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The Butterflies of Arkansas Family Nymphalidae

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The members of the family Nymphalidae vary in color from orange marked with black to shades of blue and purple. They can usually be separated from other families by the greatly reduced front legs; the cubitus appearing three-branched; and the presence of scales on the definitely clubbed antennae.

Families likely to be confused with the Nymphalidae are Libytheidae, Danaidae, Pieridae, and Satyridae. These families can be distinguished by the following characters. The Libytheidae have extremely long palpi, longer than the thorax and extending forward. The Danaidae have scaleless antennae. The Pieridae have well developed front legs with bifid claws. The Satyridae have the base of the wing veins greatly swollen.

The larvae of the family Nymphalidae do not bear fleshy filaments although many have branching spines. The pupae have many projections and hang unsupported from the cremaster attached to hidden surfaces.

For clarity a phylogenetic list according to Dos Passos of the Nymphalidae in Arkansas follows.

SUBFAMILY CHARAXINAE

Anaea andria Scudder. Goat weed butterfly

SUBFAMILY APATURINAE

Asterocampa celtis (Boisduval & LeConte). Hackberry butterfly

Asterocampa clyton (Boisduval & LeConte). Tawny emperor

SUBFAMILY LIMENITIDINAE

Limenitis (Limenitis) astyanax (Fabricius). Redspotted purple

Limenitis (Limenitis) archippus (Cramer). Viceroy

SUBFAMILY VANESSINAE

Vanessa atalanta (Linnaeus). Red admiral

Vanessa virginiensis (Drury). American painted lady

Vanessa cardui (Linnaeus). Painted lady

Junonia coenia (Hubner). The buckeye

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SUBFAMILY NYMPHALINAE

Nymphalis antiopa (Linnaeus). Mourning Cloak
Polygonia interrogationis (Fabricius). Question mark
Polygonia comma (Haris). Hop merchant or comma
Polygonia progne (Cramer). Gray comma

SUBFAMILY MELITAEINAE

Phyciodes (Tritanassa) texana (Edwards). Texan crescent
Phyciodes (Phyciodes) tharos (Drury). Pearl crescent
Phyciodes (Phyciodes) gorgone (Hubner). Phaon crescent
Melitaea (Microtia) nycteis Doubleday. Silver checker-spot
Melitaea (Microtia) ismeria Boisduval & LeConte. Ismeria checkerspot
Euphydryas phaeton (Drury). The Baltimore

SUBFAMILY ARGYNNINAE

Speyeria (Semnopsyche) cybele (Fabricius). Great span-gled fritillary
Euptoieta claudia (Cramer). Variegated fritillary

SUBFAMILY HELICONIINAE

Agraulis vinillae (Linnaeus). Gulf fritillary

KEY TO THE GENERA AND SPECIES OF THE NYMPHALIDAE OF ARKANSAS

1. a. Distal margin of the front wing straight or convex, wing tip rounded 2
- b. Distal margin of the front wing deeply concave or deeply emarginate usually with a ragged appearance 7
2. a. Large wing spread 3.3 to 3.7 inches. Yellow-brown background above with black marking. Six dark round spots in apical third of the front wing. No round spots near base
 *Speyeria cybele* (Fabricius)
- b. Small to medium wing spread, 1 to 2 inches 3
3. a. Background black above checkered with white and orange-brown spots. Bluntly pointed front

- wing with distal margin straight. Wing spread 2 inches **Euphydryas phaeton** (Drury)
- b. Checkered with orange-brown and brown above. Wing-spread 1 to 1½ inches 4
4. a. Darkly checkered with orange-brown and brown above with a narrow medial band of white extending from the leading edge to the posterior edge of the front wing **Phyciodes gorgone** (Edwards)
- b. Medial light band in front wing above, never white, usually orange-brown 5
5. a. Orange-brown medial band in front wing less than ⅛ inch wide. Heavily mottled basically with orange-brown on a dark background **Phyciodes tharos** (Drury)
- b. Orange-brown medial band in front wing above over ⅛ inch wide. 6
6. a. Submarginal row of black dots in hind wing above has at least one with a white center **Melitaea nycteis** Doubleday
- b. Submarginal row of dots in hind wing without white centers **Melitaea ismeria** (Boisduval & LeConte)
7. a. Front wing more than twice as long as wide, wing tip bluntly rounded, orange-brown above marked with black, and with three dark spots with white centers near the anterior margin basically **Agraulis vinillae** (Linnaeus)
- b. Length of front wing less than twice its width 8
8. a. Front wing falcate, reddish-orange above margined with black distally; short tails on the hind wing **Anaea andria** (Scudder)
- b. Front wings not falcate; with or without tails 9
9. a. Wing margin deeply emarginate distally; wing tips may be rounded or ragged at the apex 10
- b. Wing margin distally not or only shallowly emarginate; wing tip never ragged 15
10. a. Wings above purple, edged with gold distally. Wing spread 2½ to 3 inches **Nymphalis antiopa** (Linnaeus)
- b. Color variable, but never purple edged with gold 11
11. a. Front wing about black with orange-red and white markings. An orange-red medial bar extending diagonally across the front wing. The hind wing above black with an orange-red tip with tiny black dots **Vanessa atalanta** (Linnaeus)
- b. Never black with an orange bar across the front wing. Background color variable 12
12. a. Very dark brown to black above with orange mottling basically. One deep emargination in front wing with the tip rounded. Wing spread 1½ inches **Phyciodes texana** (Edwards)
- b. Never very dark orange above overlaid with orange-brown markings; anterior wing margins ragged 13
13. a. Silver dot following a silver comma forming the question mark on the underside of the hind wing. Wing spread 2¼ to 2¾ inches **Polygonia interrogationis** (Fabricius)
- b. Silver mark on underside of hind wing comma-shaped without a silver dot. Wing spread 1¾ to 2 inches 14
14. a. Underside of wings mottled with brown **Polygonia comma** (Harris)
- b. Underside of wings mottled with gray **Polygonia progne** (Cramer)
15. a. Background color above dark blue anteriorly fading into pale blue on the posterior half of the hind wing. Red spots on the underside of the front wing show through, marking the wing above with faint red spots. Wing spread 2½ to 3 inches **Limnitis astyanax** (Fabricius)
- b. Color variable, but never dark blue fading into pale blue on the hind wing 16
16. a. A black band medial across the veins of the hind wing. Background color orange-brown with the distal margins black with white spots **Limnitis archippus** (Drury)
- b. Without a narrow black band above on the hind wing. Color variable 17
17. a. Yellow-brown with black markings, and with five round black spots above in the apical 1/3 of the front wing .. **Euptoieta claudia** (Cramer)
- b. Without five round black spots above in apical 1/3 of front wing. 18
18. a. Two eyespots above on front wing on a brown background, one of them large the other small, and with a bar of white diagonally between them **Junonia coenia** (Hubner)
- b. Less than two eyespots above on the front wing 19
19. a. One black eyespot above on the front wing on a light gray-brown background with white irregular medial spots **Asterocampa celtis** (Boisduval & LeConte)
- b. Without eyespots above in front wing 20
20. a. Orange-brown above with dark markings. Never

with any white markings or eyespots in the front wing. Round dark spot in the hind wing. *Asterocampa clyton* (Boisduval & LeConte)

- b. Front wing above mottled with orange, black, and white 21
21. a. At least 2 of the 4 submarginal eyespots in the hind wing above have blue centers. A broad medial band of orange-brown extends from the anterior margin 2/3 of the way across the hind wing above; two eyespots are blue in the hind wing. *Vanessa virginiensis* (Drury)
- b. The 4 round black spots in the hind wing above are without blue centers. Never with a broad medial band of orange-brown above in the hind wing; 4 eyespots below on the hind wing. *Vanessa cardui* (Linnaeus)

The members of the family Nymphalidae vary greatly in their appearance, habits, and environments. Thus, only a few generalizations can be made. The majority are fast, strong fliers, and visit flowers freely where they may be collected. Of the twenty-two species listed from Arkansas, eighteen are common, with only four uncommon or local in distribution. Strays into the state are rare, except along the borders, and are not included.

Anaea andria Scudder, the goat weed butterfly, is easily recognized by its falcate, reddish-orange wings edged in dark brown to black. The hind wing is tailed. Sexual dimorphism is present. The females are patterned with more dark medial markings above in both wings.

The grayish green larva, tapering posteriorly, is covered with fine raised points. It feeds on crotons or goatweed (*Croton* sp.) and has two broods yearly. The adults hibernate in winter, coming out in April.

Asterocampa celtis (Bois. & LeC.), the hackberry butterfly, is orange-brown with black and white spots. The hind wing is somewhat pointed.

Asterocampa clyton (Bois. & LeC.), the tawny emperor, is very similar to *A. celtis*, but lacks the white spots and the single black spot above on the front wing. Larvae of both species feed on hackberry where the adults linger after emergence. This genus overwinters as half-grown larvae. The adults emerge in June.

Limenitis astyanax (Fab). The red-spotted purple is easily recognized by its dark blue front wing with the red spots beneath showing through above. It is usually found in or near open wood feeding on carrion or other decaying organic matter. Food habits of the larva are varied, but willow and poplar are preferred.

There are three broods yearly, and the adults appear in May.

Limenitis archippus (Cramer) the viceroy, is often called the mimic because it resembles the monarch butterfly. It can be readily separated from *L. astyanax* by its orange-brown color and the presence of a black

line across the middle of the hind wing. Its food preference and life habits are similar to *L. astyanax*.

Vanessa atalanta (Linnaeus), the red admiral, is easily recognized by the bright orange-red band across the front wing and the outer margin of the hind wing. The larvae are found singly in a folded leaf of its primary food plants which are the nettles or other members of the nettle family (Urticaceae). There are two broods yearly and the adults appear in late spring.

Vanessa virginensis (Drury), the American painted lady, is separated from *Vanessa cardui* (Linnaeus) by the coloring of the spots on the hind wing. At least one of the four spots of *V. virginensis* are larger than the other and have blue centers with only two of the eyespots repeated in the hind wing below.

Vanessa cardui (Linnaeus), the painted lady, is found in nearly all environments if open and brightly lighted. It can be separated from *V. virginensis* by the spots above and below on the hind wing. The four spots above are uniform in size and color, and are repeated below as four eyespots. The larvae are chiefly feeders on *Compositae* especially sunflowers (*Helianthus*) where they reach economic importance on sunflowers as a crop.

Junonia coenia (Hubner), the buckeye, is very common and widespread in the United States. It is readily recognized by the two eyespots of different size on both front and hind wings. The larger of these eyespots in the front wing is partly circled by a white medial bar. Enough orange markings are present to give an orange tinge to the wing color. The olive-gray striped yellowish larvae feed on varied plants with no well-defined host. The adults live over winter and are somewhat migratory.

Nymphalis antiopa (Linnaeus), the mourning cloak, is a medium-large beautiful butterfly with purple wings edged in gold. It emerges from hibernation quarters very early in the spring. It is often seen on forest roads flying up as it is approached, and is probably the first butterfly to be seen each year. The black spiny larvae feed extensively on willow and will defoliate the tree when numerous, though they are not host-specific.

Polygonia interrogationis (Fabricius), is a medium sized orange-brown butterfly. This species is known as the question mark due to the silvery mark on the under side of the hind wing resembling this symbol. The edges of the wings are deeply emarginate and irregular giving the wing a ragged appearance.

The larval food includes both woody and non-woody plants. As many as five broods yearly are reported. Adults appear in April.

Polyommata comma (Harris), known as the comma, is separated from other members of this group by the brown underside of the wings and the silver comma without a silver dot.

The larva are not host-specific. It has two to three broods yearly.

Polygonia progné (Cramer), the gray comma, is very similar to *P. comma* (Harris), but differs in that the underside of the wings are gray, never brown. Larvae feed extensively on gooseberry. There are two broods yearly.

Phyciodes texana (Edwards), the Texan crescent, is easily separated from other members of this genus because of its deeply emarginated front wing with its dark brown, black, and white checkering. Wing spread is usually about 1¼ to 1½ inches.

Phyciodes tharos (Drury), the pearl crescent, has only slightly over 1 inch wing spread. The rounded front wing is greyish brown checkered with yellow. The medial yellow band across the front wing is less than ¼ inch wide in the Arkansas species.

Phyciodes gorgone (Edwards), the phaon crescent, can be recognized by its small size of about 1 inch wing spread, and the narrow white medial band above on the front wing.

Militaea nycteis Doubleday, the silvery checkerspot, is larger than *P. tharos* and *P. gorgone* and has about 1½ inch wing spread. The medial orange-brown band on the front wing is over ¼ inch wide. At least two of the submarginal black spots above on the hind wing have white centers. The larvae feed on sunflowers (**Helianthus**), asters (**Aster**), and (**Actinomeris**). There are two broods in the south, and adults emerge in June.

Melitaea ismeria Boisduval & LeConte, the ismeria checkerspot, is separated from *M. nyceteis* Doubleday by having black submarginal spots without white centers.

Euphydryas phaeton (Drury), the Baltimore, is easily recognized by its larger size; about 2 inches in wing spread; and its dark black, brown, and white checkered front wing. It is wide-spread in the U.S., but very local. It occurs only in the vicinity of its preferred host, turtle-head (**Chelone glabra**). The larvae feed in a communal web where they hibernate. The adults are found in May and June.

Speyeria cybele (Fabricius), the great spangled fritillary, is our largest Nymphalid butterfly. It has a wing-spread of 3.3 to 3.7 inches. Its size and the six submarginal black spots with black medial zigzag markings

on an orange-brown background separate it from **Euptoieta claudia** (Cramer). **Euptoieta claudia** (Cramer), known as the variegated fritillary, is smaller than *S. cybele*. It has usually less than 3 inches of wing-spread and has only 5 medial black spots on a mottled yellowish background. It feeds on violets and pansies, sometimes becoming very destructive. There may be two or three broods yearly.

Agraulis cinillae, (Linnaeus), the gulf fritillary, is our only member of the subfamily Heliconiinae in the state. It is orange-brown with dark spots on a long pointed front wing. The length of the front wing is more than twice its width. The larvae feed on passion flowers (**Passiflora**) where three or more broods develop yearly. The adults appear as early as February or March in Florida, but the emergence date has not been established in Arkansas.

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