BULLETIN OF THE ALLYN MUSEUM

Published by
THE ALLYN MUSEUM OF ENTOMOLOGY
Sarasota, Florida

Number 39 10 November 1976

LARVAL FOODPLANTS FOR THIRTY SPECIES OF SKIPPERS (LEPIDOPTERA: HESPERIIDAE) FROM MEXICO[1]

ROY O. KENDALL[2]

Route 4, Box 104-EB, San Antonio, Texas 78228 USA

This is another in a series of papers dealing with larval foodplants for Texan/Mexican Lepidoptera. Three earlier papers gave larval foodplants for some Lycaenidae and Riodinidae (Kendall, 1975a, b), and foodplants for some Hesperiidae (Kendall & McGuire, 1975). In this report, larval foodplants are given for 30 more species of Hesperiidae, 16 of which are found also in Texas. The study area, as noted elsewhere (Kendall, 1975a) is Ciudad Mante, Tamaulipas, Mexico, and vicinity. A few specific locations used repeatedly in this paper are (all distances are from Ciudad Mante): Quintero *ca.* 16 km sw; Paso del Abra *ca.* 22 km sw; Rancho Pico de Oro *ca.* 40 km n; and Gomez Farias *ca.* 47 km nw.

It may be assumed that the larvae construct some form of shelter in which they rest when not feeding, and that the larvae of all reported taxa eat plant foliage. Unusual larval habits are explained. Except where a reference citation is given, I believe that the larval foodplants given here are recorded for the first time. Geographical distribution for these species may be found in Hoffman (1941), Evans (1952, '53, '55), Monroe & Miller (1967), Brown & Mielke (1967, 1968). Biological arrangement follows Evans (1952, '53, '55); botanical arrangement, generally that of Standley (1920-1926), but the work of Correll & Johnston (1970) also has been used as a reference.

Aguna metophis (Latreille) 1824

At Rancho Pico de Oro, two last instar larvae were found 4-XII-74, feeding on *Bauhinia mexicana* Vog., LEGUMINOSAE. The larvae pupated on 8 and 10-XII-74; a ♂ emerged 29-XII-74 and another ♂ 1-I-75. This insect undoubtedly feeds on other genera of Leguminosae because it is found in extreme south Texas where this particular foodplant does not grow.

In Texas this species was collected first by M. A. Rickard, 6-IX-69 (♀), at Bentsen-Rio Grande Valley State Park, Hidalgo Co.; he has since collected it elsewhere in the county 10-X-73 (1♂), 27-X-73 (1♂), and 26-X-73 (1♂). Kendall collected a ♀ 10-IX-

[1]Contribution No. 357. Bureau of Entomology, Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Gainesville 32602.
[2]Research Associate, Florida State Collection of Arthropods, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

72 at Mission, Hidalgo Co., and W. W. McGuire collected it at Mission 18-X-73 (1♂), 19-X-73 (1♀), and at Galveston, Galveston Co. 7-VIII-73 (1♀).

Codatractus hyster (Dyar) 1916

In Paso del Abra, 30-XII-73, one last instar larva was collected feeding on *Ichtyomethia communis* Blake, LEGUMINOSAE. This larva proved to be parasitized and was preserved. Again on 1-XII-74 at another nearby location, Mrs. Kendall found ten larvae clustered in a leaf nest (leaves were pulled together with strands of silk) feeding on *I. communis*. The gregarious habit of these larvae is unusual for a skipper. Presumably, females deposit several eggs in a group or cluster. By 26-XII all except one larva proved to be parasitized; this one spun-up 16-XII, and it pupated 18-XII-74; a dwarfed ♂ emerged *ca.* 20-VI-75 while I was away on a field trip. All parasitized larvae were preserved; three ichneumonid immatures produced adults 12-XII-74 and 3-I-75.

Urbanus proteus proteus (L.) 1758

At Quintero, a single larva of this species was found 10-XI-74 feeding on *Desmodium neomexicanum* Gray, LEGUMINOSAE; it pupated 16-XI, and a ♀ emerged 3-XII-74. The larva of this species is similar to *Urbanus esmeraldus* (Butler) which were found feeding also on the same plant. In Texas, *U. proteus* is well established, and the ♀ prefer cultivated beans as an oviposition substrate (Kendall, 1965).

Urbanus esmeraldus (Butler) 1877

At Quintero, a ♀ was observed 10-XI-74 to oviposit on the juvenile foliage of *Desmodium neomexicanum*. Examination of the single plant disclosed eight eggs and three larvae. One egg was preserved; the others hatched 13 and 14-XI, but the larvae soon died because of insufficient food and difficulty in keeping it fresh. The three larvae pupated 19-XI (2) and 26-XI (1); 2 of the pupae died; the other produced a small ♀ 12-XII-74; all showed evidence of malnutrition. Another ♀ was observed ovipositing 27-XII-74 on still another (not yet determined) leguminous plant. The captive ♀ deposited many eggs on a sprig of this plant between 30-XII-74 and 1-I-75. The ♀ died 3-I-75, and the eggs started hatching the same day, but all larvae soon died for lack of food which was most difficult to find at this time of year. Still another ♀ was collected 2-I-75, and once again many eggs were obtained in confinement from 5 to 9-I-75. Twenty eggs, together with all first instar larvae, were preserved because of a food shortage.

W. W. McGuire collected this species once in south Texas (McGuire & Rickard, 1976).

Urbanus teleus (Hübner) 1821

At Rancho Pico de Oro, 6-XII-74, a ♀ was observed to oviposit on *Panicum maximum* Jacq., GRAMINEA. Both the egg and ♀ were recovered. In the field lab no additional eggs were obtained until 11-XII when the same grass species was provided and then only two under incandescent light; the ♀ died during the night. Eggs hatched 20-XII; the container was placed outdoors. For some unknown reason the larvae did not survive.

On 31-I-76 at El Naranjo, San Luis Potosí another ♀ was observed ovipositing on *P. maximum;* one egg and the ♀ were collected. In the field lab 101 additional eggs were deposited between 2 and 7-II; they started hatching 10-II. Larvae ate both *P. maximum* and *Sorghum halepense* (L.) Pers., Johnsongrass; 50 larvae pupated between 17-III and 5-IV; 37 adults (17♂, 20♀) emerged between 7-IV and 23-IV. A series of immature stages were preserved.

First instar larvae make shelters by cutting and folding over a portion of the

grass blade, but after about the third instar shelters are no longer constructed. Pupation takes place in a flimsy shelter constructed mostly on or near the ground in debris. Later instar larvae hide in the grass near the ground when not feeding. If disturbed while feeding the larva simply falls to the ground and lies motionless for an incredible period, even when handled.

This species is established in extreme south Texas.

Urbanus procne (Plötz) 1881

At Los Arcos Courts, Ciudad Mante, a ♀ was collected 20-XII-74 and confined with *Panicum maximum*. More than 40 eggs were deposited between 22 and 24-XII-74; they started hatching 24-XII. The larvae ate *P. maximum, Cynodon dactylon* (L.) Perse., *Lolium perenne* L. and *Stenotaphrum secundatum* (Walt.) Kuntze. The first, second and sometimes third instar larvae eat away the grass blade so that about 1 cm of the terminal end can be pulled over to about 85° to form a "lean-to" shelter. Later instars rest on the main stem near the ground or in debris on or near the ground where pupation takes place, usually head up in a loosely constructed shelter just prior to pupation. Larvae pupated between 28-I and 18-II-75; 17 adults (12♂, 5♀) emerged between 13-II and 3-III-75. Four eggs, thirteen larvae, and eight pupae were preserved.

On 7-I-75, at Quintero, a ♀ was observed ovipositing on *C. dactylon* and another local undetermined species of grass. The ♀ deposited 35 eggs in confinement 7 to 8-I-75, and these started hatching 12-I. The larvae readily accepted four different local grasses, but *P. maximum* was the main diet; they pupated between 19-II and 1-III-75; 11 adults (3♂, 8♀) emerged from 8 to 18-III-75. Twelve eggs, three larvae and two pupae were preserved.

This species is well established in south Texas where Kendall (1966) first reported it as feeding on various grasses.

Astraptes anaphus annetta Evans 1952

On 9-XI-74 at Los Arcos Courts, one parasitized egg and two larvae were found on *Pueraria lobata* (Willd.) Ohwi, LEGUMINOSAE. The larvae pupated 29, 30-XI; adults emerged 14-XII (♂) and 16-XII-74 (♀). Undoubtedly this species feeds on various other related legumes native in the area; it is well established and found where this ornamental does not grow. The species is found occasionally in extreme south Texas.

Celaenorrhinus similis similis Hayward 1933

At Rancho Pico de Oro, 21-XII-72, one first instar larva was found feeding on a species of Acanthaceae; it was preserved. On 13-XI-74 at El Nacimiento Rio Mante, one parasitized last instar larva was found feeding on *Holographis ehrenbergiana* Ness *in* DC, ACANTHACEAE; larva preserved. Again at Rancho Pico de Oro, 4 to 18-XII-74, fourteen more early instar larvae were collected. All except two proved to be parasitized by dipterons; one of these pupated *ca.* 5-I-75, the other on 1-II-75; a ♀ emerged 27-I-75 and another ♀ on 18-II-75. At El Nacimiento Rio Sabinas, 25-I-75, another parasitized last instar larva was collected; it had left the larval foodplant and spun-up in a nearby fern species; it too was preserved.

Dias (1974) recorded this species from São Paulo, Brazil as feeding in the larval stage on an undetermined plant in the Acanthaceae. He also described and illustrated the larva and pupa which agrees well with those reared by me from Mexico.

CREPUSCULAR ACTIVITY. At El Naranjo, San Luis Potosí, 19-II-76, a ♀ was collected *ca.* 1800 hrs. while feeding on the blossoms of periwinkle, *Vinca major* L., APOCYNACEAE. It was kept alive in hopes of obtaining eggs in captivity. The following day at 1915 hrs. the screened cover was removed to check for eggs. The insect instantly escaped and flew about the cabin which was dimly lighted (one

60 w incandescent bulb and one 20 w fluorescent circular tube). The insect alighted momentarily on various colored objects including some blue artificial flowers; it was not attracted to the overhead lights. I quickly brought in a bouquet of periwinkle blossoms and before they could be placed in water the ♀ came and fed on them while still in my hand. After probing two or three blossoms it would fly to the ceiling or wall and rest for a few minutes before returning to the flowers. This activity continued until 2145 hrs. when the lights were turned off for the night. The following morning the insect was gone and although a thorough search was made it could not be found.

Nisoniades bessus godma Evans 1953

In Paso del Abra and elsewhere nearby, between 29-XII-73 and 30-I-74, eleven larvae and two pupae of this species were collected feeding on *Solanum diversifolium* Schlecht. and *S. umbellatum* Mill., SOLANACEAE. The two pupae and two larvae were parasitized, and they were preserved. The remaining nine larvae pupated between 4-I and 15-II-74 (three of these pupae died of parasitism and were preserved); adults emerged (5♂, 1♀) from 23-I to 20-II-74. Again at this general location, 25 larvae were collected on *S. hirtum* Vahl from 10-XI to 5-I-75; twelve larvae were preserved (half of which were parasitized); the remaining thirteen larvae pupated from 12-XII-74 to 29-I-75; adults emerged (4♂, 6♀) from 24-XII-74 to 8-II-75. Three pupae, one of which was parasitized, were preserved.

Females of this species deposit their eggs singly on top of the leaves. Frequently, as many as three may be deposited by the same or different ♀ on the same leaf. First instar larva cuts a circle, *ca.* 5 mm in diameter, near the center of the leaf, leaving it attached at one point, and folds this cut-out portion over to form a circular shelter; thus, both the hole and shelter are rather conspicuous. Later instar larvae form their shelters from the leaf edge where they pupate. Undoubtedly this insect eats still other *Solanum* species throughout its range.

Nisoniades rubescens (Möschler) 1876

At El Salto Falls, San Luis Potosí, 24-XII-73, one egg and one larva were found on *Exogonium luteum* House, CONVOLVULACEAE; both were preserved. Another larva was collected on this plant 20-II-74 near Tamazunchale, San Luis Potosí; it pupated 3-III, and a ♂ emerged 15-III-74. Near Ciudad Mante, five larvae were collected between 25-XII-73 and 27-I-74; two of these were eating *E. luteum* and three *Ipomoea batatas* (L.) Lam. also CONVOLVULACEAE; one larva was parasitized, and the other four pupated between 13-I and 2-II-74; adults emerged (3♂, 1♀) from 26-I-to 15-II-74. At the same location, 14-XI-74, a ♀ was observed ovipositing on top of the leaves, one at a time, of *E. luteum.* The ♀ eluded capture, but two eggs were recovered which hatched in due course; the larvae pupated 27, 29-XII, and 2♂ emerged 7, 10-I-75. Again on 31-XII-74, three larvae were found on *E. luteum,* two of which proved to be parasitized; the other pupated 19-I-75, but it too was parasitized by a dipteron.

This species is fairly well established in extreme south Texas. It was first recorded by Freeman (1945). Since then I and several other collectors have taken it a number of times. Presumably the larva eats some members of the Convolvulaceae also in Texas, possibly *Ipomoea trichocarpa* Ell.

Staphylus vulgata vulgata (Möschler) 1878

At Los Arcos Courts, 14-XII-74, a single larva was found feeding on *Achyranthes aspera* L., AMARANTHACEAE. The larva pupated 3-I-75, and a ♂ emerged 11-I-75.

Staphylus mazans mazans (Reakirt) 1866

At Los Arcos Courts, 14-XII-74, one pupa and three larvae were collected feeding on *A. aspera*. The pupa porduced at ♂ 16-XII-74. One larva was preserved; the other two pupated 7, 11-I-75; the first was preserved; the other produced a ♂ 28-I-75.

This species is well established in south Texas where it feeds on related Amaranthaceae.

Staphylus azteca azteca (Scudder) 1872

At Quintero, 10-XI-74, seven larvae were collected feeding on *Celosia nitida* Vahl., AMARANTHACEAE; two of the larvae were parasitized and were preserved; the remaining five pupated between 23-XII-74 and 3-I-75; adults emerged (2♂, 3♀) from 1 to 15-I-75. At Los Arcos Courts, 14-XII-74, 2 more larvae were collected on *A. aspera*. These two larvae pupated on 8, 9-I-75, and 2♀ emerged 19-I-75.

Atarnes sallei (Felder) 1867

At Quintero, 7-I-74, one larva was found feeding on *Annona globiflora* Schlecht., ANNONACEAE; it was preserved. At El Nacimiento Rio Mante, 13-XI-74, one larva and one empty pupal case were found on this plant; the latter was preserved. The larva pupated 27-XI, and a ♀ emerged 8-XII-74. Again on 29-XII-74, near Ciudad Mante, several egg shells, one dead pupa, and four larvae were collected; all four larvae were parasitized by dipterons. At Paso del Abra and Quintero, 2-I to 1-II-75, eight more larvae were collected; they pupated 10 to 21-I-75; three pupae (two of which were parasitized) were preserved; the others emerged (3♂, 2♀) from 25 to 29-I-75.

Females deposit their eggs singly beneath the leaves. The larva forms a shelter by cutting away a portion of the leaf edge and folding it under. It then feeds by eating small holes in the portion folded under, thus making it rather difficult to detect. The larval habit is shared by *Paches polla* Mabille as recorded by Kendall & McGuire (1975). Pupation takes place in the leaf shelter.

Systasea pulverulenta (Felder) 1869

At Los Arcos Courts, 17-I-75, a single larva of this species was found feeding on *Abutilon incanum* (Link) Sweet, MALVACEAE; it pupated 26-I, and a ♂ emerged 6-II-75.

In Texas this insect is widely distributed over the western half of the state. Kendall (1960, 1961) reported *Abutilon wrightii* Gray and *Wissadula holosericea* (Scheele) Garcke as larval foodplants. Here it feeds also on (previously unpublished) *A. incanum, Sphaeralcea angustifolia* (Cav.) Don, and *Wissadula amplissima* (L.) R. E. Fries, all MALVACEAE; the last two are secondary food sources.

Timochares ruptifasciatus ruptifasciatus (Plötz) 1884

At Paso del Abra, 11-II-74, a single larva of this species was found feeding on an undetermined species of MALPIGHIACEAE. In the lab, the larva ate *Malpighia glabra* L.; it pupated 13-III-74, and a ♀ emerged 1-IV-74.

Comstock (1953) observed this species ovipositing on a malpighiaceous vine near Manzanillo, Colima, and he described and illustrated the egg, larva, and pupa. This species is found also in extreme south Texas where the larva eats *M. glabra* (Kendall & Rickard, 1976).

Anastrus sempiternus sempiternus (Butler & Druce) 1872

At Los Arcos Courts, 9, 24-XI-74, two larvae were collected feeding on *Terminalia*

catappa L., COMBRETACEAE. One larva pupated 18-XI, and a ♂ emerged 27-XI-74; the other pupated 2-XII-74, and a ♀ emerged 14-XII-74. No wild adults of this species were collected.

Chiomara asychis georgina (Reakirt) 1868

At El Salto Falls, San Luis Potosí, 25-XII-75, a single larva was found feeding on *Gaudichaudia pentandra* Juss., MALPIGHIACEAE. The larva pupated 18-I-75, and a ♂ emerged 27-I-75.

This species is found also in southern Texas where it ranges northward to San Antonio. Over part of this range, the larva feeds on *Malpighia glabra* (Kendall & Rickard, 1976).

Pyrgus oileus (Linnaeus) 1767

At Gomez Farias, 31-XII-74, a single larva was collected feeding on *Sida salviaefolia* Presl., MALVACEAE. The larva pupated 7-I-75, and a ♀ emerged 19-I-75. Comstock & Vazquez (1961) gave foodplants reported in the literature as *Abutilon sp., Hibiscus sp., Malva sp., Sidalcea humilis, Sida sp.* including *antillensis* and *carpinifolia,* all Malvaceae.

This species is well established in south Texas where the larvae feed on a number of malvaceous plants including *Sida rhombifolia* L. (Bottimer, 1926). Other local larval foodplants will be given in a separate paper dealing with the skippers of Texas. Taxonomic treatment of *P. oileus* and *P. philetas* Edwards is given in Burns & Kendall (1969).

Synapte malitiosa pecta Evans 1955

At Rancho Pico de Oro, 4-XII-74, two larvae were collected feeding on *Panicum maximum;* one larva pupated 11-XII, and a ♀ emerged 23-XII; the other pupated 14-XII, and another ♀ emerged 25-XII-74.

This species is found also in extreme south Texas where it is well established.

Anthoptus epictetus (Fabricius) 1793

At Rancho Pico de Oro, 9-I-74, two larvae were collected feeding on *Bambusa vulgaris* Schrad., BAMBUSEAE. Both larvae pupated 17-I, and a ♀ emerged 31-I; the other pupa produced a dipteron 5-II-74.

Cymaenes odilia trebius (Mabille) 1891

At Los Arcos Courts, 19-XII-73, one pupa was found attached to a blade of *Panicum maximum;* a ♀ emerged 21-I-74. Because the grass showed considerable larval damage, I assumed that the larva actually ate this plant. Probably the larvae eat various other grass species as well.

This species is well established in extreme south Texas.

Vehilius inca (Scudder) 1872

At Rancho Pico de Oro, 26-XII-73, W. W. McGuire collected one larva feeding on grass and gave it to me to rear. In the field lab this larva readily ate *Panicum maximum;* it pupated 15-I-74, and a ♀ emerged 27-I-74.

Parphorus decora (Herrich-Schäffer) 1869

At Rancho Pico de Oro, 8-I-75, one pupa was found on *Lasiacis sp. (? ruscifolia* (H.B.K.) Hitchc.), GRAMINEAE; a ♂ emerged 15-I-75. At the same location, 24-I-75,

one larva and another pupa were collected on this plant; a ♂ emerged from the pupa 3-II-75; the larva pupated 10-II, and a ♀ emerged 25-II-75.

Vettius fantasos fantasos (Stöll) 1780

At Rancho Pico de Oro, 23-XI-74, six larvae were collected feeding on *Lasiacis sp. (? ruscifolia);* two of the small larvae were killed accidentally; another was preserved; one was parasitized; another died; the remaining larva pupated 15-XII, and a ♂ emerged 26-XII-74. This species is rather common in the area.

Pompeius pompeius (Latreille) 1824

At Los Arcos Courts, 23-XII-74, a ♀ was collected feeding on the blossoms of ornamentals; in the field lab it deposited three eggs the same day on *P. maximum.* During the night of 25-XII it deposited 16 more eggs in a small plastic vial and then died. Six eggs were preserved; of the remaining eggs only three hatched, and two of these died. The remaining larva ate *P. maximum,* pupated 21-II, and a ♂ emerged 10-III-75. Again, at the same location, two more ♀ were collected 14-XII-75 which deposited 128 eggs between 14 and 20-XII. These eggs started hatching about 0700 hrs. 22-XII; 21 larvae pupated between 12 and 20-II-76; adults (3♂, 5♀) emerged from 25-II to 4-III-76; the remaining thirteen pupae were preserved, ten of which died of desiccation. Ten eggs and 32 larvae were preserved also. It was interesting to note that pupae of serveral other skipper species were kept in the same environment simultaneously without desiccation.

At El Naranjo, San Luis Potosí, between 25-II and 2-III-76, three ♀ were observed to oviposit, at about 1300 hrs. on *P. maximum* in nature. Eggs are deposited beneath blades of grass very near the ground, suggestive of the need for a relatively humid environment.

The larval habits of this species are similar to those of *Urbanus procne;* a formal shelter is prepared only just before pupation, deep in the stubble; the larva pupates head up. Undoubtedly this species feeds in the larval stage on other grasses, but at this time of year, *P. maximum* is one of those local species most likely to have new growth.

Lerodea dysaules Godman 1900

In Paso del Abra, afternoon of 30-XII-73, a ♀ was observed ovipositing on an undetermined species of grass growing among rocks on the shady side of the road cut through the mountain. No eggs were deposited in confinement by the captive ♀; Five eggs were recovered, however, from the grass on which the ♀ oviposited in nature. These eggs started hatching 2-I-74, and the larvae readily ate *Cynodon dactylon* (L.) Pers. in the field lab. Four larvae pupated 1 to 5-II-74; a ♂ emerged 15-II, and another ♂ on 17-II; two pupae were deformed, probably due to malnutrition, and they were discarded.

This species was first recorded for Texas and the United States by Tilden (1964). Since then it has been taken in Texas by a number of collectors, and it appears to be well established in the southernmost part of the state.

Calpodes ethlius (Stöll) 1782

At Escondido Courts, Linares, Nuevo Leon, 7-XI-74, two larvae of this widespread, migratory, *Canna*-feeding species were found feeding on *C. indica* L., CANNACEAE; they pupated 23, 25-XI-74, two ♀ emerged on 1 and 5-XII-74. On 9-XI-74 at Los Arcos Courts, two more larvae were found feeding on this plant; they pupated 24-XI-74, and a ♂ and ♀ emerged 4-XII-74. Earlier, (Kendall & McGuire, 1975) I had found several empty pupal cases at this last location.

This species is wide spread in Texas where its greatest development is in

city flower gardens (Kendall, 1965).

Oxynthes corusca (Herrich-Schäffer) 1869

At Rancho Pico de Oro, 4-XII-74, one larva was found feeding on *Bambusa vulgaris;* this larva pupated 2-I-75, and a ♀ emerged 17-I-75. Again at the same location, 8-XII-74, two more small larvae were collected. These larvae pupated 17 and 19-II-75; a ♀ emerged 7-III, and a ♂ on 10-II-75.

Thracides phidon (Cramer) 1779

At El Salto Falls, San Luis Potosí, 25-XII-74, Mrs. Kendall found an empty pupal case in a rolled portion of a leaf of *Helicònia latispatha* Benth., MUSACEAE. Returning to the spot 16-I-75, we collected eight larvae of various instars; four of the larvae proved to be parasitized by dipterons; the remaining four pupated 21 to 30-I; 1 was preserved. Adults emerged 4-II (♀), 9-II (♂), and 14-II-75 (♀). No wild adults of this beautiful species were seen.

ACKNOWLEDGMENTS

I wish to thank Jack E. Lipes of the U. S. Department of Agriculture for providing the necessary importation permits, without which I could not have completed some of these life history studies. To Keith S. Brown my thanks for providing certain biological references related to these studies, and to H. A. Freeman, a close friend for many years, I am indebted for determining some of the skippers mentioned in this paper. For their warm hospitality and permission to conduct research at Rancho Pico de Oro, my sincere thanks to Sr. & Sra. Carlos Gonzales, and to my equally dear friends Sr. & Sra. Fernando Reyes Bugarin, I am most greatful for their permission to discretely prune their prized ornamentals to feed caterpillars, and for their very warm hospitality extended to Mrs. Kendall and me.

LITERATURE CITED

Bottimer, L. J. 1926. Notes on some Lepidoptera from eastern Texas. J. Agr. Res. 33(9):797-819.

Brown, Keith S., Jr., & Olaf H. H. Mielke 1967. Lepidoptera of the central Plateau. I. Preliminary list of Rhopalocera. J. Lepid. Soc. 21:145-168.

---------- 1968. II Partial list for the Belo Horizonte area, showing the character of the southeastern "blend zone." J. Lepid. Soc. 22:147-157.

Burns, John M., & Roy O. Kendall 1969. Ecologic and spatial distribution of *Pyrgus oileus* and *Pyrgus philetas* (Lepid.: Hesperiidae) at their northern distributional limits. Psyche 76(1):41-53.

Comstock, John A. 1953. Collecting butterflies in the coastal area of Mexico near Mazanillo, Colima, with notes on the life history of a rare skipper. Bull. So. Calif. Acad. Sci. 52(2):43-45.

Comstock, John A., & Leonila Vazquez G. 1961. Estudios de los ciclos biologicos en Lepidopteros Mexicanos. Anales del Instituto de Biología 31:349-448.

Correll, Donovan S., & Marshall C. Johnston 1970. Manual of the vascular plants of Texas. i-xiii + 1881 p. Texas Research Foundation, Renner, Texas.

Dias Filho, M. M. 1974. Contribuicao a biologia e morfologia de *Celaenorrhinus similis similis* Hayward, 1933 (Lepidoptera, Hesperiidae, Pyrginae). Rev. bras. Ent. 18(1):33-36.

Evans, W. H. 1952. A catalog of the American Hesperiidae indicating the classification and nomenclature adopted in the British Museum. Part II. Pyrginae. Sec. 1. London: British Museum, 178 p., pls. 10-25.

---------- 1953.... Part III. Pyrginae. Sec. 2. London: British Museum, 246 p., pls. 26-53.

---------- 1955.... Part IV. Hesperiinae and Megathyminae. London: British Museum,

449 p., pls. 54-88.
Freeman, H. A. 1945. Notes on some North American Hesperiidae, with two new records for the United States. Ent. News 56(1):4-5.
Hoffmann, Carlos C. 1941. Catalogo sistematico y zoogeografico de los Lepidopteros Mexicanos. Segunde parte - Hesperioidea. An. Inst. Biol. Mexico, 12:237-294.
Kendall, Roy O. 1960. More larval foodplants from Texas. J. Lepid. Soc. 13(4): 221-228.
---------- 1961. Another larval foodplant from Texas for *Antigonus pulverulenta*. J. Lepid. Soc. 15(1):73-74.
---------- 1965. Larval foodplants and distribution notes for twenty-four Texas Hesperiidae. J. Lepid. Soc. 19(1):1-33.
---------- 1966. Larval foodplants for five Texas Hesperiidae. J. Lepid. Soc. 20(1): 35-41.
---------- 1975a. Laval foodplants for seven species of Hairstreaks (Lycaenidae) from Mexico. Bull. Allyn Mus. 24:1-4.
---------- 1975b. Larval foodplants and life history notes for some Metalmarks (Lepidoptera:Riodinidae) from Mexico and Texas. Bull. Allyn Mus. 32:1-12.
Kendall, Roy O. & W. W. McGuire 1975. Larval foodplants for twenty-one species of skippers (Lepidoptera:Hesperiidae) from Mexico. Bull. Allyn Mus. 27:1-7.
Kendall, Roy O., & M. A. Rickard 1976. Larval foodplants, spatial and temporal distribution for five skippers (Hesperiidae) from Texas. J. Lepid. Soc. 30(2):
McGuire, W. W., & M. A. Rickard 1976. New Hesperiidae records for Texas and the United States. J. Lepid. Soc. 30(1):5-11.
Monroe, Rose Sawyer, & Lee D. Miller 1967. Report on a collection of Hesperiidae from Honduras. J. Lepid. Soc. 21(4):243-247.
Standley, Paul C. 1920-1926. Trees and shrubs of Mexico. Contributions, U. S. Nat. Herbarium 23(1-5):1-1721. Gov't. Printing Office, Washington, D. C.
Tilden, J. W. 1964. Two species of hesperiidae previously unrecorded from the United States. J. Lepid. Soc. 18(4):214-216.