata*

At rest the pearly wood nymph, *Eudryas unio*, folds its wings like a tent, displaying a large white area that contrasts with a reddish-brown border (Fig. 54). When resting on twigs or leaves these moths resembles bird droppings. This type of mimicry is also seen in other moths, caterpillars, and spiders. The hindwings are yellow or yellow-orange, with a reddish-brown outer border. The wingspan is 1 - 2 ½ inches.



Fig. 54 Pearly wood nymph, *Eudryas unio*

The green cloverworm moth, *Plathypena scabra*, has elongated, snout-like labial palps, and dark-brown wings, often with small silver markings (Fig. 55). It has a 1 - 1¼ inches wingspan. This moth becomes active in late winter. The larva feeds on wild and cultivated legumes, including alfalfa, soybean, beans, clover, and vetch. Some authors now place this genus in the family Erebidæ.



Fig. 55. Green cloverworm moth, *Plathypena scabra*

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