

BUTTERFLY HABITATS IN THE EASTERN UNITED STATES

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ABSTRACT.—Butterfly habitats typical of the eastern United States are presented in 33 color illustrations. For each habitat, a few of the butterflies that reside therein are noted.

KEY WORDS: butterflies, conservation, distribution, Hesperioidea, Nearctic, North America, Papilionoidea, Rhopalocera, skippers.

In this photo essay, we present 33 color illustrations of some habitats for butterflies found in the eastern United States. Some are typical of widespread species, but others are rare in the environment and are home to rare species of conservation concern. For each habitat, we mention a few of the butterflies that reside therein.

Fig. 1. Alpine tundra (Arctic-alpine life zone)

Mt. Washington, 6288 ft., Coos Co., New Hampshire (17 Aug 1973).

Nymphalidae to be found include *Oeneis melissa semidea* (Say), an endemic to this range. Lower on the slopes are found *Boloria chariclea montinus* Schneider, another regional endemic, *Polygonia faunus* Edwards, and *Nymphalis milberti* (Godart). July and August are the best months for collecting here.

Fig. 2. Rocky exposed ridge (Canadian life zone)

Mt. Cadillac, 1500 ft., Acadia Natl. Park, Hancock Co., Maine (14 Aug 1973).

Hesperia comma laurentina (Lyman) (Hesperiidae) and *Cercyonis pegala* (Fabricius) form *nephele* (Nymphalidae) are found here. July and August are the best months for butterflies here.

Fig. 3. Mixed evergreen forest and heath barrens (Canadian life zone)

Monongahela National Forest, Dolly Sods, alt. 4500 ft., Grant Co., West Virginia, 12 miles west of Petersburg (7 Jul 1979).

Isolated populations of *Colias interior* (Scudder) (Pieridae), *Speyeria atlantis* (Edwards) (Nymphalidae), and *Polites mystic* (Edwards) (Hesperiidae) abound. Populations of the first two species are isolated and are among the most southern in the East. The first two weeks of July are recommended for collecting.

Fig. 4. Meadow and oak-hickory forest (Transition Life Zone)

Grant Co., West Virginia, 3500 ft., about 9 miles W. Petersburg (7 Jul 1979).

Satyrus edwardsii (Grote & Robinson) (Lycaenidae), *Speyeria aphrodite* (Fabricius) (Nymphalidae), and *Polites themistocles* (Latreille) (Hesperiidae) abound here in suitable environments.

Fig. 5. Second growth moist woodland (Transition life zone)

Catoctin Mountains, about 1900 ft., Foxville Tower Road, Frederick Co., Maryland (16 May 1980).

Pieris virginianensis Edwards (Pieridae) and *Celastrina neglecta-major* (Tutt) (Lycaenidae) fly here in the spring, but this sort of habitat is being invaded by the exotic garlic mustard (*Alliaria officinalis*) (Cruciferae), which threatens to choke out native plants essential for the local butterflies. Mid-May is probably best for *Pieris virginianensis*.

Fig. 6. Open field and mixed deciduous forest (Transition life zone)

Poverty Hollow, 2000 ft., Montgomery Co., Virginia, west of Blacksburg (24 Jul 1976).

Among the butterflies found in this well-known locality are *Feniseca tarquinius* (Fabricius) (Lycaenidae), *Calephelis borealis* (Grote & Robinson) (Riodinidae), and the remarkable *Speyeria diana* (Cramer) (Nymphalidae). The second part of July is best for *Speyeria diana*.

Fig. 7. Mixed deciduous northern scrub (old burn) (Canadian life zone)

Mt. Cadillac, 1500 ft., Acadia Natl. Park, Hancock Co., Maine (14 Aug 1973).

Same species as Fig. 2 but also *Colias interior* (Pieridae) and *Limnitis arthemis* (Drury) (Nymphalidae). July and August are best for collecting.

Fig. 8. Wet meadow (Upper Austral life zone)

Chesapeake Beach, Prince Georges Co., Maryland (19 Aug 1979).

Butterflies abound on the milkweeds, like swamp milkweed (*Asclepias incarnata*) (Asclepiadaceae), in late summer, and include *Papilio glaucus* Linnaeus and *Papilio troilus* Linnaeus (Papilionidae), and *Speyeria cybele* (Fabricius) (Nymphalidae). May and again at the end of July and August are best for collecting.

Fig. 9. Second-growth field (Upper Austral life zone)

Rose Hill, Fairfax Co., Virginia (Aug 1980).

Many common butterflies are found in abandoned farm fields with goldenrods, including *Colias eurytheme* Boisduval and *Colias philodice* Godart (Pieridae), and *Phyciodes tharos* (Drury) (Nymphalidae). May and again at the end of July and August are the best seasons.

Fig. 10. Shale barrens (Transition life zone)

Green Ridge State Park, 790 ft., Washington Co., Maryland, near Hancock (28 Apr 1978).

This is a place for many localized butterflies including *Euchloe olympia* (Edwards) (Pieridae), *Glaucopsyche lygdamus* (Doubleday) (Lycaenidae), *Calephelis borealis* (Grote & Robinson) (Riodinidae), and *Pyrgus wyandot* (Edwards) and *Erynnis martialis* (Scudder) (Hesperiidae). Around May 1 is the best time for *Euchloe olympia* and *Glaucopsyche lygdamus* and *Pyrgus wyandot*. *Erynnis martialis* was taken on July 19.

Fig. 11. Milkweed field (Transition life zone)

Appalachians, 500 ft., Henderson Co., North Carolina (4 Jul 1973).

Milkweed (*Asclepias tuberosa*) (Asclepiadaceae) in a typical field habitat when in large concentrations. Typical butterflies in this habitat are *Papilio glaucus*, *P. troilus*, and *P. polyxenes asterius* Stoll (Papilionidae), *Speyeria cybele* and *S. aphrodite* (Nymphalidae).

Fig. 12. Tall-grass prairie (Transition life zone)

Kahler Prairie Preserve, Dickinson Co., Iowa. (16 Jul).

At the time of this photo in the early 1970s, thriving colonies of *Oarisma poweshiek* (Parker) and *Hesperia dacotae* (Skinner) (Hesperiidae) occurred here. Purple coneflower (*Echinacea* sp.) (Asteraceae) in the foreground is a favored nectar source for both species.

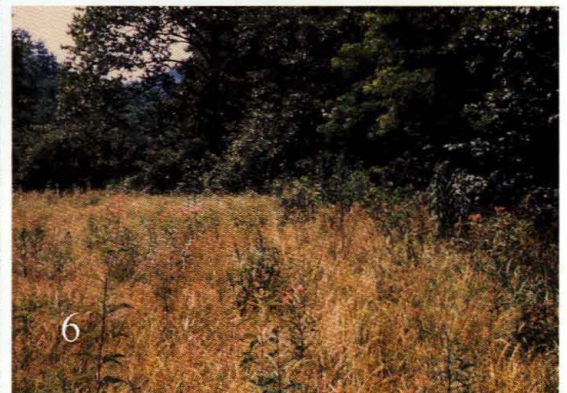
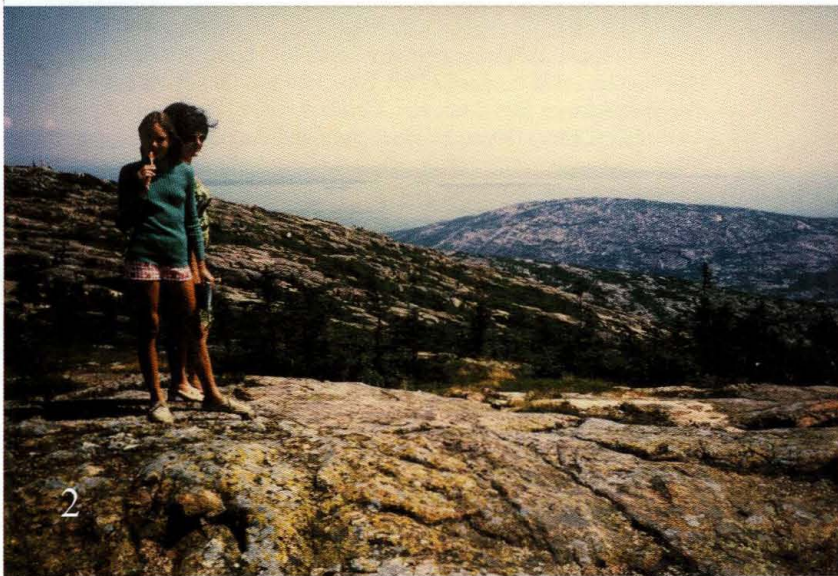


Fig. 1-7. Habitats in the Northeast and Appalachians (fig. first left top to bottom, then right top to bottom): 1) Mt. Washington, NH (6288 ft). 2) Mt. Cadillac, ME (1500 ft). 3) Dolly Sods, WV (4500 ft). 4) nr. Petersburg, WV (3500 ft). 5) Catoctin Mts., MD (1900 ft). 6) Poverty Hollow, VA (2000 ft). 7) Mt. Cadillac, ME (1500 ft).

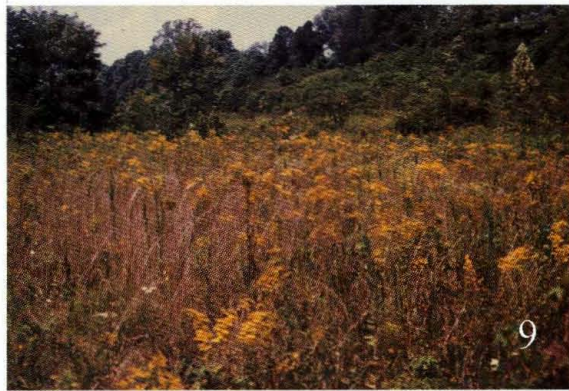


Fig. 8-13. Habitats in the Mid-Atlantic states and Iowa (fig. first left top to bottom, then right top to bottom): 8) Chesapeake Beach, MD. 9) Rose Hill, VA. 10) Green Ridge State Park, MD (790 ft). 11) Henderson Co., NC (500 ft). 12) Kahler Prairie Preserve, IA. 13) Potomac River, MD.

Fig. 13. Riverside woods (Upper Austral life zone)

Potomac River, Montgomery Co., Maryland (15 Aug 1974).

Stand of Joe-Pye Weed (*Eupatorium* species, Asteraceae) is a favorite nectar source for many butterflies in late summer. Typical butterflies in this habitat are *Battus philenor* (Linnaeus), *Papilio glaucus*, *P. troilus*, and *P. polyxenes asterius* (Papilionidae), *Colias eurytheme* and *C. philodice* (Pieridae), and *Speyeria cybele* (Nymphalidae).

Fig. 14. Coastal dunes and salt marsh (Upper Austral life zone)

Cape Henlopen, Sussex Co., Delaware (26 Aug 1978).

At the end of August, this maritime environment abounds with *Poanes aaroni* (Skinner) and *Panoquina panoquin* (Scudder) (Hesperiidae).

Fig. 15. Freshwater marsh (Upper Austral life zone)

McKee-Beshers State Wildlife Area, Montgomery Co., Maryland (15 Aug 1980).

One of the best butterfly habitats near Washington, D.C., with smartweed (*Polygonum cocineum*) (Polygonaceae) and pickerelweed (*Pontederia cordata*) (Pontederiaceae) as major plants. Here are found *Eurytides marcellus* (Cramer) and *Papilio cresphontes* Cramer (Papilionidae), *Lycaena hyllus* (Cramer) (Lycaenidae) [not found recently], and *Limnitis archippus* (Cramer) and *Asterocampa celtis* (Boisduval & Leconte) (Nymphalidae). The best season is the end of April-May and the end of July, August through the first part of September.

Fig. 16. Tupelo gum swamp (Lower Austral life zone)

Great Dismal Swamp National Wildlife Refuge, Sussex Co., Virginia. South of Suffolk (18 Aug 1974).

Black tupelo (*Nyssa sylvatica* Marsh.), water tupelo (*Nyssa aquatica* Linnaeus) (Cornaceae) and major trees of the tupelo swamp; not a butterfly habitat per se, but see Fig. 17. Typical butterflies in this habitat are *Papilio palamedes* (Drury) (Papilionidae), and *Enodia portlandia* (Fabricius) and *E. creola* (Skinner) (Nymphalidae).

Fig. 17-18. Wooded swamp (Lower Austral life zone)

Jericho Ditch, Great Dismal Swamp National Wildlife Refuge, Sussex Co., Virginia (Aug 1978).

The northernmost locale where many southeast butterflies, particularly cane-feeders, are found. Species found in this rich area include *Papilio palamedes* (Papilionidae), *Atlides halesus* (Cramer) (Lycaenidae), *Callophrys hesseli* Rawson & Ziegler (Lycaenidae), *Enodia portlandia* (Nymphalidae), and *Poanes yehl* (Skinner), *Amblyscirtes aesculapius* (Fabricius), *A. carolina* (Skinner), and *A. reversa* F. M. Jones (Hesperiidae). This area is a good locality from April to October.

Fig. 19. Coastal dunes and salt marsh (Upper Austral life zone).

Cape Henlopen, Sussex Co., Delaware (3 Sep 1978).

Sand dune with yellow composites favored as nectar sources by local skippers, see Fig. 14. Typical butterflies in this habitat are *Panoquina panoquin* and *Poanes aaroni* (Hesperiidae).

Fig. 20. Freshwater marsh and river forest (Upper Austral life zone)

Potomac River, McKee-Beshers State Wildlife Management Area, Montgomery Co., Maryland (15 Aug 1980).

Butterflies to be found here are *Battus philenor*, *Eurytides marcellus* (Cramer), *Papilio cresphontes* (Papilionidae), *Limnitis archippus*, *L. arthemis*, *Asterocampa celtis* (Nymphalidae), and *Lycaena hyllus* (Lycaenidae) [not recently seen].

See explanation for Fig. 15.

Fig. 21. Second growth field (Upper Austral life zone)

Denton, Caroline Co., Maryland (22 Aug 1973).

The forest edge is lined with flowering devils-walkingsticks (*Aralia spinosa*) (Araliaceae), Joe-Pye Weed (*Eupatorium* sp.) (Asteraceae), and cardinal flower (*Lobelia cardinalis*) (Campanulaceae). August is the best time here. At the end of August we find *Atlides halesus* (Cramer) (Lycaenidae), *Strymon melinus* (Hübner) (Lycaenidae) and *Satyroides appalachia* (R. L. Chermock) (Nymphalidae).

Fig. 22. Mature deciduous forest (Upper Carolinian life zone)

Franklin County Park, Columbus, Ohio (19 May 1996).

This forest is dominated by oaks with ground cover of May apples (*Podophyllum peltatum*) (Berberidaceae). Habitat for *Anthocharis midae* (Hübner) (Pieridae), *Satyrium calanus* (Hübner) (Lycaenidae), *Celastrina ladon* (Cramer) (Lycaenidae), *Limnitis arthemis astyanax* (Fabricius) (Nymphalidae).

Fig. 23. Middle grass prairie (Transition life zone)

Loess hills, western Iowa (19 Jul 1980).

Little bluestem (*Andropogon scoparius*) (Poaceae) is a dominant in many sites. *Satyrium titus* (Fabricius) (Lycaenidae), *Chlosyne gorgone* (Hübner) (Nymphalidae), *Speyeria idalia* (Nymphalidae) and the grass-feeders, *Hesperia ottoe* Edwards (Hesperiidae) and *Atrytone arogos* (Boisduval & Leconte) (Hesperiidae) were found with good frequency here.

Fig. 24. Streamside deciduous forest (Upper Austral life zone)

Difficult Run, near Potomac River, Fairfax Co., Virginia (July 1974).

This is a good site for *Limnitis arthemis astyanax* and *Asterocampa celtis* (Nymphalidae), and *Autochton cellus* (Boisduval & Leconte) (Hesperiidae). Good area from May until the beginning of September.

Fig. 25. Road edge vegetation (Lower Austral life zone)

Great Dismal Swamp National Wildlife Refuge, Sussex County, Virginia (18 Aug 1978).

Sweet pepperbush (*Clethra alnifolia*) (Clethraceae) and devils' walking-sticks (*Aralia spinosa*) (Araliaceae) are both good butterfly nectar sources. See also Fig. 17-18.

Fig. 26. Red mangrove swamp (Tropical life zone)

Big Pine Key, Monroe Co., Florida (February 1980).

Red mangrove (*Rhizophora mangle*) (Rhizophoraceae) swamp, habitat for *Phocides pigmalion okeechobee* (Worthington) (Hesperiidae). Florida is an excellent area for collecting; of course better in the rainy season, which may vary.

Fig. 27. Keys palm/slash pine flatwoods (Tropical life zone)

Key Deer National Wildlife Refuge, Big Pine Key, Monroe Co., Florida (May 1981).

This is the best remaining United States habitat for *Strymon acis bartrami* (Comstock & Huntington) and *Hemiargus ammon* (Lucas) (Lycaenidae), *Anaea troglodyta floridalis* (Johnson & Comstock) (Nymphalidae), and *Ephyriades brunnea* (Bell & Comstock) and *Hesperia meskei klotsi* (Edwards) (Hesperiidae). It is likely that aerial spraying for mosquitoes has greatly reduced these butterflies' populations (see Gunell, 1989).

Fig. 28. Tropical scrub (Tropical life zone)

Key Biscayne, Miami, Dade Co., Florida (18 May 1981).

Note the Florida coontie (*Zamia integrifolia*) (Cycadaceae) at center. This is a habitat for *Eumaeus atala* Röber (Lycaenidae). In recent years, the species has no longer been observed there but is common again in Brickell Hammock south of Miami.

Fig. 29. Tropical scrub near hardwood hammock (Tropical life zone)

Big Pine Key, Monroe County, Florida (May 1981).

Butterflies found here include *Strymon martialis* (Herrich-Schäffer), *Strymon istapa modesta* (Maynard), and *Leptotes cassius theonus* Lucas (Lycaenidae), and *Polygonus leo* (Gmelin) (Hesperiidae).

Fig. 30. Tropical scrub (Tropical life zone)

Vero Beach, Indian River Co., Florida (26 Mar 1976).

Yuccas and live oaks (*Quercus virginiana* Mill) (Fagaceae) are dominant plants. *Parrhasius m-album* (Boisduval & Leconte) (Lycaenidae) and *Megathymus yuccae* (Boisduval & Leconte) (Hesperiidae) may be found here in the proper season.



Fig. 14-20. Habitats in the Mid-Atlantic States (fig. first left top to bottom, then right top to bottom): 14) Cape Henlopen, DE. 15) McKee-Beshers State Wildlife Area, MD. 16) Great Dismal Swamp, VA. 17-18) Jericho Ditch, Great Dismal Swamp, VA. 19) Cape Henlopen, DE. 20) Potomac River, McKee-Beshers State Wildlife Area, MD.

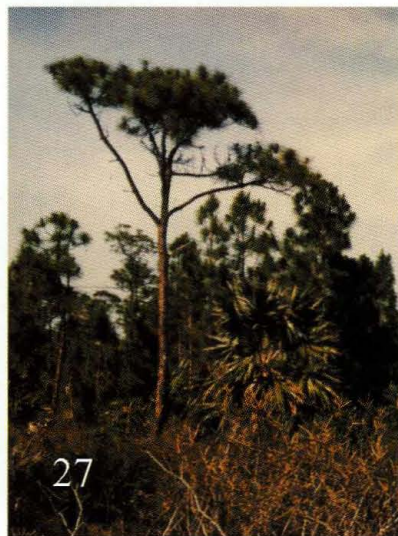


Fig. 21-27. Habitats in the Mid-Atlantic States to Iowa and Florida (fig. first left top to bottom, then right top to bottom): 21) Denton, MD. 22) Franklin County Park, OH. 23) Loess Hills, IA. 24) Difficult Run, Fairfax Co., VA. 25) Great Dismal Swamp, VA. 26-27) Big Pine Key, FL.



Fig. 28-33. Habitats in Florida (fig. first left top to bottom, then right top to bottom): 28) Key Biscayne, Miami, FL. 29) Big Pine Key, FL. 30) Vero Beach, FL. 31) Upper Matecumbe Key, FL. 32) Key Largo, FL. 33) Elliott Key, FL.

Fig. 31. Tropical hardwood hammock (Tropical life zone)
Upper Matecumbe Key, Monroe Co., Florida (May 1981).
This is a good habitat for *Appias drusilla neumoegeni* (Skinner) (Pieridae), *Dryas iulia largo* Clench (Nymphalidae), *Eunica tatila tailista* Kaye and *Marpesia petreus* (Cramer) (Nymphalidae), and *Epargyreus zestos* (Geyer) and *Polygonus leo* (Hesperiidae).

Fig. 32. Tropical hardwood hammock (Tropical life zone)
Key Largo, Monroe Co., Florida (May 1981).
Habitat for *Phoebis philea* (Johansson) and *P. agarithe maxima* (Neumoegen) (Pieridae), and *Heliconius charithonia tuckeri* Comstock & Brown (Nymphalidae).

Fig. 33. Tropical scrub (Tropical life zone)
Elliott Key, Biscayne National Park, Dade Co., Florida (17 May 1981).
One of the best populations of the federally endangered Schaus Swallowtail, *Papilio aristodemus ponceanus* Schaus (Papilionidae), is found here.

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