

GENERAL NOTES

PAPILIO TROILUS L. ON A NEW AND RARE LARVAL FOOD PLANT

Additional key words: Papilionidae, endangered, *Lindera melissifolia*.

Papilio troilus L. is a common swallowtail found over a broad geographic range. It is known from southern Canada to Florida and W to Manitoba and Texas, becoming less common W of the Mississippi River (Klots, A. B. 1951, Field guide to the butterflies, Houghton-Mifflin, Boston, 349 pp.). At least 15 species have been reported as larval food plants; these are mainly in the families Lauraceae, Rosaceae, and Rutaceae (Teitz, H. M. 1972, An index to the described life histories, early stages, and hosts of Macrolepidoptera of the continental United States and Canada, Allyn Mus. Entomol., Sarasota, Florida, 1041 pp.; Opler, P. A. & G. O. Krizek 1984, Butterflies east of the Great Plains, Johns Hopkins Univ. Press, Baltimore, 294 pp.). Species for which there is direct evidence of complete larval development are *Cinnamomum camphora* Nees & Eberm., *Lindera benzoin* (L.) Blume, *Persea borbonia* (L.) Spreng., and *Sassafras albidum* (Nutt.) Nees (R. C. Lederhouse pers. comm.).

In Mississippi, *Lindera benzoin* is the most common and widely distributed spicebush. The related pondberry or swamp spicebush, *L. melissifolia* (Walter) Blume, is an endangered species throughout its range in the SE United States (Kral, R. 1983, U.S. Dep. Agr. Forest Service Tech. Publ. R8-TP2, 1305 pp.; Currie, R. 1985, Federal Register 50: 32581-32585). Pondberry is known in Mississippi only from the Delta Region in Bolivar, Sharkey, and Sunflower counties.

On 18 June 1988, when the latest Mississippi population of *L. melissifolia* was discovered in Sunflower Co., a larva of *Papilio troilus* was noticed in its weblike, longitudinally rolled nest on a leaf of *L. melissifolia*. The preserved larva was given to the Mississippi Entomological Museum at Mississippi State University, Mississippi State, Mississippi, and voucher specimens of *L. melissifolia* are deposited in university herbaria at Florida, Michigan, Vanderbilt, and other herbaria.

In Mississippi, *Papilio troilus* larvae are commonly found on *Sassafras albidum* and *Lindera benzoin*, both in Lauraceae. *Sassafras albidum* is common in the Delta Region of Mississippi, but *Lindera benzoin* is relatively rare there, being more frequent eastward in the Loess Bluff Region. It is therefore logical that *P. troilus* utilizes another species in this family and in the genus *Lindera*. This observation is unique because a common butterfly seems to accept a rare food plant in the natural environment when other sources are much more common. However, no individuals of sassafras were located in the immediate area, and populations of the more common spicebush are kilometers away from the collection site.

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SPENCER COLLECTION GIVEN TO SMITHSONIAN

The National Museum of Natural History (Smithsonian Institution) has received the Spencer Collection of Western Butterflies. The Collection consists of over 4000 specimens, primarily of the genus *Speyeria*, and represents eight western states, Mexico, and Canada.

Among the species are fine series of *Speyeria nokomis nitocris* (Edwards), a topotypical series of *S. n. coeruleascens* (Holland), and a series of *S. cybele pugetensis* F. Chermock and Frechin. Two important butterflies were rediscovered by Spencer: *S. nokomis nigrocaerulea* (W. and T. Cockerell), near Taos, New Mexico, and *Clossiana selene nebraskensis* (Holland), near Valley, Nebraska. The Collection is rich in Nebraska material, including the only known Nebraska specimen of *Colias alexandra krauthii* Klots, from Sow Belly Canyon, Sioux County, and the only recent eastern Nebraska specimen of *Speyeria aphrodite alcestis* (Edwards). Nearly all of the *Speyeria* specimens were reared, and each species series displays rich coloration and individual variation.

Mr. Orville D. Spencer and his wife Eunice of Lincoln, Nebraska spent 40 years amassing their collection of Lepidoptera. Spencer's interest in butterflies began when he was a boy in Lincoln. Later he developed a highly successful technique for collecting eggs from butterflies and rearing them at home. Mr. Spencer's background is engineering, having retired in 1980 from the Lincoln Telephone Company. From the collector-made drawers to the carefully placed antennae, the time spent and the love shown in preparing this collection is evident to the viewer.

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EVIDENCE FOR GENETIC DETERMINATION OF VARIATION IN ADULT SIZE AND WING MELANISM OF *PARNASSIUS PHOEBUS* F.

Additional key words: phenotype, geographic variation, Papilionidae.

Parnassius phoebus F. (Papilionidae) ranges from Europe across Asia, and throughout much of montane western North America. The species is highly variable in wing coloration and size throughout its range, both within and between populations. C. D. Ferris (1975, J. Res. Lepid. 15:1–22) described the taxonomic variation of non-Arctic North American populations. I described some of the variation in wing color and size from an ecological viewpoint (Guppy, C. S. 1986a, Can. J. Zool. 64:956–962; 1986b, Oecologia 70:205–213).

To arrive at an understanding of the systematic and ecological significance of phenotypic variation of *P. phoebus*, it is necessary to know if the variation is due to genetic differences between populations. Ferris (above) believed that variation in wing melanism is environmentally controlled, and J. A. Scott (pers. comm.) believes it is genetically determined. In this paper I provide evidence for the genetic basis of some geographic variation in wing melanism and size (wing length) of *P. phoebus*.

Parnassius phoebus is a medium-sized to large butterfly with wings that are white with various black markings and usually red ocelli. There is a predominantly black region at the base of the hindwings which varies considerably in width, in proportion of black to white scaling within the black region, and in density of scaling (transparency) of the black region. This black region has a thermoregulatory significance (Guppy 1986b, above). The forewing distal region has marginal and submarginal black markings which vary greatly in development, especially in females. This region may be very transparent, especially in females, but it apparently lacks thermoregulatory significance (Guppy 1986b, above). Body size is highly variable, with a general trend of decreased size with increased elevation (Guppy 1986a, above).

I reared offspring concurrently from one or two arbitrarily selected females from each of five *P. phoebus* populations (Table 1) under uncontrolled (outdoor) conditions in 1980. Arbitrary samples from parent populations and all reared offspring were scored for six