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Arkansas Butterflies and Skippers

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Arkansas Butterflies and Skippers

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ABSTRACT

Since 1955 the writer has been compiling information on Arkansas butterflies and skippers. A list of species is presented from data obtained from personal collecting, extensive contacts with contemporary collectors, and a concerted literature search. A total of 151 species are listed on a chart which also shows from which of five designated areas in the state each species has been reported.

In 1893 The Rev. John Davis, after a "somewhat diligent canvass of the suburbs of Little Rock," reported collecting 30 species of butterflies (Davis, 1894). There have been few other published reports on Arkansas butterflies—none of a comprehensive nature for the state as a whole. A regional list for Northeast Arkansas by Masters (1967) and, earlier, lists of Hesperidae (1945) and Theclinae (1951) by H. A. Freeman and a short list by Rowley (1892) constitute the known published lists. The writer has been collecting in Arkansas, mainly in the northwest, since 1955 and has kept records not only of personal findings but also of those of contemporary collectors contacted and those found in a diligent search of the literature. The current list contains names of 151 species and is short by an estimated 8-10 species that are likely to be found eventually.

Topographically the two main features of Arkansas are the forest highlands of the northwest "half" triangle of the state and the flatlands of the southeast "half" triangle of the state. The forest highlands are bisected by the Arkansas River which runs west to east between the Ozark Highlands on the north and the Ouachita Mountains on the south. Elevation of the highlands ranges upward from 140 m (450 ft) in the Arkansas River Valley to peaks of about 850 m (2800 ft). The flatlands are separated conveniently into the Gulf Coastal Plains on the south and southwest, and the Mississippi Alluvial Plains and Terraces of the eastern "third" of the state along the Mississippi River. Elevation of these areas is mostly from 65 to 90 m (200-300 ft) above sea level. Thus, Arkansas can be divided into five areas which coincide in a general way with the major physiographic, soil and vegetation regions of the state (Dale, 1963; see map, Fig. 1). The northern forests, the Ozarks, are mainly the upland oak-hickory type with some pine. The southern forests, in part the Ouachitas but also the Gulf Coastal Plains, are composed largely of oak-pine or pine woods. The Mississippi Alluvial Plains and Terraces region is mainly cultivated with rice, cotton, soybeans and other crops which have largely supplanted the native vegetation of pine, oak-pine and bottomland oak-gum-cypress woods. The northwest, west and southeast sections of the state are dotted with once-designated prairies, some of which still retain the prairie features of vegetation, hardpan soil and absence of trees (Armstrong and Moore, 1957; Ruby, 1953; and Wackerman, 1929). Thus, the state has a wide variety of habitats and they are reflected in a varied spectrum of insects. The main body of

This article is taken from a report by the writer which has been accepted for publication in the Mid-Continent Lepidoptera Series (Paulissen, 1975). It was thought desirable to give the material statewide circulation by publishing it in the *Proceedings*. the lepidoptera fauna is characteristically that of the so-called Appalachian subregion, but in Arkansas is considerably overlaid with essentially southern and southwestern species.

Resident collectors in the state have been relatively very few, and therefore much of the state still has not been well collected. The most intensive collecting has been in the northeast, northwest, southwest, and central parts of the state; only the southeast is relatively unaccounted for. Even there, however, the scattered records can be augmented by accurate extrapolative inferences based on other known Arkansas records and those of adjacent Mississippi (Mather and Mather, 1958, 1959) and Louisiana (Lambremont, 1954; Lambremont and Ross, 1965; Ross and Lambremont, 1963). Because records are from widely separated and strategically located areas, the present list is a fairly comprehensive one for the whole state.

On the accompanying list (Table I), the species of butterflies and skippers of Arkansas are presented and numbered in order according to dos Passos' synonymic list (dos Passos, 1964, 1965) and its revisions of the Melitaeinae (dos Passos, 1969) and the Lycaenidae (dos Passos, 1970). Other modifications have been incorporated for certain name changes and recognition of specific status of some heretofore designated

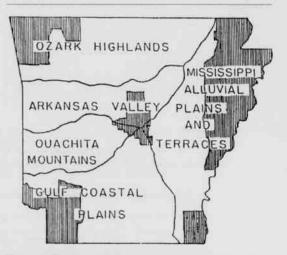


Figure 1. Topographic regions of Arkansas. Shaded areas correspond to counties from which butterfly and skipper records are shown in Table I. (From Dale, 1963, whose permission to use is gratefully acknowledged.)

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Table I. List of Butterfly and Skipper Species Found in Designated Areas of Arkansas. Numbers correspond to dos Passos' synonymic list (1964) including revisions (1965, 1969, 1970). Certain verified subspecific designations have been included.

MEGATHYM1DAE	HU LE CIWEN SE EX		NWINE CENSON SE
		173 Erunnis horatius (Scudder & Burgess)	XXXXV
13 Megathymus yuccae (Boisduval & Le Conte)	1 1	174 Erynnis juvenalis (Fabricius)	XXXX#
	1 1 1 1 1 1 1 1	181 Achlyodes thraso (Hübner)	x
HESPERIIDAE		188 Staphylus hayhursti (Edwards)	x x x x e
		193 Cogia outis (Skinner)	8
Hespertinae	11111118	200 Thorybes bathyllus (Smith)	xxxxe
24 Panequina ocola (Edwards)	xxxxe	201 Thoruben pulades (Scudder)	xxxxe
27 Calpodes ethlius (Stoll)	x x e	204 Thorubes confusis Bell	XXXX
29 Lerodea eufala (Edwards)	xxxxe	207 Achalarus lyciades (Geyer)	XXXXe
34 Amblyscirtes linda H. A. Freeman	x x x	211 Auchton cellus (Boisduval & Le Conte)	XXXX
37 Amblyscirtes samoset (Scudder)	x x	217 Urbanus proteus (Linnaeus)	
40 Amblyscirtes aesculapius (Fabricius)	x e	236 Epargyreus clarus (Cramer)	
43 Ambluscirtes nusa Eduards	x 2	ese philippieus cruius (cramer)	XXXXe
45 Amblyscirtes vialis (Edwards)	xxxxe		
46 Ambluscirtes belli H. A. Freeman	xxxxe	PAPILIONIDAE	
47 Amblyscirtes alternata (Grote & Robinson)	xe	Papilioninae	
50 Atrytonopsis hianna (Scudder)	x x e		I A MARKAGE
62 Euphyes alabamae (Lindsey)	xxe	246 Battus philenor (Linnaeus)	x x x x x
63 Eupliges dukesi (Lindsey)	xxe	247 Battus polydamas (Linnaeus)	×
67 Euphyms vestris metacomet (Harris)	xxxxe	248 Papilio polyxenes Fabricius	XXXXe
73 Poanes hobomok (Harris)	XXX	24 Papilio joanae J.R. Heitzman	*
74 Poanes zabulon (Boisduval & Le Conte)	xxx	256 Papilio cresphontes Cramer	x x x x e
77 Poanes yehl (Skinner)	x x e	262 Papilio glaucus Linnaeus	ххххе
78 Posnes vistor (Edwards)	A A 3	267 Papilio troilus Linnaeus	XXXXX
83 Problema hussus (Edwards)		268 Papilio palamedes Drury	X e
86 Atrytone delaware delaware (Edwards)	×	269 Surytides marcellus (Gramer)	x x x x x
87 Atalopedes campestris (Boisduval)	x x x		
BB Description campestris (Boisduval)	xxxxe		
88 Pompetus verna sequouah (H. A. Freeman) 89 Wallengrenia otho (Smith)	хххе	PIERIDAE	
	× x x x e	Pierinae	
89 Wallengrenia egeremet (Scudder)	x x e	274 Appias drusilla (Cramer)	x
90 Folites coras (Cramer)	x x	277 Pieris protodice Boisduval 5 Le Conte	XXXXX
95 Polites themistocles (Latreille)	xxxxe	280 Pieris rapae (Linnaeus)	X X X X X X X X X X
96 Folites origines origines (Fabricius)	xxxe	281 Ascia monuste (Linnaeus)	7 x
99 Polites vibox (Geyer)	x x e	the second second second second	
101 Hesperia metea licinus (Edwards)	x x x e	Coliadinae	
115 Hesperia meskei (Edwards)	x x	286 Collas eurytheme Beisduval	x x x x x
117 Hesperia leonardus Harris	x x	287 Colias philodice Godart	xxxxx
122 Hylephila phyleus (Drury)	xxxxe	299 Colias cesonia (Stoll)	XXXXX
125 Copaeodes aurantiaca (Hewitson)	x	302 Phoebis sennae eubule (Linnaeus)	XXXXX
126 Copaeodes minima (Edwards)	xxe	303 Phombis philes (Johansson)	1 x 1 1 1
130 Anculoxypha numitor (Fabricius)	x x x x e	305 Phoebis agarithe (Boisduval)	
134 Lerema accius (Smith)	xxxxe	310 Eurema daira (Godart)	
137 Nastra lherminier (Latreille)	xxxxe	312 Eurema mexicana (Boisduval)	хе
		315 Editena mexicana (noisduval)	× ×
Pyrginae		315 Eurema lisa Boisduval & Le Conte	x x x x x
148 Pholisora estullus (Fabricius)	x x x x c	319 Eurema nicippe (Cramer)	XXXXX
161 Furgus communis (Crote)	XXXXe	320 Nathalis iole Boisduval	x x x x x
162 Pyrgus cilcus (Linnaeus)	x e	- (1) · · · · · · · · · · · · · · · · · · ·	
163 Erunnis icclus (Scudder & Burgess)		Euchloeinae	
164 Erynnis brizo (Beisduval & Le Conte)	xxxxe	323 Anthecaris midea Hübner	x x x x e
165 Erynnis persius (Scudder)	1 x 1 1 C	329 Euchloe olympia (Edwards)	x x
167 Ergnnis Daptiside (Forbes)			
168 Erunnis zarucco (Lucas)	××		
168 Erynnis funeralis (Scudder & Burgess)	x	RIODIBIDAE	
	- x x x	Riodininae	
169 Erynnis martiilis (Scudder)		343 Calephelis muticum (McAlpine)	

- M. yuccae. Until recently, the only known specimen from Arkansas was one captured by Mr. D. Paxon in his backyard in Ft. Smith in April 1940 (pers. comm.). A second specimen was collected in Nevada County in 1973 by Ed Gage (1974).
- 2. A. nysa. The only record is in Field (1938, p. 265) for Carroll County.
- 3. P. viator. Ed Gage (1974) reported taking specimen in Lafayette County in 1973.
- C. outis. Taken by H.A. Freeman in Sharp County, north central Arkansas (in litt.) and by J.R. Heitzman at Eureka Springs, Carroll County, in northwest Arkansas (in litt.).

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CAENIDAE	1995	NE (1	4 5	E DA	Vanessinae	VIN	E kil	NISU	Ase.	To
Declinae						and the second se	T		T	T	T
355 Harkenclonus titus (Fabricius)	x	×	×	24					c x		
361 Saturium Liperops (Le Conte)	x		x	4		528 Cynthia virginiensis (Drury) x	1	c x	c x	8	811
362 Saturium kingi (Klots & Clench)	12		~1	<u> </u>	6	529 Cynthia cardui (Linnaeus)	13	¢ 7	(x	×	2 I I
363 Satyrium calanus (Hübner)		x			12	531 Junonia coenia (Hübner)	19	(X	c x	1×	é.
364 Saturium caryaevorus (McDunnough)	x	1	^I	<u>^</u>]	11		10	T	1	T	11
365 Saturium edwardsii (Saunders)		11		1		Nymphal Inac	82			Ł	a.
319 Saturium edwardsii (Saunders)		×				535 Numphalis milberti (Godart)	12		L.	1	1
379 Calycopis cecrops (Fabricius)	×	×			9	536 Numphalis antiopa (Linnaeus) x	25	٨.		1.2	Æ
383 Callophrys irus (Godart)			x		+	537 Polygonia interrogationis (Fabricius)			c x x x		1
384 Callophrys henrici (Grote & Robinson)		×				538 Polugonia comma (Barris) x		do	10	16	
388 Callophtys niphon (Hübner)	×	×	x	x i	e					1º	1
394 Callophrys gryneus (Hübner)	×	×	×	L P	e	A CONTRACTOR AND A CONTRACT	11	Y	1	+	4
408 Atlides balesus (Cramer)	X	×	×	×	e	Melitaeinae		1.			1
412 Euristrymon ontario (Edwards)	x		x	x x	11		82				÷
414 Fanthiades m-album (Boisduval & Le Conte)	×		×			549 Chlosyne gorgone (Hühner)	6.2	< ?	x x x x	1	E.
417 Strumon melinus Hübner		×	×					< >	c 🛪	(e	E.
	12	24	1	TF	2	563 Phuciodes texana (Edwards) x				1	
Serydinae				1					x x		
429 Fenesica tarquinius (Fabricius)	×		×	11.		568 Phyciodes phaon (Edwards) x	6 3	K 3	x x	c e	ŧ.
Contraction contraction (tenterstant)	11		$^{\circ}$	11	۶L	592 Euphydryas phaeton ozarkae Masters x	¢.		L.	1	æ
Lycaeninae		1	11		11					1	1
433 Lycaena those Guérin-Méneville		1	11	1		Argynninae	a.	Т			ł
443 Lycaena phlaeas (Linnacus)		xx			11	611 Spoueria idalia (Drury) x	٤.		ĸ	1	1
aus ogcaena phraeas (Linnaeus)	×	×	×	1	11	621 Speyeria diana (Cramer)					41
Makarran .				T.		622 Speyeris cubele (Fabricius)		5		T	1
Plebejinae				4					x x	Л.	Л
446 Brephidium exilis (Boisduval)	×		×	1	11		1	11	11	11	1
448 Leptotes cassius (Cramer)	11			×	11	Heliconiinae	æ	н		1	1
449 Leptotes marina (Reakirt)	x		ĸ	1	11	626 Heliconius charitonius (Linnaeus) x				1	
453 Hemiargus isola (Reakirt)	X	×	x	K (628 Dryas julia (Fabricius)	1	1.		1	1
469 Everes comuntas (Codart)	×	x	x i	x 3		630 automation and a second		12	9		3
479 Glaucopsyche lygdamus (Doubleday)	×			x I		so Agradiis Vanillae (Linnaeus)	-p	×p	××	5	1
481 Celastrina argiolus (Linnaeus)	x	x	x	x 1			12	11		1	1
			9	1	11	DANAIDAE	11				1
	11		4			Danainae				÷	1
IBYTHEIDAE	11				11	611 Departure of the	11	л.		1.	
Libytheinae			11	1		(3) Canada prexippus (Linnaeus)	κ ,		××	\$ 3	4
482 Libytheana bachmanii (Kirtland)	×	×	x 13			633 Danaus gilippus strigosus (Bates)	1	1	×	1	1
						SATYRIDAE	1			1	1
IYMPHALIDAE				1		Lethinae					
Charaxinae				1.	11	636 Lethe portlandia missarkae J. R. Heitzman x			1		1
484 Anaea andria Scudder	x	x	x 2	()		6 dos Passos	1	1			1
			Ш	1		616 Lothe anthony for its		10		а.	11
Apaturinae		11	1	T.		197 Frankright Andre 1		1		1	11
492 Asterocampa celtis (Beisduval & Le Conte)	×	x	ĸ ,	d.		(Skinner)	4	P	x	1	4
494 Asterocampa clyton (Boisduval & Le Conte)	X	x	ĸ .	1		Satyrinae		1	æ		8
			1	T			1	1	æ	11	11
Eurytelinae						639 Euptychia gemma (Hübner) x	K 2	X	xэ		
502 Mestra amymone (Ménétriés)					7	643 Euptuchia areolata (Smith)		1	17	K 4	1
Service of the servic			ľ			645 Euclychia hermes sosyhius (Fabricius) x	5 2	x	xx	K 1	1
	1					646 Eupruchia cymela (Cramer)	x i	×	xx	x ;	
Limenitidinae				10.0				04 H	389 D I	60 1 5	418
Limenitidinae						obb cercyonis pegala (Fabricius) x	5 J -		x >	к (100
Limenitidinae 517 Limenitis astyanax (Fabricius) 518 Limenitis archippus (Gramet)	x	x				x and page a crasticity	1		×	×	1

x = present or reported

- e = expected
- B. polydamas. Reported for north central Arkansas (Masters, 1976) and for Hot Springs, Garland County, central Arkansas, by Renie Mallory (in litt.).
- S. kingi. Malcolm Douglas (in litt.) reported collecting specimen near Sheridan, Grant County, in 1974.
- M. anymone. Five specimens were taken south of Texarkana, Miller County, in southwest Arkansas by Masters (1970).
- 8. N. milberti. Reported from near Harrison, Arkansas, before the 1930's (Masters, in litt.).
- D. gilippus. Besides being reported for central Arkansas by H.A. Freeman (in litt.), it also was taken at Ft. Smith by D. Paxon during the drouthyearsof the 1930's (pers. comm.). In 1972 Randy Lewis collected specimens near the Arkansas River south of Alma.

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"subspecies." Name changes include Eurytides in place of Graphium (Munroe, 1960), Calephelis for Lephelisca (McAlpine, 1971) and Cynthia for Vanessa (Field, 1971). Specific status is recognized for Euphyes alabamae (Shapiro, 1970), Erynnis funeralis (Burns, 1964) and Lethe anthedon (Heitzman and dos Passos, 1974). The table also shows which species are found in each of the five separate areas of the state. The northwest area comprises Benton, Carroll and Washington Counties; the records are derived mainly from those of the writer with a significant contribution from those of the Heitzmans. The northeast comprises Clay, Craighead, Crittenden, Cross, Greene, Lee, Mississippi, Phillips, Poinsett and St. Francis Counties; the records mostly were supplied by J.H. Masters (1967, in litt.) but also include those from the late Otis Hite and Dr. Maxine (Hite) Manley (in litt.). The central section comprises Faulkner and Pulaski Counties; records are mostly from H.A. Freeman (1945, 1951, in litt.) but also include those from Dr. John Redman (in litt.). The southwest section comprises Hempstead, Lafavette, Little Rock and Miller Counties; records are derived almost entirely from those of Fay Karpuleon (in litt.). These areas are shaded on the map (Fig. 1). The southeast area listings are derived from actual but scattered records and extrapolations from Arkansas, Mississippi and Louisiana records. These inferred records are designated by "e" on the chart. A sixth column denotes individual and unusual species collected elsewhere in the state. The totals for each area, 122 for the northwest, 88 for the northeast, 119 for the central, 91 for the southwest and estimated 91 for the southeast, reflect the fairly extensive and concentrated coverage of these separate areas.

One other area of the state has been well collected and deserves notice—the Batesville area in Independence County where Dr. Veryl Board reports collecting more than 60 species. This area would be within the northeast quadrant if the state were simply divided into quarters; actually it does not belong with the area designated Mississippi Alluvial Plains and Terraces but rather with the Ozark Highlands region. Therefore it was not included in the report for the northeast area. Some species collected by Board are absent from reports for the northeastern counties.

Species which are anticipated to be found in the state eventually include Atrytone arogos. Kricogonia lyside, Calephelis virginiensis, Calycopis beon, Phaeostrymon alcestis and Lycaena xanthoides. Besides these, because of the proximity to Texas which at times is invaded by tropical and subtropical species from Mexico, strays from these areas would be expected, especially during widespread or prolonged hurricane activity. In the hurricane year 1968, for example. Ascia monuste and Dryas julia were reported from Little Rock, and in 1971 Phoebis agarithe and Appias drusilla were found in northwest Arkansas.

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As with all lists of this kind, many people and their contributions make it possible. Those to whom the most debt is owed are Dr. Veryl Board, H.A. Freeman, J.R. Heitzman, Fay Karpuleon, J.H. Masters, Bryant Mather and Dr. John Redman. The writer also is indebted to the following for their help, records and interest: Richard Brown, Malcolm Douglas, Ruth Eason, John Fuller, Ed Gage, A.W. Haddox, William Howe, Otis Hite, Maxine (Hite) Manley, Randy Lewis, Renie Mallory, D. Paxon, Kilian Roever, E. Phil Rouse, Charles Selman, Gerald Straley and Gerald Wallis. Last, but most important, the writer is very grateful for the constant help and companionship of his sons in the field and his wife's forbearance, without either of which this study would have fallen far short.

LITERATURE CITED

- ARMSTRONG, RUTH, and DWIGHT M. MOORE. 1957. Botanical aspects of Massard Prairie, Arkansas. Proc. Ark. Acad. Sci. 10:44-57.
- BURNS, JOHN M. 1964. Evolution in skipper butterflies of the genus *Erynnis*. Univ. Calif. Publ. in Entom. 37:1-214.
- DALE, EDWARD E., JR. 1963. Literature on the vegetation of Arkansas. Proc. Ark. Acad. Sci. 17:50-60.
- DAVIS, JOHN (REV.). 1894. Arkansas lepidoptera. Ent. News 5:108-109.
- DOS PASSOS, CYRIL F. 1964. A synonymic list of the nearctic Rhopalocera. Lep. Soc. Mem. No. 1. 143 p.
- DOS PASSOS, CYRIL F. 1965. Addenda et corrigenda. J. Lep. Soc. 19:192.
- DOS PASSOS, CYRIL F. 1969. A revised synonymic list of the nearctic Melitaeinae with taxonomic notes (Nymphalidae). J. Lep. Soc. 23:115-125.
- DOS PASSOS, CYRIL F. 1970. A revised synonymic catalog with taxonomic notes of some nearctic Lycaenidae. J. Lep. Soc. 24:26-38.
- FIELD, WILLIAM D. 1938. A manual of the butterflies and skippers of Kansas. Bull. Univ. Kans. 39(10). 328 p.
- FIELD, WILLIAM D. 1971. Butterflies of the genus Vanessa and of the resurrected genera Bassaris and Cynthia (Lepidoptera: Nymphalidae). Smithson. Contrib. to Zool. No. 84, 105 p.
- FREEMAN, H.A. 1945. The Hesperiidae (Lepidoptera) of Arkansas. Field and Lab. 13:60-64.
- FREEMAN, H.A. 1951. Distributional notes on the Theclinae of Arkansas. Field and Lab. 19:36-39.
- GAGE, ED. 1974. In The 1973 field season summary. News of Lep. Soc. No. 2, 15 March.
- HEITZMAN, J. RICHARD, and CYRIL F. DOS PASSOS. 1974. Lethe portlandia (Fabricius) and L. anthedon (Clark), sibling species, with descriptions of new subspecies of the former (Lepidoptera: Satyridae). Trans. Am. Entom. Soc. 100:52-99.
- LAMBREMONT, E. N. 1954. The butterflies and skippers of Louisiana. Tulane Studies in Zool. 1:127-164.
- LAMBREMONT, E.N. and GARY N. ROSS. 1965. New state records and annotated field data for Louisiana butterflies and skippers. J. Lep. Soc. 19:47-52.

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Arkansas Butterflies and Skippers

- MASTERS, JOHN H. 1967. Observations on Arkansas Rhopalocera and a list of species occurring in northeastern Arkansas. J. Lep. Soc. 21:206-209.
- MASTERS, JOHN H. 1970. Distributional notes on the genus Mestra (Nymphalidae) in North America. J. Lep. Soc. 24:203-208.
- MATHER, BRYANT, and KATHARINE MATHER. 1958. The butterflies of Mississippi. Tulane Studies in Zool. 6:63-109.
- MATHER, BRYANT, and KATHARINE MATHER. 1959. The butterflies of Mississippi—supplement No. 1, J. Lep. Soc. 13:71-72.
- McALPINE, WILBUR W. 1971. A revision of the butterfly genus Calephelis (Riodinidae). J. Res. Lep. 10:1-125.
- MUNROE, EUGENE. 1960. The classification of the Papilionidae (Lepidoptera). Canad. Entom. Suppl. 17:1-51.

- PAULISSEN, LEO J. 1975. A survey of Arkansas Lepidoptera. I. The butterflies and skippers. Mid-Continent Lep. Series, Vol. 6, in press.
- ROSS, GARY N. and EDWARD N. LAMBREMONT. 1963. An annotated supplement to the state list of Louisiana butterflies and skippers. J. Lep. Soc. 17:148-158.
- ROWLEY, R.R. 1892. Notes on Arkansas Lepidoptera. Ent. News 3:13-14.
- RUBY, E.S. 1953. Prairie vegetation in northwest Arkansas. Proc. Ark. Acad. Sci. 6:31-35.
- SHAPIRO, ARTHUR M. 1970. Postglacial biogeography and the distribution of *Poanes viator* (Hesperiidae) and other marsh butterflies. J. Res. Lep. 9:125-155.
- WACKERMAN, A.E. 1929. Why prairies in Arkansas and Louisiana. J. Forestry 27:276-734.

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