



# NEWS

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Editorial Committee of the NEWS . . . . .

EDITOR: Ron Leuschner, 1900 John St., Manhattan Beach, CA. 90266, USA

ASSOC. EDITOR: Dr. Paul A. Opler, Div. of Entomology, 201 Wellman Hall,  
Univ. of California, Berkeley, CA. 94720, USA

## THE 1973 FIELD SEASON SUMMARY

ZONE 1: SOUTHWEST: ARIZONA, NEVADA, CALIFORNIA. Coordinator: R. L. Langston (RL). Contributors: J. Brock (JB), C. V. Covell, Jr. and III (CVC), J. De Benedictis (JD), D. Eff (DE), J. F. Emmel (JE), T. C. Emmel (TE), C. D. Ferris (CDF), G. M. File (GMF), G. S. Forbes (GSF), R. S. Funk (RSF), R. C. Gardner (RG), B. M. Griffin (BG), C. Henne (CH), P. Herlan (PH), R. Highton (RH), K. C. Hughes (KH), W. E. Knoshaug (WK), S. R. Leffler, A. F. Ludtke (AL), J. R. Mori (JM), L. Muehlbach (LM), R. C. Priestaf (RP), H. V. Reinhard (HR), C. A. Sekerman (CS), O. Shields (OS), B. Smith (BS), W. L. Swisher (WS), F. T. Thorne (FT), P. Tuskes (PT), M. Van Buskirk (MV), B. Walsh (BW), R. E. Wells (REW) and R. S. Wielgus (RSW).

ARIZONA: Soil moisture in Feb.-April produced heavy growth of spring annuals in north-central (LM). March cold in SE part with snow on Cochise Head and nearby peaks (CDF). Cold, wet late spring suppressed many species, but led to excellent early summer conditions in the south, normally quite dry (GSF). Summer rains deficient and hurt fall collecting (GSF), with poor plant growth in north-central (LM). MIGRATORY SPECIES: *Cynthia cardui* observed from Phoenix south, first week of Mar. (CDF); at Yuma flying WNW, 17 Mar. and crossing Colorado R. at Morelos Dam and Winterhaven, 17 Mar. (RSF); Hwy. 95 Yuma - Gila Valley, flying N, 34-38/min., 24 Mar. and few at Meteor Crater, Coconino Co., 25 Mar. (RSF). *Danaus plexippus*, Chino Valley, Yavapai Co., first on 24 June, increased through Aug.-early Sept. but local production low (LM).

MOTHS: *Celerio lineata*, Chino Valley, not as abundant as 71-72 (LM). *Hemileuca juno*, 12 mi. N of Sierra Vista, Cochise Co., 2-3 Nov., very common (MV). BUTTERFLIES: *Atrytonopsis deva* and *A. python* in numbers, Cave Cr., Chiricahua Mtns., Cochise Co., 2-4 June (CDF). *Polites draco* and *P. themistocles*, nr. Ditch Camp, White Mtns., Apache Co., 11 July (CS). *Piruna polingii* common at Victoria BSA Camp nr. Rustler Park, Cochise Co., 11 Aug. (CS). *Pyrgus xanthus* f. *macdunnoughi* (det. by genitalia), White Mtns. nr. Greer, 9300', Apache Co., 8 June (CDF). *Systasea evansi*, Sonoita Cr. nr. Patagonia, S. Cruz Co., 15 Aug. (CS). *Heliopterus domicella* and *Cogia hippalus*, Sabino Cyn., Pima Co., 6 June (CDF). *Epargyreus clarus* huachuca, Cave Cr., 2-4 June, common (CDF). *Papilio bairdii hollandii* f. *brucei*, Kaibito Plateau nr. Page, Coconino Co., 8-9 June (RSW). *P. multicaudata*, Chino Valley, Yavapai Co., early Aug.-mid Sept., common (LM). *Neophasia terlooitii*, Miller Cyn., Huachuca Mtns., Cochise Co., 14 Oct. (MV). *Appias drusilla* ssp., Bull Pasture Trail, Ajo Mtns., Pima Co., 18 Aug. (RSW). *Kricogonia lyside*, San Pedro R. at St. David, Cochise Co., 13-14 Aug., extremely abundant (AL, CS). *K. castalia*, Mt. Lemmon at 4300', Pima Co., 17 Aug. (MV). *Anth. sara inghami*, Cave Cr., early Mar. (CDF). *Apod. mormo mejicanus*, 6 mi. W of Arivaca, Pima Co., 6 Aug. (GSF). *A. nais*, Mt. Lemmon at 4300', 17 Aug. (MV). *Calephelis arizonensis*, nr. Parker Cyn. L., S. Cruz Co., 11 Oct. (GSF). *C. simaethis sarita*, Cave Cr., Cochise Co., 3 June, (CDF) and *Baboquivari* Cyn., Pima Co., 26 June, 2 (GSF). *Pleb. icarioides bucholzi* common and 4 *P. aquilo albomontana*, 4 mi. NW Alpine, Apache Co., 12 July (CS). *P. acmon texanus*, Pena Blanca L., S. Cruz Co., 6 Mar. and Cave Cr., 2-4 June (CDF). *Aster. leilia cocles*, Sabino Cyn., Pima Co., 6 June (CDF). *Eunica monima*, Sonoita Cr. nr. Patagonia, S. Cruz Co., 26 Sept., 1 (GSF) and *Marpesia petreus*, same area, 15 Aug., 1 (CS). *Lim. archippus obsoleta*, Black Canyon City, Yavapai Co., 9 May and 3 mi. N Ehrenberg, Yuma Co., 13 June (GSF). *L. weid. angustifascia*, Bill Williams Mtn., Coconino Co., 9 July, very common (CS). *Precis coenia* sympatric with *P. nigrosuffusa*, Sonoita Cr. nr. Patagonia, 15 Aug. (CS). *Polygonia interrogationis*, San Pedro R. at St. David, Cochise Co. (State Record), 13-14 Aug. (AL, CS). *Chlosyne nycteis drusius*, 4 mi. NW Alpine, Apache Co., 12 July (CS). *C. lacinia crocale*, *Phyciodes texana* and *Thessalia fulvia*, Mt. Lemmon at 4300', Pima Co., 17 Aug. (MV). *P. tharos pulchella*, San Pedro R. at St. David, 13-14 Aug. (AL, CS). *Euptychia dorothea*, *pyramon* and *rubricata cheneyorum*, Cave Cr., 2-4 June (CDF). *Oeneis alberta daura*, San Francisco Mtns., 6 June and White Mtns. nr. Greer, 9300', Apache Co., 8 June (CDF). *Cercyonis meadii*, Rt. 180, 20 mi NE Flagstaff, Coconino Co., 16 Aug. (CVC). Others in same area included *Neophasia menapia*, *Nathalis iole*, *Lycaeides melissa* numerous, and *Plebejus icarioides* nr. *bucholzi* (CVC). Sanford Leffler collected some common species in Cochise Co. in mid-June, plus *Apod. palmeri* and *Phyc. texana*.

LIFE HISTORIES: *Agapema galbina anona*, numerous cocoons on *Condalia spathulata*, many areas around Tucson, Pima Co., adults emgd. 14 Oct.-9 Nov. (MV). *Thessalia fulvia* and *T. theona thekla*, 1 mi. E Paradise, Cochise Co., adults common 12 Aug., ova and larvae abundant on Castilleja (paint brush), reared to adults (CS).

NEVADA: Winter of 1972-73 abnormally wet, with late snows delaying spring season (PH). Summer season also greatly retarded (DE). MIGRATORY SPECIES: *C. cardui* in large migratory numbers, Clark Co., mid-Mar. (PH). *N. californica*, Angel Lake Cpgd., SW of Wells, Elko Co., 16 July, swarming, fresh condition (DE).

**BUTTERFLIES:** Parn. phoebis rubina, Angel Lake, 15 July (WK), 16 July (DE); Jarbidge Wilderness Area, Elko Co., 20 July, abundant (PH); and Ruby Mtns. SE of Elko, 27 July (WK). Pieris protodice sympatric with P. occidentalis, Angel Lake Cpgd., 16 July (DE). H. titus immaculosus, Santa Rosa Range, 6200', Humboldt Co., 28 July (WK). Lycaena heteronea, P. icarioides ardea and P. shasta, Angel Lake Cpgd., 16 July (DE). P. acmon texanus, Christmas Tree Pass, Clark Co., 21 May (PH). Euph. anicia macyi, Little Humboldt R., Greely Crossing, Humboldt Co. (State Rcd.) 13 June (PH). Spey. atlantis greyi, Ruby Mtns. SE of Elko, 15 July, beginning of flight (DE).

**CALIFORNIA:** Winter of 1972-73 with frequent cool wet weather. Almost double normal rainfall in the north and heavy snowpack (RL). Pacific storms at regular intervals, hence optimal growth of annuals, esp. on the deserts. Wildflowers on deserts one of the best in the past half-century (JE). Late spring, summer cool and cloudy in S. Calif. (JE). Most species scarce, esp. on the deserts, delayed a month by prolonged cold (JE). Retarded about 2 weeks at higher elevations (RL). Early and excessive fall rains in north and cool south restricted late season. **MIGRATORY SPECIES:** C. cardui in huge numbers on Colorado and Mojave deserts, Feb.-Mar.-Apr. Larvae by the thousands on desert annuals (Amsinckia, Cryptantha, Lupinus). San Diego Co.: 14 Jan.-early Feb. few, old (FT); NW migration by mid-Feb. (in newspapers); 14 Mar. large migration, 70/min. (FT); 17 Mar. (RSF); 4-5 Apr. spectacular migr. (papers and TV); fresh cardui by 12 Apr., and N flight 21 Apr. (FT). Solano Co.: 8 Mar. worn (RL). Imperial: 17 Mar., NNW 15-23/min. (RSF). Monterey: 1 Apr. N 5-30/min., 11 Apr. N (BW); 16 Apr. worn, 19-20 May fresh (RL); late May, larvae stripped thistles (BW); 1 Sept. common (BS); 22 Sept. oviposition on Lupinus (BW). Yolo and S.L.O.: Mid-Apr. many worn (RL). S. Bdno.: 19 May fresh (FT). C. Costa, Marin, Solano: May moderate (RL). S. Clara: May, June migrating (RG). San Fran., S. Mateo: June fresh, Aug. (RL). Tuolumne: mid-June common (BS), July. Sonoma: July fresh, Aug. C. Costa: July fresh, Aug., Sept., Oct. worn. S. Clara, Stanislaus: Oct. moderate, mostly worn (all RL). Nymphalis californica: Down from massive 1972 migrations. Overwinters early, new gen. in June. Alameda Co.: 17 Feb. Napa, Solano, Sonoma and Yolo: Mar.-Apr. many worn. El Dorado: Apr. moderate worn, 9-10 June, 1500+ feeding and NW flight. C. Costa: May, Sept., Oct. scarce (all RL). Monterey: 27 May (BS), 7 June common (BW). Tuolumne: 16-17 June abundant (BS). S. Clara, Stanislaus: Oct. scarce (RL).

**MOTHS:** Arct. lucidus, Georgetown El Dorado Co., 12 Feb. (C. Peterson via REW). Pros. clarkiae, Gates Cyn., Vaca Mtns., Solano Co., 9 Mar. and American R. 3 mi. NE Placerville, El Dorado Co., 12 Apr. (RL). Eupros. phaeton mojave, Lovejoy Buttes, L.A. Co., good flight in Apr. (CH). Sat. walterorum, Dictionary Hill S of Spring Valley, S.D. Co., 24 Mar. (PT). Hemileuca electra clio, and H. burnsi, W. of Phelan, S. Bdno. Co., 28 Sept. (PT). P. eglanterina f. shastensis, 3 mi. NE Mt. Shasta City, Sisk. Co., 21 July (PT). Halisidota argentata, Carmel Valley, 27 Sept. (BW). Arachnis picta, Carmel Valley, Monterey Co., 14 Oct. (BW). Platyrepia virginalis, Antelope Cr., Tehama Co., 25 May (REW). Dysocnemis belladonna and Proannaphila danistica, Loon L., 6300', El Dorado Co., 9-10 June (RL). Anna. lithosina, Rock Cr., NE Placerville, El Dorado Co., 12 Apr. (RL). Erebus odora, Sacramento, 18 July (REW) and Kensington, C. Costa Co., 13 July, worn (RL). Ramosia bibionipennis, Carmel Valley, 24 June, numerous on blackberry vines (BS). R. polygoni, San Antonio L., 27 May and Marina Beach dunes, Monterey Co., 15 July (BS).

**BUTTERFLIES:** A. stephensi, Pinyon Flat, 4050', n. slope S. Rosa Mtns., Riverside Co., 23 Sept. (JE, RH). P. melane, Dict. Hill, S.D. Co., 14 Jan. (FT). P. sonora, Cienega Seca Cr., 7760', S. Bdno, Mtns., 21 July (JE). H. harpalus dodgei, Bon Tempe L., Marin Co., 7 Sept., common (HR). N. julia, Blythe, Riv. Co., 28 Oct., only 1 (KH). U. proteus, El Cajon, S.D. Co., 26 Apr., 1 (FT). P. leo arizonensis, 5 mi. E Caliente, Kern Co. (Rcd.), 6 Sept. (JB). P. phoebus sternitzkyi, Gumboot L., 15 mi. E Mt. Shasta City, Sisk. Co., 2 Aug. (JM). P. cresphontes, Blythe, 28 Oct., 1 (KH). P. multicaudata, Martinez, C. Costa Co., 17 May (RL) and Hoberg's, Lake Co., 10 June (JD). P. sisymbrii, Calistoga, Sonoma Co., Apr. (RG). P. protodice calyce, Tenaya L., Mariposa Co., 21 June (BS) and Dardanelle, Tuol. Co., Aug., common (RG). P. napi oleracea, Tuolumne Grove, 17 June (BS). P. rapae, Pachalka Spring, 5000', Clark Mtn., S. Bdno. Co., 8 Sept., established breeding colony in DESERT (JE, RH). C. occidentalis chrysomelas, Hoberg's, Lake Co., 3 June, abundant (JD) and Buckhorn Summit, Shasta Co., 6 June (JM). P. sennae marcellina, Palm Cyn., 800', Riv. Co., 20 Oct. (JE, RH). E. mexicana, Bodfish, Kern Co. (Rcd.), 2 June (JB). N. iole, Kennedy Mdw., Tulare Co. (Rcd.), 24 June (JB, JM, CS); Green Cyn., 7760', S. Bdno. Mtns., 21 July (JE); E. ausonides, Kerckhoff L., Fresno Co. (Rcd.), 7 Apr. (JM). A. mormo nr. langei, cyn. SW. of Monticello Dam, Solano Co., 15 Aug., assoc/w Eriogonum nudum (OS). C. nemesis californica, Pauma Valley, 24 Oct. and Escondido, S.D. Co., 25 Oct. (GSF). H. g. lorquini, Los Lauries Grade, 500', Carmel Valley, Monterey Co., 22 June (BW). S. fuliginosum, Emerson Peak, 8900', 24 July and S. tetra, Davis Creek, Modoc Co., 27 July (JM). I. fotis windi, SE shore Loon L., 6300', El Dorado Co., 9-10 June (RL). I. eryphon, Angwin, Napa Co., 26 Apr. (RL). M. spinetorum, Topaz L., Mono Co., 10 June, 35 in half hour! (OS, REW), and Hart Park, 5 mi. NE Bakersfield, 17 Sept., (GMF). M. nelsoni muiri, Butts Cyn., Napa Co., 16, 23, 27 Mar. (HR); 26 Apr. (JB); 8 May (HR) assoc/w Cupressus sargentii. M. johnsoni, Thompson Cyn., Yolo Co., scarce. Mar.-Apr., one 15 June (OS) and Butts Cyn., 23 Mar. (HR). S. columella istapa, Bonanza King Cyn., Providence Mtns., S. Bdno. Co., 17 Apr., hilltopping (JB) and Blythe, Riv. Co., late Oct., scarce (KH, CS). H. isola alce, Pipe Cr., Riv. Co., 12 May (JE). P. shasta, Kaiser Crest, Fresno Co., 21 July, abundant (CS). P. enoptes tildenii, Del Puerto Cyn., Stanislaus Co., 17 May, (JM) and 11 Aug., (HR); SE Monterey Co. nr. San Miguel, 27 Aug. (RL). A. bredowii californica and L. lorquini, Palm Cyn., Riv. Co., 20 Oct., unusual for DESERT (JE, RH). P. oreas, Carmel Valley, Monterey Co. (Rcd.), 17 Feb. (BW, BS), Apr., May, July, Aug. (BW). C. acastus, Woodfords, Alpine Co., 11 June (PT) and NE of Mono L., mid-June (CH). P. texana, Bonanza King Cyn., Providence Mtns., S. Bdno. Co. (STATE Rcd.) 18 May (RP), NE of Lakeside, San Diego Co., 23 May (P. Spade via FT). T. l. leanira, Antelope Cr. and Black Rock Cpgd., Tehama Co. (Rcd.), 26-28 May (REW). T. l. nr. alma, S of Jawbone Cyn., Kern Co. (Rcd.) 28 Apr. (JE, BG). Large colony of T. l. alma, also E. editha monoensis, 1 mi. E Walker, Mono Co., 27 May (JM). E. e. nubigena, Emerson Peak, 8900', Warner Mtns., Modoc Co. (Rcd.), 24 July (JM). E. e. aurilacus, Black Rock Cpgd., Tehama Co., 26-28 May (REW). S. coronis, Old Carmel Valley Rd., 11 Apr. (earliest) to 7 Oct. (latest), Monterey Co. (BW); Plantation, Sonoma Co., 19 Aug. (RL). S. zereine and S. callippe liliana, Hoberg's, Lake Co., 10 June (JD). S. adiate clemencei, 2 mi. N Jackhammer Sprs., Monterey Co., 3 June (WS). D. gilippus strigosus, Caliente, Kern Co., 20 Aug. (GMF) to 12 Oct. (JB). N. ridingsii,

Emerson Peak, 8900', Modoc Co., 24 July (JM). *C. pegala blanca* (det. T. Emmel and S. Mattoon), Eagleville, Modoc Co. (STATE Rcd.), 27 July, large population (JM). *O. ivallda*, Cottonwood Pass, 11,600', Inyo Co., 15 July (JM). *O. chryxus stanislaus*, 1 mi. S Devil's Gate Pass, 7500's, Mono Co., 8 July, marshy field (WK).

LIFE HISTORIES: *P. eglanderina annulata* larvae on *Purshia tridentata*, Monitor Pass, Mono Co., 12 June (PT). *P. nutalli* larvae on *Symphoricarpos* and *P. hera* larvae on *Artemisia tridentata* (common sagebrush), 1 mi. NE Monitor Pass, Alpine Co., 12 June (PT). Similar records, Inyo Co. (CH). *Agathymus alliae* ssp. larvae, pupae in *Agave utahensis nevadensis* and *Meg. coloradensis maudae* in *Yucca schidigera* and *Y. baccata*, Pachalka Spr., 5000', Clark Mtn., S. Bdn. Co., 8 Sept. (JE, RH). *P. melane* and *O. sylvanoides* larvae in nests on *Cynodon dactylon* (Bermuda grass), Carmel Valley, 21 Nov. (BW). *H. ericetorum* ova on *Hibiscus denudatus* (pale face), Andreas Cyn. NW of Palm Springs, Riv. Co., 20 Oct. (JE, RH). *P. indra fordii* larvae on *Cymopterus panamintensis* var. *acutifolius*, Cave Mtn., SW of Baker, S. Bdn. Co., 5 May (JE, BG). *P. protodice*, *A. sara* and *A. lanceolata australis* all on *Arabis glabra* (tower mustard), Alvin Mdw., 4960', San Jacinto Mtns., Riv. Co., 2 June (JE). *A. cethura* oviposition on *Streptanthus coulteri* and *Thysanocarpis*, Hobo Camp, Kern River Cyn., 15 Mar. and on *Thelypodium*, 5 mi. N. Laraine, Piute Mtns., Kern Co., 16 Mar., (JB). *I. augustinus iroides* larvae on *Cuscuta* (dodder) on *Eriogonum*, El Cajon, S.D. Co., 1 May, adults by 23 May (FT). *C. neuwoegeni* ovipositing on *Acamp. sphaerocephalus* (goldenhead), Dos Palmas Spr. E. end San Jacinto Mtns., Riv. Co., 8 Apr. (JE). *P. phaon* common on *Lippia* lawn in Blythe, Riv. Co., 22, 28 Oct. (KH, CS). *E. editha baroni* larvae on *Pedicularis densiflora* (Indian warrior), Pope Cyn., Napa Co., April, adults abundant 2 May (HR). *D. plexippus* and *D. gilippus strigosus* larvae on *Asclepias asperula*, Pachalka Spr., 5000', Clark Mtn., 8 Sept. (JE, RH) and *A. subulata* (a leafless milkweed), Vidal Junction, S. Bdn. Co., 29 Sept. (JE, BG).

ZONE 2: PACIFIC NORTHWEST: OREGON to BRITISH COLUMBIA to MONTANA. Coordinator: Mike Van Buskirk. Contributors: Mike Van Buskirk (MV), F. W. Van Buskirk (FV), Don Eff, Clifford D. Ferris, L. P. Grey (PG), Sanford R. Leffler, Ron Leuschner (RL), Steve Kohler.

BRITISH COLUMBIA: Grey collected several areas of British Columbia during the first two weeks in August. *S. mormonia jesmondensis*, a very dark-brown-disk *S. callippe*, *Erebia*, *Parnassius*, etc., were taken August 5-6 approximately 20 miles South of Jesmond. On August 9-10 the Sprint Lake Road just South of Lac la Hache yielded *S. zerene* nr. *picta*, some *S. atlantis*, and swarms of toptotypical *S. aphrodite columbia* on roadside thistles. On July 31, 2-10 miles South of Elko, Grey found *Speyeria* collecting excellent, taking *S. aphrodite whitehousei*, *cybele leto*, *callippe* nr. *semivirida*, *hydaspe* nr. *sakuntala*, *atlantis* ssp., and *mormonia* ssp., all on roadside thistles. Leffler collected *Phyciodes pallida barnesi* and several other common species 9.9 miles NW of Osoyoos on May 28. On August 13-16 Leuschner blacklighted in several areas of the province. Near Field he took *Neoarctia beanii*, *Anomogyna* sp., *Lygris destinata bowmani*, *propulsata*, *Entephria takuata* and others August 13-14. At Malakwa, in the lowland lake country on August 15, he took *Orgyia antiqua badia*, *Sunira straminea*, and *Anathix puta dusca* among others. Despite a wet night along the Fraser River on August 16, Leuschner took *Pseudobry; muscosa* and *Stam. blackmorei*.

WASHINGTON: *S. cybele pugetensis*, *zerene bremnerii*, and *hydaspe* ssp. were flying sympatrically near Tenino in the Rocky Prairie area, Thurston Co., on June 19. (MV) Leffler collected a number of common sprint species in 8 counties, April-June. A fresh female *Proserpinus flavofasciata*, 3 miles below Snoqualmie Pass Summit, 4000' elev., King Co., May 12 (MV). *Graphiphora flavotincta*, *Autog. ampla*, *celsa*, *rectangula*, and *corusca* on August 19 near Quinalt, Grays Harbor Co. (RL). On August 20-21 at various elevations of Mt. Rainier, Pierce Co; *Lasio. rainieri*, *Autog. speciosa*, *angulidens*, and *orophila*, *Eup. unicolor*, *Stam. blackmorei*, *Bombycia fasciata*, *crumbi*, *Oncocn. barnesi*, *Lyg. dest. harveyata* and others. (85 species of Macro's). All (RL). *H. nuttalli* larvae abundant on *Purshia tridentata* near Ellensburg, Kittitas Co., May 28, but heavily parasitized. (FV).

IDAHO: One report, from Don Eff who collected several localities in late July. West of Ketchum on July 23 in Blaine Co., he took *S. egleis linda*, *atlantis viola* and a number of other common species.

OREGON: One report, from Ron Leuschner who blacklighted for several nights at three localities in August. Of interest were a large series of *Synaxis pallulata*, as well as *Adelp. quarta*, *Hydrio. speciosata*, and *Paraptera* sp. taken at Florence State Park on the Oregon coast on August 22. (160 species of Macro's and Micro's!)

MONTANA: Steve Kohler reported that *N. californica* was quite numerous in several areas of Missoula and Ravalli Counties. They completely defoliated large patches of *Ceanothus* sp. Also, the outbreak of *Neophasia menapia* which caused the defoliation of 30,000 acres of Ponderosa Pine in the Bitterroot Valley in 1971 and 1972 has subsided, largely due to natural predation and parasitism. Kohler found nine different species of *Speyeria* in Big Timber Canyon, Sweet Grass Co., July 19: *cybele*, *coronis*, *callippe*, *egleis*, *atlantis*, *edwardsii*, *zerene*, *mormonia* and *hydaspe*. *Boloria eunomia ursadentis*, nr. Beartooth Pass, Carbon Co., August 1. Leuschner collected two localities on August 7-8. East of Helena on August 8 yielded *Apantesis gibsoni*, *turbans*, *Hydroecia repleta*, *Acopa perpallida*, and *Itame simplex* among others. In Glacier National Park on August 7 he took *A. caja utahensis*, *Polia carbonifera*, *Androp. contacta*, and many others. (Nearly 500 specimens in two nights.)

Ferris collected the first week in August on the Beartooth Plateau, Carbon Co., (above 10,000') and in the canyon along Rock Creek, south of Redlodge, along Glacier Lake Road. A number of interesting species were found. Of major interest was a large series of *Lycaena phlaeas* taken at 10,300' in association with *Rumex acetosa*. A paper is under preparation which will describe this insect. A variety of species was taken on Beartooth Pass including albino females of *Colias m. meadii*, *Erebia theano* and *callias*, *Boloria titania ingens*, *B. eunomia ursadentis* (uncommon this year), *Oeneis melissa*, *taygete/bore edwardsii*, *Parnassius phoebus montanulus*, etc. A number of non-ocellated *E. callias* were collected. These are described in a paper in press (J. Lepid. Soc.) and scheduled for publication (tentatively) in September,

1974. *Hesperia m. manitoba* were taken along with *Lycaena cupreus* and an intergrade *Lycaeides melissa/argyrognomon* at 10,300'. Only one *Erebia magdalena* was seen. Collecting along Rock Creek produced a variety of species including: *Euphydryas anicia* (a strange light orange form - genitalia checked), *Lycaeides melissa/argyrognomon* intergrade near *L. argy. longinus*, *Oeneis c. chryxus*, *Erebia e. epipsodea*, *theano ethela*, and a few *Speyeria*. A series of *Colias pelidne skinneri* was taken including both yellow and white females. Of interest was the fact that the females demonstrated oviposition behavior on several species of *Vaccinium* and ignored *Salix* in the area.

ZONE 3: ROCKY MOUNTAINS: ALBERTA, WYOMING, UTAH, COLORADO and NEW MEXICO. Coordinator: J. Donald Eff (DE). Contributors: J. Belicek, M. Colborn, C. V. Covell, C. Curtis, A. O. Detmar (AD), S. Ellis, D. Ferguson (DF), C. Ferris, M. Fisher (MF), G. Forbes, M. Howard (MH), J. Legge, O. Otto, J. Scott (JS), R. Stanford (RS), K. Tidwell, M. Young (MY), R. Pyle, Paul Grey, S. Leffler and R. Leuschner. Weather conditions showed usual great diversity. Canadian collectors evidently had conditions opposite those in the Rocky Mt. States. The preceding winter there showed the lowest snowfall in 20 years, an early spring and a normal summer. Here in the Rocky Mts. we had a bearcat of a winter with subzero temperatures and heavy snows, but minus the usual winds. An average of about two snowstorms a week, with the last snow on May 29. In Wyoming the Laramie Mts. had 300% of their average snowfall, while the nearby Snowy Range had less than normal. Spring conditions varied even more. Most Lepes were very late, but often there was a two week spread in appearance of the same species, only 5 to 10 miles apart! Collectors agreed it was one of the poorest spring seasons for collecting in a long time. Floods along the Platte River have decimated many species such as *Lycaena xanthoides dione*. Summer was about normal, but wetter west of the Divide, and nights were cooler. The fall season was dry, warm and prolonged, with collecting into November. The best general collecting was in the foothills and the middle elevations of the mountains. Prairie spots were good in early to mid summer. Except for Alberta, most species were 1-3 weeks late. Alpine collecting continues to be poor! MIGRATING SPECIES: As one contributor so aptly put it..., it was indeed The Year of the Painted Lady! It was a common topic of conversation, a subject often reported on in the newspapers and on television. Jim Scott noted tremendous numbers of *cardui* in Baja California in April, with the main migration about May 10. At Edmonton, in northern Alberta they appeared on May 11, and in the NWT in early June. Another interesting aspect of this phenomena was the universal agreement on direction of flight, which at the peak was more or less generally Northeasterly. In late July the direction of migration seems to have shifted southwesterly, and even later in the fall, they seemed headed mostly south (for the winter?). Their dead carcasses have made the pavement slippery and hazardous for cars, and necessitated occasional use of windshield wiper, but the offspring certainly kept the thistles in check!

ALBERTA: Belicek reports a number of rare migrants reached there. *Papilio glaucus canadensis* showed an increase in numbers. A field census of *Limenitis arthemis rubrofasciata* has been conducted during the past three years to define the range and break-point into typical *arthemis* (approximately 100 meridian). The *Sphinx* moth, *C. lineata* seems to have reached northern Alberta and established at least one generation. Paul Grey reports that the Kananaskis Hwy is a winner. Quantities of things roadside, though worn, Aug. 13-14. On Plateau Mt., he got *nastes*, *elis*, *arethusa*, *glandon aquilo*, *Parnassius* sp., worn *Euphydryas* sp. and good day-flying moths including *Oncocnemis pudorata* (det. R. Leuschner). Paul is going to look for *mormonia* and *zerene* above timberline on this Mt.-good luck! Ron Leuschner returned to the Banff area on 12 Aug. that he last visited in 1946. *Spey. atlantis helenae*, *Bol. titania grandis*, and *Col. christina* were still there. No *Oen. chryxus* seen, but one *Col. occidentalis* was new. Moths at night were low in quantity, good quality: *Lasion. near rainieri*, *Onc. glennyi*, *Aut. u-aureum*, *orophila* and *angulidens*, *Cars. pal. columbiata*, *Lyg. dest. bowmani* and *testata*, *Xanth. dodata* (90 Macro, 115 Micro total). 30 mi. north, on Jasper road at Waterfowl L., 5400 ft., *Col. pelidne minisni* was a good catch at a brief stop.

WYOMING: Ferris, the only resident collector, describes the '73 season as a disaster. In April there were 3 major snowstorms, and then the last big one, on May 29. As a result none of the early *lycaenids* were seen and many other species were in reduced numbers. Even on the prairies the host plants were dwarfed in size and bloomed only weakly, with *Eriogonum* especially affected. No prairie skippers were seen in the Laramie area. Snowy Range endemics were on schedule, but in reduced numbers and *Euphydryas e. alebarki* was absent here. C. V. Covell and son, Charles braved the Wyoming winds to pick up a few specimens near Rawhide Buttes, off Hwy. 85 in Goshen Co., most interesting of which was *Plebejus (Agriades) aquilo rustica*. D. Ferguson found *Vanessa carye* common in southern Laramie Co. with larva on *Malva neglecta* from April to frost, with broods corresponding to those of *V. cardui*. In western Wyo. conditions were more normal with Eff and Detmar enjoying good collecting on Swift Creek (Lincoln Co.) on Aug. 1, with 16 species recorded, 6 of which were *Speyeria*. Aside from such as *Limenitis weidemeyerii* and *Lycaeides m. longinus*, one of the more interesting was *Parnassius clodius*. This appears to be a blend zone for *gallatinus-menetriesii-altaurus*. Main objective however, and most plentiful were the *Speyeria e. macdunnoughi*. Paul Grey had been here a month earlier for males; we found the sexes about evenly divided. Unusual to find females congregating at wet spots. North of here in the Bridger Wilderness Area of the Wind River Mts. this was the year for C. Curtis to hike in and collect *Boloria n. halli* on Aug. 1 in the Palmer Lake area. We took one more at Borum Lake, 15 Aug. a little further south but still the Green R. Pass Area where Klots got the type series. Stanford visited the Sierra Madre Range in south central Wyo. in June and July and found conditions good here and recorded a number of new state and county records. Grey found the Cottonwood Lake area (dirt road E. of Smoot) is good for *C. haydenii* and *B. kriemhild*, on July 2.

State Records: *Erynnis brizo burgessi* and *E. telemachus*, both Battle Cr. C.G., Carbon Co., June 21 (RS). *Hesperia pawnee* 2 mi. S of Pine Bluffs, Laramie Co., Sept 1 (RS and MF). County Records: Stanford reported *T. pylades*, *Pyr. ruralis*, *Amb. vialis* and *Callophrys a. iroides*, all Battle Cr., Carbon Co., June 21. Also *Satyrus l. aliparops*, Battle Cr. *Hesperia nevada*, Bottle Cr. and *Speyeria coronis*, Bottle Cr., all Carbon Co., July 21. *Coronis* was surprising since not taken in years past by DeFoliart, Eff and Moeck. Good Collecting Spot: Note that there is both a Battle Cr. and Bottle Cr. Campgnd. The Battle Cr. CG is west of the summit, down the hill from the road and looks like aspen terrain. But Stanford

found oak, different type collecting and expects other oak-associated species as *H. crysalus*. MOTHS: No species reported. Ferris said light-trapping was poor, probably because of low temperatures and rainy evenings.

UTAH: Grey reports *Speyeria* had a big year at So. Willow Canyon, dates were July 8-9. Swarming by thousands. Green Canyon, near Logan is still a hot spot for *P. indra*-got several here on July 3. Big flights of *C. lineata* in Utah, also an "explosion" of *Autographa* sp. all over (Ed. note: *A. californica*). So. Willow Cr. Canyon in the Stansbury Mts. also was collected by K. Tidwell and O. D. Spencer on July 16 and by Eff and Detmar on July 18. *Speyeria egleis* (nr. *linda*) particularly plentiful. Tidwell and Spencer then went to the No. Rim of the Grand Canyon for *Speyeria atl. shellbachi*, but no luck-too early. Eff tried NE of SLC in the Uintahs, but poor collecting-only *L. heteronea* was common (17 sp. total). J. Scott took or saw 4 *Papilio indra* along the Green River near Dinosaur Nat. Mon. (no date), unusual locality and specimen with wide bands and long tails. S. Leffler found *Cynthia caryae* and *cardui* in Garfield and San Juan Co.'s., late June.

COLORADO: None of the contributors this year found a new State Record, but one was uncovered when Mrs. Geo. Denny, an Arvada 4-H club leader, brought me a case of specimens with *Anteos clorinde nivifera*, taken Aug. 19, 1971, in Arvada. Range Extensions and County Records: *Limenitis (A.) bredowii*, Rock Crk. and Woodmen Valley, El Paso Co., July 9, reported thru MF. *Polygonia interrogationis*, Rogers Mesa, Delta Co., 5850', Sept. 5, by Scott Ellis. First Western Slope record! From 1972, he reports *V. virginensis*, same locality, Aug. 23, another Western Slope first. *Callophrys (L.) f. schryverii*, Phantom Canyon, 6600', Fremont Co., April 28 and May 20 (MF and RS), females ovipositing on the known food plant (*Sedum lanceolatum*), reared to pupae from ova. This is a goodly southern extension and confirms a record by MG some years ago. *Euristrymon ontario violae* and *Phaeostrymon alcestis*, Baca and Las Animas Co.(s), July 1 (MH and JS). *Batt. philenor*, Timnath, Larimer Co., Aug 28 (JS). *Copaodes aurantiaca*, nr. Bonny Res., Yuma Co., Sept. 30 (MF), fresh, extends range about 200 mi. NE. *Kricogonia lyside*, Phantom Canyon, Fremont Co., Aug. 16 (MH). *Satyrus sylvinus*, along Arkansas R., E of Florence, Fremont Co., July 7 (MF and RS) and Hardscrabble Canyon, Custer Co., July 10 (MH), just S of Florence. *Philotes spauldingi*, E Dove Crk., Dolores Co., July 19 (MF). *Thorybes pylades*, and *T. mexicana nevada*, "TV Hill" nr. Meeker, 7600', Rio Blanca Co., June 17 (RS). *Erynnis brizo burgessi* and *E. telemachus*, Crystola Hill, 8700', Teller Co., June 9 (RS) and at Mauldin Gulch, 12 mi. WNW of Axial, Moffatt Co., June 19, and Steamboat Spgs., 7000', Routt Co., June 20 (all RS). *Oarisma garita*, 3 mi. E/Keystone, 9600', Summit Co., Aug. 4 (RS). *Hesperia uncas uncas* nr. Glenwood Airport, Garfield Co., June 16 and Lay Peak, 6600', Moffatt Co., June 20 (RS). *Arctone arogos iowa*, Yuma Co., July 1 (RS). *Anaea andria*, Cottonwood Canyon, Baca Co., Aug. 11 and Tecolote Crk., Las Animas Co., May 19 and June 4 (MH), Lamar, Prowers Co., Oct. 7 (MF). *Neophasia menapia*, North Lake, 8600', Las Animas Co., Sept. 8 (RS). *Satyrus fuliginosus*, N of Walden, 8000', Jackson Co., July 22 (RS). *Philotes b. centralis*, Woodmen Valley, 7100', El Paso Co., Aug. 26 (RS) taken on same *Eriogonum* (cernuum?) as *Apodemia mormo*. *Plebejus (A.) aquilo rustica*, North Lake, 8600', Las Animas Co., Sept. 8 (RS). *Polygonia hylas*, Trail Crk., Signal Butte area, 8600', Teller Co., Sept. 2, and Chambers Lake, 9100', Larimer Co., Sept. 22 (RS and MF). *Hesperia comma* and *H. pawnee*, 16 mi. NNE of Grover, Weld Co., Sept. 1 (MF). *Polites sabuleti*, vic. Coal Dale, Fremont Co., June 24 (RS) and Grand Junction, Mesa Co., Aug. 19 (MF). *Eurema nicippe*, Trail Canyon, 6300', Montezuma Co., May 4 (MF). *Polygonia comma*, vic. Bonny Res., Yuma Co., Sept. 30 (MF). D. Ferguson found this in Jackson Co. on a Hops vine (*Humulus*) near the N. Fk. of Little Grizzly Crk. The larva are basically white in color and swarm on this vine in July, adults in Aug. and June. *Papilio cressphontes*, quite common, vic. Julesburg, Sedgwick Co., Aug. (DF) and *Papilio bairdii*, more common than *P. asterias* in Sedgwick Co. (DF). *Papilio glaucus*, rare in Sedgwick Co., quite common in Yuma Co., late July to mid-Aug. (DF). *Phyciodes mylitta*, nr. Meeker, 7600', Rio Blanca Co., June 17 (RS). *Daunus g. strigosus*, fresh female, Bonny Rec. Area, Yuma Co., Sept. 30 (RS). *Euptychia cymela*, common in nearly virgin *Populus-Salix-Carya-Celtis* forest with grassy understory nr. Bonny Recr. Area, Yuma Co., July 1, (RS, MF and JS).

Unusual and Choice Species: *Vanessa caryae* heads this category. This normally rather scarce Colorado butterfly's presence is evident by the number of reports commenting on it, either for locality or numbers. It was reported in much greater numbers in northern and northeastern Colo. (DF) and as of widespread occurrence in eastern, southeastern and southern counties (RS), centrally in the Denver and Pueblo areas (MH and MY) and even in the southwestern counties (MF). Last year George Shier noted the influx in late season of a goodly number of *Polygonia interrogationis*. Reports this year indicate a fair number became established for aside from Ellis's record for Delta Co., it was also reported from John Martin Res., Bent Co. (RS) and Sand Creek Park, Adams Co. (MF) with numerous sightings in the city of Denver. *Colias (Z.) cesonia*, a scarce but fairly regular visitor to the state was also more abundant this year, with reports from Cottonwood Canyon, Baca Co., Aug. 3-11, and Hardscrabble Crk., Custer Co., July 12-19 (MH) Baca Co., July 1 (JS), Julesburg and Ovid, Sedgwick Co., late April-May and late July to mid-Aug., "common" (DF). *Papilio bairdii hollandi*, 3 specimens taken in San Luis Valley, early August (Don Bowman). For the second year in a row *Satyrus c. heathi* was taken on Rabbit Ears Pass, Routt Co., July 22 (MF). *Apodemia mormo* (*mejicanus* ?), Trout Crk. Pass, Chaffee Co., Aug. 23 (MY).

Relative Abundance: One of the first things evident in this year's reports was the near absence of *Junonia coenia* and *Libythea bachmanni*, both common last year. Reports conflict on the abundance of *Papilio*'s. O. Otto felt that the long, cold wet spring reduced their numbers. He also reported the abundance of *Lycaena dorcas* this year. *Lycaena thoe* was also more common than usual this year, along the Clear Crk. drainage east of Golden, Colo. from mid-July thru Aug. (MY), along the So. Platte River, Adams Co., July 3, the Arkansas River nr. Florence, Fremont Co., July 7 and Aug. 26, Timnath marshes, Larimer Co., July 6 and Sept. 1 (all RS). *Phyciodes picta* was abundant east of Denver, especially along the Highline Canal, Arapahoe Co., Aug. 12-27 (MF), common and fresh at Rocky Ford, Otero Co., Oct. 6 (MF and RS), Sand Creek Park and Boxelder Crk., Adams and Arapahoe Co., Aug. 18 (RS), worn specimens at Bonny Res., Yuma Co., Sept. 30 (MF and RS). *Atlides halesus*, abundant nr. Nucla, Montrose Co., July 17-18 (MF).

Miscellaneous: Grey found a good meadow in extreme No. Routt Co., on dirt Co. road 129, 3 Forks Ranch near Hahn's Peak. On June 25, there were scads of *saepiolus* and *epipsodea*, and a big colony of *bellona*.

Speyeria z. sinope, 3 mi. above Lower Cataract Lake, 9500', Summit Co., Aug. 29 (MY), possibly a record, but needs verification. Forbes collected in La Plata Co. in late summer and noted the lateness of the season with such things as Speyeria and Limenitis flying into Sept. He recorded L. archippus and L. weidemeyerii flying sympatrically at Tiffany and S of Ignacio, La Plata Co., Aug. 22. R. Pyle took N. ridingsii and Spey. edwardsii on June 21 in the Pawnee Grasslands, a desolate, infrequently collected area. C. V. Covell and son Charles tried Colorado collecting on a convention trip and got many firsts for them, including Lycaena rubidus sirius, 3 mi. S of Ft. Garland, Costilla Co. Aug. 14. Stanford reports that Klots has identified his Boloria selene specimens from nr. Timnath as being "nr. nebraskensis". Ray also poses the question whether or not Middle Park specimens are carried through the Moffat R.R. tunnel to explain the frequent captures of Western Slope material at East Portal. Hobo butterflies? And finally, Scott Ellis reports that the Western Slope colony of Speyeria nokomis is alive and well, and that prospects of protection for the colony, both from the owner and BLM appear good.

Life History: A female Amblyscirtes erna (fluonia ?) was taken by Jim Scott in Furnish Canyon, Baca Co., May 21, from which eggs were obtained and the larva reared. These emerged as A. aenus! Satyrium californica collected in Salix associated area, a non-Ceanothus area, Baldwin Gulch, NE of Parker, Douglas Co., June 30 (MF and RS). As far as is known this is the first indication that it may be Willow associated. Good flights in the usual Ceanothus-associated areas of Jefferson and Boulder counties, July 4-8 (RS). Incisalia fotis, egg and larva on Cowania mexicana, Negro Canyon, 6300', Montezuma Co., May 4 (RS). No adults seen. Leptotes exilis in fields and vacant lots which are frequently mowed and feature Salsola, several towns in Otero and Bent Counties (RS). Plebejus rita coloradensis, a good flight in strong association with E. effusa in several counties, including Adams Co. Aug. 5-12 (RS). Mike Fisher would like to correct an error made last year when he reported the food plant of Papilio indra, P. zelicaon and P. polyxenes as Lomatium simplex; the correct plant is Harboursia trachepleura.

Moths: Only report was from Stanford who lists the following as being of interest. L. sexsignata, swarming, Phantom Canyon, 6600', Fremont Co., April 28. Sphinx asella, one at light, Oak Creek, 7000', 9 mi. S of Canon City, Fremont Co., May 19. A. melanopa, common, Loveland Pass, 12000', Clear Crk, Summit Co., July 29, P. plantaginis, Golden Gate St. Pk., 8400', Gilpin Co., May 26, C. lineata common at various prairie and foothill stations, mid-Aug. thru mid-Sept. Hemerocampa species, swarming and destructive of many trees, particularly various Spruce, late July and smaller second flight early Sept. A. octomaculata, Denver, Aug. 18. H. nevadensis, Bonny State Rec. Area, Sept. 30 and Sand Crk. Pk., Adams Co., Oct. 14.

NEW MEXICO: No reports from resident collectors. Stanford was in the state in early May and the first part of Sept. Ferris made a late May-early June trip and his cousin recorded some late summer catches. John Legge in late July; C. V. Covell, one day in mid-Aug.; Greg Forbes in late Aug.-early Sept. Jim Scott found the only new state record: Poanes hobomok, on top of Raton Mesa, N. Mex. N of Raton, July 4.

Ray Stanford collected May 8 in Trego and Priest Canyons, Manzano Mts.: Amblyscirtes eos, Hesperia pahaska, Zestusa dorus, Anthocaris s. inghami, Plebejus acmon, Phyciodes mylitta, Anaea andria and 22 other species. On May 9 along Gallinas Crk., W of Montezuma, San Miguel Co., Z. dorus, Stinga morrisoni, A. sara (intermediate), Incisalia eryphon, P. mylitta and 9 other species. Ferris collected with Toliver in the Sandia Mts. nr. Albuquerque in late May. Normal endemic species were taken, but in reduced numbers. Hesperidae were particularly abundant in Grant Co. Good series of Atrytonopsis vierecki and deva, early June. Copaeodes auriantica and some Erynnis plentiful. Thorybes pylades, Pyrgus communis, Plebejus acmon texanus very abundant. Ferris took a strange form of Papilio at Redrock, Grant Co., June 3. Two females were large and intermediate between rudkini and polyxenes. At the same locality Anaea andria, Ministrymon leda, Apodemia palmerii, Dymasia dymas and Texola elada perse were taken. Apodemia mormo ssp. and Mitoura siva relatively common in the Burro Mts., Grant Co., June 1. Ferris's cousin, Grant Co. sent a number of Hesperidae taken in the summer, some of which may be county records. Included were Amblyscirtes phylace, July 22, Erynnis tristis tatus, July 1, Oarisma edwardsii, Aug. 12, Hesperia uncus lasus, Aug. 2, Hesperia woodgatei, July 22 (early), Poanes t. taxiles, July 22 and Aug. 12, and Lycaeides m. pseudosamuelis, nr. Luna in Catron Co., Aug. 25. John Legge tried for Speyeria h. conquista at the type localities but was unsuccessful. Speyeria a. nikias was abundant, and some promising localities for nokomis were uncovered. C. V. Covell stopped in Cimarron Canyon, Colfax Co. on Aug. 13 and took Lycaena a. virginianensis. A few Cercyonis oetus were also taken on San Flechado Pass. Forbes reports Limenitis archippus, Apodemia mormo, Danaus g. strigosus, and L. (A.) bredowii from Farmington, San Juan Co., Aug. 23, Apodemia mormo ssp. from Animas, Hidalgo Co., Sept. 13. An excellent catch, and a possible state record was L. a. obsoleta from the Gila River nr. Redrock, July 27 and Aug. 31, Grant Co. From Stanford and Fisher, Sept. 9, Gallinas Crk., W of Montezuma, San Miguel Co.: Pieris n. mcdunnoughi, Phoebis s. eubule, Anteos clorinde (nearly fresh male taken by MF), Adelpha bredowii eulalia, Polygonia f. hylas, Vanessa virginianensis, Speyeria atalantis, Euptychia dorothea and 18 other species. Near St. Peters Dome, Jemez Mts., Sept. 15: Hesperia comma nr. ochracea sympatric with H. woodgatei and pahaska nr. williamsi, P. hylas, zephyrus and 20 other species. These are all good collecting areas. Excellent light-trapping for moths at Porvenir Crk. C.G., 7600' San Miguel Co., Sept. 9 and at Holy Ghost C.G., 8000', San Miguel Co. Sept. 15, including several Catocala. (RS and MF). Leffler tried Chaves and Otero Co's. in late June, with old stand-bys E. nicippe, N. iole, and Cynthia carye taken.

ZONE 4: GREAT PLAINS: SASKATCHEWAN, MANITOBA, NORTH DAKOTA, SOUTH DAKOTA, NEBRASKA, KANSAS, OKLAHOMA, and TEXAS. Coordinator: H. A. Freeman. Contributors: Charles V. Covell, Jr., David Ferguson, Clifford D. Ferris, H. A. Freeman, Ed Gage, A. W. Haddox, L. Haddox, Jack L. Harry, F. R. Hedges, Ronald R. Hooper, William H. Howe, W. W. McGuire, J. Phillips, Jack B. Prentiss, Mike A. Rickard, Michael E. Young.

GENERAL CONDITIONS: Generally normal or above normal throughout the area. In Texas the collecting was unusually good, particularly in the southern part of the state.

SASKATCHEWAN: Ronald R. Hooper reported that weather conditions were rather unusual in that there was little snow cover during the winter, resulting in early spring thawing which broke the diapause on overwintering pupae and thus eventually killing many due to alternate freezes. The only butterfly in large



numbers was *Vanessa cardui* which migrated in from the south over the southeastern corner of the province (Hasbala Lake, June 27). *Amblyscirtes vialis*, Otter Rapids, July 5 (the most northern Sask. record for that species). *Oeneis macounii*, Deschambault Lake, and La Range Provincial Park, July 5 (farthest north Sask. record), and *Pyrgus centaureae freija*, Hasbala Lake, July 3. Moths: *Thysania zenobia*, Regina, July 30 (first Sask. record) and *Erebus odora*, Porcupine Plain, Sept. 4 (5th Sask. record).

MANITOBA: Ferris spent from June 26 until July 20 in Manitoba. Along Rt. 10 from Bellsite to the Pas, June 27: Bellsite: *Erynnis icelus*, *Glaucopsyche lygdamus cooperi*, *Plebejus aquilo lacustris*, *Phyciodes tharos*, *Oeneis macounii*. South End of the "Bog" and the Pas, June 27-28: *Amblyscirtes vialis*, *Carterocephalus palaemon*, *Erynnis icelus*, *Papilio glaucus canadensis*, *Colias gigantea mayi*, *Colias philodice*, *Everes amyntula*, *Glaucopsyche lygdamus cooperi*, *Plebejus saepiolus*, *Boloria eunomia dawsoni*, *Cynthia cardui*, *Limenitis a. archippus*, *L. arthemis rubrofasciata*, *Phyciodes tharos*, *Coenonympha tullia*, *Erebia epipsodea freemani*. The Pas including Grace Lake, Rocky Lake, and Cranberry Portage (CP), July 19: *Erynnis icelus*, *Euphyes vestris metacomet*, *Thorybes pylades*, *Colias alexandra christina*, *C. eurytheme*, *C. gigantea mayi*, *C. interior*, *C. philodice*, *Pieris p. protodice*, *Everes amyntula*, *Lycaeides argyrognomon* ssp. (a nice series which proved to be unusual. Males were taken at wet sand along the road. A single female was taken in brush next to the edge of a woods. The specimens are distinct from both ssp. *scudderii* and *nabokovi*), *Lycaena dorcas* (CP), *Plebejus saepiolus*, *L. arthemis rubrofasciata* (CP), *Phyciodes tharos*, *Speyeria atlantis hollandi* (CP), *Coenonympha tullia*, July 19 was spent in the field with Walter Krivda from the Pas. Churchill, June 30 to July 17: Weather made collecting possible on 9 days; the other days were cold, foggy and rainy. Collecting was excellent with over 1200 specimens taken. *Oeneis jutta*, *O. melissa semplei*, *P. polyxenes*, *Erebia theano canadensis*, *E. rossii ornata*, *E. d. discoidalis*, *Colias nastes moina*, *C. hecla hela*, *C. g. gigantea*, *C. palaeno chippewa* (including yellow females), *Pieris napi*, *Boloria titania boisduvalii*, *B. frigga saga*, *B. eunomia tricularis*, *B. polaris*, *B. frieja*, *Cynthia cardui* (migrants), *Plebejus aquilo lacustris*, *Pyrgus centaureae freija*. *Hesperia manitoba borealis* was not seen. Two species apparently new to the area were taken: *Erebia disa mancinus*, a pair in the Taiga Zone on July 9, and a series of *Plebejus optilete* (which represents a substantial range extension to the East and probably a Manitoba record) from July 9-14. The *Plebejus* were also taken in the Taiga Zone at various localities. Ferris collected heavily in the Taiga Zone and found butterflies more abundant there than on the Tundra. What appeared to be a female *Colias eurytheme* was seen but vanished into a clump of sedge. *Oeneis taygete* was reported from Churchill and a short series of gray-veined *polyxenes* were taken.

NORTH DAKOTA: Ferris collected in North Dakota while returning from a trip to Manitoba: Bottineau Co., Highway 83, SW of Westhope, July 20: *Polites coras*, *P. themistocles*, *Lycaena thoe*, *Limenitis a. archippus*, *Cercyonis pegala ino*, *Lethe eurydice transmontana* (some specimens pale to almost albinic). Collecting area was a sedge slough along the road at the end of cultivated land. McKenzie Co.: 1 mi. S of Little Missouri River Crossing, Hwy. 85, July 21: *Erynnis afrafranius*, *Papilio bairdii brucei*, *Colias philodice*, *Harknclenus titus*, *Lycaeides m. melissa*, *Lycaena xanthoides dione*, *Satyrus liparops fletcheri*, *Strymon melinus* (ssp. ?), *Speyeria edwardsii*, *Phyciodes tharos*, *Cercyonis oetus charon*, *C. pegala ino*. Most of the specimens were taken nectaring at a patch of thistles next to a scrub grove (oak and currant) on a bluff overlooking a tributary of the river.

SOUTH DAKOTA: Ferris reported *Papilio zelicaon gothica* common along the road in Spearfish Canyon, Lawrence Co., June 25. Many specimens observed while driving, but none collected. Tinton Creek Canyon just off Spearfish Canyon was collected on the morning of July 22 until heavy rain at noon. The season in the Black Hills was 3 weeks behind schedule. Specimens taken on July 22 were those normally taken on July 4. Butterflies, however, were abundant with several hundred specimens taken in 3 hours. The usual endemics were collected such as *Colias alexandra krauthii* (males only), *Papilio zelicaon gothica* (late), *Speyeria atlantis lurana* (males only), *Speyeria atlantis silvered Appalachian* form (males only), *Speyeria C. cybele* (a female and the first collected in this area), *Plebejus saepiolus*, *Limenitis weidemeyerii oberfoelli*, *Coenonympha tullia nr. benjamini*, *Chlosyne gorgone carlota*, *C. nycteis nr. drusus*. *Phyciodes* were abundant and a large series was taken with intergrades from *campestris* through *tharos* to *batesii*. *Parnassius phoebus dakotaensis* was not observed at the usual collecting site. The Covell's collected *L. thoe*, *P. tharos*, and *L. a. astyanax* at Sioux Falls, Aug. 3. They saw *C. cardui* at Porcupine on the Pine Ridge Indian Res., Aug. 3. Several *H. titus* were seen at Dinosaur Park, Rapid City, Aug. 4.

NEBRASKA: David Ferguson reported *Colias cesonia* common, Keith Co., at base of Lake McConaugh, Aug. and Sept. From So. Deuel County: *Oeneis uhleri*, common, N. of Julesburg, June. *Polygonia interrogationis*, swarming during July and Aug., with the larvae damaging small elm trees. *Cynthia carye* as common as *C. cardui*. *Lycaena helloides* and *xanthoides dione* common in tall grass and ditch banks, July.

KANSAS: William H. Howe reported collecting a specimen of *Erebus odora* on Sept. 5, Ottawa. Ray E. Stanford collected on July 1 in Cheyenne Co., a number of common species including *C. gorgone carlota*, *A. andria*, and *E. cymela*.

OKLAHOMA: A. W. Haddox reported from Antlers, Pushmataha Co., Aug. 21-22: *P. cresphontes*, *P. glaucus*, *P. polyxenes*, *B. philenor*, *L. astyanax*, *L. archippus*, *C. pegala*, *P. sennae eubule*, *N. iole*, *A. vanillae*, and *P. tharos*. A. W. Haddox, L. Haddox, and J. Phillips reported from Pawnee, Sept. 15: *E. lisa*, *E. gemma*, *C. pegala*, *E. claudia*, *C. cesonia*, *D. plexippus*, *P. phaon*, *P. sennae eubule*, *E. comyntas*, *S. cecrops*, *P. interrogationis*, *P. coenia*, *A. clyton*, *A. celtis*, *A. andria*, and *P. communis*. A. W. Haddox and E. Gage reported from Antlers, Pushmataha Co., Sept. 22-23, many of the above plus: *C. virginensis*, *V. atalanta*, *P. nycteis*, *E. hermes*, *L. creola*, *L. portlandia*, *L. anthedon*, *A. halesus*, and *P. comma*.

TEXAS: Michael Young reported *Phyciodes vesta* common, 20 mi. E. Marathon, Brewster Co., Mar. 23. *Chlosyne lacinia*, near Langtry, Val Verde Co., Mar. 25, south of Catarina, Dimmitt Co., Mar. 26, as well as at Webb. *Chlosyne theona* and *Eurema mexicana*, 3 mi. N. San Ygnacio, Zapata Co., Mar. 26, *Amblyscirtes nysa*, Port Isabel, Mar. 28. *Chlosyne lacinia*, Padre Isl., Mar. 29. *Heliopetes macaira*, *Chlosyne lacinia*, *Brephidium exilis*, *Amblyscirtes nysa*, *Megathymus coloradensis wilsonorum*, *Chlosyne*

theona bollii, Polites vibex praeceps, Euptoieta claudia, Colias cesonia, Erynnis funeralis, and Strymon melinus, Laguna Atascosa Wildlife Refuge, Cameron Co., Mar. 29. Kricogonia castalia, Eurema nicippe, Nathalis iole, Colias cesonia, Chlosyne elada ulrica, 18 mi. S. George West, Live Oak Co. Jack L. Harry reported on West Texas: Ministrymon leda, 20 mi. S. Van Horn, 9 June and 1 July. C. mcfarlandi, 20 mi. NW Van Horn, 18 May; SW edge Davis Mts., 20 May; 22 mi. S. Van Horn, 9 June. Zizula cyna, SW edge Davis Mts., 16 June; 32 mi. S. Van Horn, 6 July. Precis nigrosuffusa, 20 mi. S. Van Horn, 9 June. Poladryas minuta, Guadalupe Peak, elev. 6000 ft., 3 May. C. theona thekla, SW edge Davis Mts., 29 May, 11 June, 24 July. C. siva, 2-10 mi. NE Pine Springs, Culberson Co., 29 June, 5 July.

Food Plants: A. mormo duryi, 2 females in different locales observed ovipositing on Krameria glandulosa. Eggs obtained 3 May and raised to adults 29 July. Chlosyne definita, female observed ovipositing on Stenandrium barbatum, 20 April. C. chinatiensis, larvae obtained on Leucophyllum minus, 25 Aug., and raised to adults, 15 Sept. C. theona thekla, larvae found on Castilleja sp. and raised to adults.

Jack B. Prentiss reports on moths near Corpus Christi: E. vitis, common, Apr.-Nov. E. fasciatus, Aug.-Nov., E. labruscae, May 31, E. pandorus, Aug., E. alope, Sept. 5, E. lassauxii, common, Aug.-Nov., E. oenotrus, Oct. 4, new record. E. obscura, common, E. ello, common, E. lugubris, Aug.-Nov., C. antaeus, Aug. 14. P. tetrio, Oct. 30, P. ficus, Oct.-Dec., X. pluto, Nov. 26, new, T. zenobia, Oct.-Nov., C. undulosa, E. calleta, Mar. and S. heligbrodti. Butterflies were below average at Corpus Christi. F. R. Hedges reports: Callophrys niphon, Livingston, 3 Mar.; Memorial Pk., Houston, April. Erynnis brizo, Buffalo, 11 Mar., Erynnis martialis, Ft. Worth, 7 April, Megathymus coloradensis stallingsi, Ft. Worth, 7 April, Satyrium liparops, Memorial Pk., Houston, April and May, Eurema nicippe, Sherman, Marpesia petreus, Bentsen St. Pk., 13 July, Mellana eulogius, Bentsen St. Pk., 13 July, Staphyllus ceos, Mission, 15 Aug., Appias drusilla, New Braunfels, 1 Sept., Pompeius verna sequoyah, Lake Houston, 15 Sept., Panthiades m-album, New Braunfels, 22 Sept., Precis lavinia nigrosuffusa, Alice, 21 Oct., Panoquina evansi, McAllen, 22 Oct., Doxocopa pavon, Mission, 3 Nov., Biblis hyperia, Mission, 3 Nov., Emesis emesia, Madero, 3 Nov., and Strymon alea, Bentsen St. Pk., 15 Dec.

Mike A. Rickard and W. W. McGuire turned in this most remarkable report: (Mc)-McGuire; (S)-State Record; (US Rcd.)-new United States Record. Comment: A superb year, over 275 species taken. Cameron Co.: P. astyalus, Aug. 13; C. zilpa, Aug. 13; E. tatila, Aug. 18 (Mc); M. elva Aug. 18 (Mc); A. walkeri, Oct. 20 (Mc); Heliopetes arsalte L., Oct. 20 (Mc-US Rcd.); Polythrix mexicanus Freeman, Oct. 20 (Mc-US Rcd.); P. octomaculata, Oct. 19 (Mc). Comal Co.: C. potrillo, Oct. 2. Cook Co.: H. attalus, June 9, Sept. 2 (Mc); A. arogos, June 23; A. alternata, June 23. Hardin Co.: S. kingi, June 7-10 (S); S. liparops, June 7. Harris Co.: S. liparops, April 28-May 5. Hidalgo Co.: Astraptes alardus latia Evans, June 16, Oct. 10, Sept. 2 (US Rcd.); M. eulogius, June 17-26, Aug. 11, Oct. 10, Nov. 3; H. petiveranus, June 18; P. ornythion, Aug. 10-11; H. domicella, Aug. 12, Oct. 10 (Mc); P. ceos, June 17, Aug. 12; P. octomaculata, Aug. 30, Oct. 20 (Mc); A. pithyusa, Sept. 2; H. februa, Aug. 30, Oct. 9; X. xami, Sept. 23; C. zilpa, Sept. 23, Oct. 20, Oct. 25, Nov. 4; Achalarus jalapus Plotz, Sept. 23, Oct. 20 (US Rcd.); Bolla clytius G. & S., Oct. 10, Oct. 20 (Mc-US Rcd.); P. statira, Oct. 9; E. endymion, Oct. 10, Nov. 4; A. numitor, Oct. 26; B. aganisa, Oct.-Nov.; Rhinthon osca Plotz, Oct. 20, Oct. 26 (US Rcd.); P. evansi, Oct. 20, Oct. 25-27, Nov. 4; S. clonius, Oct. 21, Oct. 26; G. stigmaticus, Oct. 20; P. astyalus, Oct. 21 E. cleobaea, Oct. 20 (Mc); D. dyonis, Oct. 21, Oct. 27; A. metophis, Oct. 11, Oct. 25-27; Conga chydrea Butler, Oct. 25 (US Rcd.); P. mercurius, Oct. 26; Sostrata bifasciata nordica Evans, Oct. 26 (US Rcd.); Eipphele adrasta Staud., Oct. 27 (US Rcd.); Corticea corticea Plotz, Nov. 4, Dec. 15-16 (US Rcd.); U. doryssus, Nov. 4; C. canescens, Oct. 20, Dec. 15; S. alea, Dec. 15-16; G. begga, Dec. 27 (Mc); S. rufofusca, Oct. 20; S. albata, Dec. 27 (Mc); C. alcaeus, Oct. 19; T. undulatus, Oct. 19 (Mc); Lerema liris Evans, Oct. 20 (US Rcd.); Urbanus esmeralda Butler, Aug. 18 (Mc-US Rcd.); Aguna claxon Evans, Oct. 19 (Mc-US Rcd.); A. gilberti, Oct. 19 (Mc); P. microsticta, Oct. 20 (Mc-S); C. stallingsi, Oct. 20 (Mc); E. exadeus, Oct. 18 (Mc-S); P. manueli, Aug. 18 (Mc). Jeff Davis Co.: M. leda, May 29; H. domicella, May 30 (Mc); P. melane, May 10 (Mc-S). Leon Co.: H. meskei, June 8; P. m-album, July 7. Newton Co.: P. byssus, June 10 (Mc). Smith Co.: G. gesta, May 5; S. liparops, May 23. Tarrant Co.: E. martialis, April 7, June 10, July 29; P. m-album, June 10, July 29; F. tarquinias, July 28 (Mc); A. arogos, July 29; E. bimacula & dion, larvae on Sedge, July 29 (Mc). H. A. Freeman reported that collecting was fairly normal in the Dallas area and above normal in the Rio Grande Valley during brief visits during June, July and August.

ZONE 5: EASTERN-MIDWEST: MISSOURI to MINNESOTA to ONTARIO. Coordinator: M. C. Nielsen. Contributors: G. Belyea (GB), W. Boulton (WB), R. Bracher, T. Carr (TC), R. Charboneau (RC), P. Conway (PC), C. Covell, B. Drees, L. Ferge (LF), R. Fleming (RF), R. Funk, R. Gatrell (RG), J. Heppner, Q. Hess, R. Hubner (RH), R. Kuehn (RK), R. Lavy, I. Leeuw (IL), R. Letsinger, J. Maudsley, W. Miller (WM), J. Newman (JN), M. Nielsen (MN), D. Parshall (DP), D. and E. Oosting (DO), J. Riotte, W. Sieker (WS), E. Shull (ES), B. Wilson (BW), L. West (LW). GENERAL: D. plexippus again in large numbers; many southern species in northern areas; E. claudia and V. cardui were definitely up, while Satyrium species enjoyed a good year. T. lineola was usually abundant and continues to spread, and L. appalachia was discovered in new collecting areas.

MISSOURI: Letsinger reports from Jasper Co. these new state records: Hypocala andremona, 25 Aug. and 9 Sept.; Scardia anatomella, 23 Sept.; Eublemma minima, 23 Sept.; Natada nasoni, 16 July; Bagisara rectifascia, 17 June and 23 June, Newton Co.; Thysanopyga gausaparia, 25 Aug.; Arugisa latiorella, 30 Aug.; Cobubatha flavofasciata, 23 July, 19 Aug. (above det. J. R. Heitzman, F. Rindge). Diaphania quadristigmalis, Jasper Co., 5 Sept.; Munroessa faulalis, Carter Co., 21 Sept.

KENTUCKY: Covell reports butterflies were more abundant than any of past 5 years, especially in late summer and fall. B. toddi abundant from July into Oct. -- the first known big observations of this species, first Jefferson Co. record (Oct. 3). S. diana sought but not seen; S. cybele also scarce in July. P. troilus was the dominant swallowtail. Late Aug. - early Oct. saw abundance of A. celtis and clyton, P. interrogationis and comma, and L. archippus and arthemis astyanax much greater than usual, swarms of interrogationis in Sept. Kentucky now has 120 butterflies out of 1,355 species of Lepidoptera



there. Captures of note: *E. m-album*, *E. gemma* and *E. olympia*, Mammoth Cave Nat. Park, 14 Apr.; *S. liparops strigosa*, near Bernheim Forest, Bullitt Co., June 30. Good moths included *Citheronia sepulcralis* and *Darapsa versicolor* at Morehead, July 25.

WEST VIRGINIA: Drees reports on *Papilio* in Monongalia County. *P. glaucus* appeared as early as 21 April, with *marcellus* on 5 May. *Troilus* and *glaucus* were collected at mud puddles. Only one *philenor* was taken during the season, while *cresphontes* was not seen at all. Lavy reported *P. zabulon* and *P. tarquinius* on 11 Aug. at North Bend State Park. Parshall, in Hampshire Co., took *E. olympia* and *L. phlaeas americana* on 5, 6 May, Ice Mt., Rt. 45; and *A. midea*, *C. niphon* and *B. toddi ammiralis* on 5 May, Brandt Farm, Fox Hollow Rd. Heppner found good moth collecting, especially *Micro's*, in NE corner of the state: *Ethmia bipunctella*, 1 Sept., Capon Springs, Hampshire Co.; 2 Sept., Franklin, Pendleton Co. (new state record); *Nerice bidentata*, 1 Sept.; *Papaipema purpurifascia*, 2 Sept., Franklin; *Cisthene subjecta*, 1 Sept.; *Oreta rosea*, 2 Sept.

OHIO: Choice swamp-forest species were located in Paulding and Defiance Counties: *E. dukesi*, 7, 12 July (GB, PC, MN, DO); *C. borealis*, several in small sun-lit patches in oak-hickory, 7 July (GB, MN); *S. calanus falacer*, 7, 12 July, common but worn (PC, MN, DO); *S. liparops strigosus*, 12 July (PC, DO); *L. anthedon*, few, 7 July (GB, MN); *L. eurydice*, few, 12 July (DO), *L. appalachia*, 7, 12 July, numerous (GB, PC, MN, DO). Maudsley collected *P. viator* on 12 July in North Royalton, Cuyahoga Co., with *L. eurydice* in open sedge-marsh. Parshall found good early spring collecting, and new county records: *E. lucilius*, *juvenalis*, *icelus* and *brizo*, 14, 21 April, in Racoon and Zaluski State Forests, Vinton Co.; *P. themistocles*, *C. borealis*, *C. titus* and *C. alope*, 16 July, Butler Co.; and four *C. cecrops*, Meigs Co.

INDIANA: Shull reported a late May freeze killed off *P. rapae* and *C. p. argiolus*, not reappearing until mid-June. *C. cardui* and *E. phaeton* were more common than last year. He and Bracher found *D. plexippus* common from early spring until late fall; Bracher found the migrant peaking around 8-10 Sept., while Shull observed migration over NE Indiana from 25 Aug. to 26 Sept. CHOICE SPECIES: *E. dion*, 4 July, Wabash Co. (ES); *P. zabulon*, 21 Aug., Carroll Co. (ES); *P. origines*, 23, 24 June, Willow Slough, Newton Co. (PC, DO); *T. lineola*, 23, 24 June, Newton Co. (PC, DO), spreading into area; *E. persius*, 11 May, Kosciusko Co. (ES); *P. napi oleracea*, 16 July, Mongo, Lagrange Co. (ES), one specimen. *S. acadica*, 23, 24 June, scarce, Newton Co. (PC, DO); *S. c. falacer*, 23, 24 June, common, Newton Co. (PC, DO); *S. caryaevorus*, 5 July, Kosciusko Co. (ES); *S. edwardsii*, 23, 24, common, Newton Co. (PC, DO); *H. isola*, 23, 24 June, Newton Co. (DO), 2 males; *L. melissa samuelis*, 22 July, Lake Co. (IL), abundant and very fresh; *E. mitchellii*, 4-7 July, Cedar Lake bog, Howe, Lagrange Co. (TC), 7 specimens. *E. ontario*, 7 Aug., Wabash Co.; *S. l. strigosa*, 10 Aug., Kosciusko Co.; *B. t. ammiralis*, 14 Oct., Kosciusko Co.; *L. appalachia*, 1 Sept., Mongo, Lagrange Co. RANGE EXTENSION: *F. tarquinius*, 1 Sept., Mongo, Lagrange Co., first in N. Ind. State Record: *Problema byssus*, 22 July, Lake Co. (IL), pair, significant northeast range extension.

ILLINOIS: Conway sent a complete summary of 7 northern counties: Season late and wet early, and dryer towards mid-summer. Funk reported on migrating *D. plexippus* in Edwardsville area, Madison Co. Main flight on 13-14 Sept., with hundreds resting in trees at night. Slacked off by 16 Sept.; flight small, still migrating, 17 Sept.; by 3 Oct., small flight heading south, and last instar larvae and pupae still common on SIU campus. By 1-7 Oct., adults were still numerous, flying more leisurely, generally southward, but not hurried. One tagged specimen from Wisconsin was found at Alton, Madison Co., during this period. CHOICE SPECIES: *E. dion*, *conspicua*, 8 July, plentiful, Kane Co. (IL); *E. bimacula*, 24 June, down in numbers, Iroquois Co. (PC, DO); *P. massasoit*, 24 June, just emerging, Iroquois Co. (PC, DO), 8 July, plentiful, Kane Co. (IL); *P. viator*, 15 July, scarce, McHenry Dam State Park (PC); *P. byssus*, 8 July, common, Mercer and Mason Co. (PC); *P. origines*, 24 June, Iroquois Co., 11 July, Mason Co. (PC, DO); *H. ottee*, 11 July, Mason Co. (PC); *T. lineola*, 23 June, Du Page Co., swarming at Herricks Lake (PC); *E. olympia*, *C. polios*, 9 May, Lake Co. (PC, IL), sole state colony at Ill. Beach State Park; *S. acadica*, 7 July, MDSP, McHenry Co. (IL); *S. edwardsii*, 7 July, Lake Co., abundant (IL); *L. thoe* (2nd brood), *helloides*, 16 Aug., MDSP, McHenry Co. (IL); *B. s. myrina*, abundant, 7 July, MDSP, McHenry Co. (IL); *L. eurydice-fumosus*, 24 June, Iroquois Co. (PC, DO); *C. gorgone carlota*, common and worn, 8 July, Mercer Co. (PC). STATE RECORD: *T. lineola f. pallida*, Spears Woods, Cook Co. 24 June (IL).

IOWA: CHOICE SPECIES: *E. bimacula*, 1-7 July, Johnson Co. (RG); *P. cresphontes*, one worn, 22 June, Johnson Co. (DP); *S. c. falacer*, 21 June, Johnson Co. (DP); *L. xanthoides dione*, 1-7 July, Johnson Co. (RG); *S. idalia*, *aphrodite alcestis*, and *B. selene* ssp., 1-7 July, Johnson Co. (RG); *E. claudia*, 1-7 July, Jasper Co., extremely abundant (RG); *L. anthedon* and *L. e. fumosus*, 22 June, Johnson Co. (DP), 1-7 July, Eldora, Harden Co. (new rcd.), larvae reared on sedge, *Carex* sp. (RG).

MINNESOTA: New county records: *A. hianna*, 26 May, Fillmore Co. (W. Johnson); *E. conspicua*, 8 July, Blue Earth Co. (RH, WJ); *P. massasoit*, 8 July, Blue Earth Co. (WJ); *A. delaware*, 8 July, Blue Earth Co., Le Sueur Co. (WJ); *E. mexicana*, 11 Aug., Pine Co. (K. Laska); *E. lisa*, 22 Sept., Houston Co. (RH); *S. acadica*, 8-22 July, Blue Earth Co. (RH); *C. gryneus*, 22 July, Scott Co. (RH). Oostings collecting on 28, 29 July in Lake Co., near McNair: *P. napi*, freshly emerged males; *C. interior*, frequent; *S. l. strigosa*, 3 males; *L. argyrogynomon nabokovi*, males worn, females fresh, common; *P. faunus*; *B. s. atrocotalis*, frequent in bog; *B. t. grandis*, uncommon, in mature black spruce bog; *S. atlantis*, *aphrodite* ssp., frequent on thistles.

WISCONSIN: Sieker found *Sphingidae* down. Poor butterfly collecting in Door Co. compared to previous years, while *Satyrus* species were exceedingly abundant in Iowa Co. (200 specimens on two weekends). *S. idalia* was not as common as in previous years. *Catocala* was poor, especially for the scarcer species. Ferge found good butterfly collecting in Marathon County. Covells stopped along I-90 in Juneau Co., near Mauston, 2 Aug., and collected *E. vestris metacomet*, and *S. liparops*. BUTTERFLIES: *E. dion* and *P. massasoit*, singles, 28 July, Marathon Co., county records (LF); *E. conspicua*, several, 28 July, Marathon Co. (LF); *P. cresphontes*, one worn, 23 June, Sieker Farm, Iowa Co. (LF); *P. virginianensis*, *napi oleracea*, several, 21 May, Marathon Co. (LF); *S. c. falacer*, abundant, June/July, Sieker Farm, Iowa Co. (RK, WS); *L. dorcias*, *epixanthe*, few in bog, 10 July, Marathon Co. (LF); *P. saepiolus*, two, 30 June,

Bayfield Co. (LF); *L. a. nabokovi*, extremely abundant, 6-9 July, near Fence, Florence Co. (RK, P. Holzbauer); *B. eunomia dawsoni*, one, fresh, 16 June, Marathon Co. (LF); *B. freija*, 20 May, near Rhinelander, Oneida Co. (LF); *C. tullia inornata*, 30 June, Bayfield Co., a permanent resident, (LF); *O. chryxus strigulosa*, 16 males in one hour of sunshine, 26 May, near Dunbar, Marquette Co. (RK); *O. jutta ascerta*, common, 16 June, Marathon Co. (LF). STATE RECORD: *Satyrion boreale*, a few with falacer, Sieker Farm, Iowa Co. (RK, WS), det. by H. Clench. MOTHS: *S. canadensis*, *kalmiae*, 5-8 July, near Amberg, Marinette Co. (RK, Holzbauer); *S. chersis* and *A. nessus*, Dane Co. (LF); *X. tersa*, several, at light and flowers, Iowa Co. (WS); *C. obscura*, *epione*, *judith*, *coccinata*, *micronympha*, Madison area (LF).

MICHIGAN: A mild January and a cold, snowy February. A bad blizzard on 17-18 March, with 20 inches of snow. Spring species appeared slightly later than normal, and in fair to good numbers. A total of 114 butterfly species were recorded, high for one year. The season was better than average for the state. *T. lineola* was abundant throughout, swarming in some locales; *P. protodice* still absent and/or unreported; *Satyrion* species were extremely abundant in southern counties. *D. plexippus* was again common, especially in the fall, and *E. claudia* and *C. cardui* were noticeably up in numbers in many locations. Arnold reported *S. atlantis* abundant in Otsego County feeding on *Liatrus*. Belyea found *N. milberti* extremely common in mid-June at Rose Lake Wildlife Research Center in Clinton County. *L. appalachia* continues to be "discovered" in new and favorite locations indicating that collectors have overlooked this satyr in previous years. Good catches were made in Catocala, 38 species recorded. Belyea and Oosting sent detailed summaries of their activities. BUTTERFLIES: *A. samoset*, 18 May-5 June, Montcalm, Newaygo Co., new county records and SW range extension (DO); *A. hianna*, 31 May-18 June, Newaygo Co. (DO); *E. dion*, 3-29 July, Allegan, Ottawa Co., new county records (DO); *E. dukesii*, 15 July, Monroe Co. (GB); *P. viator*, 10-29 July, Ottawa Co., new county record (DO); *H. metea*, 14-31 May, Allegan, Kent (new co. record), Montcalm, Newaygo Co. (GB, PC, IL, MN, DO); *H. ottoe*, 1-14 July, Allegan, Newaygo Co. (PC, DO, LW); *O. powesheik*, common, 13 July, Livingston Co. (PC, DO); *C. palaemon mesapano*, 2-12 June, Chippewa, Luce (new co. record), Schoolcraft Co. (GB, MN, DO); *P. centaureae wyandot*, 9-18 May, Cheboygan, Montcalm Co. (DO); *P. communis*, 20 Aug.-15 Sept. Kent, Ottawa Co., new co. records and first report in several years (DO); *E. persius*, 5-31 May, Allegan, Kent, Montcalm, Newaygo Co. (IL, MN, DO); *E. horatius*, 15 July, Monroe Co. (GB, MN); *P. marcellus*, 25 May-16 Sept., Ottawa Co., new co. record and most NW location (DO); *P. virginianensis*, common, 18 May, Emmet Co. (DO); *P. sennae eubule*, one female, Willis, Washtenaw Co., new co. record (D. Neal); *C. muticum*, 13-31 July, Kent, Livingston Co. (PC, DO); *S. liparops strigosa*, common, late June-late July, Cass, Lenawee, Oceana, Ottawa Co. (PC, IL, MN, DO); *S. caryaevorus*, common, 30 June-25 July, Cass, Lenawee, Ottawa (new co. record) Co. (GB, IL, MN, DO); *C. irus*, 5-20 May, Allegan, Kent, Montcalm, Newaygo Co. (PC, IL, MN, DO); *C. henrici*, 15-22 May, Kent (new co. record), Montcalm, Co. (MN, DO); *C. nippon clarki*, 5-29 May, Allegan, Chippewa, Montcalm, Newaygo Co. (MN, DO); *L. thoe*, 13 Oct., Saginaw Co., late date (GB); *L. epixanthe michiganensis*, 17 June-10 July, Allegan (new co. record), Chippewa Co. (PC, IL, MN, DO, LW); *L. melissa samuelis*, 26 May, 17-26 July, 2nd brood swarming, Allegan Co. (IL, DO); *A. celtis*, 10 June-5 July, August-mid-Sept., Kent, Ottawa Co., new co. records (DO); *A. clyton*, 15 July, Ottawa Co., new co. record (DO); *B. eunomia dawsoni*, 11 June-2 July, Chippewa, Mackinac Co. (GB, MN, DO, LW); *B. frigga*, 2 June, Schoolcraft Co. (GB); *C. harrisii*, 9-21 June, Barry, Montcalm Co. (GB, DO); *P. batesii*, 9 June, Montcalm Co. (GB, MN); *A. andria*, one on Lk. Mich. beach at Holland, 17 Oct., Ottawa Co., new co. record (WB); *E. mitchellii*, 4 July, Cass, Kalamazoo Co. (IL, LW), Wakelee Bog locale is threatened by hogs; *O. chryxus strigulosa*, 9-26 May, abundant, Montcalm (new co. record), Newaygo Co. (GB, PC, MN, DO); *O. jutta ascerta*, 2-14 June, Chippewa, Luce (new co. record), Mackinac, Schoolcraft Co. (GB, MN, DO). STATE RECORD: *S. boreale*, 1-6 July, two specimens, Kalamazoo, Lenawee Co. (WM, MN), det. Clench.

MOTHS: *H. cingulata*, Kent, Washtenaw Co. (D. Neal, DO); *S. canadensis*, 28 July-11 Aug. St. Joseph Co. (GB, MN); *D. versicolor*, 11 Aug. St. Joseph Co., new co. record (GB); *Aellopos titan*, one fresh, 18 June, Marquette Co. (BW); *X. tersa*, Hillsdale, Lenawee Co. (RF, JN); *H. clymene*, 28 July, St. Joseph Co., new co. record (MN); *A. celia*, 11 Aug., St. Joseph Co. (GB); *A. cordigera*, 27 May, Chippewa Co. (GB, JN, MN); *E. pulcherrima*, 4 June, St. Clair Co. (RC); *P. furcata*, *harrisii*, *lysimaichiae*, *necopina*, *nepheleptana*, *purpurifascia*, *sciata*, *speciosissima*, 28 July-29 Sept., Clinton, Lenawee Co. (GB, MN); *A. microgamma*, 11, 12 June, Schoolcraft Co. (GB, MN); *P. balluca*, 5 Sept. Eaton Co. (RF); *P. rhodarialis*, 31 July, Monroe Co. (RC); *C. serena*, *judith*, *epione*, *obscura*, *residua*, *lacrymosa* (2 new co. records), *nebulosa*, *subnata*, *semirelicta*, *meskei*, *illecta*, *gracilis*, *coccinata*, *crataegi*, *similis* and *minuta*, Cheboygan, Eaton, Ingham, Kalamazoo, Lenawee, St. Joseph, Van Buren Co. (GB, RF, WM, MN); *M. orbifera*, 1 Aug.-2 Oct., Clinton, Lenawee, Oceana Co. (GB, JN); *A. argillacea*, 2 Oct., Clinton Co. (GB); *H. subrotata*, 30 June, Lenawee Co. (MN); *C. scitiscripta*, 2 June, Clinton Co. (GB); *H. rileyana*, 21 July, Lenawee Co. (MN); *S. argenteomaculatus*, 18 July, Midland Co. (RF); *B. infans*, 22-27 March, Missaukee Co., new co. record (GB); *L. brephoides*, Kalkaska Co., new co. record (B. Burke). *H. columbia X cecropia*, two males attracted to "tied-out" *cecropia* females, near Tamarack Lake, Oakland Co. (TC); *A. elonympha*, 11 Aug. St. Joseph Co. (GB).

ONTARIO: In southern Ontario, *D. plexippus* and *cecropia* silk moths were abundant. Elder collected at Atikokan in NW Ontario: *E. icelus*, 12 June; *P. protodice*, 24 June range extension; *E. claudia*, 1 Sept., range extension; *B. selene*, 1 July, common; *C. nippon*, 12 June *C. augustinus*, 21 May; *P. saepiolus*, 1 July and *G. lygdamus*, 21 May. Ward collected *C. (Mitoura) gryneus* in mid-June at Perth Road, Frontenac Co., 56 km ENE of the Maryville location, and Tasker found the second colony of *P. virginensis* in mid-May on Manitoulin Island after several years of search. Riotte attracted wild *C. promethea* males to females reared on wild black cherry.

ZONE 6: SOUTH: ARKANSAS to FLORIDA to VIRGINIA. Coordinator: Bryant Mather. Contributors: Vernon A. Brou, D. L. Burris, John B. Heppner, Bryant Mather, L. J. Paulissen, Ed Gage, Gerald Wallis, Mike Cartwright, Leon Brown, Hilton Bruch, James R. Maudsley, Dale Schweitzer, Richard S. Peigler, Charles Bryson, John Bryson, Nancy Bryson, James Buchanan, Ed Buchanan, David Buchanan, Thomas D. Stelnicki, Terhune S. Dickel, Richard E. Price Jr., Ronald R. Gattelle, Steve Mix, C. V. Covell Jr., Richard T. Arbogast, Robert L. May, and Michael L. Israel.

ARKANSAS: Paulissen reported that temperatures in Washington Co. were moderate to mild. Spring was stormy.

It was the wettest year on record with over 70 in. of rain. The rain hampered collecting but some species appeared to be favored. *L. archippus* was more numerous than in the past 15 years. A single *A. halesus*, an aberrant *P. tharos*, and a single *S. idalia* were taken. *C. niphon*, *S. ontario*, *S. liparops*, and *P. m-album* were not seen. *Catocala* were down in numbers and no *H. maia* were seen. *S. kalmiae* and a few *P. juanita* were taken. *C. cardui* was common all year; *P. s. eubule* were fewer than normal; no *A. vanillae* were seen. A few *P. texana* were taken; a female *P. agarithe* was taken by Randy Lewis. Paulissen took *Achyloides thraso* in October, a new state record, bringing the Arkansas total for butterflies to 149. Jerry Paulissen took two *A. odorata* and an *E. ello*. *Gonodonta sicheas*, confirmed by E. L. Todd, is a new state record. Of the 115 species of butterflies known from Washington Co. 89 were recorded; the highest daily count was 52 on 26 August. Ed Gage (with Wallis, Cartwright, and Brown) noted the scarcity of *A. midea*, *Papilio*, *Incisalia*, *P. m-album*, *C. gryneus*. *G. lygdamus* was average. On 2 Apr. *C. argiolus form nigra* was taken in Washington Co., a possible state record. In late July at Siloam Spgs, Benton Co. two *S. idalia* males were taken and a female was seen. Wallis found *L. archippus* and *C. cardui* very abundant, with *P. cresphontes*, *glaucus*, *troilus*, and *B. philenor* in large numbers along roadsides on *Cephalanthus occidentalis* in Hempstead Co. He also noted two strong populations of *E. phaeton ozarkae*. Great numbers of *D. plexippus* were reported resting at night in mimosa and ginkgo trees at Keiser, Mississippi Co. Cartwright took *A. halesus* in Fayetteville in the fall. *P. s. eubule* was numerous in Nevada Co. in watermelon fields and by woods on *Lobelia cardinalis*; an albino female was taken by Gage in Washington Co. *E. areolata* was abundant in SW Ark. Gage took a *P. juanita* on the White River in Washington Co. Brown took *C. promethia* in Fayetteville. *E. odora* was taken at light at Springdale, Washington Co. *P. texana* was taken at Fayetteville. Over 100 larvae of *E. imperialis* were collected on a few loblolly pines in Nevada Co. New County records include: *L. thoe* (Craighead Co.); *E. areolata* (Ouachita and Dallas Co.) by Wallis; *E. mexicana* (Searcy Co.); *E. areolata* (Drew Co.); *E. p. ozarkae* (Madison and Stone Co.) by Cartwright; *E. areolata*, (Nevada, Calhoun, Bradley, and Lafayette Co.); *H. titus* (Lafayette Co.); *E. mexicana*, *P. agarithe*, and *M. yuccae* (Nevada Co.); *I. niphon* (Nevada and Ouachita Co.); and *P. viator* (Lafayette Co. - a new state record) by Gage.

LOUISIANA: Brou, collecting at Edgard, took 1436 sphinx moths representing 26 species. The order of abundance and number taken were: *X. tersa* (440), *D. myron* (212), *M. sexta* (152), *S. jamaicensis* (129), *C. juglandis* (96), *I. cupressi* (71), *A. cingulatus* (65), *P. myops* (59), *E. pandorus* (52), *E. fasciata* (38), *P. plebeja* (22), *P. excaecatus* (16), *C. undulosa* (16), *D. inscripta* (14), *H. lineata* (11), *H. diffinis* (10), *E. intermedia* (8), *D. versicolor* (5), *M. rustica* (4), *M. quinquemaculata* (4), *P. modesta* (4), *A. nessus* (3), *E. lugubris* (2), *C. amyntor* (1), *D. hyloeus* (1), *X. pluto* (1 - a new state record). He also took 607 butterflies representing 28 species in his light traps. Israel collecting in March-May at various localities reported *G. marcellus*, *E. h. sosybia*, *E. gemma*, *E. ariolata*, *A. andria*, *L. A. astyanax*, *C. cecrops*, *E. juvenalis*, and *zarucco*.

TENNESSEE: Heppner reported for the Smoky Mts. Nat. Pk.: *Adela ridingsella* at light on 7 May at Crosby Camp, Cooke Co.; and *H. cycladata* along Ramsey Cascade Trail on 5 May. Mather took *A. cellus* at Oak Ridge in August.

MISSISSIPPI: Mather added three Mississippi butterflies, bringing the total to 143: *A. reversa* (see J. Lep. Soc. 27:51), *P. hobomok* (see Bryson's report below), *C. isobeana* (det. Clench) - taken Oct. 1969, Wilkinson Co. Mather compiled *Sphingidae* taken in 1973 by C. T. Bryson, Rick Kergosien, and himself (673 spmn., 31 species): *C. hageni* (115), *P. plebeja* (77), *X. tersa* (52), *C. undulosa* (51), *D. myron* (51), *M. sexta* (48), *E. pandorus* (36), *C. catalpae* (37), *P. excaecatus* (24), *P. myops* (21), *L. coniferarum* (21), *C. juglandis* (20), *H. diffinis* (20), *A. cingulatus* (15), *S. jamaicensis* (14), *H. lineata* (13), *S. frankii* (10), *E. fasciata* (7), *D. hyloeus* (7), *P. modesta* (5), *M. jaminearum* (5), *M. rustica* (5), *M. quinquemaculata* (4), *D. inscripta* (3), *E. intermedia* (3), *C. amyntor* (2), *I. cupressi* (2), *E. achemon* (2), *A. nessus* (1), *D. pholus* (1), *S. kalmiae* (1). John Bryson took the first recorded *P. hobomok*, four in all, at Mt. Woodall on 11 May. C. Bryson took two males nearby. *C. cardui* was common in NE Miss. from Mar. through Sept., more abundant than *C. virginianensis*. *Papilio*'s were more common than in previous years; several *P. glaucus* yellow females were taken. Spring was late; *A. midea* was first taken on 8 May, Mayhew, C. Bryson. A colony of *E. dukesi* was found near Moorhead. *A. alternata* was taken on 21 Aug. at Dorman Lake in Oktibbeha Co. Ricky Patterson took *S. kingi* on 28 June in Tishomingo St. Pk. A second brood of *E. areolata* was numerous from late July to late Aug. in Winston and Kemper Co. C. Bryson took a gynandromorph (left male, r. fem.) *E. c. comyntas* on 22 March at Clayton Village, Oktibbeha Co. At Poplarville (off Rt. I-59), the Covells took *W. otho*, *P. sennae*, *J. coenia* and *E. areolata*, and saw *P. palamedes*, on Aug. 22.

ALABAMA: Charles Bryson and James Buchanan on 31 Mar. at Monte Sano St. Pk., Madison Co., took *A. vialis*, *E. juvenalis*, *G. marcellus*, *A. midea*, *C. henrici*, *C. gryneus*, and ten *G. lygdamus*. Charles and Nancy Bryson with Ed and Davis Buchanan on 4 Aug. at Canyon Land Pk., De Kalb Co. took *A. belli*, *A. aesculapius*, *P. zabulon*, *W. otho*, *W. egeremet*, *N. lherminieri*, *T. bathyllus*, *A. cellus*, *A. lyciades*, *E. clarus*, *P. troilus*, *G. marcellus*, *C. cecrops*, *S. melinus*, *L. anthedon*, *E. gemma*, *E. areolata*, and *C. pegala*. At Demopolis, beside Rt. 43, the Covells found *L. archippus* and *A. clyton* common; also took some common species and *S. mazans hayhurstii* during short roadside stop Aug. 23.

FLORIDA: Burris reported, for the Tampa Bay area, that the winter was cool and rainy with few species out until early March; summer was dry, rest of year about normal, two freezes in December; a good year for collecting. *L. appalachia* 22-29 Apr., *A. astyanax* 18-19 Aug., *A. celtis* 18 Aug., and 2 Sept., *A. clyton* 18 Aug., *P. statira* 1 Jul. and 22 Nov., *B. pseudofea* 30 Sept., *P. pigmalion* Jul. and Oct., *P. a. howardi* 16 May and 11 Jul., *U. dorantes* 1 Jan. to 8 Apr. and 4 Jul. to 19 Dec., *A. luna* 18 Aug., *C. cara* 20 May. He also reported usual species and numbers in the Keys on 6-7 May but *P. a. ponceanus* was represented by only a few worn individuals. The clearing of the North Key Largo wooded areas continues. Heppner took a male of *P. a. ponceanus* on 19 June on Key Largo; he found *B. pseudofea* common on *Salicorhia* and *U. proteus* many *Lycium carolinianum* on Cedar Key in Dec.; *Tortyra slossonia* was common on Key Largo in June; *Adela bella* was taken in sunlight at Torreya State Park in Mar. and Apr.; with J. A. Powell on Key Largo in June three species of *Ethmia* were taken; *Rhyacionia frustrana* was common on Cedar Key in Nov. Ed Gage at Lake City on 15 Nov. took *U. proteus*, *H. charitonius*, *E. hermes*, and *P. s. eubule*. Maudsley found *L. astyanax* and *archippus* abundant in north central Florida in mid Sept. He observed oviposition by *A. celtis* near

Sarasota on 24 June and by *P. philea* on 12 Sept. Stelnicki reported in detail on *P. t. ilioneus*, *P. crespontes*, *P. palamedes*, *P. g. australis* (including many dark females in Pinellas Co. in July), *G. marcellus*, *S. melinus*, *S. cecrops*, *L. c. theonus*, *H. c. antibubastus*, *H. a. bethunebackeri*, *H. charitonius tuckeri*, *A. v. nigrior*, *E. areolata*, *E. h. sosybia*, *E. t. tatilista* (18 June, Plantation Key), *J. evarete zonalis*, *A. j. guantanamo*, *M. petreus* (11 Aug. Possom Key), *P. frisia* (?) (11 Aug. Lopez Key), *A. d. neumoegei* (11 Aug. Lopez Key), *P. a. maxima*, *A. m. phileta*, and *S. epilais jucundissima* (13 June, Vaca Key). Dickel reported that *Siproeta stelenes* (the malachite) is widespread in avocado, citrus, and mango groves in south Florida especially in the Homestead area and occurs year round; the food plant is *Blechnum brownei*; *Eurema dina* is abundant the year round in two Dade Co. parks where its apparent food plant *Alvaradoa amorphoides* is common; *Danaus eresimus* is common locally at certain times of the year in south Florida. (Ed. note: These species were regarded by Kimball as only strays in Florida.) Gatreille collected in June in the Sarasota area: *P. a. howardi*, *E. arpa*, *A. capucinus*, *G. marcellus*, *P. t. ilioneus*, *L. a. floridensis*, *A. c. alicia*, *D. j. cileene*, and *A. j. guantanamo*; he also took *M. g. sweatneri* at St. Augustine of 25 June. May reported on So. Florida between 19 April and 17 May: at E. Naples he saw *G. marcellus*, *P. phaon*, *E. unio*, and *U. ornatrix*. In the Everglades Nat. Pk. he saw *H. charitonius*, *P. frisia*, *B. pseudofea*, *A. monuste*, *A. vanillae*, *A. jatrophae*, *L. cassius*, *H. ceraunus*, *U. dorantes*, and *X. timais*. At Isla Morada he saw *L. cassius*, *P. agarithe*, *E. daira*, *D. julia*. At Ochopsee he saw *P. jatrophae*, *D. gilippus*. On Sanibel Is. he saw *M. petreus*. Covell found *P. aristodemus ponceanus* scarce on Key Largo and in Biscayne Nat. Monument in early May 11-15, and the area very dry. However, other common species seemed at normal abundance for that time of year, including *P. crespontes*. Possible sighting of *ponceanus* on Lignumvitae Key, a protected habitat, would extend range to about 100 miles through keys. *A. jatrophae* was found abundant at one spot just south of Florida City. One *E. favonius* was seen at Bushnell in Sumter Co., May 8.

GEORGIA: Burris reported taking *E. h. sosybia*, *L. portlandia*, *H. leonardus*, *P. coras*, *P. zabulon*, *P. ocola*, and *L. lherminieri* at Clayton, Rabun Co., in mid-Sept.; *S. diana* present there in 1972 was not found. Early in Sept. Bruch found a colony of *A. j. guantanamo* on Big Cumberland Island, Camden Co. feeding on *Bacopa* and *Lippia*; he reared larva on *Bacopa* to chrysalids. Maudsley took the following at Athens: *A. halesus* male, 27 Mar.; *F. tarquinius* 4 Apr.; ten *A. c. clyton*\* 16-28 Aug., eight *L. appalachia* 15-31 Aug.; *L. astyanax* - *archippus* hybrid, 19 Sept.; *P. m-album* 21 Aug.; *C. nycteis*\*. (\* Clarke Co. rcd.) He reared *L. portlandia* on *Arundinaria testa* at Valdosta and *A. midea annickae* on *Cardamine hirsuta* to chrysalis. Arbogast reports one *E. bimacula* on Aug. 11, Chatham Co. (rcd.). Gatreille and Arbogast report some notable skipper records in the Savannah area: *Prob. byssus* and *Euph. berryi* near Ogeechee R., both Chatham Co. records, July and Aug. The Chatham Co. locality also yielded *Poanes aaroni* howardi from Aug. 12 to Sept. 21. (Based on Harris 1972, this is the first *howardi* record from the Georgia coastal plain since Abbot's illustration in 1827.) *P. texana seminole* was also taken.

SOUTH CAROLINA: Gatreille reported that *A. loammi* was up in numbers over the past three years, *E. berryi* and *E. bimacula* were down and *A. reversa* was up. One *A. cellus* was taken in May. The following were notable records for Jasper Co.: *P. bulenta*, *P. a. howardi*, and *E. palatka*. Arbogast also took *P. howardi* (Aug.) and *P. bulenta* (June, Aug.) on the Savannah R. Refuge, Jasper Co. In the moths, Mix took *Cith. sepulchralis*, *Call. angulifera*, *A. luna*, *P. modesta*, and *S. bisecta* (range ext.) at Jalapa 18-19 Aug; and *C. sepulchralis*, *C. angulifera*, and *Catoc. maestosa* at Orangeburg on 20-29 Aug.

NORTH CAROLINA: At the Coweeta Hydrologia Laboratory, Macon Co., Maudsley found *L. a. astyanax* and *archippus* very common in Aug.-Sept. He took seven of *L. a. arthemis-astyanax* intermediates between 9 Aug. and 5 Sept. He noted *P. glaucus*, *L. anthedon*, and *C. nycteis* together on urine-saturated soil on 5 Sept. He reared *L. anthedon* from ova to adults on *Leersia virginica* Willd. Schweitzer and Peigler collected starting at Fontana Dam 19-20 July where they took *M. jasminearum*, *C. catalpae*, *A. plebejus*, *L. coniferarum*, *L. bombycoides*, *D. versicolor*, and *P. astylus*; *Citheroniidae* esp. *E. imperialis*. *Calocala* were virtually absent; other species were less numerous than in 1972; but *Acronicta funeralis* and *Glena cribrataria* were taken. At Asheville on 21 July *Acronicta* were plentiful including: *funeralis*, *spinigera*; *Saturniids* and *Sphingids* less numerous than at Fontana. On 22 July at Mt. Mitchell at 6300 feet in fir, birch, *rhododendron*, night clear, low 54 F, Schweitzer had a good night (\* indicates a boreal species): *T. polyphemus*, *A. rubicunda*, *L. bombycoides*, *Olene interposita*, *D. thyatiroides*, *Dysstroma truncata*, *D. hersiliata*, *Perizoma basaliata*\*, *Semiothisa aemulataria*, *S. ulsterata*, *Eupithecia* sp., *Euchlaena tigrinaria*, *Hydrelia inornata*, *Pero morrisonaria*, *Caripeta divisaria*, *Rheumaptera hastata*, *Noctua attentata*, *N. parattentata*, *N. sigmoides*, *N. phyllophora*, *A. perquiritata*\*, *N. prasina*, *N. intermedia* (*bruneomedia*), *Diarsia jucunda*, *Euxoa? declarata*, *Mamestra nimbosa*, *M. imbrifera*, *M. olivacea*, *Hyppa contrasta*, *Eudryas grata*, *L. linda*, *Septis verbascoides*, *Cucullia convexpennisi*, *Acronicta superans*, *innotata*, *fragilis*, *Apamea interoceana*, *Drepana arcuata*. Larvae of *Halisidota caryae* were found in large colonies on hickory and red oak near Asheville. A male *C. angulifera* was seen flying in late afternoon in Graham Co. after a thunderstorm. Gatreille collected Fayetteville, 22 July-4 Aug.: *C. p. alope*, *L. portlandia*, *P. palamedes*, *A. halesus*, *P. m-album*, *M. hesseli*, *T. bathyllus*, *W. otho*, *W. egeremet*, *P. v. sequoyah*. Price, in Pisgah Nat. Forest near Dillingham, Buncombe Co.: 75 *P. virginensis*, April and May; *G. l. nittanyensis* 14 Apr. to 5 May; one *E. laeta*, 21 Apr.; two *C. ebenina* 21 Apr.-4 May; 8 *Batesii* on 25 May.

VIRGINIA: Price reported taking a female *S. diana* on 16 Aug. at the crest of Brush Mt., near Blacksburg, Montgomery Co.

ZONE 7: NORTHEAST: QUEBEC, MARITIMES, NEW ENGLAND, NEW YORK to D. C. Coordinator: P. Grey. Contributors: G. Adams, W. Boscoe, P. Carey, R. Dirig, G. Ehle, F. Fee, R. Gray, D. Guzo, J. Heppner, W. Kiel, J. Levy, R. May, Robbins, W. Winter.

QUEBEC: Heppner had good moth collecting at Mont Tremblant Prov. Park on Aug. 16. *Anthopila diana* (*Glypipterygidae*) on *Solidago*; some "usual fall diurnals"; *N. vau-album* was plentiful (apparently a good year for it all across Canada). Holmes and Kiel had poor luck at Mt. Albert; on July 8-10 the *Oeneis* flights were about over. Endemic skippers in fair numbers, a couple *H. parthenos* were netted, and a

first instar *P. brevicauda* was found on the little umbellifer previously reported. A stunted thistle swarmed with cardui larvae, so even on this bleak northern outpost the big news of 1973 was echoed, namely, one of the most massive continental outbreaks ever recorded of this "Cosmopolitan" butterfly.

NEW BRUNSWICK: Nothing noteworthy, but Spruce Budworm infestations still are raging and not being controlled by the spraying so far.

MAINE: A fine record: *B. eunomia* on the bogs at Wilsons Mills, Oxford Co., June 24, by Kiel. This "first" capture, despite repeated past visits, indicates a very brief flight span causes the "rarity" of *eunomia* in the Northeast. Fall moth collecting in the Enfield area appeared to Grey to be unprecedentedly poor. Levy and Robbins took *Cat. relicta* on Mt. Desert, Aug. 25, but even this common species failed to show at Enfield.

NEW HAMPSHIRE: Both Kiel and Gray corroborate a severe "low", not only in moths but also in diurnals, from midsummer on in upper New England. Earlier collecting apparently was good in spots: Kiel took several *E. pudens* in late April at Groveton, and all three *Feralia* sp. were thriving. A *Metalepsis fishi*, Apr. 23, is notable. He saw cardui larvae swarming all summer, but no migratory movements were observed. Levy took *C. tullia* on Sept. 2 at Etna (Grafton Co.). Heppner saw grass-feeding pyralids thick along lakeshore in Pillsbury State Park (Sullivan Co.) on Aug. 19; several *Choreutis inflatella* (a glyphipterygid) flying here in deep wood clearings, in sunshine and visiting *Solidago*. Winter records *A. hianna* from Nashua, June 9; also observed *P. faunus* abundant on the Jefferson Notch road, Aug. 25.

VERMONT: Heppner reports *Drepana arcuata* common (blacklight) at Chittenden Brook Cpg. (Rutland Co., Green Mtns.) on Aug. 17. Also, *L. arthemis* and *archippus* and a singleton *E. comyntas*, Aug. 18, 3 mi. E. of Mendon. *N. milberti* was taken on Goldenrod at White River (Windsor Co.), Aug. 18.

MASSACHUSETTS: Fee worked with *Incisalia* at Montague Farrens (Franklin Co.) on May 24. The *augustinus* were nearly gone by; *irus* was noted to associate with Lupine and the metea skipper; *niphon* was common, ova were secured and the larvae found to accept both *P. strobilus* and *rigida* and have been reared to pupae. Levy and Robbins picked up a few *A. lyciades* at Middlesex Fells Reservation (Medford), June 12 through July 4; took a *L. portlandia* June 28; 10 specimens of *E. ontario*, June 28-July 5, females confined on oak but with no luck. An extensive report from Carey covers the Springfield area (the geometrid *E. subsignarius* apparently controlled by the parasitic wasp, *Ooencyrtus clysiompe*, introduced by Conn. Agric. Expt. Station). The "migrants" had a banner year and all on hand. With the localized species the colony of *M. gryneus* at South Hadley showed well in both broods (late May, middle July); *S. falacer* swarmed on Cedar Knob in Holyoke, end of June, and the *lyciades* skipper also showed up near here; a few *S. liparops* were taken in South Hadley, July 2. *C. philodice* was high and *P. polyxenes* coming back. Winter submitted a report for the Norfolk area just SW of Boston, mostly of "better" species and outstanding local records which cannot be cited here in full.

Samples: *P. parthenos* at Westwood, July 20, very fresh and at a time when winds were unfavorable to migration from the north; an intriguing item is a *Hemileuca* from Twexbury, Sept. 25, which Eric Quinter det. as genitally intermediate to *Lucina*; *Quercus* scarce here and *Spirea* prominent. From Westwood: *Anicla infecta*, Oct. 25; *Adita chionathi*, Sept. 7; *Ipimorpha pleonectusa*, Sept. 4; *Papaipema lysamachiae*, Sept. 25; *Magusa orbifera* (in fine condition) Oct. 13; *Allotria elonympha*, June 9 and Aug. 3, both dates extreme; *Lomanaltes eductalis*, May 25 and Aug. 12, no acid bog habitat nearby. *Palthis asopialis* recently determined, taken Oct. 16, 1971 and Sept. 25, 1972, perhaps new to New England? Most of the moths Winter lists are det. C. P. Kimball. In the diurnals, the 1972 record of *T. lineola*, early July, Barre & Canton, should have been published before. Other good skipper records include the dark *P. hobomok pocahontas*, June 3 at Dover; *E. horatius* July 22, Medway; and *C. palaemon* in early June, Dover & Wellesley, good range extensions. The *Theclinae* also are well represented: an *E. ontario* from Dover, June 30 (J. Ingraham leg.); at Needham an extensive colony of *M. gryneus* yielded interesting variations in both broods (May 23 and July 22). Mix submitted a brief report from Beverly Farms (Essex Co.) listing *E. nubilis*, *T. polyphemus*, *Cat. parta* and *andromachae* as his best captures (no dates).

NEW YORK: Robbins noted *P. coenia* common at Fire Island (Suffolk Co.) on July 28. Heppner notes a few common resident diurnals taken 6 mi. S.E. of Croghan (Lewis Co.). He found *Drepana arcuata* common at blacklight at Cranberry L. Cpgd., Aug. 14, and also mentions for Wildwood State Pk. (Suffolk Co.) a single *P. myops*, Aug. 22, a late date. Here, too, swarms of micros, mostly tortricids (e.g., *Pandemus limitata*; *Choristoneura rosaceana*?) came in to blacklight from the oak groves. The principal N. Y. report this year is from Dirig, confined to diurnals of Ithaca. He is concerned with the Karner Blue, now very low or nearly extinct. He got *S. aphrodite* larvae through last winter, refrigerated in tightly sealed Petri dishes with a disc of moistened paper in the bottom, reared from confined females. His confined *S. titus* females laid many eggs on Black Cherry twigs, as well as on and under clods of dirt in the container. He has *P. virginianensis* now in pupae from stock taken May 6 at Hancock, also *I. irus* in pupae from ova found on *Lupinus perennis* at Karner, May 15, and nearly mature larvae of *L. melissa samuelis* on May 16. Ova of *L. epixanthe* were secured, now overwintering. Dirig finds *S. liparops* more abundantly than do most collectors elsewhere.

NEW JERSEY: Fee found the season early (Apr. 16) at Lakehurst. *I. niphon* was unusually low but *irus* was common by May 6, at which date *M. gryneus* and *H. metea* also were in good supply. He took *A. clyton* at Frenchtown, July 16 (Hunterdon Co.). May's Caldwell summary includes Monarchs migrating, "best flights in many years". His counts taken in the Hatfield Swamp continue his reports from many years back, enabling study of fluctuations in the common species. He found moths quite low (*Catocala* especially, only 3 species taken) but was pleased with capture of *U. ornatrix bella* and several *Apantesis nais* from various Essex Co. localities. Heppner made a good catch of moths on Sept. 5, 3 mi. S. of Dunellon (middlesex Co.), including a fine specimen of *Schinia arcigera* (at blacklight). Adams sent in two good southern (Cape May Co.) records, viz., *L. thoe* and a *Limenitis nr. arthemis*, Rio Grande, Aug. 26.

PENNSYLVANIA: Levy took an E. ontario at Boalsburg (Centre Co.) on June 23. Boscoe ran a blacklight every night from early April into November. A major feature was a *H. tessellaris* (arctiid) explosion. Sphingids were down a bit but "good ones" like *jasminearum*, *eremitus* and *cingulata* came in. Saturnians were up, *angulifera* thriving but low and *cecropia* absent. A good year for *Apantesis* and fair for *Catocala* (*ultronia* and *amica* greater than ever before, *judith* up and *piatrix* taken here for the first time; but a number of other usually common "Cats" were low or absent). Unusually good listing of diurnals at the blacklight: *E. clarus*, *S. falacer*, *D. plexippus*, *L. archippus* and *P. rapae*. Boscoe observed that the Pike Co. Gypsy Moth infestation ended abruptly this year; presumably they ate themselves into starvation. Guzo has found a colony of *L. phlaeus* in Kingston Twp., western Luzerne Co. which seems to be loaded with "abnormal" genes; many aberrations, in quantity. He reports *Erynnis* high, notably *juvenalis* (not taken at all in previous years) abundant in Luzerne, Wyoming and Bradford Counties. His other new area records were of *H. sassacus*, June 10, and *M. nycteis*, June 6, both Kingston Twp. A fine collecting spot was found in Orange Twp., extreme western Luzerne Co., a large marsh-meadow especially productive of *Lethe* and *Cercyonis*. This is in the *Limenitis* introgression zone and produces numerous "hybrids". Ehle sent in his usual detailed report of Lancaster Co. diurnal ups-and-downs, noting 1973 as especially featured by the nymphalids; almost all "possible" species were seen or taken, including *S. idalia* and *E. claudia*. *E. phaeton* continued swarming in its colonies, defoliating ash saplings. Other species high were *A. delaware* (in dense marsh, early July); *S. melinus* (heavy brood in late July); *E. lisa* (July brood normal but Sept. brood large); *D. plexippus* (building up through the season, with SE migration of "one per minute" Sept. 16, along RR bordering the Susquehanna R.); 3 specimens of *H. metea*, the first in many years; 4 *L. thoe* in early Oct., a species last seen in 1958.

MARYLAND: Fee, at Conowingo, Cecil Co., found *G. marcellus* common on May 10 but rare in the late July-early Aug. brood. *M. nycteis* was observed on June 28 and Aug. 9, associated with *Actinomeris alternifolia* and with larvae heavily parasitized by Diptera.

NORTHEAST GENERALITIES: A few notes to indicate some outstanding 1973 data quirks: *N. vau-album* is on the upswing in Canada--will it penetrate down the Seaboard in another year or two? *P. coenia* evidently is expanding and probably now overwintering farther north than ever before. *E. ontario* was the big hairstreak news. *E. lisa* had a good but not spectacular expansion. *Erynnis* species were up in many areas. Species like *T. lineola* and *P. rapae* appeared to be "quiet". Western buffs will be happy to know that we shared their *cardui* invasion. Both *A. lyciades* and *E. clarus* were noted as expansionary.

ZONE 8: THE FAR NORTH: ALASKA AND NORTHERN CANADA. Coordinator: Kenelm W. Philip. Contributors: John A. DeBenedictis, James Ebner, Clifford D. Ferris, Helmut P. Kimmich, K. Philip and collectors for the Alaska Lepidoptera Survey.

Note regarding Alaska Lepidoptera Survey: The Smithsonian Institution (NMNH) funded the operations of the ALS for the 1973 field season. Since the eastern North Slope was still very poorly covered, this grant was used to put two consecutive field parties at Lake Schrader, at the north foot of the Brooks Range in the Arctic National Wildlife Range, NE Alaska. Williams Brothers, Inc., provided free transportation from Fairbanks to the Kavik River Camp, about 60 miles from Lake Schrader. The advance party (C. Parker, H. Parker) was taken in on 5 June, and was replaced on 1 July by the main party (J. F. G. Clarke, K. Philip) who stayed through 26 July. An ALS volunteer (C. Batten) collected all summer through 5 August. In all, most of the insect flight season was covered. Despite exceedingly poor weather, 3456 butterflies (see below for species list) and 661 moths were obtained. Both parties also collected at the Kavik River camp.

The ALS again equipped volunteer collectors, of whom 90 brought in over 5000 specimens from 220 localities in Alaska, Yukon Territory, and Northwest Territories. Two UV light traps near Fairbanks and one in Glennallen provided 2200 moths (chiefly Noctuidae, plus some micros and Geometridae). The 1973 collecting season total was 11,500 specimens, bringing the ALS collection to 34,000 specimens. The report is limited to previously unreported localities or species, with collecting by ALS volunteers unless noted.

NORTHWEST TERRITORIES: Range extensions: *Thorybes pylades* from Fort Smith (CNC has additional material, unpublished). Baker Lake, 20 June to 28 July. Ebner reports the usual species (see 1971 Summary, minus *N. j-album*, plus *B. napaea*) with the addition of 8 specimens of *Vanessa cardui* - the first Baker Lake record since 1966. Hutchison Bay, 14 July: *Colias hecla*, *C. nastes*, *Agriades aquilo*, *Boloria frigga*, *B. improba*, *B. polaris*, *B. chariclea*, *Oeneis bore?*, *Erebia rossii*. Tununuk Point, 11 June to 29 July: Species added to last year: *Pieris occidentalis*, *Boloria napaea*, *Oeneis bore*. Inuvik, 20 May to 1 August: Added species: *Colias philodice*, *Euchloe creusa*, *Limenitis arthemis*, *Polygonia faunus*, *Boloria polaris*, *B. chariclea*, *Erebia disa*. Travailant Lake, 19-20 June: *Hesperia manitoba*, *Pyrgus centaureae*, *Pieris occidentalis*, *Boloria freija*, *B. chariclea*, *B. eunomia*. Fort Smith, 6 May to 7 September: Added species: *Vanessa cardui* (had a very good summer in northern Canada), *Phyciodes* sp. (undetermined, *tharos/batesii* complex), *Thorybes pylades*.

YUKON TERRITORY: Shoalwater Bay, 6 July: *Euchloe creusa*, *Boloria frigga*, *Oeneis bore?*, *Erebia rossii*, *E. disa*. Carmacks, 16 June: *Euchloe ausonides*, *Oeneis chryxus*. Dempster Highway, mile 51, 17 June to 4 July: *Parnassius eversmanni*, *Papilio machaon*, *Pieris napi*, *Boloria freija*, *Erebia fasciata*, *E. theano*, *E. youngi*. Dempster Highway, mile 76-77, 11-19 June: *Pieris occidentalis*, *P. napi*, *Colias philodice*, *Coenonympha mixturata*. Dempster Highway, mile 87, 1-16 July: *Hesperia manitoba*, *Pieris occidentalis*, *Colias hecla*, *C. palaeno*, *Euchloe creusa*, *Lycaeides argyrognomon*, *Vacciniina optilete*, *Everes amyntula*, *Boloria frigga*, *B. polaris*, *B. chariclea*, *B. eunomia*, *Coenonympha mixturata*, *Oeneis bore*, *O. Melissa*, *Erebia rossii*, *E. disa*, *E. discoidalis*, *E. theano*, *E. dabanensis?* Dempster Highway, mile 97, 3 July: *Boloria distincta*, *Erebia mackinleyensis*. Kimmich reports *Oeneis jutta* at miles 11 and 26 Dempster Highway, 27 June, and *Phyciodes campestris* at mile 130 Dempster Highway, 26 June. Haines Junction and vicinity, 4-5 July: Kimmich reports: *Colias hecla*, *C. philodice*, *Phyciodes campestris*, *Boloria chariclea*. Kimmich also obtained *Parnassius phoebus yukonensis* along Y. T. highway 7, 2 July; and *Agriades aquilo* at mile 25, Y. T. highway 5, 29 June.

NORTHERN MANITOBA: Range extensions: *Erebia disa mancinus* and *Vacciniina optilete yukona* from Churchill



(Ferris). Churchill: late June to mid-July: Ferris reports: *Pyrgus centaureae freija*, *Colias hecla*, *C. gigantea*, *C. palaeno*, *C. nastes*, *Agriades aquilo*, *Boloria frigga*, *B. polaris*, *B. freija*, *B. titania*, *B. eunomia*, *Oeneis jutta*, *O. melissa*, *O. polixenes*, *Erebia rossii*, *E. theano canadensis*.

NORTHERN ALBERTA: Pine Lake: 23-24 May, 31 July: Erynnis icelus, Pieris napi, Colias christina, Euchloe creusa, Incisalia augustinus, I. polios, I. eryphon, Celastrina argiolus, Nymphalis antiopa, Polygonia faunus, P. gracilis, Phyciodes campestris?, Boloria freija, B. titania, Speyeria sp., Erebia discoidalis.

NORTHERN BRITISH COLUMBIA: Atlin: 30 June to 1 July: Kimmich reports: Colias pelidne/philodice, Boloria frigga, B. chariclea, Oeneis jutta, O. chryxus, Erebia disa, E. discoidalis, E. epipsodea.

ALASKA: Weather: Interior Alaska had an exceedingly early spring (the first Nymphalis antiopa of the season was sighted on the University of Alaska campus on 4 April), but in mid-summer the weather on the North Slope, most of the Brooks Range, and the Seward Peninsula was very poor indeed, with days of rain, snow, and gale-force winds interspersed by occasional periods of good collecting. The main party at Lake Schrader had 7 days of good collecting and 6 half days out of nearly a month, and the advance party fared little better. Collecting on the northern Seward Peninsula was hampered by winds up to 60 knots - all in all a pretty miserable season.

STATE RECORD: Oeneis uhleri cairnesi, Marsh Fork of Canning River, E. N. Slope.

RANGE EXTENSIONS: Euchloe creusa from the Kavik River (69°41'N, 146°55'W) - the northernmost record yet obtained. Euchloe creusa from Lake Kikitaliorak, Noatak River valley - a 170 mile extension to the WNW. Both records are from tundra habitats, where the species appears to be associated with willow thickets. Nymphalis antiopa (sight record by K. Philip) from the Kavik River (69°41'N, etc.) - the first North Slope record (willow thicket). Pyrgus centaureae from 5½ miles S of Noatak Village (Arviriaq, on the Eli River); from Camp Denali (near Kantishna, just N of McKinley Park); from Tolsona Crossing on the Glenn Highway; and from the Gulkana River 10 miles above its confluence with the West Fork. Only previous Alaskan records for P. centaureae were from Rampart (Yukon River) and Canning River (eastern North Slope). Boloria distincta, from Lava Lake, N central Seward Peninsula. Parabarrovia keelei (?) from Lake Schrader (the second Alaskan specimen). Acerbia alpina (ex pupa) from Harrison Creek Road, near Eagle Summit (the sixth North American specimen, first not on Arctic Ocean coast).

NEW COLLECTING LOCALITIES: Lake Schrader (by float plane from Barter Island, Bettles, Fort Yukon, etc., after breakup in July, by ski plane before breakup in early June, and by helicopter or foot during breakup supports the largest number of species of butterflies yet found at a single locality in tundra habitats in Arctic North America - 30 species (over 40% of the currently known Alaskan butterflies). Permission to collect in the Arctic National Wildlife Range should be secured from the Range Manager (Averill S. Thayer, Bureau of Sport Fisheries and Wildlife, 1412 Airport Way, Fairbanks, AL. 99701).

Kavik River, 69°41'N, 146°55'W, 29-30 June, 2-3, 27 July: Added species: Pieris occidentalis, P. napi, Euchloe creusa, Lycaeides argyrognomon, Glaucopsyche lygdamus, Oeneis bore, O. polixenes (and one sight record of Nymphalis antiopa). Lake Schrader/Lake Peters, 7 June to 5 August: Parnassius eversmanni, Papilio machaon, Pieris occidentalis, P. napi, Colias hecla, C. boothii, C. palaeno, C. nastes, Euchloe creusa, Lycaena phlaeas, Lycaeides argyrognomon, Glaucopsyche lygdamus, Agriades aquilo, Boloria napaea, B. frigga, B. improba, B. polaris, B. freija, B. chariclea, B. eunomia, Oeneis bore, O. melissa, O. polixenes, Erebia rossii, E. disa, E. mackinleyensis, E. fasciata, E. theano, E. youngi, E. dabanensis? J. F. Gates Clarke is working up the moths from Lake Schrader.

Marsh Fork of the Canning River, 69°03'-14'N, 145°52'-146°08'W, 5 June to 4 July: Parnassius eversmanni, Papilio machaon, Pieris occidentalis, P. napi, Colias hecla, C. thula/boothii, C. nastes, Euchloe creusa, Lycaeides argyrognomon, Glaucopsyche lygdamus, Boloria napaea, B. polaris, B. freija, B. chariclea, Oeneis bore, O. uhleri, Erebia rossii, E. disa, E. fasciata, E. youngi. Killik River, from Easter Creek to mouth (on Colville River), 3-28 July: Papilio machaon, Pieris napi, Lycaeides argyrognomon, Glaucopsyche lygdamus, Boloria freija, Oeneis bore, O. polixenes, Erebia fasciata. Atigun River, E of Galbraith Lake, 13 June to 8 August: Parnassius eversmanni, Pieris napi, Boloria freija, Oeneis bore, Erebia fasciata, E. theano. The localities above are all on the North Slope, and are tundra habitats. Elevations range from 600 feet (Kavik River) to over 5000 feet (the highest sites collected at Lake Schrader).

Noatak River Valley, 22 June to 21 August. The National Park Service sponsored a biological inventory of the Noatak basin during the summer of 1973. Entomological investigations were carried out by Dr. Robert I. Gara, College of Forest Resources, University of Washington. He supplied ALS with records and deposited voucher specimens in the ALS collection. Collections made at: Noatak delta, Noatak Village (including Arviriaq), Lake Feniak, un-named lake 4 miles W of upper Cutler River, Lake Kikitaliorak, Lake Kipmik, Amurat Creek vicinity. Species recorded: Pyrgus centaureae, Parnassius eversmanni, Papilio machaon, Pieris napi, Colias hecla, C. philodice, C. palaeno, C. nastes, C. gigantea?, Euchloe creusa, Lycaena dorcus, Lycaeides argyrognomon, Agriades aquilo, Vacciniina optilete, Glaucopsyche lygdamus, Nymphalis antiopa, Boloria napaea, B. frigga, B. improba, B. polaris, B. freija, B. chariclea, Oeneis bore, O. melissa, O. polixenes, Erebia rossii, E. disa, E. fasciata, E. youngi. Imuruk Lake, 13-19 July: Papilio machaon, Pieris napi, Colias palaeno, Boloria napaea, B. frigga, B. chariclea, Coenonympha mixturata, Oeneis bore, Erebia rossii. Lava Lake, 9 July: Papilio machaon, Colias palaeno, Vacciniina optilete, Boloria frigga, B. freija, B. distincta, B. chariclea, Coenonympha mixturata, Oeneis bore, Erebia disa, E. fasciata (Imuruk Lava Fields, N central Seward Peninsula). North Killiak Lake (below Cape Espenberg - extreme N tip of Seward Peninsula), 28 June: Papilio machaon, Pieris napi, Boloria frigga, Erebia rossii, E. disa. Nahtuk Creek, Alatna River, 18-30 June: Hesperia manitoba, Erynnis persius, Papilio machaon, Pieris occidentalis, P. napi, Lycaeides argyrognomon, Everes amyntula, Glaucopsyche lygdamus, Polygonia faunus, Boloria polaris, B. chariclea, Oen. bore, O. jutta, Erebia discoidalis. Bettles, 8 May to 7 June: Papilio machaon, Incisalia augustinus, Celastrina argiolus, Nymphalis antiopa, Polygonia faunus. Boloria freija, Erebia discoidalis. (South slope of Brooks Range, in taiga habitats.) If collecting is done early, I. augustinus extends to nearly the

northern limit of the taiga in Alaska.

Steese Highway, mile 102, 23-27 June: DeBenedictis reports: *Parnassius eversmanni*, *Erebia theano*, and usual species at Eagle Summit, and mile 53 Steese Highway. Richardson Highway, mile 332, 22 and 25 June. DeBenedictis reports: *Papilio glaucus*, *P. machaon*, *Colias palaeno*, *C. gigantea*, *Euchloe* sp., *Glaucopsyche lygdamus*, *Nymphalis antiopa*, *Polygonia gracilis*, *Limnitis arthemis*, *Boloria frigga*, *B. chariclea*, *B. eunomia*, *Coenonympha mixturata*, *Oeneis jutta*, *Erebia disa*. Murphy Dome, Fairbanks and vicinity, 10 April to 6 September: Usual species plus following odd-year species: *Boloria polaris*, *B. chariclea*, *Oeneis jutta*, *O. polixenes* (below treeline), *Erebia disa*. Delta Junction and vicinity, 12 June to 18 August: *Papilio machaon*, *P. glaucus*, *Pieris napi*, *Colias philodice*, *Lycaena dorcas*, *Lycaeides argyrognomon*, *Vacciniina optilete*, *Everes amyntula*, *Limnitis arthemis*, *Nymphalis antiopa*, *Phyciodes campestris*, *Boloria frigga*, *B. titania*, *B. eunomia*, *Coenonympha mixturata*, *Oeneis bore*, *O. jutta*, *Erebia disa*, *E. epipsodea*. Gulkana River, 10 miles above West Fork, 21 June to 25 July: *Pyrgus centaureae*, *Carterocephalus palaemon*, *Pieris napi*, *Colias palaeno*, *Lycaena dorcas*, *Glaucopsyche lygdamus*, *Vacciniina optilete*, *Celastrina argiolus*, *Boloria frigga*, *B. freija*, *B. chariclea*, *Coenonympha mixturata*, *Oeneis bore*, *O. jutta*, *Erebia disa*, *E. discoidalis*. (In 1972, the following: *Hesperia manitoba*, *Colias philodice*, *C. gigantea*, *Plebejus saepiolus*, *Boloria eunomia*.)

Glennallen, 5 May to 9 August: Added species: *Pieris napi*, *Colias palaeno*, *Glaucopsyche lygdamus*, *Coenonympha mixturata*, *Oeneis jutta*, *Erebia disa*. Denali Highway, mile 13, 17 June: *Parnassius eversmanni*, *Papilio machaon*, *Erebia fasciata*. The three localities above are all south of the Alaska Range. The first two are taiga habitats, but the Denali Highway locality is tundra. Iliamna Village, N side Iliamna Lake, base of Alaska Peninsula, 25 June to 5 October: *Papilio machaon*, *Pieris napi*, *Colias palaeno*, *Celastrina argiolus*, *Nymphalis antiopa*, *Boloria frigga*, *B. chariclea*, *Oen. bore?*, *O. jutta*. Popof Island/Unga Island, Shumagin Islands, 19 June to 2 November: *Pieris napi*. A large batch of undetermined moths taken.

UNUSUAL ABUNDANCES: *Papilio glaucus* was exceedingly common in the Interior, while *P. machaon* became a trash species (heresy?) on the North Slope.

ZONE 9: NORTHERN NEOTROPICS: MEXICO and CENTRAL AMERICA. Coordinator: Eduardo C. Welling M. Contributors: Edward Gage, Eduardo Welling.

WEATHER SUMMARY: 1973 could be considered generally normal for rainfall, except in the Sierra Volcanica Transversal of southern Mexico, where severe inundations occurred. Heavy rains in northern Baja California Norte indicated a possible good collecting year, but that was not the case; however, in Baja California Sur collecting was excellent (personal communication by Herman Real). The tendency to rain torrentially every day of the rainy season in Yucatan during 1971 and 1972 diminished in 1973, and in some parts of the peninsula rainfall could be called normal, perhaps somewhat spotty in places.

BAJA CALIFORNIA NORTE: Welling collected from late April to late May in this area. Collecting was disappointing as better was expected because of the best early rains in years. Due to the lateness of the collecting, many species may have been past their peak flights. At Loma Tova, Mpio, Tecate, 1025 m. elev., many *C. eurytheme*, few *C. harfordi*, *P. zelicaon*, *P. protodice*, single specimens of *P. icarioides*, *P. piasus*, and *A. sara* were taken, on 18-19 May. At Tecate 550 m. elev., 25-27 April, many *E. chalcedona*, *A. sara*, *P. protodice*, *C. eurytheme*, *A. mormo*, and single captures of *G. lygdamus*, *P. eurymedon*, and *M. gabii* were taken. At La Rumorosa, 1275 m. elev., 24 April, *A. mormo* was exceedingly common and in good condition. At La Mesa, Mpio. Tijuana, *P. rapae* very common, with few single specimens of *N. antiopa*, *A. vanillae*, and *Z. cesonia* taken or seen. At El Canon de San Miguel, Mpio. Ensenada, several *Z. cesonia* were taken, along with *A. sara*, *B. exilis*, *E. amyntula*, *P. protodice*, *P. rapae*, *E. nicippe*, *N. iole*, *D. gilippus*, *J. coenia*, with single specimens of *C. californica*, *P. rutulus*, *V. carye*, *A. texana*, *P. battoides*, *C. harfordi*.

NUevo LEON: Ed Gage sent the list of the following species taken by himself and L. Brown at the waterfalls just south of Monterrey, including *Papilio philenor*, *pilumnus*, *garamas*, *palamedes*, *cresphontes*, and *polyxenes*, *Z. cesonia*, *C. eurytheme*, *P. protodice*, *S. melinus*, *D. gilippus*, *P. tharos*, *Calycopis* sp., *E. mexicana*, *A. andria*, *Eumaeas debora*, *Achylodes thraso*, *Antigonus pulverulenta*, *Heliopetes macaira*, *Chioides catillus*, *Urbanus eurycles*, and *Phocides lilea*, all taken in 4 hours on March 14.

QUINTANA ROO: Collecting began late, and it was noticed that populations were very late, some late-May and early-June flights not occurring until August.

OAXACA: Collecting might be called excellent for the northern part of the state, equatorial lowlands bordering the state of Veracruz. *Papilio*, *Ageronia laodamia*, *Myscelia*, *Anaea*, and others having good flights.

CHIAPAS: Collecting was poor until late July, when many things behind schedule began flying in good numbers, much more so than the last two or three years. An excellent year.

BRITISH HONDURAS (BELICE): Welling collected near Middlesex, Stann Creek District, in December 1973, and found very few things out, except for three fresh specimens of *Antirrhea miltiades* (Satyridae), a species well worth the trip!

ZONE 10: SOUTH AMERICA. Coordinator: Thomas C. Emmel. Contributors: Heinz Ebert, Boyce A. Drummond, Thomas C. Emmel. Ebert's report also summarizes collecting contributions by Karl R. Ebert, Manod Martins Dias Jr., Hans Dirk, Sr. Callaghan/Rio, Sergio Zavan, A. E. Rosa, and Ruben Zarpalao.

ECUADOR: Excellent collecting in the eastern Amazonian area was again found at Limoncocha, a missionary station on the Rio Napo. Emmel and Drummond took several hundred species in a week in July, and Drummond returned to this site in early November to begin 14 months of continuous field work on local butterfly populations, especially mimicry complexes. Over 40 species of Ithomiines have been taken within a mile

of the base. Excellent collecting for butterflies (under special permit) was found by Emmel and Drummond in June and July in the Galapagos Islands (especially James, Isabela, Narborough, Santa Cruz, and San Cristobal Islands). This time of year, following the rainy period of March and April, was superior to collecting conditions found during other expeditions in the month of December (1972 and 1973). Eleven species of butterflies are now recorded for the Galapagos (details to be published elsewhere).

**BRAZIL:** An outstanding and detailed report on the 1973 field season in this huge country (5th largest land area in the world) was submitted by Ebert, who is systematically studying the total faunas of diverse regions throughout Brazil to determine the effects of Pleistocene climatic changes on tropical American fauna.

Santa Catarina, especially its nearly unexplored highlands (the fauna of the coastal lowlands is better known). Collections made at Sao Joaquim (1300 m; SJ) from 2 to 4 February; at Lages (950 m; L), from 5 to 8 February; and near Curitiba (850 to 1050 m; Cb) from 21 to 24 February. Included are some observations near Sao Bento do Sul and Campo Alegre (SB and CA, 800-900 m; 2-5 December 1969 and 12-17 January 1971) and near Sao Francisco de Paula (Rio Grande do Sul, 800 m; 30 January 1973; SF) and interesting species in collections of Fritz Plaumann at Nova Teutonia, Municip. of Seara (Western Sa. Catarina, 300 m; NT) and Hans Wulff at Agrolandia (500-800 m; A). Notable species are: ACR.: *Act. alalia* ssp. (SB), *genitrix* (SB); BRASS.: *Blepolepis bassus* (SB, CA, Gramado (RS), SJ), *didymaon* (SB, CA, L), *Dyn. napoleon* (SB), *Penetes pamphanis* (NT), *Opoptera sulcius* (Gramado (RS), NT); HEL.: *Helic. hybr. besckei/narcaeae* (A); HESP.: *Conga iheringi* (everywhere on the highlands), *C. zela* (SJ, L), *Cop. jean favor* (SF, Cb), *Cumbre belli belli* (as *Co. ih.*), *Monca telata penda* (SJ, L, NT), *Dardarina jonasi* (L, Cb), *Thesp. catochra* (Cb), *Artsatyr* (NT), *Arita arita* (NT), *Croniades machaon* (Cb), *Urb. zagorus* (as *Co. ih.*), *Oxynetra roscius roscius* (SJ, NT), *Sarbia antias* (NT), *Elb. adonis* (NT), *Phoc. pialia parva* (CA, Cb, NT), *charon* (NT), *Aguna williamsi* (NT), *Astr. erycina* (NT). LYC.: "*Thecla*" *bertha* (NT), *thordesa* (NT), *claatia* (NT), *arzea* (NT), *conchylum* (NT) *torris* (NT); MORPH.: *violaceus* at the east of the watershed, no form of *achilles* at the west of it; NYMPH.: *Eupt. hortensia* (SJ, L, NT), *Memphis hirta* (SF, L), *polyxo* (NT), *Eun. caelina* (A, NT), *europa* (A), *Prep. catachlora* (A, NT), *chalciope* (A, NT), *pseudomeander* (SB, NT), *pylene* (Cb, NT), *laertes* (NT); PAP.: *Euryades corethrus* (Cb, NT; much more to the North as hitherto known), *Parides* sp. n. (white and red; no black color, 2, A), *perrhebus* (NT, SF, A), *Pyrrhosticta cleotas* (A), *scamander eurymedon* (Cb), *Protesilaus helios* (Cb), *stenodesmus* (NT), *nigricornis* (NT); PIER.: *Col. pyrrhothoa* (SJ), *Theochila maenacte maenacte* (L, SB, Cb), *Tat. autodice* (A, SB), *Dism. melia* (Cb), *Hesperocharis paranaensis* (as *Co. ih.*); RIOD.: *Eur. carolina* (A), *Audre aurinia* (Cb, L), *Eus. eucerus* (SB, NT), *Calydna cephissa* (NT); SAT.: *Neomaenas reticulata* (SJ, Cb); "*Euptychia*" *ocelloides* (L, Cb), *gibsoni* (Cb), *ambra* (NT); *Tayg. acuta* (SB, A, CA), *tripunctata* (NT). Total number of sp. from the higher and western parts of Santa Catarina may be 500 to 600, nearly half of them Hesperidae; for all the State of Sa. Catarina, including the tropical lowlands in the East, this number may reach 900 to 1000.

Apiai, 800 m, at the Sao Paulo-Parana border. The two white sp. of *Morpho*, *catenarius* (the southern sp.) and *epistrophus* (generally known by the older, but homonymous name "*laertes*"; the northern form), were found here, flying together.

The "Alto Parana", with the country of Pereira Barreto at the eastern bank (SP; remnants of forest in the "Fazenda Nova Estrela") and the commune of Selviria at the western bank (Mato Grosso; "cerrado" with weak woods along the water courses). This area of  $\pm 300$  m altitude is remarkable by its high content of equatorial (Hylaeae) forms, which may have moved over the Amazon-Parana watershed during a period of (hotter and ?) more humid climate during the Pleistocene, which led to contact between Hylaeae and Parana Forests, currently separated by a large belt of "cerrado". Only some species of this group may be mentioned: *Catacore kolya* (NYMPH.), *Amarynthia meneria* (RIOD.), *Heliconius sara* in the Amazonian ssp. *thamar* (HEL.), *Heronia labriaris* (HESP.), *Lasaia meris* (RIOD.), *Sais rosalia rosalia* (ITH.), *Hypothyris euclea* ssp. (ITH.). When the climate became dryer and the "cerrado" replaced the former forest, the relatively humid and hot zone of the "Alto Parana" served as an isolated refuge for the Hylaeae species. Some of these species advanced more southeasterly and to higher areas: *Am. meneria* and *Cat. kolya* to Mirassol (500 m), *Nymphidium chaonia* (RIOD.) to Sao Carlos (800 m), *Amphidecta reynoldsi* (SAT.) to Anhembi (500 m) and *Hyp. euclea* ssp. to Mogi Guacu (600 m).

The middle course of the Rio Doce (State of Minas Gerais). Here, in an area of some thousands of square miles of the old "Zona da Mata" (= Forest Zone), in which only a remnant of the primary vegetation has been conserved, and where otherwise the term "forest" signifies artificial plantations of Australian Eucalyptus or Mexican Pines, the Rio Doce State Forest Reserve offers a unique opportunity for the study of the original flora and fauna. Thanks to the excellent cooperation of the State Forest Service of Minas Gerais we were able to collect on July 26-30, Sept. 6-9, Dec. 12-16, 1972. Determined are ACR. (2 sp.); BRASS. (6 sp.); DAN. (2 sp.); HEL. (10 sp.); HESP. (80 sp., remarkable: *Ve. lafresnayi pica*, *Marela thamyroides*, *Qu. fanda*, *Abl. vulpinus vulpinus*, *Astr. parisi parisi*, *Urb. chalciope*); ITH. (14 sp., rem.: *Sais rosalia rosalia*); LYC. (35 sp., rem.: *Lorkovitchina cogina*, *Calyc. cissusa*, *Er. gabriela*, *Mac. satyriodes aganippe*, "*Thecla*" *thordesa*); MORPH. only one sp. (*ach. bahiana*); NYMPH. (73 sp., rem.: *Call. texa maximilla*, *Agr. claudina claudina*, *Me. xenocles marginalis*, *arachne victoria*, *Prep. catachlora*, *eugenes decorata*, *Zar. itys vulpecula*, *Libyth. cuvieri*, *Tem. hubneri*, *Eun. volumina* - a new species also from Pernambuco and Acre, *Ham. chloe rhea*, *Ad. goyama*, *lerna*, *Phyc. dicoma*); PAP. (8 sp., rem.: *Protes. nigricornis*); PIER. (17 sp.); RIOD. (39 sp., rem.: *Eus. eucerus*, *mys lara*, *Ant. acheus ampy*, *Barb. dibaphina*, *Phaenoch. mandosa*, *Semom. geminus*, *Symm. accusatrix*, *probetor*); SAT. (24 sp., rem.: *Eupt. brixiola*, *byses*, *herseis*, *libye*, *Tayg. kerea*, *leuctra*, *mermeria*, *penelea*, *sisis*).

To this number of 310 sp. will be added  $\pm 25$  others, still awaiting determination. This number is surprisingly low for a primary forest locality at 20° latitude, with 21 collecting days, two collectors and generally fine weather. The total number of species of the reserve must be lower than 500. Remarkable is the following: (a) Certain species are typical for the coastal plains of Espirito Sant. They must have passed through the "Serra do Mar" along the incision of the Rio Doce, arriving finally in the basin

of the middle Rio Doce. Today this path is closed in consequence of the almost complete destruction of primary forest along the gorge of the Rio Doce. These species are to be found more frequently at the Forest reserves near Linhares (Esp. Sa.), which will be studied in the near future. (b) Nearly half of the primary woods of the Rio Doce State Reserve had been destroyed by fire in October 1967. Meanwhile, a dense secondary growth low forest developed in this area (+ 1000 square kms). It is not surprising that species such as *Eunica*, *Hamadryas*, *Prepona* (and *Agrias*), *Phoebis* a.s.o. are found in great quantity in such recently grown woods. As these species possess a high capacity for flight, they have a strong tendency to migrate. It is very notable, however, that species with low flight capacity as *Mech. lysimnia*, *Tayg. sosis*, *Libyth. cuvieri*, *Parides nephalion* and some "*Thecla*" already are quite frequent in the center of the burned area, only 4½ years after the total destruction of the vegetation and at a distance of + 10 kms from the contact between totally burned and conserved forest. Such migratory recolonization rates are very surprising. During the next years the arrival of other, slowly flying species in the center of the burned area, as *Callicore*, *Riodinidae*, etc., is anticipated. Our long-term observations of rates of re-population of a destroyed area may be helpful for the understanding of butterfly migrations during the Pleistocene as consequences of a modified climate and flora.

The *Cruzeiro do Sul* County in the State of Acre has been the object of special studies since 1972. This area is of interest as it may be the path of immigration of Bolivian and Peruvian forms into the Amazonian Basin. This hypothesis was fully satisfied by Ebert's observations from which the following is a short summary. The study base has been the "far campus" of the State University of Campinas (SP), maintained in the *Cruzeiro do Sul* County by the "Rondon Mission" of the Ministry of Interior of the Brazilian Federal Government. As the surroundings of the "Campus" are nearly cleared of primary vegetation, the collectors did the greater part of their work near military settlements along the "Transamazonian Highway", under construction at present. Intensive collections were made during these periods: Sept. 1972, Oct. 1972, mid July to start of Aug. 1973, and Oct. 1973. Difficulties of transport and bad weather restricted intensive collecting to normally two or at most three days per week. Occasional collecting has been done in April/May 1972 by Sergio Zavan, Sept. 1972 by Ademilson E. Rosa, and Aug. 1973 by Rubem Zarpalao.

A great part of the material collected has been determined, giving the following number of species per family (still undetermined or new species given in brackets): ACR. 1, BRASS. 8, DAN. 3, HELIC. 15 (1), Hesp. 77 (12), ITHOM. 35 (5), LYC. 22 (9), MORPH. 6, NYMPH. 112 (4), PAPIL. 20, PIER. 23, RIOD. 72 (2), SATYR. 42 (4); Total: 436 (+ 37) spp. A rapid check of the material still in preparation leads Ebert to expect a total number of species of 600-650, a value surprisingly low for an equatorial primary forest region, explored by 5 full time and 3 occasional collectors during 5 months and at a dozen different localities, with many kms distance between them. Especially shocking is the low number of *Lycaenids*: "*Thecla*" appear in these forests as extreme rarities with the exception of the more common "*beon*". For such species as *marsyas* or *hemon*, otherwise common in Brazil, only two or three specimens were found during 5 months. Also, members of the subfamily *Charaxinae* were found very rarely; no *Prepona* was caught, and no *Agrias* seen. Bait traps were very ineffective -- in sharp contrast with Mato Grosso, Goiás, Minas Gerais and São Paulo, where they normally are full of *Prepona*, *Callicore*, *Hamadryas*, *Taygetis*, etc., during the dry months. It should be noted that the months of April to October are the only ones where weather gives some chance of collecting in Acre. From November to March rains are so heavy and frequent that nearly every road is impassable even for a four-wheel-drive vehicle.

The following species indicate the immigration of Peruvian-Bolivian forms into the Brazilian Amazonian basin, or are otherwise interesting: *Act. equatorialis*, *Helic. aristiona arcuella* and *timaues*, *Python. grandis*, *Elbella etna etna*, *Jem. hospita*, *Celaen. sylus*, *Mascus broteas prax*, *Aeria eurimedia agricola*, *Aremfoxia ferra* ssp. n., *Ceratinia tutia* ssp. n., *God. zav. zavaleta*, *Hypoth. fulminans angelina*, *anastasia* ssp. n., *Mech. lys. elisa*, *Napeog. pyrro deucalion*, *Scada batesi*, *majuscula* ssp. n., *Tmolus fabulla*, *Theclopsis lydis*, "*Thecla*" *naphyretica*, *Doxoc. griseldis*, *alvinia*, *linda*, *pavon*, *Call. hesperis*, *Callithea bartletti*, *degandii* ssp. n., *hewitsoni*, *optima*, *Mecicla*, *Polygr. xen. xenocrates*, *Caton. salacia*, *boyi*, *Ne. hewitsoni*, *Tem. hubneri*, *Eunica* (15 sp., among them 1 sp. n.), *Adelpha* (15 sp.), *Dynamine* (12 sp.), *Marpesia* (10 sp.), *Eresia perilla perilla*, *peloria*, *Phyc. sp. n.*, *Euryt. callias*, *Graphium pausanias*, *trapeza*, *Dism. staudingeri*, *Hesp. nera nirvana*, *Cunizza hirlanda ninguída*, *Itab. pisonis pisonis*, *Eusel. cafusa cafusa*, *orfita jugata*, *Ancyl. etias*, *Caria trochilus arete*, *Eur. halimede stellifera*, *Ithom. arcuella*, *Mesos. jud. judicialis*, *lamprosa*, *sirenia*, *Pachyth. xanthe*, *Syn. ochra* ssp. n., *pelope*, *gela*, *Antirrhea hela*, "*Euptychia*" *analís*, *callichloris*, *fallax*, *insignis*, *proba*, *picea*, *tolumnia*, *Tayg. blanda*, *celia*, *Cith. aurorina*, *Manat. hercyna*.

On the way to Acre, Ebert and son Karl collected four days at the famous locality "Buriti" at the Serra dos Guimaraes, 1½ hours with jeep distant from the Capital of Mato Grosso, Cuiabá (13/14-July and 8/9 Aug.). Despite strong drought (4 months without rain), the number of species and specimens were much greater than, some days, in the humid forests of Acre: between 100 and 150 species every day, + 300 in total, whereas in the Acre, 60 species were a very fine result for one day, many days giving less than 20 and the total result was + 250 during three weeks. Thus during these four days they collected more species and specimens than in three weeks in the Acre. Remarkable were: HEL.: *Helic. ethilla* cf. *numismaticus*, *Sem. vibilia unifasciata*; HESP.: an entire unknown yellow-brown banded great Urbanine (on wet rocks), *Clito bibulus*, *zompa*; *Cogia hassan evansi*, *grandis*, *cerradicola*; *Marela tamyrís tamyrís*; *Sophista latefasciata* *matto*; *Zopyrion reticulata*; *Elb. azeta azeta*; *Jem. hewitsonius brevipennis*; *Microceris variicolor*; *Aguna camagura*, *coelus*; *Thyphed. crameri*; *Udran. spitzii*; ITH.: *Aeria elara* ssp. n., *Callith. alex. alexirhoe*, *Dirc. zellie epidero*, *Hypoth. euclea chapadensis*; NYMPH.: *Call. hystaspes*, *Catacore kolya*, *Paulogr. peristera pujoli*, *Agrias claudina godmani*, *amydon gloriosa*; *Prepona* (7 sp.) *amphimachus*, *demophon antimache*, *rothschildi cuyabensis*, *eugenes decorata*, *dem. demophon*, *dexamenes*, *pheridamas*; *Eun.* (9 sp.) *caelina*, *caresa*, *eurota flora*, *margarita lugens*, *macris*, *malvina*, *monima modesta*, *mygdonia*, *volumnia*; *Ad. thoasa*, *Dyn. arene*, *Phyc. angusta*; PAP.: *Protosil. leucas leucas*, *orthosilaus*, *tel. telesilaus*. PIER.: *Cunizza hirlanda phanesia*, *Mel. lycymnia bianca*. LYC., RIOD., SAT.: Still undermined. Ebert notes that the 1973-74 summer (Nov.-Feb. 1st) was the rainiest summer since his arrival in Brazil in 1970, and with daily rain, no collecting has been possible for three months in southern Brazil.

25th ANNUAL MEETING  
THE LEPIDOPTERISTS' SOCIETY  
concurrent with the  
21st ANNUAL MEETING, PACIFIC SLOPE SECTION  
August 22-25, 1974  
Los Angeles, California

The 1974 Annual Meeting of The Lepidopterists' Society, co-sponsored by the Natural History Museum of Los Angeles County and the Lorquin Entomological Society, will be held at the Natural History Museum in Exposition Park, Los Angeles.

The program will feature symposia on Arctic Lepidoptera and the Lepidoptera of Baja California, Mexico, along with contributed papers and an open house in the Entomology Collection.

All North American members of the Society should have received a formal announcement in the mail, along with a Call for Papers and a Pre-Registration and Accommodations Request Form. Everyone who returns the Pre-Registration form will receive a packet crammed with information on things to see and do in Southern California. If you need additional forms, packets, or any other information, please contact Julian P. Donahue, Program and Local Arrangements Chairman, Natural History Museum, 900 Exposition Boulevard, Los Angeles, California 90007, U.S.A. (telephone Area Code 213, 746-0410, extension 252).

NOTICES:

Available to Lep. Society members, for 1-3 appearances. The Editor cannot guarantee any notices, but expects all are made in good faith.

FOR SALE: Official notice of sale of worldwide collection of 10,000+ Sphingidae, to the highest bidder. Only sincere need inquire, but please respond soon (cut-off of bids about 1 mo. after this notice appears). Phone bid if desired: Ar. Cd. 504, 673-3201. Vernon Brou, Rt. 3, Box 111, Prairieville, LA. 70769, U.S.A.

FOR SALE: Lepidoptera, incl. Saturnidae, Sphingidae, Ithomia, and Nymphalidae. Also many other insects from beetles to bees. Rosario de Lafebre, P.O. Box 1265, Quito, ECUADOR.

EXCHANGE: Will exchange, buy or determine any series or single specimens of Parnassidae. Curt Eisner, Kwekerijweg 5, Den Haag, NETHERLAND.

EXCHANGE: Many Papilionidae, Pieridae, Sphingidae, etc., from Asian parts of USSR (Tien-Shan, Pamirs, Altay) for Papilionidae (esp. Ornithoptera) and Saturnidae of world, also Morpho, Heliconiidae, Catagramma. Dr. D. S. Lastochkin, Poste Restante, Kiev-42, USSR.

EXCHANGE: Papered butterflies and moths from years of collecting in east U.S., Bahamas, and S. America. John J. Bowe, M.D., 249 Mountain Ave., Ridgewood, N.J. 07450, U.S.A.

WANTED: Living ova of Arctiidae from U.S. and Canada (after Aug. 10). Offer papered Rhopalocera from Europe and Turkey with full data. G. Hesselbarth, Johannstr. 6, D-2840 Diepholz, BR. DEUTSCHLAND.

EXCHANGE: Apodemia mormo mejicanus from Arizona and New Mexico for A. mormo cythera from Calif. or any mormo from Texas or Mexico. Greg Forbes, 1153 E. Montebello Circle, Phoenix, ARIZ. 85014, U.S.A.

WANTED: Ova of N. American and Mexican Sphingidae and Saturnidae, incl. Citheronia regalis. Bernd Lenzner, 7151 Affalterbach, Schillerstr. 29, GERMANY.

EXCHANGE: Ovae of Callosamia angulifera for Saturnid and Sphingid ovae of your area, in July and August. Please contact now to make arrangements. William Houtz, R.D. 1, Box 350A, Pine Grove, PA. 17963, U.S.A.

FOR SALE: Collection of the late Peter Siviter Smith: 8000 Lycaenidae ("Coppers") in seven 10-dwr. Hill cabinets (dispar well represented) and 6000 British and European Lep. in 3 cabinets with 56 drawers. Contact B. R. Catchside, P.O. Box 240, Birmingham B12 0RX, ENGLAND.

FOR SALE: Fabulous butterfly collection from W. Malaysia. 3,000 spms. of 853 species in 33 airtight boxes @ 11 x 16 in. Spread with full data, including index and maps to localities. Will sell only as complete collection; offers over 3,000 pounds sterling considered. WILCOCKS, 20 Cavendish Crescent, South Hornchurch, Essex, ENGLAND.

EXCHANGE: Want Catocala, Parnassius, and Erebia from outside N. America. Offer N. Amer. material for trade. Russell A. Rahn, 3214 W. Springdale Ave., Wausau, WISC. 54401, U.S.A.

EXCHANGE: Northern species of Lepidoptera for more southern types. Bonnie L. Ravy, 1013 N. Lark, Oshkosh, WISC. 54901, U.S.A.

FOR SALE: Butterflies of all groups, rare and common, for collectors or art-work, from Satipo, Tingo and Maria, Peru. Mr. Julio Hildebrando Rojas Villegas, Satipo, PERU.

EXCHANGE: Ohio butterflies for those from elsewhere. Newell Schwansberger, 926 S. Airport Hwy., Monclova, OHIO 43542, U.S.A.

FOR SALE: Ovae of C. regalis expected in early August, \$3.50/dozen or \$25/hundred. Also E. imperialis at \$1.95/dozen or \$15/C. Add 50¢ per order for mailing. Send remittance by July 15. R. Zebold, 30123 Rock Creek Dr., Southfield, MICH. 48076, U.S.A.

FOR SALE: Lane 25 drawer steel insect cabinets. Less than two years old. Price \$75.00. You pay the freight charges. Contact Mr. A. C. Allyn, 3701 Bay Shore Road, Sarasota, FLA. 33580, U.S.A.

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Memoirs of the Lepidopterists' Society, Number 1 (Feb., 1964)  
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**Membership** in the Lepidopterists' Society is open to all persons interested in any aspect of Lepidopterology. Prospective members should send the **Treasurer** the full dues for the current year (\$10, U.S.A.) together with full address and areas of interest in Lepidoptera. Remittances in dollars (U.S.A.) should be made payable to The Lepidopterists' Society. All members will receive the **JOURNAL** (published quarterly) and the **NEWS** (published bimonthly). A biennial membership list will comprise one issue of the **NEWS** in even-numbered years. Back issues of the **JOURNAL** may be purchased from the **TREASURER**.

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Manuscripts for publication in the **JOURNAL** are to be sent to the Editor, Dr. Theodore D. Sargent, Zoology Dept., Univ. of Massachusetts, Amherst, MASS. 01002, U.S.A. See the inside back cover of a copy of the **JOURNAL** for editorial policies.

Items for inclusion in the **NEWS** should be sent to the Editor, Ron Leuschner, 1900 John St., Manhattan Beach, CA. 90266, U.S.A.