

NEWS

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ZONE 1 THE FAR NORTH: ALASKA, YUKON and NORTHWEST TERRITORIES. Coordinator: Kenelm W. Philip (KWP). Contributors: David L. Eiler (DLE), Norbert G. Kondla (NGK), James R. Mori (JRM), James Troubridge (JT), and collectors for the Alaska Lepidoptera Survey. Previously unreported localities or species are emphasized; collecting by ALS volunteers unless noted. Note regarding Alaska Lepidoptera Survey: K. W. Philip and J. Troubridge (with logistic support from the Smithsonian Institution and the Canadian Polar Shelf Project) spent 20 June through 18 July at Coppermine, Holman, and Bernard Harbour, in the Northwest Territories. Collecting was carried out mainly at Holman, Victoria Island (21 to 28 June); and at Bernard Harbour, 70 miles north of Coppermine (3 - 18 July). Coppermine was also sporadically collected, since it was the staging area for both the above sites. The weather conditions were near-ideal for collecting at Holman and Bernard Harbour, and the butterfly flight season was perfectly aligned with the field trip (and compressed, owing to the atypical heat).

NORTHWEST TERRITORIES. Weather: The latter half of June and the first half of July were exceedingly warm (by local standards) and sunny in the Bernard Harbour - Holman area. As a result, the flight season at Holman began shortly before 20 June, judging by the species that were flying (and their fresh condition) when we arrived - while the useful flight season at Bernard Harbour ended on 16 July when the stable weather pattern finally broke, by which time even the late summer species were getting worn. 'Almost new' collecting site: Bernard Harbour, south shore of Dolphin and Union Strait, 70 miles north of Coppermine. This is not strictly a new locality, since it was collected in 1915 and 1916 by the Canadian Arctic Expedition of 1913 - 18, but after so long a lapse of time it is worthwhile to give a report on this exceedingly interesting site. The entire region around Bernard Harbour (except for a few of its most elevated areas) was under water about 10,000 years ago, and the landscape at the harbour consists largely of drumlins with sand/gravel raised beaches around them at various levels. Along the current shoreline are dolomite pebble/cobble beaches and raised beaches. Vegetation is sparse save in the immediate vicinity of Bernard Harbour, which forms a sort of oasis in a region of rock desert. The Canadian Arctic Expedition obtained 121 specimens of 15 species of butterflies during their stay at Bernard Harbour, all but two of which were characteristic of the butterfly fauna of Young's Zone 3. Access to this locality was by helicopter from Coppermine - but it is also reachable via bush plane from Cambridge Bay.

BUTTERFLIES: VICTORIA ISLAND - Holman, 21 - 28 June, Colias hecla, C. thula, Clossiana polaris, C. improba, C. natazhati, Oeneis bore, O. melissa, O. polixenes, Erebia fasciata (KWP & JT). SOUTH SHORE DOLPHIN & UNION STRAIT - Bernard Harbour, 3 - 16 July, Colias hecla, C. sp. near meadii, C. boothii, C. palaeno,* C. nastes, Lycaena phlaeas, Agrionides rustica, Boloria napaea, Clossiana polaris, C. frigga,* C. improba, C. freija,* C. natazhati (common), C. chariclea, Oeneis bore,* O. melissa, O. polixenes, Erebia rossii,* E. fasciata (KWP & JT). 19 miles SW by S of Bernard Harbour, 10 July, Boloria napaea, Proclissiana eunomia,* Clossiana polaris, C. natazhati, Oeneis melissa, O. polixenes, Erebia rossii,* E. fasciata (KWP & JT). Asterisks identify species not obtained in 1915 - 16. One species (Pontia occidentalis) obtained in 1915 was not captured by us, but we missed the early part of the flight season here, when it may have been more abundant. SOUTHWEST SHORE CORONATION GULF - Coppermine, 20, 28, 30 June, 2, 19 July, additional species (see 1984 & 1966 Season Summaries), Hesperia manitoba (KWP & JT).

MOTHS: VICTORIA ISLAND - Holman, 21 - 28 June, Xestia quieta, Trichosilia boreana, Lasionycta species near leucocycla, Polia sp. near richardsoni, Pediasia broweri, Grammia quenseli, Pararctia lapponica, Gynaephora rossii, Gnophos macquiffini, Aspilates orciiferaria, Xanthorhoe baffinensis, Psychophora sabini (JT). SOUTH SHORE DOLPHIN & UNION STRAIT - Bernard Harbour, 3 - 16 July, Apamea murrayi, Lasionycta phaea, L. staudingeri, Polia richardsoni, Xestia thula, Xestia quieta, Sympistis zetterstedti, S. lapponica, Euxoa churchillensis, Xanthorhoe baffinensis, Aspilates orciiferaria, Psychophora sabini, Scopula septrionicola, S. frigidaria, Pararctia lapponica (JT). SOUTHWEST SHORE CORONATION GULF - Coppermine, 29 - 30 June, Xanthorhoe baffinensis, Aspilates orciiferaria, Scopula sentinaria (KWP & JT).



1988 Season Summary



YUKON TERRITORY. Weather: Kondla reported an early season in the southern Yukon, with poor collecting conditions in early July.

BUTTERFLIES: YUKON HIGHWAY 2 - Lake Laberge, 2, 3, 6 July, additional species (see 1987 Season Summary); Lycaeides idas, Agriades rustica, Phyciodes pratensis (NGK). Parnassius phoebus was common. AISHIHIK ROAD - km 27 to 9, Otter Falls vicinity, 7 & 9 July, Pontia occidentalis, Pieris napi, Euchloe ausonides, E. creusa, Colias philodice, C. canadensis, C. christina, C. gigantea, C. palaeno, Glaucopsyche lygdamus, Lycaeides idas, Plebejus saepiolus, Proclissiana eunomia, Clossiana frigga, C. freija, C. titania / chariclea, Occidryas anicia, Coenonympha kodiak, Erebia disa, E. epipsodea, Oeneis bore (NGK). WHITEHORSE - Fish Lake Road (incl. Jackson Lake), 6 - 8 July, Pyrgus centaureae, Papilio machaon, Pontia occidentalis, Pieris napi, Colias philodice, C. gigantea, C. palaeno, Epidemia dorcas, Lycaeides idas, Plebejus saepiolus, Vacciniina optilete, Proclissiana eunomia, Clossiana frigga, C. freija, C. titania, Phyciodes pratensis, Occidryas anicia, Coenonympha kodiak, Erebia theano, E. epipsodea, Oeneis bore, O. jutta (NGK).

ALASKA. Weather: Spring somewhat earlier than average. Summer normal in the Interior, better on the Seward Peninsula.

BUTTERFLIES: NW ALASKA - Cape Thompson, 11 - 13 July, additional species (see 1964 Season Summary, and note that the mention there of Colias boothii probably refers to C. thula), Colias nastes, Lycaena phlaeas, Agriades rustica, Boloria napaea. INTERIOR - Fairbanks, 2 September, Limenitis arthemis (in mint condition!) (KWP). This species was flying in Fairbanks on 17 June (DLE). Apparently L. arthemis can produce a second brood in Interior Alaska, given favorable weather conditions. 9 & 13 miles N of Delta (Richardson Highway, miles 275, 279), 28 June, Erynnis persius, Papilio machaon, Pterourus glaucus, Colias philodice, C. palaeno, Everes amyntula, Glaucopsyche lygdamus, Plebejus saepiolus, Phyciodes pratensis, Nymphalis antiopa (sight), Coenonympha kodiak, Erebia epipsodea (DLE). Eiler obtained one Colias here that he reported as occidentalis, but I suspect (not having seen the specimen) it may have been philodice (which can be quite variable in the Interior). SOUTHCENTRAL ALASKA - Chugach Mountains, 1 mile E of Flattop Mountain, 26 July, Pieris napi, Colias palaeno, Agriades rustica, Vacciniina optilete, Boloria napaea, Clossiana freija, C. chariclea, Oeneis polixenes. KENAI PENINSULA - Kenai Mountains, the ridge between Big Indian and Hungry Creeks, SSW of Hope, 13 September, Parnassius phoebus, (fresh) (JRM).



ZONE 2 PACIFIC NORTHWEST: IDAHO, OREGON, WASHINGTON, BRITISH COLUMBIA. Coordinator: Joñ H. Shepard (JHS). Contributors: Lars Crabo (LC), David L. Eiler (DLE), C. D. Ferris (CDF), John Hinchliff (JH), Robert Kirk (RK), Doug Knight (DK), Gary Lindberg (GL), John McBurney (JM), Jon P. Pelham (JPP), Robert M. Pyle (RMP), M. Robbins (MR), Steve Summers (SS). General Collecting Conditions: Extremely early season, especially in northern half until early June when species were six weeks ahead of normal flight. Early June to mid July in B.C., Washington, N Idaho, and NW Montana were cloudy and cold so that by July 15, when warm conditions returned, the flight seasons were back to normal. After that, dry conditions were prevalent and species were much reduced in numbers. Various contributors put forth their opinions as to the poor numbers in June and July, from winter drying of pupa (CDF) to general dryness (DLE). The best specific idea seems to be that of Doug Knight, a bee keeper in Creston, B.C., who noted the lack of nectar sources from July 15th onward correlated with the reduction of late summer and fall species of all groups of Lepidoptera. Conversely, the generally better seasons in SW Washington (RMP) and at Sproule Creek, near Nelson, B.C. (JHS), both wet areas of cedar/hemlock forest type, can be attributed to the continuing warm, dry summers of the last three years. Abbreviations used: Cmgd = Campground; Cr = creek; el = elevation; Hwy = Highway; Mdws = Meadows; mi = miles; Mtn = Mountain; nr = near; R = River; Rd = Road; vic = vicinity. Counties in caps denote county records.

MIGRATORY SPECIES: D. plexippus noted only in Idaho Co, ID (CDF). N. californica widespread but apparently uncommon, except in NE Washington (CDF). V. cardui recorded from many localities as worn migrants early on and freshly emerged later. Otherwise no Vanessa except V. annabella in Harney Co, OR (JHS). No migratory moth species noted.

IDAHO. DLE & CDF found ID habitats dry and collecting poor in central and southern parts of the state. Despite the dry conditions many new County records were produced. JHS found low elevation areas of central ID poor in mid July but upper mid elevations good, especially in high montane bogs and meadows.

BUTTERFLIES: H. nevada, Spring Mtn Canyon, S of Gilmore, LEMHI Co, 22 June (CDF). P. mystic, vic Moyie Springs, BOUNDARY Co, 9 - 10 July (CDF). A. vialis, N Fork Salmon R at Deep Creek, LEMHI Co, 3 July (DLE). P. indra, Jordan Cr Rd, 2 mi E of De Lamar, OWYHEE Co, 10 June (CDF). P. multicaudata, Rd SR-21 at Willow Summit, el 3800', ADA Co, 2 July (DLE). P. eurymedon, Jordan Cr Rd, 3 mi E of De Lamar, OWYHEE Co, 10 June (DLE). P. protodice, NE of Arrowrock Dam, ELMORE Co, 8 June (CDF). P. napi, lower end of Mission Cr Rd, NEZ PERCE Co, 11 June (CDF). E. a. coloradensis, Jordan Cr Rd at De Lamar, OWYHEE Co, 10 June (DLE). L. cupreus, Road from Waha Lake to Soldiers Mdws, Nez Perce Co, 24 June (CDF). E. nivalis, W of Gilmore, LEMHI Co, 14 July (CDF). H. t. immaculosus, Rd SR-21 at Willow Summit, el 3800', ADA Co, 2 July (DLE). I. a. iroides, Pole Canyon Rd, W of Ovid, BEAR LAKE Co, 6 June (CDF). I. e. eryphon, N Fork Salmon R at Deep Cr, 3 July (DLE). C. argiolus, Pole Canyon Rd, W of Ovid, BEAR LAKE Co, 6 June (CDF). E. enoptes, Rd from Waha Lake to Soldiers Mdws, NEZ PERCE Co, 24 June (CDF). L. melissa, NE of Arrowrock Dam, ELMORE Co, 8 June (CDF). P. p. pratensis, Rd SR-21 at Willow Summit, el 3800', ADA Co, 2 July (DLE). V. cardui, vic Moyie Springs, BOUNDARY Co; E. epipsodea, lower end of Mission Cr Rd, Nez Perce Co, 11 June (both CDF).

MOTHS: Munroessa icciusalis, Hwy 3, 2 mi N of Medimont, KOOTENAI Co, 13 July (JHS), STATE RECORD. Petrophila kearfottalis, Spring Bar Cmgd, IDAHO Co, 15 July (JHS). P. confusalis, Spring Bar Cmgd, IDAHO Co, 15 July (JHS). Microtheroris ophionalis occidentalis, Spring Bar Cmgd, IDAHO Co, 15 July (JHS). Stega s. salutalis, Lawyer's Canyon, LEWIS Co, 14 July (JHS).

OREGON. JHS found mid July collecting poor in Harney Co and in many classic localities on the eastern slopes of the Cascades. This was due to the very dry conditions. Other contributors did not comment on general conditions.

BUTTERFLIES: E. clarus, Klamath Falls, KLAMATH Co, 10 July (MR). E. persius, Govt. Harvey Rd, LAKE Co, 14 Aug (MR). H. ericetorum, Hwy 31, 5 mi N of Govt. Harvey Rd, LAKE Co, 14 July (SS). H. columbia, Klamath R Canyon, KLAMATH Co, 22 May (SS). P. s. siris, Larch Mtn, MUTNOMAH Co, 16 July (GL). Q. yuma, French Cr at Innaha R, Wallowa Co, 17 July (JH). Q. agricola, Klamath R Canyon, KLAMATH Co, 15 July (SS). P. zelicaon, Duck Cr Ridge Rd, MALHEUR Co, 16 April (RMP). P. indra, Klamath R Canyon, KLAMATH Co, 22 May (SS). S. melinus, Tollgate Mtn Rd, UNION Co, 30 June (CDF). P. oreas, Klamath R Canyon, KLAMATH Co, 22 May (SS). V. virginianensis, Hwy 78, 1 mi E of Harney Co Rd, MALHEUR Co, 16 April (RMP).

MOTHS: Hepialus nr lebertii, Detroit Lake St Pk, MARION Co, 22 July (JHS). Also good collecting in Harney Co, both in Juniper areas and at Fish Lake, Steens Mtn (JHS).

WASHINGTON. JM had good collecting in Spokane Co in mid May. JHS found good collecting in eastern Okanogan Co in late

July only at sites of concentrated thistles for nectar.

BUTTERFLIES: *E. p. lilius*, Potato Hill, el 5200' - 5330', YAKIMA Co, 30 July (RK & JPP). *P. s. sonora*, Road from Deer Park to Blue Mtn, CLALLAM Co, 5 Aug (RMP); S of Gnat Flat, KITTITAS Co, 16 July (LC); E Canyon Cr, SKAMANIA Co, el 4015' - 4020', 30 July (RK & JPP). *E. mariposa*, North Bay Bog, SE of Hwy 109/Burrows Rd, GRAYS HARBOR Co, 2 Sept (RMP). *E. pratensis*, Muddy Meadows, 30 July (RK & JPP). *E. e. edithana*, Lorena Butte, SE of Goldendale, KLICKITAT Co, 21 May (LC & JPP). *E. e. colonia*, Midway Cr, SKAMANIA Co, el 4375' - 4429', 30 July (RK & JPP). *P. silenus*, Swede Park, Wahiakum Co, 28 Feb (RPM), EARLY. *E. e. hopfingeri*, Muddy Mdws, SKAMANIA Co, el 4130' - 4205', 30 July (RK & JPP).

BRITISH COLUMBIA. JHS and DK had good moth collecting until early July. JHS noted the continuing presence of the 1987 species not recorded in the previous 15 years at Sproule Creek, and DK noted the absence of late summer and fall species from the Creston area.



ZONE 3 SOUTHWEST: ARIZONA, NEVADA, CALIFORNIA. Coordinator: R. L. Langston (RL). Contributors: G. T. & Ana N. Austin (GTA, ANA), J. P. Brock (JPB), C. V. Covell, Jr. (CVC), L. Crabtree (LC), K. Davenport (KD), J. A. De Benedictis (JAD), T. E. Dimock (TED), J. P. Donahue (JPD), J. F. Emmel (JFE), D. C. Ferguson (DCF), C. D. Ferris (CDF), M. L. Grinnell (MLG), K. C. Hansen (KCH), R. Kelson (RK), R. H. Leuschner (RHL), J. T. McBurney (JTM), Stephanie McKown (SM), R. P. Meyer (RPM), J. R. Mori (JRM), D. Mullins (DM), D. Parkinson (DP), J. A. Powell (JAP), G. Pratt (GP), K. Roever (KR), A. M. Shapiro (AMS), O. Shields (OS), J. A. Smith (JAS), M. J. Smith (MJS), S. Stone (SS), W. L. Swisher (WLS), P. M. Thompson (PMT), J. Weber, Jr. (JW) and R. E. Wells (REW). Most of the Southwest experienced a second year of drought, resulting in both EARLY and LATE records for many species. Migrations and migratory species were reported from all three states. In the main butterflies sections, the species are in the sequence of Miller & Brown, 1981, although some of the name combinations and taxa may differ. Abbreviations used: assoc/w = associated with; Cpgd = Campground; Cyn = Canyon; det = determined by; emgd = emerged; Hwy = Highway; jct = junction; Mdw = Meadow; nr = near; NP = National Park; NWR = National Wildlife Refuge; Res = Reservation; Resvr = Reservoir; SBM = San Bruno Mtns; S Cruz or S C = Santa Cruz; S.F. = San Francisco; sp = species; subs = subspecies; vic = vicinity.

ARIZONA. Contributors: JPB, CVC, KD, CDF, RPM, DM, KR, MJS, SS, PMT and JW. Eleven COUNTY records for butterfly species, including one STATE record, plus seven very LATE records. Two COUNTY records for moths, including a far westerly range extension. In mid-May, JW was amazed at the lack of butterflies in Apache and Navajo Counties. Only seven species reported in Coconino and Maricopa Counties, mid to late May. In late June, CVC reported that rain curtailed diurnal collecting in SE AZ, but there were many fine moths at a supposedly poor time of year. CDF reported that Southern AZ had a very wet summer. In late July and August the deserts were lush and green, arroyos running water and undeveloped roads impassable in some areas. Butterflies generally poor owing to heavy rains and soggy vegetation. The usual common species of Geometridae were extremely scarce.

MIGRATORY SPECIES: A swarm/migration of *Colias eurytheme* across I-10 on the Gila Indian Reservation, N of Sacaton interchange (Maricopa Co) for several miles. Late morning 31 July, a high % of white ♀♀, many corpses along the roadway (CDF). A single ♂ *Phoebis agarithe*, Sycamore Cyn, West of Pena Blanca Lake, Santa Cruz Co, 1 Aug (CDF). *Libytheana bachmani* larvata, Box Cyn, Santa Cruz Co, 24 June (CVC); not in migratory numbers. *Nymphalis californica*, common, Hualapai Mtns, MOHAVE Co, 1 - 2 Oct (KD, RPM), but no migratory tendencies.

BUTTERFLIES: *Achalarus casica* and *Erynnis tristis tatus*, Garden Cyn, Huachuca Mtns, Cochise Co, 24 June (CVC). *Phoebus mysie*, 4 mi SE of Patagonia (near Type Locality), Santa Cruz Co, 6 Aug (JPB) - *mysie* rarely reported, whereas *Thorybes valeriae* identity uncertain and hypothetical for AZ. *Systasea zampa*, Hualapai Mtns, MOHAVE Co, 2 Oct (KD, RPM). *Erynnis meridianus* & *E. afraus*, Hualapai Mtns, 1 - 2 Oct, both LATE (KD, RPM). *Helipetes domicella*, Hassayampa River Preserve, S of Wickenburg, MARICOPA Co, 15 May (JW). *Piruna mexicana*, Sycamore Cyn near Ruby, S Cruz Co, 13 Aug (JPB) - rarely reported. *Polites mystic dactotah*, Duran Ranch, 7200', COCONINO Co, & STATE record, 2 June (KR) - far SOUTHWEST range extension, as nearest records for *dactotah* are in Central Colorado. *Amblyscirtes nereus*, 4 mi SE of Patagonia, S Cruz Co, 6 Aug (JPB) - rarely reported. *Neophasia terlootii*, Madera Cyn, S Cruz Co, 24 June, scarce early brood (CVC). *Eurema boisduvaliana*, Garden Cyn, Cochise Co, 24 June (CVC). *Hypaurotis crysalus*, N Rim, Grand Cyn, 8200', Coconino Co, 22 June (PMT). *Hypostrymon critola*, Jose Juan Tank, 1100', Cabeza Prieta NWR, PIMA Co, 2 Oct (KR) - all previous AZ records from S Cruz Co. *Leptotes marina*, Hassayampa River Preserve, S of Wickenburg, MARICOPA Co, 15, 21 May (JW), plus widespread and common in Cochise/S Cruz Counties (CVC, CDF). *Everes comyntas*, McCleary Cyn, 4 mi W of Hwy 83, 23 April (JPB) - confirms Pima Co on the R. Bailowitz check-list. *Apodemia mormo mejicanus*, River Road, NW of Nogales, S Cruz Co, 1 Aug (CDF). *Agraulis vanillae incarnata*, Hualapai Mtns, MOHAVE Co, 1 - 2 Oct (KD, RPM). *Thessalia cyneas*, Garden Cyn, Cochise Co, 24 June (CVC). *Chlosyne lacinia crocale*, Sedona, COCONINO Co, 3 Aug (KD). *Texola elada perse*, cyn W of Pena Blanca Lake, 1 - 2 Aug & very common on River Road, NW of Nogales, 1 Aug, both Santa Cruz Co (CDF). *Phycoides vesta*, Canelo, SANTA CRUZ Co, 10, 18, 27 Sept, 6 Nov, LATE (JPB) - previously recorded only from Cochise Co, latest was 23 Sept 1927; numerous records for *vesta* in S C Co in 1988 by KR - other recent records all from Cochise Co. *Phycoides mylitta arizonensis*, common, Hualapai Mtns, MOHAVE Co, 1 - 2 Oct (KD, RPM). *Nymphalis antiopa*, Hassayampa River Preserve, S of Wickenburg, MARICOPA Co, 15 May (JW); and at 8000', N Rim, Grand Cyn, Coconino Co, 22 June (PMT). *Adelpha bredowii eulalia* very common at 8000', N Rim Grand Cyn, 22 June (PMT) & in its usual lower haunts, Madera Cyn, S Cruz Co, 24 June (CVC). *Mestra amymone*, Jose Juan Tank, 1100', Cabeza Prieta NWR, PIMA Co, 2 Oct (KR). *Megisto rubricata chenevorum*, cyn W of Pena Blanca Lake, 1 - 2 Aug (CDF). *Cyllopsis henshawi*, Madera Cyn, S Cruz Co, 24 June (CVC). *Cercyonis meadii mexicana*, Hualapai Mtns, 1 Oct, LATE (KD, RPM).

MOTHS: SPHINGIDAE - *Manduca sexta*, M. florestan, *Ceratomia sonorensis*, *Smerinthus saliceta*, *Eumorphia achemon* & *E. typhon*, Sycamore Cyn, W of Pena Blanca Lake, Santa Cruz Co, 1 Aug (CDF). SATURNIIDAE - *Automeris pamina* and *Eacles osleri*, Sycamore Cyn, 1 Aug (CDF). *Hemileuca electra clio* larvae on *Eriogonum fasciculatum poliofolium*, jct Hwy 88 and Hwy 288, GILA Co, 30 Jan (MJS, SS). Larva on *Artemisia tridentata* emerged as *H. magnifica*, Coconino Rim, Hwy 64, about 18 mi W of Hwy 89, COCONINO Co and WEST, 5 June (DM via MJS) - previously known from Apache Co in assoc/w *A. fillifolia*. NOCTUIDAE - *Gerrodus minatea* moderately common, plus *Catocala euphemia*, Sycamore Cyn, S Cruz Co, 1 Aug (CDF).

NEVADA: Contributors: GTA, ANA, SM, JRM, MJS, WLS and REW. Twenty-four new COUNTY records for butterfly species, including one STATE record for a subspecies. Ten EARLY and nine LATE records for those early or late by a week or more. One COUNTY and STATE record for a moth. In mid-April WLS found Northern NV very dry, which made for poor spring collecting. GTA & ANA report that late winter of 1987 - 88 was dry, spring very early and warm, resulting in many EARLY adult flights. Southern NV was cool, Northern NV cold, during rains of 3rd week in April. Then warm until Memorial Day weekend when cold with some snow at higher elevations of Northern NV. More snow at end of 1st week in June with 28°F in Carson City. Late June to Aug very hot in the whole state. Most of NV in 3rd year of drought with Reno less than 50% of normal rainfall. July thunderstorms alleviated drought in Eastern NV, but late summer rains in Southern NV very

isolated, with sparse emergence of Papilio polyxenes coloro and Melitaea neumoegeni. It remained hot in Southern NV until 11 Nov, resulting in many LATE records (GTA, ANA). [Unless otherwise noted, all records below for NV are by the Austins.]

MIGRATORY SPECIES: A small movement of Eurema nicippe northward to Southern Nye and Lincoln Counties, Aug to Oct. Libytheana bachmanii larvata appeared in numbers in Clark and Southern Nye Counties in mid-Oct, one as far NORTH as near Lida Summit, ESMERALDA Co, 18 Oct. Euptoieta claudia spread far northward, now recorded from three NEW COUNTIES; Ruby Valley, ELKO Co, 28 July; Hwy 50 near Reese River, LANDER Co, 28 June; & Buena Vista Cyn, Humboldt Mtns, PERSHING Co, 30 July. Two more counties for E. claudia, a rare species in NV; Clark Co, 29 June, 24 July; Lincoln Co, 12 April, EARLY & 26 July. No movements of Vanessa cardui noted until large numbers appeared in mid-Oct in Southern NV. Small numbers of Danaus plexippus passing thru Southern NV, mid-Sept thru early Nov.

BUTTERFLIES: E. persius, Trail Cyn, White Mtns, ESMERALDA Co, 30 July (MJS via GTA, ANA). P. scriptura, Log Spring area near Mt Magruder, ESMERALDA Co, 27 May. H. ericetorum, Stillwater NWR, CHURCHILL Co, 30 Aug and Seven Mile Cyn, STOREY Co, 27 June (now recorded for all NV counties); also, Sacatone Wash, Newberry Mtns, Clark Co, 11 Nov, LATE - previous latest 4 Nov. C. aurantiaca, Pahump Valley, NYE Co, 17 Oct. H. phyleus muertovalle, Baker, WHITE PINE Co, 27 Aug. Agathymus alliae, vic Red Cloud Mine, Clark Co, 31 Aug, EARLY (P. Savage via GTA, ANA) - previous earliest 10 Sept. Two records of stray B. philenor for early Sept; Henderson (P. Dumphose via GTA) and Ash Meadows (P. Savage via GTA), both Clark Co. P. polyxenes coloro, the extended spring allowed two spring broods (March & May) and a small very local fall brood (Sept). P. indra, Wellington Hills, Desert Creek, Douglas Co, 10 May (JRM via REW). P. multicaudatus, Nay Ranch, Virgin Mtns, Clark Co, 17 Aug, LATE for Southern NV - previous latest 26 June (very few Northern NV records after June, either). N. menapia, Geiger Grade, 1.1 mi S of Washoe Co line, STOREY Co, 31 July. P. sisymbrii, vic Christmas Tree Pass, Newberry Mtns, Clark Co, 24 Feb, EARLY - previous earliest 7 March. P. occidentalis, Anderson Cyn, Highland Range, 25 July and Wilson Peak, 26 July, both LINCOLN Co. E. hyantis, Christmas Tree Pass, Clark Co, 24 Feb, EARLY - previous earliest 2 March. A. cethura, Smoke Creek Rd, 2.1 mi W of Hwy 81, Washoe Co, 16 April (WLS). N. iole, Lompa Lane, CARSON CITY, 17 June. L. helloides, Overton, Clark Co, 7 Nov, LATE - previous earliest 23 Oct. A. halesus estesi, vic Christmas Tree Pass, 13 Feb, EARLY (MJS via GTA) - previous earliest 25 Feb. M. spinetorum, Kingsbury Grade, Douglas Co, 5 April (MJS via GTA), EARLY for Northern NV - previous earliest 12 April; near Mountain Springs Summit, Clark Co, 15 Aug, LATE for Southern NV - previous latest 6 Aug. I. fotis, Dunlap Cyn, Pilot Mtns, MINERAL Co, 25 May. I. eryphon, Kingsbury Grade, Douglas Co, 5 April (MJS via GTA), EARLY - previous earliest 29 April. S. melinus pudica, Star Creek Cyn, Humboldt Mtns, PERSHING Co, 30 July (now recorded in all NV counties). E. battoides martini, Hwy 95, 15.2 miles N of Beatty, Nye Co, 25 May, NORTH for Western NV. E. mojave, Cabin Cyn, Virgin Mtns, Clark Co, 5 April, EARLY - previous earliest 17 April. E. pallelescens, Baking Powder Flat, WHITE PINE Co, 12 July (G. Pratt via GTA). P. melissa, Logandale, Clark Co, 7 Nov, LATE - previous latest 23 Oct. C. nemesis californica, Logandale, 7 Nov, LATE - previous latest 23 Oct. C. wrighti, Grapevine Cyn, Newberry Mtns, Clark Co, 13 Feb (MJS), EARLY - previous earliest 6 March, and at same location, 11 Nov, LATE - previous latest 3 Nov. S. nokomis, Pine Valley, 13 mi S of Elko Co line, EUREKA Co, 29 July. S. zerene platina, Wilson Peak, LINCOLN Co, 26 July. S. atlantis irene, Montreal Cyn, Carson Range, 1 Aug, DOUGLAS Co (STATE record for subsp with two other subsp occurring in Elko Co). T. leanira near alma, Red Cloud Mine area, Clark Co, 20 March, EARLY - previous earliest 28 March. C. lacinia crocale, Logandale, Clark Co, 7 Nov, LATE - previous latest 23 Oct. P. satyrus, Star Creek Cyn, Humboldt Mtns, PERSHING Co, 30 July. V. virginianensis, Las Vegas, 10 April, EARLY - previous earliest for anywhere in NV is 30 May!! B. archippus obsoleta, 3.2 mi N of Elgin, Meadow Valley Wash, LINCOLN Co, 19 Sept & Logandale - Overton, Clark Co, 7 Nov, LATE - previous latest 21 Oct. A. celtis montis, Grapevine Cyn, LINCOLN Co, 19 Sept. D. gilippus strigosus, Truckee River near I-80, STOREY Co, 30 July; near Davis Creek Park, WASHOE Co, 26 June (the Washoe Co record in the Harjes check-list was unverified, see Austin, 1985 - strigosus now recorded in all NV counties).

MOTHS: SATURNIIDAE - Larvae of Hemileuca nevadensis on Salix sp, west fork of Walker River at Wellington, Lyon Co, 26 May (MJS). NOCTUIDAE - Abrostola parvula (det by J. P. Donahue & J. D. Lafontaine), Christmas Tree Pass, Newberry Mtns, CLARK Co & STATE record, 7 March 1987, 18 March 1988 (SM).

CALIFORNIA: Contributors: GTA, ANA, JPB, LC, KD, JAD, TED, JPD, JFE, DCF, MLG, KCH, RK, RLL, RHL, JTM, RPM, JRM, DP, JAP, GP, AMS, OS, JAS, MJS, WLS, PMT & REW. Fifteen new COUNTY records for butterfly species and three for subspecies, including a STATE record. Five COUNTY records for moths, including one STATE record for known taxa. Several unknown or undescribed species submitted, but most not cited. The winter of 1987 - 88 had some early precipitation in Nov and Dec, but by mid-Jan the faucet turned off (RLL). It was the warmest and driest late winter-early spring in 110 years in Northern CA, with ten essentially rainless weeks (AMS). Temps in the 60s and 70s almost daily in Jan and Feb both in the Central Valley and the Bay Area (RLL, AMS). It was 91° in S.F. on 10 April and 95° in Davis on 11 April - hottest ever this early in the year. However, by mid-April, rains in the lowlands and three snowstorms in the Sierra (RLL, AMS). In Mariposa Co, precipitation also well below normal, but rain in late Feb, and over 6" in 3rd week of April, otherwise extreme drought into autumn (OS). Heat waves in July and Aug (AMS, OS) with 103° in S.F., 17 July, an all time record (RLL). Autumn continued generally dry, until good rain last half of Nov, followed by an early Dec heat wave (AMS). Rained 4.5" at Jerseydale, Mariposa Co, 13 - 16 Nov, breaking a seven month drought (OS). Therefore, this Summary has odd flight dates with many EARLY records, and a number of LATE ones too.

MIGRATORY SPECIES: Libytheana bachmanii larvata, just one, Bakersfield, Kern Co, 18 Oct (KD). Euptoieta claudia, a single ♀ at Davis, YOLO Co and NORTH, 7 Oct (AMS). Nymphalis californica, first hibernants late Jan thru mid Feb, Jerseydale, at 3500', Mariposa Co (OS); In San Bruno Mtns, San Mateo Co by 10 Feb, moderate in March, last seen 4 Apr (RLL); At Jerseydale began migrating SE in late Feb and by late March SSE - SE, with maximum = 12 to 21/min/100' on 18 March (OS); Hibernants numerous in late winter in the Coast Range, plus in the Sierra Foothills (RLL, AMS); with some emigrating early, 16 March, Sacramento Co & 20 March, Yolo Co (AMS); Common, Hi Mtn and vicinity, San Luis Obispo Co, 1 April (KD); Larvae on Ceanothus leucodermis, Bautista Cyn, 3700', SE of Hemet, Riverside Co, 27 April (JFE); Common in mountains of Kern & Tulare Counties, March - June (KD); Nearly absent from the high country and the northern mountains, except near Mt. Lassen, where locally common in July - Aug (AMS); Flying E - SE across Berkeley and Berkeley Hills, Oct 15 - 17 (JAP); Total of 131 in 8 ten min periods on ridge above Caldecott Tunnel, 16 - 17 Oct flying E & SE along ridge across 70 meters under surveillance (JAP); One in Valley in Bakesfield, 20 Oct (KD); Light SSE migration at Jerseydale 8 - 21 Oct, peak 18 Oct (OS); Exodus from Sierra across Central Valley in autumn - Davis, 20, 22 Oct, Gates Cyn, Solano Co, 21 Oct and Rancho Cordova, Sacramento Co, 22 Oct (AMS); At Jerseydale on 23 Oct and last seen on 4 Nov, LATE (OS). Vanessa cardui, adults showed up EARLY in Solano Co, 25 Feb (AMS), but huge surge arrived 16 March - millions (did rough calculations) passed thru on a SE to NW bearing until 3rd week of April (AMS); Common in San Bruno Mtns, 14 March - 29 April, with distinct N migrations 24, 29 March (RLL); Clayton, 400', Contra Costa Co, 29 March, flying NWN, 1/min/30', adults here 21 March - 11 April (RK); fresh adults of next brood, San Bruno Mtns, 16 June thru Aug with fresh infusions until 19 Sept (RLL); At Jerseydale, Mariposa Co, light WNW migration in early April, but only small numbers at flowers late April thru May, then Sept thru month of Oct, with half dozen at thistles each day, Nov 1 to 6, LATE (OS). Danaus plexippus, fly-backs arrived EARLY, on 7 Feb at Suisun, Solano Co & on 25 Feb at Davis, Yolo Co (AMS); Earliest 10 Feb,

several thru late March in the San Bruno Mtns (RLL); In Northern CA autumn numbers way up suddenly; Still one in the Sierra Valley, Sierra Co, 23 Oct, LATE for 5000' (AMS). At Jerseydale a few in July, quite common mid-Sept thru Oct - 3 peaks, with 100 on 17 Sept, 65 on 12 Oct & 25 on 29 Oct - dozen each day at thistles until 6 Nov, LATE for 3500' (OS).

BUTTERFLIES: S. zampa, near Mitchell Caverns State Park, SAN BERNARDINO Co, 23 March 1984 (RPM). P. ruralis, vicinity of Grouse Mtn, Humboldt Co, 20 June (GTA, KCH). H. ericetorum, Hwy 299, 2.6 mi W of Shasta Co line, TRINITY Co, 31 Aug (GTA, ANA); and Mitchell / White Cyns, Mt. Diablo XERCES COUNT, Contra Costa Co, 24 June (RLL). H. phyleus, Sierra Valley, 5000', E slope, SIERRA Co, 13 Sept (AMS). H. pahaska martini, assoc/w Bouteloua gracilis, Caruthers Cyn, 5600', New York Mtns, San Bernardino Co, 21 Sept (JFE, GP). P. themistocles, Hwy 89, 0.5 mi SE of Siskiyou Co line, SHASTA Co, 24 June (GTA, ANA). P. sonora siris, Ponderosa, Siskiyou Co & Shasta Co, 17 July (JTM) - INLAND area for the usually COASTAL siris. O. sylvanoides, San Bruno Mtns, 16 June, EARLY (RLL); Gates Cyn, 22 June and Suisun Marsh, 23 June, EARLY, both Solano Co (AMS); Point Richmond, Contra Costa Co, XERCES COUNT, 25 June, EARLY (RLL). O. yuma, Tule River, Porterville, Tulare Co, already common by 26 May, EARLY (KD); and a battered ♂ stray, Donner Pass, PLACER Co, 21 June (AMS). B. philenor hirsuta, Mark West Springs Road, Sonoma Co, 18 Feb, EARLY (MLG); and Pointe Molate, Richmond, Contra Costa Co, 30 Nov, very LATE (JAP). P. zelicaon, San Bruno Mtns, San Mateo Co, 26 Feb, EARLY (RLL); Santa Clara, 17 Oct, fall flight (PMT); Suisun Marsh, Solano Co, 7 Dec, LATE - 1st Dec record ever!! (AMS). P. multicaudatus, North Sacramento, 2 April, EARLY (AMS) & jct Leslie & Mark West Springs roads, 26 April (MLG), with few records for Sonoma Co. Numerous records of N. menapia "tau", "melanica" of Scott, [Host: Douglas Fir], all in Sonoma Co; Oakmont, 7 mi SE of Santa Rosa, 29 May to 28 June, 58 total (WLS); Mark West Springs Road, 9 June (MLG); 2 to 4 mi E of Kenwood and E edge of Annadel State Park, 11 June (RLL); Willow Creek Road, 5 mi W of Occidental, 3 July (RLL, C. Sekerman). Neophasia intermediate to "melanica", [Host: Ponderosa Pine], Ink Grade Road, 3 miles NW of Angwin, Napa Co, 17 June (WLS) - previously found here on 19 June 1976 (RLL); Calistoga Road, 6.8 mi N of Hwy 12, 17 June (WLS). P. protodice, Ova on Cleomea obtusifolia, Mojave River Bed, 1 mile E of Harvard Road, 1740', San Bernardino Co, 16 June (JFE, GP); Tilden Park, Contra Costa Co, 25 June (RLL) - re-discovered within the Berkeley XERCES COUNT circle after 11 years (RLL); San Bruno Mtns, 1 ♀ 24 Aug, 1 ♂ 7 Sept - 2nd locality for San Mateo Co & 41st species for SBM (RLL). P. napi venosa, many of both sexes, Big Creek, Monterey Co, 25 and 26 Jan, very EARLY (JAP) & 13 Feb thru 14 March, Oakmont, Sonoma Co (WLS). E. napi summer brood, mostly white, Oakmont, 15, 29, & 31 May (WLS); Jerseydale, 3500', Mariposa Co, 1 June (OS); Van Damme Park, Hwy 1, Mendocino Co, 2 Aug, 1970 (RLL); Drakes Bay, Marin Co, 8 Aug, LATE (JAP); Big Creek, Monterey Co, 19 Aug, very LATE (JAP). E. ausonides, Titlow Hill Road off Hwy 299, HUMBOLDT Co, 20 June (GTA via KCH). E. ausonides and E. hyantis synchronous, Chili Bar, 3 mi NE of Placerville, Eldorado Co, 5 March, EARLY (RLL, DP). Larvae of E. hyantis and F. lanceolata on Streptanthus howellii, jct High Divide and Low Divide roads, Del Norte Co, 21 June (KCH). E. lanceolata, Rock Creek Road, 7 mi NE of Placerville, 5 March, EARLY (RLL, DP). A. cethura morrisoni, Hwy 58, 2 to 4 mi E of McKittrick, Kern Co, 9 March 87, 22 Feb 88 (MLG). A. sara sara, 1 mi NE of Cottonwood Pass, KINGS Co, 19 March (KD) and spring form reakirtii, Big Creek, Monterey Co, 22 Feb, EARLY (JAP). A. sara thoosa synchronous with stella, Sierra Valley, 5000', E slope, Sierra Co, 10 April, both EARLY for 5000' (AMS). C. harfordii, Careron Road & Hwy 58 on EAST SLOPE of Tehachapi Mtns, Kern Co, 22 Sept, LATE (KD) - more evidence of a fall flight. C. occidentalis chrysomelas, vicinity of Grouse Mtn, Humboldt Co, 30 June (KCH). One ♀ Z. eurydice, flying, beak-marked, Big Creek, Monterey Co, 25 Jan, very EARLY, overwintering as adult? (JAP) and at its usual time, Bottchers Gap, 2600', Monterey Co, 26 June (PMT). N. iole, Newbury Park, 1 mi SE of Conejo Mtn, 800', 24 April, and Hwy 33 at Cozy Dell Cyn, 880', 18 May, both VENTURA Co (TED); Sycamore Cyn, Point Mugu State Park, 220', 26 June and by 6 July it appeared established, quite abundant and ovipositing on Bidens sp., Cozy Dell Cyn and at Friends Ranch (roadside fruit stand), Hwy 33 (TED); During the summer it spread to both ends of the Ojai Valley, from Thatcher School on the east to 3 mi W of Lake Matilija on the west; the population at Cozy Dell Cyn, NW of Ojai persisted as adults until 3 Oct (TED). Larvae of T. arota arota on Ribes roezlii, Thomas Mtn Cpgd, 6500', Riverside Co, 4 May (JFE). L. phlaeas hypophlaeas, N slope Mt Dana, Mono Co, 15 and 16 July & Sonora Pass, Hwy 108, Tuolumne Co, 17 July (MLG). L. heteronea, near Ponderosa, Shasta Co, 17 July (JTM) - confirms old F. X. Williams record of 1909 for Shasta Co; Willow Creek Road just E of Hwy 1, Sonoma Co, 3 July (RLL, C. Sekerman). L. helloides, ovipositing on Polygonum paronychia, Yonotocket Indian Res, Del Norte Co, 15 May (KCH). A. halesus estesi, Leslie Road off Mark West Springs Road, SONOMA Co, 1 May (MLG) [Previous record(s) are on J. Steiner data-base, but not confirmed by RLL]; Possible 2nd and 3rd COUNTY records are in Santa Rosa (jct Olivet Road and Olivet Lane), 7 and 26 Sept (MLG). S. sylvinus desertorum in San Joaquin Valley at Tule River, Porterville, TULARE Co, 26 May (KD), a new COUNTY for the subsp. Larvae of S. auretteorum spadix on Quercus corneliusmulleri, Queen Mtns, S of Twenty-nine Palms, 5300', San Bernardino Co, EAST, 23 April (JFE, GP) - unusual in desert mtns. C. lemberti, Loon Lake, 6352', Eldorado Co, 9 April, EARLY and LOW (DP). C. "viridis", "dumetorum" in Scott, A single fresh "viridis" taken among all worn "dumetorum", 1 to 2 miles E of Navajo Camp, SAN LUIS OBISPO Co (if true viridis), 1 April (KD). M. spinetorum, Mitchell Cyn, 700', and near Mitchell Rock, 1100', Contra Costa Co, 7 - 8 March, EARLY (RK). M. johnsoni, Siskiyou and Shasta Cos, 17 July (JTM). M. nelsoni, Lang Crossing, 5000', Nevada Co, 30 Aug, LATE, and a full month later than ever recorded (AMS). M. nelsoni miori, Cottonwood Pass, Kern Co, 4 March, very EARLY (RPM). M. siva siva assoc/w Juniperus californica here, near Enterprise Mine, 3600', San Bernardino Co, 18 June (JFE, GP) - the first record in the Old Woman Mtns, and SOUTH for the eastern Mojave Desert. Adult I. mossii windi, Lang Crossing, S Yuba River, 5000', Nevada Co, 14 March, EARLY (AMS). Larvae of I. mossii windi on Sedum spathulifolium, N Branch, Middle Fork of Tule River, TULARE Co & SOUTH, 28 May (JPB). B. exilis, Bishop, 3900', Inyo Co, 23 June (PMT). C. ladon echo, Big Creek, Monterey Co, 25 Jan, EARLY, & a fresh ♀, 8 Nov, very LATE (JAP). Larvae of E. battoides intermedia on Eriogonum lobbii, E side Donner Pass, 6850', Nevada Co, 21 July (JFE). P. sonorensis, 3 mi SE of Auburn, Placer Co, 13 Feb (RLL) & Washington, Nevada Co, 24 Feb, EARLY for 2650' (AMS). G. piasus, Horseshoe Lake, Lassen Volcanic NP, SHASTA Co, 8 July (LC). G. piasus nevada, near jct of White Mtn & Silver Cyn roads, INYO Co, 19 June (KD) - new for COUNTY & STATE for subsp nevada. G. lygdamus incognitus, Big Creek, Monterey Co, 25 Jan, very EARLY (JAP); Ovipositing on Lupinus subvexus, NEW HOST, Black Diamond Way, Clayton, 400', Contra Costa Co, 29 March (RK); One ♂ on 19 Aug, very LATE, Big Creek (JAP). Ova and larvae of G. lygdamus subsp on Astragalus lentiginosus, Avawatz Mtns at 4500', 2.5 air miles WSW of Old Woman Spring, 22 April (JFE, GP). Abundant I. icarioides missionensis above Battery Spencer, Fort Baker West, 9 March, EARLY (RLL), and synchronous with G. l. incognitus, Fort Baker East, 23 March, both Marin Co (RLL). A. franklinii podarce, Spencer Mdw, Lassen Volcanic NP, TEHAMA Co, 12 July (LC). A large, dark A. mormo very common, assoc/w Eriogonum umbellatum polyanthum, 3 to 8 mi N of Trinity Center, Trinity Co, 11 Sept (KCH). A. mormo tuolumnesis, near summit of Nine Mile Cyn, possible INYO Co record for this subsp, 29 July (KD); it however approaches blend zone into cythera (RLL). S. callippe, San Bruno Mtns, San Mateo Co, 12 April, EARLIEST ever (P. Reeburg via RLL) & American Canyon Quarry, Napa Co, 10 June (RLL); the subsp liliana further N in Napa Co. A single ♂ T. leanira, Oakmont, 7 mi SE of Santa Rosa, Sonoma Co, 9 April (WLS). T. leanira alma, Avawatz Mtns at 4500', 2.5 air miles WSW of Old Woman Spring, San Bernardino Co, 22 April (JFE, GP). Melitaea palla, near Lake Chabot, Alameda Co, 18 March, very EARLY, one fresh o (JAP); Gates Cyn, Solano Co, 26 March, EARLY (AMS); Badly worn by 24 June, very LATE, several locales, Mt. Diablo XERCES COUNT, Contra Costa Co (JAD, RK, RLL, JAP). P. phaon, Needles, San Bernardino Co, 5 April (KD). Pre-diapause larval colonies of P. orseis herlani and P. mylitta on Cirsium andersonii, upper Glen Alpine Creek, 7600', Eldorado Co, 19 July (JFE). Euphydryas chalcedona, Big Creek, Monterey Co, 22 Feb, very EARLY (JAP); San Bruno Mtns, 10 March, EARLY (RLL); and Gates Cyn, Solano Co, 26

March, EARLY (AMS). E. editha monoensis, common, Indian Valley Resvr, Alpine Co, 27 March, very EARLY for 5500' and at 41°F! (REW). E. editha luestherae, The Fall Trail, 1100', Mt. Diablo, Contra Costa Co, 21 March, EARLY (RK). B. lorquini burrisoni, Bartle, Siskiyou Co, 17 June (JTM) - SOUTH for the subsp burrisoni. A. bredowii eulalia, Bull Cyn, Granite Mtns, N of Amboy, San Bernardino Co, WEST, 17 June (JFE, GP); A. bredowii californica is throughout most of CA. C. sthenele masoni, Bull Cyn, 17 June (JFE, GP). C. sthenele near paulus, hillside 8 mi S of Kennedy Meadows, Tulare Co, 30 June, 8 and 29 July (KD) - SOUTH for paulus, which intergrades into sthenele behrii in the Nine Mile Cyn region. C. nevadensis, Bartle, Siskiyou Co, 17 July (JTM). D. gilippus strigosus, Kennedy Meadows, Tulare Co, 30 June (KD); Jerseydale, 3500', MARIPOSA Co, 16 and 21 Oct, fairly fresh (OS); Frequent this fall in downtown Ventura, with a LATE record of 15 Nov, Solimar Beach, 5 mi NW of Ventura - about 20 yards from the shoreline! (TED).

MOTHS: SPHINGIDAE - Calasymphorus myops, Jerseydale, 3500', Mariposa Co, 23 May (OS). Hemaris diffinis, Walter Springs, Pope Valley, Napa Co, 4 April (MLG). Arctonotus lucidus, Corral Hollow, W of I-5, San Joaquin Co, 18 Jan (MLG). Proserpinus clarkiae, Walter Springs, 1 to 6 April (MLG); and II-III instar larvae on Epilobium brachycarpus, in vicinity of Grouse Mtn, Humboldt Co, 11 July (KCH). Euproserpinus phaeton (not like mohave), Dove Springs and Bird Springs Cyn, 4000', Kern Co, 13 and 14 Feb (JPD, DCF, RHL). SATURNIIDAE - Telea polyphemus, 20 & 24 May and Coloradia pandora, 13 Sept, Jerseydale (OS). Saturnia mendocino, Hwy 73 above Mojave River Dam, SAN BERNARDINO Co, 20 March (REW). Many ♂♂ S. albofasciata to calling ♀♀ in 4 counties - McKenzie Heliport, 4500', Fresno Co, 25 Oct; Piute Mtn Road, 4.4 mi E of Warner Basin Road, 5000', Kern Co, 26 Oct; Chariot Cyn, S of Banner 3200', San Diego Co, 29 Oct; and Hwy 74 at Palm Cyn trailhead, Riverside Co, 30 Oct (all JRM, REW). Hemileuca eglanterina, Titlow Hill Road, S of Hwy 299, Humboldt Co, 20 July (KCH, MJS), and only 35 air mi away, shastensis, Weaver Bally Mtn, N of Weaverville, 19 July (KCH, MJS). Early instar clusters of Hemileuca nutalli on Purshia tridentata (Bitterbrush), 5 miles N of Grass Lake, Siskiyou Co, 28 May (KCH). II instar larval cluster of H. hera marcata on Artemisia tridentata (Sagebrush), hillside SE of junction of Hwys 161 & 197, Siskiyou Co, 28 May (KCH). ARCTIIDAE - Kodiosoma fulva, Electra Road, 2 mi E of Hwy 49, Amador Co, 31 March (MJS, REW). Arachnis picta, Doran Beach, Bodega Bay, Sonoma Co, 17 Sept (MLG). NOCTUIDAE - Euxoa riversi, 22 Sept & Leucania oaxacana, 18 May, El Segundo Dunes, Los Angeles Co (D. Hawks, RHL). Faronta terrapictalis, Hwy 89, East base of Monitor Pass, MONO Co & EAST, 15 June (MJS) - previously known from West of Sacramento Valley near Vacaville. Lithophane vivida, 1 mile N of Willow Creek, HUMBOLDT Co & STATE record, 2 Sept (KCH, MJS). Zooteca tranquila, larvae on Sambucus mexicana, first time reared from San Bruno Mtns, San Mateo Co, adults emgd 26 May & 3 June (JAD). Grotellaforma lactea & Acontia semiatra, Pinyon Crest, 4200', 3 and 4 Sept, both NEW from W end of Riverside Co (RHL). Autographa californica larva on Phacelia californica, first time reared from San Bruno Mtns, emgd 20 Feb (JAD). Callierges near tropicalis, 1 mi N of North San Juan, NEVADA Co, 16 July (JAS, MJS) - very few records known by this name, Franclemont may describe this (fide R. Robertson). PERICOPIDAE - Gnophaela latipennis, Bartle, Siskiyou, Co, 17 July (JTM). THYATRIDAE - Habrosyne scripta, San Bruno Mtns, San Mateo Co, 19 May (JAD). GEOMETRIDAE - Brephos infans oregonensis, Rock Creek Road & Chili Bar, both NE of Placerville, Eldorado Co, 5 March (RLL, DP) & Ice House Road, 5 mi N of Hwy 50, Eldorado Co, 9 April (RLL, DP). Eupithecia misturata, larvae coll 18 May on Heuchera macrantha, first time reared from San Bruno Mtns, emgd 10 Oct (JAD). E. deserticola & Chesiadodes morosata, Dove Springs, Kern Co, 13 and 14 Feb (JPD, DCF, RHL). Horisme new sp near rectilinea, Wheeler Hot Springs, 2000', Ventura Co, 5 Nov (RHL). Dysstroma manipata larva on Fragaria californica, NEW HOST, San Bruno Mtns, emgd 18 March (JAD) - the first time reared anywhere. "Entephria" inventaria, Pinyon Crest, 4200', Riverside Co, 21 Feb (RHL). Euphyia osculata, Democrat Hot Springs, Kern Cyn, 12 and 13 March (RHL). Hulstina grossbecki, Aguanga, 2000', Riverside Co, 17 June - described from L.A. Co (RHL). PYRALIDAE - Plumipalpia martini (only known locality was Dove Springs), a few at Dove Springs, 13 Feb, but on morning of 14 Feb, Bird Springs Cyn, at 4000', Kern Co was alive with P. martini! (JPD, DCF, RHL). Loxostege quaesitoralis, Dove Springs, 13 Feb (RHL). Udea itysalis marinensis larvae on Cynoglossum grande, San Bruno Mtns, emgd 24 - 31 March (JAD). Pyrausta perurialis larva on Monardella villosa, NEW HOST, first time reared, San Bruno Mtns or anywhere, emgd 17 July (JAD). OLETHREUTIDAE - Re-discovery of Eucosma hennei; Perhaps the only time taken on the wing since the Type Series was reared in 1938; El Segundo Dunes, Los Angeles Co, 14 June and 22 Sept (D. Hawks, RHL). TORTRICIDAE - Phaneta pallidarcis larva on Artemisia californica, first time reared from San Bruno Mtns, emgd 10 June (JAD). Three NEW HOSTS for Argyrotaenia franciscana in the San Bruno Mtns, Salix lasiolepis, Quercus agrifolia and Grindelia sp, with larvae March - April, adults 24 April - 10 June (JAD). Cnephasia longana larvae on Rumex sp, NEW HOST, San Bruno Mtns, emgd 3 May (JAD). Saphenista saxicolana, larvae on Ceanothus thyrsiflorus, March and May, adults July - Aug, first time reared from San Bruno Mtns (JAD). COSSIDAE - Comadia intrusa, El Segundo Dunes, L.A. Co, 14 June and 22 Sept (D. Hawks, RHL). OECOPHORIDAE - Depressaria gracilis, El Segundo Dunes, 14 June (D. Hawks, RHL). Agonopterix fusciterminella, Wheeler Hot Springs, 2000', Ventura Co, 5 Nov (RHL). ETHMIDAE - Ethmia gerunella, Wheeler Hot Springs, 2000', VENTURA Co, and a NORTHWEST range extension for a Riverside Co species, 5 Nov (RHL). SESIIDAE - Zenodoxus sidalceae, adults briefly abundant, San Bruno Mtns, upper ridges to lower slopes, peaking 29 June to 1 July (RLL). LYONETIIDAE - Bucculatrix ceanothiella, larvae or mines on C. thyrsiflorus, NEW HOST SPECIES, 7 Feb - 30 May, adults 29 March - 5 July, first time reared from San Bruno Mtns & NEW to SBM survey (JAD).



ZONE 4 ROCKY MOUNTAINS: ALBERTA, MONTANA, WYOMING, UTAH, COLORADO and NEW MEXICO. Coordinator: Ray E. Stanford (RES). Contributors: the Karölis Bagdonas "flying circus" (BFC, including Peg Abbott, Nancy Allen, Karölis Bagdonas, William Bagdonas, David Bagdonas, Halena Bagdonas, Wayne Buchonville, Pamela Chapman, Susan Lennard, Karin Long, Kellie Perkins, Doug Phlough, Mary Kate Schroeder, Mike Smith, Lisa Snyder, Chris Sphrecher, Alex Vargo), Joseph Belicek (JB), Steven J. Cary (SJC), Charles V. Covell, Jr (CVC), Terhune S. Dickel (TSD), David L. Eiler (DLE), Clifford D. Ferris (CDF), Jack L. Harry (JLH), David F. Hess (DFH), Steven J. Kohler (SJK), Norbert G. Kondla (NGK), Ronald H. Leuschner (RHL), Richard P. Meyer (RPM), Robert C. Mower (RCM), Paul A. Opler (PAO), Patrick J. Savage (PJS), James A. Scott (JAS), Paul M. Thompson (PMT), Andrew D. Warren (ADW). Total 20, again the lowest ever. There were 5 state/province records and 145 county records for butterflies; the numbers are less certain for the moths but included at least 4 state records. The season was the worst on record for butterflies, with severe drought in at least part of the season for Alberta and all 5 states in Zone 4. Moth collecting was described as fair to excellent. The year for all records in this Summary is 1988 except as noted to the contrary. Capitalized county names represent new county records for my files. A few non-obvious abbreviations used: Cn = Canyon; Cg = Campground; LO = Lookout; NWR = National Wildlife Refuge; Rg = Range; SWA = State Wildlife Area; Vy = Valley. Thanks as always to all contributors. CDF led the parade with reports from all five Zone 4 states.

ALBERTA. Contributors: JB, NGK. Both contributors mentioned the several year trend toward lighter winters, earlier springs and drier summers.

BUTTERFLIES: Erynnis icelus, Redwater, 1 May, EARLY (NGK). Thymelicus lineola, University Farm, Edmonton, both a PROVINCE record and WEST, 1987 and 1988 (JB). Polites themistocles, Redwater, NORTH, 19 June (NGK). P. draco, Whitehorse Crk Cg, NORTH, 15 July (NGK). Papilio zelicaon, Wintering Hills, 23 April, EARLY (NGK). Boloria freija, 10

km S of NWT border, NORTH, 7 June (NGK). B. frigga, Redwater, 15 May, EARLY; 10 km S of NWT border, NORTH, 7 June (both NGK). B. eunomia, Redwater, 28 May, EARLY (NGK). Polygonia progne, Fort Vermilion, NORTH, 7 June (NGK). Vanessa cardui, Wintering Hills, 23 April, EARLY (NGK). Erebia discoidalis, 10 km S of NWT border on Hwy 35, NORTH, 7 June (NGK). Oeneis jutta, Redwater, 28 May, EARLY (NGK). O. alberta, Wintering Hills, 16 April, EARLY (probably earliest Oeneis record from North America) (NGK).

MOTHS: No data received.

MONTANA. Contributors: BFC, DLE, CDF, JLH, SJK. Spring collecting was about normal, but the summer was extremely dry and poor.

BUTTERFLIES: 48 records were received, including 12 county records and several intrastate range extensions. MT now has 72.79 average species per county. Erynnis afraninus, Bull Lk, LINCOLN Co, NW, 26 May (SJK). Amblyscirtes vialis, Bass Crk Trail, Bitterroot NF, RAVALLI Co, SW, 23 June (CDF). Parnassius clodius, nr Morrell LO, POWELL Co, 11 and 26 July (SJK). Pontia beckerii, E of Florence, RAVALLI Co, 11 and 28 Apr (SJK). Colias alexandra, near Skalkaho Pass, GRANITE Co, 1 Jul (SJK). Lycaena nivalis, nr Morrell LO, POWELL Co, 11 Jul (SJK). Satyrus titus, near Morrell LO, POWELL Co, 26 Jul (SJK). S. saepium, near Morrell LO, POWELL Co, 11 and 26 Jul (SJK). Mitoura spinetorum, West of St. Regis, MINERAL Co, 19 Jul (SJK). Speyeria coronis, Terry, 2300', PRAIRIE Co, NE, 13 Aug 1972 (JLH). Euphydryas anicia, nr Morrell LO, POWELL Co, 11 and 26 Jul (SJK). Phyciodes pascoensis arcticus, NEW COMBINATION, US 93 about 1 mile NW of Sula near East Fk of Bitterroot Rvr, Ravalli Co, 3 Jul (DLE). Vanessa carye annabella, Bull Lk, LINCOLN Co, NW, 26 May (SJK).

MOTHS: No data received.

WYOMING. Contributors: BFC, DLE, CDF, DFH, RPM. The BFC described the season as extremely dry and the worst for butterflies and most moths that they have observed. Smoke from forest fires reduced visibility all summer long. Only Arctiids flew well.

BUTTERFLIES: Slightly over 100 records were received, including 6 county records. WY now has 87.21 average species per county. Megathymus streckeri, just N of Newcastle, Weston Co, 18 June (RPM). Papilio zelicaon, Torrey Creek, Fremont Co, 8 Aug. LATE (BFC). Lycaena phlaeas (probably americana), 7 miles N of Laramie, ALBANY Co, SOUTH, probably an accidental introduction, 29 Jul and 2 Aug (BFC). Callophrys affinis, NATRONA Co, May (BFC). Glaucopsyche piasus, Tensleep Cn, 10 mi E of Tensleep, WASHAKIE Co, 14 Jun (DFH). Boloria napaea and B. improba, very rare in the customary habitats (BFC). Euphydryas anicia, Powder River Pass, 9600', WASHAKIE Co, 14 Jun (DFH). Basilarchia archippus, just W of Tensleep, among willows, WASHAKIE Co, 14 Jun (DFH). Erebia epipsodea, 12 to 15 mi E of Tensleep, WASHAKIE Co, 14 Jun (DFH).

MOTHS: 36 records were received, mainly for common species. Apantesis figurata, A. nevadensis, A. parthenice, A. phyllira, A. proxima, A. virguncula, A. williamsi, all flew well in the Wind River and Absaroka mountains (BFC). Arctia caia, same data (BFC). Catocala grotiana, C. hermia, C. relict, C. semirelict, at light, near Woods Landing, Albany Co, 14 Aug (CDF). Catocala arizonae, C. briseis, C. unijuga, Melamaea magdalena, Scoliopteryx libatrix, in bait traps, Pole Mtn, Albany Co, 15 Aug to 9 Sep (CDF). Cossus undosus, common in the Absaroka Mts, July (BFC). Gnophaela vermiculata, common in Teton, Park, Sublette and Fremont counties (BFC). Halisodonta maculata, common in the Wind River and Absaroka Mts (BFC). Harpyia borealis, common in Teton, Park, Sublette and Fremont counties (BFC). Hemileuca eglanterina, H. hera, H. nuttalli, all recorded in low numbers from Fremont Co (BFC). Parasemia plantaginis, common in the Wind River and Absaroka Mts (BFC). Pheosia rimosa, common in Teton, Park, Sublette and Fremont counties (BFC). Phrognotobia fuliginosa, common in the Wind Rvr and Absaroka Mts (BFC). Sphinx vashti, Teton, Fremont, Sublette and Park counties (BFC). Turupitana permaculata, common in the Wind River and Absaroka Mts (BFC).

UTAH. Contributors: DLE, CDF, JLH, RCM, PJS, ADW. No contributors mentioned weather or other conditions during 1988, but the sparse data indicate a poor season as was the case throughout Zone 4.

BUTTERFLIES: 102 records were received, including 60 county records and 3 state records (P. leo, M. leda, P. speciosa). As before, Clyde Gillette may have earlier records that are unknown to me; the people who submit the data get the credit. UT now has 95.45 average species per county on my maps. Epargyreus clarus, Salina, 5150', SEVIER Co, 3 Jul 1987; larva, Pine Vy 6500', WASHINGTON Co, 5 Sep 1987 (both JLH). Polygonus leo, Ft. Pierce Wash, 2600', 2 mi S of St. George, WASHINGTON Co, STATE, 21 Sept 1986 (Bruce A. Dolen/JLH). Erynnis brizo, Box Elder Crk 5600', 2.1 mi S of Mantua, BOX ELDER Co, NW, 4 May 1987; mouth of Farmington Cn, 5000', DAVIS Co, 10 May 1987; 1.7 mi NW of Mountain Green, 5200', MORGAN Co, 10 May 1987 (all JLH). Erynnis telemachus, Box Elder Crk, 5600', 2.1 mi S of Mantua, BOX ELDER Co, NW, 4 May 1987 (JLH). Erynnis meridianus, the Cockscorn, KANE Co, EAST, 2nd STATE, 25 Apr 1987 (PJS). Pyrgus ruralis, Bountiful Peak, 9259', DAVIS Co, 20 Jun 1987. Pyrgus scriptura, Salt Lake City, 4230', first record in nearly 60 years, 30 June 1987 (JLH). Piruna pirus, Farmington Cn, 5500', DAVIS Co, 20 June 1987 (JLH); nr Duncan Mtn, SEVIER Co, 6 July (PJS). Copaeodes aurantiaca, Slick Rock Cn, KANE Co, 12 Jun (ADW). Hesperia comma, nr Bountiful Peak, 9100', DAVIS Co, 24 July (JLH). H. nevada, Lone Tree Mtn, 8000', IRON Co, SW, 9 June; Strawberry Ridge, KANE Co, SOUTH, 23 June (both PJS). Polites sabuleti, E side of Brigham City, 4400', BOX ELDER Co, NW, 18 July 1987; Ogden, WEBER Co, 11 July 1987 (both JLH). Ochlodes sylvanoides, NE side of Brigham City, 4500', BOX ELDER Co, NW, 18 July 1987 (JLH). O. yuma, UT 202, 1.1 mi SE of I-80 jct, 4225', SALT LAKE Co, 23 July 1987; I-80, 1.3 mi S of UT 201 jct, 4225', TOOELE Co, NW, 23 July 1987 (both JLH). Poanes taxiles, NE side of Brigham City, 4500', BOX ELDER Co, NW, 18 July 1987; Halfway Crk, 6200', Farmington Cn, DAVIS Co, 20 June 1987 (both JLH). Papilio bairdii brucei, Little Duncan Mtn, 9000', SEVIER Co, 3 July 1987 (JLH). Papilio zelicaon, reared from larvae found in Leeds Cn, April 1987, emg April 1988, WASHINGTON Co, SW (PJS). Euchloe hyantis, Calf Crk, GARFIELD Co, 26 Apr 1987 (PJS). Anthocharis sara, Calf Crk, GARFIELD Co, 26 Apr 1987 (PJS). Colias alexandra, Stout Cn, KANE Co, SOUTH, 9 Jul 1987 (PJS). Tharsalea arota, 9 mi N of Whiterocks, 7300', UTAH Co, 29 Aug 1987 (JLH). Lycaena rubidus, 2.3 mi SW of Salina, 5100', SEVIER Co, 22 Aug 1987 (JLH). Satyrus behrii, Halfway Crk, 6200', Farmington Cn, DAVIS Co, 24 July 1986 (JLH). Ministrymon leda, W side of Washington, 2800', WASHINGTON Co, STATE, 28 Jul (JLH). Callophrys affinis, Bountiful Peak, 9200', DAVIS Co, 20 June (JLH). C. apama, 4.4 mi N of Mt Waas, 8500', GRAND Co, 26 June 1987 (JLH). Incisalia augustus, Beaver Crk, 6000', 3 mi NW of Causey Dam, WEBER Co, 21 June 1987 (JLH). I. eryphon, Little Pinto Crk, IRON Co, 26 May 1986 (PJS). Strymon melinus, Salina, 5150', SEVIER Co, 3 July 1987 (JLH). Euphilotes enoptes, 0.9 mi NE of Dove Crk Pass, 6700', BOX ELDER Co, NW, 13 June 1987; 4 mi S of Blanding, 5800', SAN JUAN Co, SE, 31 May 1987; N side of Little Duncan Mtn, 8600', SEVIER Co, 3 July 1987; Beaver Crk, 6000', 3 mi NW of Causey Dam, WEBER Co, 21 June 1987 (all JLH). Philotiella speciosa, W slope of Beaver Dam Mts, WASHINGTON Co, STATE, EAST, 1 May (PJS). Speyeria coronis, Pine Valley Mts, WASHINGTON Co, SW, 8 July 1987 (PJS). Speyeria zerene, Halfway Crk, 6200', Farmington Cn, DAVIS Co, 20 June 1987; 0.25 mi NE of Francis Peak, 9300', MORGAN Co, 30 July (both JLH). S. hydaspe, S. eggleis, S. mormonia, 0.25 mi NE of Francis Peak, 9300', MORGAN Co, 30 July (all JLH). Euphydryas anicia, 5 mi N of Holden, MILLARD Co, 6 May 1982 (PJS). E. editha, 3.6 mi NE of Bountiful, 7500', DAVIS Co, 18 June 1987 (JLH). Poladryas arachne, Middle Cn Oquirrh Mts, TOOELE Co, 23 Aug 1980 (PJS). Phyciodes pascoensis, Sheep Crk Cn Geological Area, 7000', DAGGETT Co (I show P. tharos from that county, but it is

undoubtedly pascoensis), 7 June (DLE). P. mylitta, Johnson Crk, 7700', 12 mile N of Blanding, SAN JUAN Co, SE, 29 May 1986 (JLH). P. pallida, Manti Cn, 6600', 2.9 mi E of Manti, SANPETE Co, 19 June 1983; Happy Valley, 7600', 11.5 mi SE of Torrey, WAYNE Co, 16 July 1984 (both JLH). Nymphalis milberti, 0.9 mi NE of Dove Crk Pass, 6700', BOX ELDER Co, NW, 13 June 1987 (JLH). Vanessa atalanta, Bountiful Peak, 9259', DAVIS Co, 20 June 1987 (JLH). V. virginiensis, 2.3 mi WSW of Pace Lk, 8900', GRAND Co, 26 June 1987 (Stephen W. Sommerfeld/JLH); Little Duncan Mtn, 9000', SEVIER Co, 3 July 1987 (JLH). V. carye annabella, E side of Brigham City, 4400', BOX ELDER Co, NW, 18 July 1987; Ogden, WEBER Co, 11 July 1987 (both JLH). Basilarchia archippus, 1 mi NW of Willard, 4250', BOX ELDER Co, NW, 18 July 1987 (JLH). Cercyonis pegala, Farmington, 4400', DAVIS Co, 29 June 1987 (JLH).

MOTHS: Apantesis gibsoni, Crouse Cn, Daggett Co, 9 Aug (CDF). A. nevadensis, Oak Crk, 2.5 mi N of Fairview, SANPETE Co, 24 Aug (RCM). A. virgo, Provo, UTAH Co, STATE, 3 Aug (RCM). Arachnis apache, Crouse Cn, Daggett Co, 9 Aug (CDF). Catocala arizonae and C. hermia, Crouse Cn, Daggett Co, 9 Aug (CDF). Holomelina fragilis and Hyphantria cunea, Park West Ski Resort, SUMMIT Co, 28 Jun (RCM). Hyles galli, 2 mi E of Guardsman Pass, SUMMIT Co, STATE, 26 June (RCM). Kodiosoma otero, larvae collected and reared on Stephanomeria, 5 ft N of AZ line, ESE of old US 91, WASHINGTON Co, STATE, 22 Mar (C. F. Gillette/RCM). Lycomorpha grotei, Crouse Cn, Daggett Co, 9 Aug (CDF). L. splendens, Provo, UTAH Co, 24 Aug (RCM). Turuptiana permaculata, Crouse Cn, Daggett Co, 9 Aug (CDF).

COLORADO. Contributors: BFC, CVC, TSD, DLE, CDF, RHL, PAO, JAS, RES, PMT, ADW. Most observers commented on the early, dry and poor season, but some moth collecting was good.

BUTTERFLIES: Over 100 records were received, mainly repeats for common species. There were 31 county records, which put the state over 100 average species per county for the first time (100.41), and several early and late records. We welcome ADW, age 14, into the cadre of Colorado lepidopterists; he contributed numerous records and we expect great things from him in the future! Erynnis pacuvius, one dark fringed individual among typical white fringed ones, Crawford Hill, Jefferson Co, 14 May (RES). Yvretta rhesus, Tintown, JEFFERSON Co and Denver regional record, a single male, 17 May (JAS). Hesperia uncas, Sand Crk, ADAMS Co, Jul 1986 (PAO). H. leonardus montana, now an official Threatened Species, flew poorly in 1988 (RES). Polites sabuleti, Barr Lk, Adams Co, 24 Aug (JAS, RES); Maybell Jct, MOFFATT Co, 3 Sept (ADW); Aspen, PIKIN Co, 27 Aug 1987 (ADW). P. origenes, Sand Crk, ADAMS Co, 30 June (PAO). Ochlodes snowii, Lake City, HINSDALE Co, WEST, 18 July (PAO). Papilio bairdii fm brucei, Cinnamon Pass, HINSDALE Co, 18 July (PAO). P. zelicaon, Colorado Outdoor Education Center, TELLER Co, 20 June (CVC). P. glaucus, Greenwood Village, ARAPAHOE Co, very rare in the Denver area, 29 May (ADW). P. multicaudatus, 6 mi N of Lake City, HINSDALE Co, 18 July (PAO); female emerged in garage, Fort Collins, Larimer Co, 1 Dec, LATE (actually this might be an EARLY record!) (P. Jackson/PAO). Pieris rapae, Lafayette, Boulder Co, 27 Nov, LATE (BFC). Pontia occidentalis, an explosive season in Colorado; Littleton, ARAPAHOE Co, 17 June (PMT); John Martin Dam, BENT Co, 15 Oct (PAO/RES); Lafayette, Boulder Co, 29 Nov, LATE (BFC); 3rd generation common in Jefferson Co and elsewhere, Sep-Oct (JAS); S end of Nee Grande Rsvr, KIOWA Co, EAST, 15 Oct (PAO/RES). Colias alexandra, partial 2nd generation, Green Mtn, Jefferson Co, 26 Sept (JAS). Phoebis sennae, 8 mi ENE of Pleasant View, MONTEZUMA Co, SW, 25 Aug (D. Leatherman/PAO). Tharsalea arota, Lory St Park, LARIMER Co, NORTH, 18 June (S. L. Ellis/PAO). Lycaena heteronea, Lake City, HINSDALE Co, 19 Jul (PAO). L. helloides, Ordway, CROWLEY Co, 16 Oct (RES). Hypaurotis crystallus, Fort Collins, LARIMER Co, NORTH, July 1987 (K. Cook/PAO). Satyrus liparops, Greenwood Village, ARAPAHOE Co, 29 Jun (ADW). Mitoura spinetorum, Greenwood Village, ARAPAHOE Co, 4 July 1984 (ADW). Hemiarctus isola, Greenwood Village, Arapahoe Co, 30 Oct, LATE (ADW). Everes amyntula, several 3rd generation records, Jefferson Co, 3-17 Sept (JAS). Plebejus acmon, 2 mi SE of Kit Carson, CHEYENNE Co, 15 Oct (PAO/RES); Flagler SWA, Area, 4 mi E of Flagler, 4700', KIT CARSON Co, 15 Oct (PAO/RES); Rocky Ford SWA, 3 mi NE of Rocky Ford, Otero Co, 16 Oct, LATE (PAO/RES). Libytheana bachmanii, Cherry Crk Rsvr, ARAPAHOE Co, 28 June 1985 (ADW). Speyeria mormonia, one worn male, Van Bibber Crk, Jefferson Co, always rare this low, 8 Sep (JAS). Boloria selene sabulocollis, apparently extinct at Timnath, Larimer Co (JAS). Chlosyne gorgone, S end of Nee Grande Rsvr, Kiowa Co, 15 Oct, LATE (PAO/RES). Phycoides tharos, 2 mi S of Las Animas, Bent Co, 16 Oct, LATE (PAO/RES); Green Mtn, Jefferson Co, always rare in the Denver area, 26 Sep (JAS). P. pratensis, Greenwood Village, Arapahoe Co, 30 Oct, LATE (ADW); SR 71 nr Ordway Rsvr, CROWLEY Co, EAST, 16 Oct (RES); Lake City, HINSDALE Co, 18 Jul (PAO). Polygonia faunus hylas, Forest Rd 545 at jct with Little Taylor Trail, San Juan NF, MONTEZUMA Co, SW, 8 Aug (CDF); Breckinridge, SUMMIT Co, 3 Aug 1986 (ADW). P. zephyrus, Greenwood Village, Arapahoe Co, 4 Nov, LATE (ADW). Vanessa atalanta, John Martin Dam, BENT Co, 15 Oct (RES); Arapahoe NWR, JACKSON Co, 1987 (W. Howe/PAO); Loveland Pass, SUMMIT Co, 19 Aug (JAS). V. carye annabella, 3 seen, Jefferson Co, 20-26 Sept (JAS). Erebia epispodea, several records at lower elevations of Jefferson Co, LOW, 2-15 June (JAS). Neominois ridingsii, 12 mi NNW of Orchard, MORGAN Co, 19 Jun (PAO); Pawnee Natl Grassland, Weld Co, 15 May, EARLY (BFC). Oeneis uhleri reinthali, 6 mi N of Wolf Crk Pass, 9000', Mineral Co, 8 Jul (RHL).

MOTHS: At Pagosa Spgs, Archuleta Co, 7 and 10 Jul, RHL got 286 moths including Arzama obliqua pallida, Comadia bertholdi, Heterocampa rufinans, Oligocentria pallida, Pseudorthodes keela. At Pike's Peak Research Station, Teller Co, 8-9 Jul, RHL got 200 moths including Aemilia roseata occidentalis, Eupithecia nabokovi, Euxoa setonia, Fishea connecta, Oltracis fumosa. BFC noted dry conditions and poor collecting; the Euproserpinus wiesti colony in Weld Co is doing well. PAO blacklighted year around at his home, taking over 1000 specimens including Alucita montana, probably a STATE record. CVC reported good mothing at and near the Pike's Peak Research Station 15-18 June including Agapema homogena, Galenara lixarioides, Narraga stalactaria, Rheumaptera ?sperryi. TSD reported good collecting in the mountains, and submitted the following list of species: Melemaea magdalena, Gr (Grand Co), Aug. Catocala aholibah, Ga (Garfield Co), Aug. C. verrilliana, Ga, Aug. Acronicta parallela, Je (Jefferson Co), Jun. A. thoracica, Je, Jun. A. sperata, Je, Jun. A. edolata, Je, Jun. Hydraecia pallescens, Gr, Sep. Andropolia contacta pulverulenta, Gr, Sep. Cosmia calami, Ga, Aug. Xylota thoracica, Gr, Sep. X. cineritia, Gr, Jun. Lithomia germana, Gr, Sep. Litholomia napaea, Gr, May. Anathix aggressa, Mg (Morgan Co), Sep. Hillia iris, Gr, Aug. Fishia betsia, Gr, Sep. Platypolia contadina, Gr, Aug. Brachyolomia algens, Gr, Aug. Nycterothaeta luna, Mg, Aug. Lasionycta impingens, Gr, Jul. L. discolor, Gr, Jul. L. mimula, Je, Jun. L. subfuscata, Gr, Jul. L. benjamini, Gr, Jun. Egira variabilis, Gr, May. Homorthodes reliqua, Je, Jul. Agrotis orthogonia, Mg, Sep. A. venerabilis, Gr, Sep. A. vancouverensis, Gr, Jun. A. obliqua, Gr, Jun. Onychagrotis rileyana, Mg, Sep. Euxoa edictalis, Gr, May. E. tristicula, Mg, Aug. E. atomaris, Mg, Sep. E. inconcinna, Je, Jun. E. olivia, Mg, Sep. E. franclemonti, Je, Jul. E. flavidens, Gr, Aug. E. infausta, Ga, Aug. E. pallidimacula, Me (Mesa Co), May. E. pluralis, Me, May. E. catenula, Mg, Sep. E. quadridentata, Mg, Sep. E. niveilinea, Mg, Sep. E. detera, Mg, Sep. Eurois praefixa, Gr, Sep. Xestia (Anomogyna) fabulosa ssp. nov. Gr, Jul. X. (A.) speciosa aproposita, Gr, Jul. Abagrotis discoidalis, Me, May. Schinia thoreau, Mg, Aug. TSD thanks John G. Franclemont and Donald Lafontaine for assistance with determinations.

NEW MEXICO. Contributors: SJC, CVC, CDF, RHL, PJS, ADW. The season was early, hot and dry through June, then rainy in the summer. Several early and late records were obtained.

BUTTERFLIES: About 70 records were received, including 36 county records and one state record (Euchloe olympia). NM now has 103.21 average species per county, about equal to Nevada. Pyrrhopyge araxes, Guadalupe Cn, Hidalgo Co, 5 Sep, LATE (SJC). Cogia hippalus, Mangas Springs, GRANT Co, 7 Aug (CDF). Erynnis horatius, Beaver Cn, HARDING Co, 11 July

(SJC). E. pacuvius, 2 mi N of Emory Pass, SIERRA Co, 13 Aug (SJC). Pyrgus philetas, Guadalupe Cn, Hidalgo Co, 10 Sept, LATE (SJC). Celotes nesusus, Sibley Mtn, SIERRA Co, 23 Apr (SJC). Oarisma edwardsii, Beaver Cn, HARDING Co, 11 July (SJC). Hylephila phyleus, Percha Dam St Park, SIERRA Co, 6 May (SJC). Stinga morrisoni, Bearwallow Mtn, CATRON Co, 29 May (SJC). Hesperia pahaska, Guadalupe Cn, Hidalgo Co, 10 Sept, LATE (SJC). H. viridis, Priest Cn, VALENCIA Co, 23 Aug (SJC). H. nevada, Touch-Me-Not Peak, COLFAX Co, 28 July (SJC). Atalopedes campestris, Mahoney Wash, LUNA Co, 8 Oct (SJC). Euphyes vestris, Beaver Cn, HARDING Co, 11 July (SJC). Amblyscirtes aeneus, Cookes Rg, LUNA Co, 6 Sept, LATE (SJC). A. cassus, Apache Spgs Cg, COLFAX Co, NE, 8 July (ADW). A. nereus, Kingston, Sierra Co, 12 June, EARLY (SJC). Euchloe olympia, 32 mi NNE of Clayton, UNION Co, STATE, 30 Apr (SJC). Phoebis agarithe, Mangas Spgs, GRANT Co, 7 Aug (CDF). Hypaurotis crysalus, Kingston, Sierra Co, 12 Jun, EARLY (SJC). Atlides halesus, Whitewater Crk Cg, CATRON Co, 29 Aug 1951 (E. L. Kessel/SJC). Phaeostrymon alcestitis, Canadian Rvr at SR 120, MORA Co, NW, 11 Jul; 1 mi NE of Kenna, ROOSEVELT Co, 23 June; 12 mi NE of Elkins, CHAVES Co, 23 Jun; 20 mi SSE of Mosquero, SAN MIGUEL Co, 10 June (all SJC). Incisalia henrici, oviposition on Arbutus xalapensis, Sitting Bull Cn, Eddy Co, 2 Apr (SJC). Mitoura spinetorum, Arroyo Hondo at I-25, Santa Fe Co, 26 Mar, EARLY; 15 mi NW of Cimarron, COLFAX Co, NE, 3 Jul (both SJC). Fixsenia ontario violae, 7.5 mi SSE of Mosquero, SAN MIGUEL Co, SOUTH, 10 Jun (SJC). Plebejus icarioides, Mora, MORA Co, 3 Jul 1977 (D. Altman/SJC). P. acmon, Rock Hound St Park, LUNA Co, 9 Nov, LATE (SJC). P. glandon rustica, Bearwallow Mtn, CATRON Co, 29 May (SJC). Emesis zela, Guadalupe Cn, Hidalgo Co, 5 Sep, LATE (SJC). Boloria titania, Touch-Me-Not Peak, COLFAX Co, NE, 28 Jul (SJC). Thessalia fulvia, Priest Cn, VALENCIA Co, 23 Aug (SJC). Chlosyne gorgone, 10 mi E of Mosquero, Harding Co, 30 Jun, EARLY (SJC). Phyciodes tharos (A), Cookes Rg, LUNA Co, 6 Sep (SJC). P. mylitta, Beaver Cn, HARDING Co, EAST, 11 Jul; 5 mi E of Ancho, LINCOLN Co, 7 Aug (both SJC). Basilarchia astyanax arizonensis, Cookes Rg, LUNA Co, 6 Sept; Guadalupe Cn, Hidalgo Co, 10 Nov, LATE (both SJC). Anaea andria, Mahoney Wash, LUNA Co, 8 Oct (SJC). Cyllopsis pertepida, Priest Cn, VALENCIA Co, 23 Aug (SJC). Megisto rubricata, Beaver Cn, HARDING Co, NE, 11 Jul (SJC). Neominois ridingsii, SR 54, 6 mi NE of US 60, GUADALUPE Co, 13 June (PJS). Oeneis chryxus, Touch-Me-Not Peak, COLFAX Co, NE, 28 July (SJC). Danaus gilippus, Canadian Rvr nr Logan, QUAY Co, 24 June (SJC).

MOTHS: At Sandia Park, Bernalillo Co, 6 July, RHL took 260 moths between rain showers, including Arachnis zuni, Eucosma franclemonti, Eup. neomexicana, Inguromorpha itzalana, Stenoporpia anellula. In Mountainair, Torrance Co, 21 June, CVC found good collecting including Idaea peralbata and I. gemmata. At the Mogollon Cg, 15 mi N of Silver City, Grant Co, 22 Jun he took Agapema homogena and a good assortment of other species. Taken at Mangas Spgs, Grant Co, 7 Aug were Arachnis picta, Catocala aholibah, C. euphemia, C. piatrix dionysa, Gloveria arizonensis, Hemihalea labecula, Leucanopsis lurida, Quadrina diazoma, Spilosoma virginica, Tolyte distincta, T. grisea (CDF).

ZONE 5 PLAINS: SASKATCHEWAN, MANITOBA, NORTH DAKOTA, SOUTH DAKOTA, NEBRASKA, KANSAS. Coordinator: Richard C. Rosche (RCR). Contributors: S. Adams (SA via CAE), Mark Bland (MB via CAE), Tanya E. Bray (TEB), Rodney Breitback (RB via RAR), Larry Cook (LC via RAR), Neil E. Dankert (NED), L. James Darby (LJD via NED), David L. Eiler (DLE), Charles E. Ely (CAE), E. A. Froemel (EAF), Bonnie L. Gibbons (BIG), Roger Grieg (RG via NED), Robin Harding (RH via NED), James Hawkins (JH via JW), Mary Hawkins (MH via JW), David F. Hess (DFH), D. Honas (DH via CAE), Ronald R. Hooper (RRH), Tom Horobik (TH via NED), B. Jarvis (BJ via RAR), John Jordison (JJ via NED), Delise Kirkeide (DK via RAR), Lanny Kizer (LK via NED), Paul Klassen (DK), Tom E. Lee (TEL via RAR), Jean M. Legge (JML via RAR), Douglas R. Long (DRL via NED), Evelyn Manley (EM), Thomas R. Manley (TRM), Gary M. Marrone (GMM), James Mouw (JM), Ann Nicole Nagel (ANN via NED), Harold G. Hagel (HGN via NED), Byron Nilson (BN via NED), Paul A. Opler (PAO), Barbara Padelford (BP), Loren Padelford (LP), Lanny Randolph (LR via NED), Jim M. Reiser (JMR via NED), Gail Roebuck (GM via RCR), Marvin E. Rolfe (MER via CAE), Dorothy J. Rosche (DJR), Adam J. Royer (AJR via RAR), Daniel G. Royer (DGR via RAR), Jesse A. Royer (JAR via RAR), Ronald A. Royer (RAR), Marvin D. Schwilling (MDS via CAE), Steve M. Spomer (SMS), Ray E. Stanford (RES), Mike Stewart (MS via NED), James Strand (JS via RAR), Darrell W. Stolle (DWS via RAR), Eric Volden (Evo via RCR), Eduard Vystrail (Evy via PK), Tim Wagner (TW via CAE), Gordon Warrick (GW via NED), John Weber, Jr. (JW), Marlene Weber (MW via JW), Ed Weiner (EW via CAE), Vernon L. Wranosky (VLW), Vernon L. Wranosky III (VLW). All contributors deserve much thanks, especially those who so quickly answered numerous questions and requests for additional information. COUNTY, STATE (in caps) = new county, state records; NORTH, SOUTH, EARLY, LATE, etc. (in caps) are also considered unusual by the contributor and/or coordinator. Abbreviations: Cyn/Cyns = Canyon/Canyons; Co/Cos = county/counties; coll = collected/collection; Jct = Junction; L = Lake; max = maximum; mi = mile/miles; Mt/Mts = Mountain/Mountains; N = north; NP = National Park; nr = near; NE = northeast; NWR = National Wildlife Refuge; P = Park; PF = Provincial Forest; Pres = Preserve; Res = Reservoir; R = River; S = south/southern; sp = species; SP = State Park; SRA = State Recreation Area; ver = verified; WMA = Wildlife Management Area.

SASKATCHEWAN. Due to drought conditions lepidoptera were greatly reduced in numbers in the southern half of the province. Provincial Coordinator: RRH (all records unless otherwise noted). Contributor: BJ.

BUTTERFLIES: Hesperia uncas, Tramping LP, NORTH, 2 June. Colias alexandra alexandra, Kerrobert, NORTHWEST, 2 June; Pike L, NORTHEAST, 23 July (BJ). Icaricia acmon lutzi, Unity Badlands, NORTH, 2 June.

MOTHS: Catocala sordida, Gordon L, WEST, 19 July. Autographa pseudogamma, Gordon L, NORTH, 19 July.

MANITOBA. One of the warmest and driest seasons on record produced a severe drought in the south. Spring flying species were unusually early, generally with short flight periods. With some exceptions noted below, most later occurring butterflies were down in numbers and had short flight periods. Few butterflies were seen after August. No migratory activity was observed. In the north, except for an early spring, the season was normal. Butterfly populations seemed generally low in early July (PK). At Churchill, collecting 25 June to 5 July was very slow despite southerly winds and good weather 25 - 30 June. Locals reported that spring came late. Snow remained on the ground in portions of protected tiaga into July (RAR). Provincial Coordinator: PK. Contributors: RAR, EVY.

BUTTERFLIES: Erynnis persius, uncommon, Riding Mt NP, 2 - 3 June (PK). Pyrgus centaureae, male coll, Churchill, 25 June to 5 July (RAR). E. communis, unusually common, Culross, 3 June - 17 Aug (PK). Carterocephalus palaemon, uncommon, Riding Mt NP, 2 - 3 June (PK). Oarisma powesheik, common, Tolstoi, 23 June (PK). Thymelicus lineola, Rathwell and Northwest Angle PF (new localities), 4 July (PK). Hesperia comma, common, Milner Ridge (new locality), 26 July and 8 Aug and rare, Brereton L, Whiteshell PP, 21 July and 9 Aug (PK). H. leonardus, more common than usual, Brereton L, Whiteshell PP, 9 Aug (PK). H. dacotae, uncommon, Tolstoi, 23 June and Lundar, worn, 8 July (PK). Polites coras, male coll, Leaf Rapids, NORTH, 11 July (PK). P. mystic, worn female, Pipun, NORTH, 12 July (PK). Atrytone logan, locally common, Culross, 9 June - 2 July and at Rathwell (new locality), 4 July (PK). Artogeia napi, two females coll, Churchill, 25 June - 5 July (RAR). Colias eurytheme, two worn females coll, Leaf Rapids, 9 to 12 July (PK). C. gigantea, abundant, Thompson Spur Jct on Hudson Bay Railroad, 6 July (RAR); common, Lynn L to Thompson, 9 to 12 July (PK). C. interior and C. palaeno, common, Lynn L to Thompson, 9 to 12 July (PK). Feniseca tarquinius, a few coll, Elm Creek, 21 May - 18 June, and at Brereton L, Whiteshell PP, 21 July (PK). Epidemia epixanthe, rarely taken in Manitoba,

Milner Ridge (new locality), 26 July - 8 Aug (PK). Satyrium edwardsii, locally abundant, Melbourne, 23 June (PK). Everes comyntas, rare in Manitoba, Rathwell (new locality), 4 July (PK). Glaucopsyche lygdamus, the only abundant species, Churchill, 25 June thru 5 July (RAR). Vacciniina optilete, rare in Manitoba, one male coll, Lynn L (new locality), 10 July (PK); also taken at Thompson (EVY). Euptoieta claudia, less common than in the past three years in the south (PK). Speyeria atlantis, "swarmed in clouds of hundreds" as the Hudson Bay Railroad passed between Thicket Portage and The Pas, 6 July (RAR); very common in both north and south (PK). Proclassiana eunomia, absent, Churchill, 25 June to 5 July (RAR). Clossiana frigga, uncommon, Churchill, emerging by 30 June (RAR); rarely taken east of Red River in the south but locally abundant at Lac du Bonnet (new locality), 26 - 27 May (PK). C. frieja, common, Akudlik area, by 30 June (RAR). Charidryas nycteis, common, Tolstoi, 23 June (PK). Nymphalis vau-album, more abundant than usual in the south (PK). N. antiopa and Aglais milberti, more seen than ever before throughout the season in the south (PK). Vanessa virginiensis, coll, the only one of the season, Brereton L, Whiteshell PP, 9 Aug (PK). V. cardui, uncommon in the south (PK). Coenonympha inornata, 3 females coll, Pipun (new locality), 12 July (PK). Erebia rossii ornata, common, Akudlik, by 30 June (RAR). E. discaudalis, absent, Churchill, 25 June - 5 July (RAR). Oeneis chryxus, well worn, Cowan, 3 June (PK). O. alberta, well worn, Pine Ridge, 26 May (PK). O. jutta, uncommon, Churchill, by 30 June (RAR); locally common, Riding Mt NP, 9 June (PK). O. melissa, uncommon, Churchill, by 30 June (RAR). O. polixenes, the bore-mimic phenotype, uncommon, Churchill, by 30 June (RAR). Danaus plexippus, uncommon in the south, 18 June - 18 Aug, none seen 30 June - 4 Aug (PK).

NORTH DAKOTA. The season began early, but was interrupted by a cold snap in May. Rainfall was geographically very patchy, ranging from normal to nonexistent across most of the state. Only the Nymphalidae (particularly Polygonia and Nymphalis sp.) appeared in usual or greater numbers in western counties. No state records were tallied, although once again well over one hundred new county records are presented here despite an extremely bad year for most species. Knowledge of Hesperia dacotae was expanded to include a fifteenth population, raising the state atlas tally to eleven counties. Speyeria idalia appeared for the first time in many years in the western part of the state. Icaricia shasta minnehaha also resurfaced in Slope County. Other noteworthy records include Vanessa annabella in Traill County, and recently received reports of old Ward County Heracles cressphontes and Nathalis iole records as well as data on a sound May, 1949 Ward County series of Oeneis alberta, hitherto recorded in the state from but a very few specimens. State Coordinator and primary writer of this report: RAR. Contributors: RB, LC, DLE, DK, TEL, JML, PAO, JAR, AJR, DGR, JS, DWS (all RAR unless otherwise indicated).

BUTTERFLIES: Epargyreus clarus, BURLEIGH Co, 28 June (LC). Thorybes pylades, WARD Co, 18 June, 1949 (TEL). Erynnis icelus and E. brizo, ROLETTE Co, 28 May. Pyrgus communis, BURLEIGH Co, 28 June (LC); LOGAN and STUTSMAN Cos, 6 to 9 Sep (PAO); McLEAN Co, 3 July (LC); TRAILL Co, 3 July (JS); WELLS Co, 7 July (DK); DIVIDE and RENVILLE Cos, 5 July (DLE). Pholisora catullus, BURLEIGH Co, 22 June and 11 July (RB); McLEAN Co, 3 July (LC); STUTSMAN Co, 6 - 9 Sep (PAO); WARD Co, 10 July (JAR). Hesperia comma, LaMOURE Co, 6 - 9 Sep (PAO). H. pawnee, 3 females, BURLEIGH Co, 15 Aug (RB). H. dacotae, BARNES Co, 27 June (JL). Polites themistocles, TRAILL Co, 3 July (JS). P. mystic, RENVILLE Co, 5 July (DLE). Atrytone logan, BURLEIGH Co, 28 June (LC); BARNES Co, 3 July (JL). Poanes hobomok, BARNES Co, 5 June (JAR). Papilio polyxenes, TOWNER Co, 5 July (DLE). P. bairdii, MORTON Co, 22 June (DWS). Heracles cressphontes, WARD Co, NORTHWEST, 27 Aug 1949 (TEL). Pterourus glaucus, ROLETTE Co, 28 May; BARNES and RANSOM Cos, 5 June (AJR); BURLEIGH Co, 24 July (LC). Pontia protodice, LOGAN and STUTSMAN Cos, 6 - 9 Sep (PAO). P. occidentalis, WARD Co, 28 Aug 1949 (TEL); EMMONS Co, 18 June (JS); BURLEIGH Co, 8 Aug (LC); MCKENZIE Co, 3 Sep (JS); STUTSMAN and LaMOURE Cos, 6 - 9 Sep (PAO). Artogeia rapae, DIVIDE Co, 15 Sep 1987; BURKE Co, 21 May; TOWNER Co, 5 July (DLE); DICKEY, LaMOURE, McINTOSH and STUTSMAN Cos, 6 - 9 Sep (PAO). Euchloe olympia, WILLIAMS Co, 20 May. Colias philodice, WILLIAMS and DIVIDE Cos, 20 May (DGR); EMMONS Co, 18 June (JS) and 26 Aug (RAR); RENVILLE and ROLETTE Cos, 5 July (DLE); DICKEY, LaMOURE, LOGAN and McINTOSH Cos, 6 - 9 Sep (PAO). C. eurytheme, BARNES Co, 29 June (LC); McLEAN Co, 3 July (LC); RENVILLE Co, 5 July (DLE); EMMONS Co, 26 Aug; LaMOURE, LOGAN and STUTSMAN Cos, 6 - 9 Sep (PAO). Nathalis iole, WARD Co, 5 Aug 1955 (TEL). Hylolycaena hyllus, BARNES Co, 27 June (JL). Harkenclenus titus, male, WARD Co, 21 June (JAR). Satyrium edwardsii, BURLEIGH Co, SOUTHWEST, 20 June (LC). S. calanus, DUNN Co, 15 June. Everes amyntula, ROLETTE Co, EAST, 28 May. Celastrina argiolus, ROLETTE Co, 28 May; BARNES Co, 5 June. Glaucopsyche lygdamus, WILLIAMS Co, 20 May; ROLETTE Co, 28 May. Lycaeides melissa, BURLEIGH Co, 22 June (LC) and 22 Aug (RB); EMMONS Co, 26 Aug (RAR) and 8 Oct (JS); KIDDER, LOGAN, McINTOSH, and STUTSMAN Cos, 6 - 9 Sep (PAO). Euptoieta claudia, DIVIDE Co, 21 May; EMMONS Co, 18 June (JS); BARNES Co, 29 June (JL); McLEAN Co, 3 July (LC); BURLEIGH Co, 5 July (RB); STUTSMAN Co, 6 to 9 Sep (PAO). Speyeria cybele, EMMONS Co, 18 June (JS); BURLEIGH Co, 25 June (JS) and 28 June (LC); TRAILL Co, 4 July (JS). S. aphrodite, McLEAN Co, 3 July (LC); TRAILL Co, 4 July (JS). S. idalia, BURLEIGH Co, 25 June (LC) and 11 July (RB); female, LaMOURE Co, 6 to 9 Sep (PAO). S. edwardsii, EMMONS Co, 18 June (JS). Clossiana bellona, McHENRY Co, 3 June. Phyciodes tharos, (includes pascoensis), fairly common statewide to mid-Oct; BARNES Co (pascoensis), 3 July (JL); TOWNER Co, 5 July (DLE); WELLS Co, 7 July (DK); BURLEIGH Co, 8 and 15 July (LC) and 29 Aug (RB). Polygonia interrogationis, BURLEIGH Co, 5 Sep (JS). P. comma, BURLEIGH Co, 6 July (LC). P. progne, BOTTINEAU Co, 28 May. Nymphalis vau-album, DUNN Co, 15 May. N. antiopa, WELLS Co, 7 July (DK); an excellent year statewide. Vanessa cardui, BARNES Co, 27 June (JL); BURLEIGH Co, 2 July (LC); DICKEY Co, 6 - 9 Sep (PAO). V. annabella, TRAILL Co, EAST, 4 July (JS). V. atalanta, BURLEIGH Co, 6 July (LC). Basilarchia arthemis, BARNES Co, 27 June (JL); BURLEIGH Co, 22 June (LC); McLEAN Co, 3 July (LC). B. archippus, McLEAN Co, 3 July (LC); BURLEIGH Co, 10 July (LC). Coenonympha inornata, BARNES and RANSOM Cos, 20 June (DGR). Cercyonis pegala, TRAILL Co, 3 July (JS); DIVIDE, BURKE, ROLETTE, and TOWNER Cos, 5 July (DLE); WELLS Co, 7 July (DK). Oeneis uhleri, WILLIAMS Co, 20 May. Danaus plexippus, TRAILL Co, 3 July (JS); BURLEIGH Co, 6 July (LC); STUTSMAN Co, 6 - 9 Sep (PAO).

SOUTH DAKOTA. Drought conditions were the rule throughout the state during most of the season, although there was an abundance of wildflowers in the Black Hills in late June that attracted many butterflies. The hot, dry spring and early summer caused many species, i.e. Speyeria, to emerge early. All lepidoptera were generally much more scarce than in the average year during late summer and early autumn. The data below covers 82 new county butterfly records representing 54 species. Anaea andria was reported for the second time in the state. State Coordinator: GMM. Contributors: NED, DFH, JM, HGN, PAO, DJR, RCR, RES (all Jones and Melette Co records for 28 and 29 May should be attributed to GMM, PAO, RES, and RCR unless otherwise indicated).

BUTTERFLIES: Epargyreus clarus and Thorybes pylades, MELLETTE Co, 28 - 29 May. Erynnis juvenalis, 6 seen and coll, Chases The Woman Cyn, TODD Co, 26 May (RCR); White R, MELLETTE Co, 28 May. Pyrgus communis, JONES and MELLETTE Cos, 28 May; TODD Co, 8 July (RCR, DJR). Pholisora catullus, SHANNON Co, 15 May (RCR, DJR); Todd Co, 26 May (RCR); Jones Co, 28 May. Polites themistocles, MELLETTE Co, 28 May; Jones Co, 29 May (GMM). P. mystic, 4 coll, TODD Co, 8 July (RCR, DJR). Atalopedes campestris, 4 females coll, TODD Co, 17 Sep (RCR). Atrytone arogos, coll, TODD Co, 8 July (RCR, DJR). Poanes hobomok, MELLETTE Co, 28 May. Euphyes ruricola, SULLY Co, 18 June (GMM); common, TODD Co, 8 July (RCR, DJR). Atrytonopsis hianna, JONES and MELLETTE Cos, 28 May. Amblyscirtes osleri, coll, 9 mi NE White R, MELLETTE Co, EAST, 29 May. A. vialis, MELLETTE Co, 29 May. Megathymus texanus, females ovipositing on Yucca glauca, Rapid City,

Pennington Co, 6 - 9 June (DFH). Papilio zelicaon, coll, Slim Butte, SHANNON Co, 15 May (RCR, DJR). Pterourus glaucus, MELLETTE Co, 28 May. E. multicaudata, coll, Ironwood Cyn, TODD Co, 27 May (RCR); Bear Butte SP, MEADE Co, 6 - 8 June (DFH). Pontia sisymbrii, male coll, Limestone Butte (new locality), Fall River Co, 16 Apr (RCR). P. occidentalis, coll, White R, MELLETTE Co, 28 May. Artogeia rapae, TODD Co, 30 Apr (RCR, DJR); MELLETTE Co, 28 May. Euchloe olympia, TODD Co, 30 Apr (RCR, DJR); SHANNON Co, 15 May (RCR, DJR); JONES and MELLETTE Cos, 28 May. Colias philodice, TODD Co, 27 May (RCR). C. eurytheme, TODD Co, 26 May (RCR). Hylolycaena hyllus, TODD Co, 8 July (RCR, DJR). Epidemia helleoides, TODD Co, 17 Sep (RCR). Satyrus acadica, 14 coll and seen, unusually common this year, TODD Co, 8 July (RCR, DJR). S. calanus, Okobojo Creek, SULLY Co, 18 June (GMM). Mitoura siva, JONES and MELLETTE Cos, 28 May. Incisalia eryphon, coll, Chases the Woman Cyn, TODD Co, EAST, 30 Apr (RCR, DJR). Strymon melinus, SHANNON Co, 15 May (RCR, DJR); SULLY Co, 18 June (GMM); TODD Co, 8 July (RCR, DJR). Hemiargus isola, TODD Co, 8 July (RCR, DJR). Everes comyntas, TODD Co, 8 July (RCR, DJR). Glaucopsyche lygdamus, SHANNON Co, 15 May (RCR, DJR); JONES and MELLETTE Cos, 28 May. Lycaeides melissa, JONES and MELLETTE Cos, 28 May. Icaricia acmon, 4 coll, Chases the Woman Cyn, TODD Co, 26 May (RCR). Euptoieta claudia, JONES Co, 28 May; MEADE Co, 6 June (DFH). Speyeria cybele and S. idalia, TODD Co, 8 July (RCR, DJR). S. edwardsii, JONES and MELLETTE Cos, 28 May. S. callippe, Bear Butte SP, MEADE Co, 6 - 8 June (DFH). Clossiana selene, common, Minnechadua Bog on Nebraska border, 5 mi N of Nenzel, NE, TODD Co, 23 July (NED, HGN). Charidryas gorgone, JONES and MELLETTE Cos, 28 May; TODD Co, 8 July (RCR, DJR). Phycoides tharos, JONES and MELLETTE Cos, 28 May; TODD Co, 17 Sep (RCR). Polygonia interrogationis, MELLETTE Co, 28 May; TODD Co, 9 July (RCR, DJR). Nymphalis antiopa, TODD Co, 30 Apr (RCR, DJR); MELLETTE Co, 28 May. Vanessa cardui, TODD Co, 26 May (RCR). V. atalanta, TODD Co, 30 Apr (RCR, DJR); JONES and MELLETTE Cos, 28 May. Basilarchia archippus, TODD Co, 9 July (RCR, DJR). B. weidemeyerii, Bear Butte SP, MEADE Co, 6 - 8 June (DFH). Anaea andria, near Spring Creek Day School, TODD Co, 30 Apr, second state record (RCR, DJR). Satyrodes eurydice, Little White R Valley, TODD Co, 8 July (RCR, DJR). Coenonympha tullia, JONES and MELLETTE Cos, 28 May. Danaus plexippus, TODD Co, 9 July (RCR, DJR).

MOTHS: SPHINGIDAE - Hemaris thysbe and H. diffinis, Nemo, Black Hills, Lawrence Co, 18 June (DFH). Proserpinus juanita, coll, nr White R, Mellette Co, 28 May (PAO). NOCTUIDAE - Catocala aholibah, coll, 1 mi N of Keystone, Black Hills, Pennington Co, 23 July, photograph available (JM). C. ilia, coll, 1 mi N of Keystone, Black Hills, Pennington Co, 24 July (JM). C. abbreviatella, Rapid City, Pennington Co, 23 June, associated with Amorpha sp (DFH). C. coccinata, coll, 1 mi N of Keystone, Black Hills, Pennington Co, 22 July (JM).

NEBRASKA. "1988 was the driest at Columbus, Platte Co in 52 years" (EAF), correctly summarizes weather conditions for most of the state during the entire season. The usually arid western counties suffered the least from the prolonged lack of precipitation and abnormally high average temperatures. It was not a good year for lepidoptera. The season began normally, but a very hot, dry June spelled the end of normal abundance for most species for the remainder of the year. By August it was sometimes difficult to find butterflies, even in prime alfalfa fields! Nevertheless, data was collected for about 143 new county records representing 81 butterfly species. The more significant records among these follow below, but for reasons of saving space, county records of common and widespread species are not included. These are available to interested persons, simply for the asking, as they have always been in the past. Unlike a year ago, southern vagrants were very scarce all season, although the early part produced the second modern record for the state of Kricognia lyside in the southwest. Other highlights include a major northward range extension for Thessalia fulvia, a species first found in the south-central part of the state in the early 1980's. Also in the south-central section both Mitoura siva and M. gryneus were found flying together. The latter is also a relative newcomer to the state's butterfly fauna. State Coordinator: NED. Contributors: TEB, LJD, EAF, RG, RH, MH, JH, TH, JJ, LK, DRL, EM, TRM, ANN, HGN, BN, PAO, BP, LP, LR, JMR, GR, DJR, RCR, SMS, RES, MS, EV, GW, JW, MW, VLW, VLWR.

BUTTERFLIES: Thorybes pylades, Holbrook, FURNAS Co, SOUTHWEST, 5 June (DRL). Staphylus hayhurstii, coll, Benkelman, DUNDY Co, 16 May 1987 (TH) and Trenton, HITCHCOCK Co, 23 May 1987 (RG), both SOUTHWEST. Erynnis baptisiae, photo, Hover Prairie, SARPY Co, 15 Oct (TEB, ver by PAO). Hylephila phyleus, male coll, Holbrook, FURNAS Co, SOUTHWEST (DRL). Hesperia uncas, near Stratton, HITCHCOCK Co, 31 May 1987 (TH). Polites coras, coll, Sowbelly Cyn, SIOUX Co, 13 July (RCR), the 115th species known for that county. E. mystic, 10 males coll, Victoria Springs SRA, CUSTER Co, 19 June (NED, JMR). Pompeius verna, male coll, nr Crofton, KNOX Co, 19 June 1987 (MS); photo, Fontenelle Forest, SARPY Co, 28 June (BP, ver by PAO). Poanes zabulon, male coll, Indian Cave SP, Nemaha Co, and male and female coll, Richardson Co, 29 May (NED, LJD); male coll, Twin Oaks WMA, JOHNSON Co, 30 May (NED); female, photo, 19 Aug and male, photo, 21 Aug, both Fontenelle Forest, SARPY Co, NORTH (BP, LP, ver by PAO). P. taxiles, 23 seen and coll, unusually common, Sowbelly Cyn, Sioux Co, 13 July (RCR, DJR). P. viator, female coll, South Loup R, LOGAN Co, 22 July (NED, HGN). Euphyes dion, male coll, Fontenelle Forest, SARPY Co, 27 June 1987 (SMS); male coll, near Pleasanton, BUFFALO Co, 6 July (NED, LJD). E. bimacula, male coll, Niobrara Valley Press, BROWN Co, 19 June (NED). Megathymus coloradensis, 10 males and 1 female coll, max, 6 mi S of Gothenburg, Dawson Co, 30 Apr (NED, JMR, SMS). M. texanus, 32 coll and seen, Crescent Lake NWR, Garden Co, 11 June (NED). Eurytides marcellus, 1 or 2, Indian Cave SP, Richardson Co, 7 May (BP, LP, TEB); two, Brownsville, Nemaha Co, 25 July (TEB). Papilio polyxenes, four reared from larvae coll nr Milford, SEWARD Co, emergence dates 2, 6, and 9 Aug (JMR); scarce in eastern part of state (TEB). P. bairdii, female coll, nr Kearney, Buffalo Co, 25 June (RH, LR); generally scarce with only two additional records of single individuals. Heraclides cresphontes, one, Twin Oaks WMA, JOHNSON Co, 30 May (NED, LJD); one, Holbrook, Furnas Co, 23 Sep (DRL). Pontia protodice, numbers much higher than normal in the east in the Omaha area (TEB), but very scarce in the west, having been missed for the first time in five years on the Sioux Co Cyns Xerces Count (RCR). Artogeia rapae, also very common in the east, max 500 seen, Plattsmouth, Cass Co, 20 Aug (TEB); seen, Omaha, Douglas Co, 13 Nov, LATE (TEB). Zerene cesonia, very scarce with only two records of single individuals. Phoebis sennae, compared with 1987 numbers were very low, they appeared late, and were restricted to the extreme eastern areas; the one spring record was for 6 May in Nemaha Co (BP); the rest occurred 30 July to 16 Oct with max counts of 38 on the Neale Woods Xerces Count, Douglas Co, 30 July (EV); and 13, Schramm Park SRA, Sarpy Co, 23 Sep (BP). Kricognia lyside, coll, Swanson Res, HITCHCOCK Co, 7 May (RCR, DJR), second modern record for the state. Pyrisitia lisa, only one record of one individual, Hover Prairie, Sarpy Co, 15 Oct (TEB). Nathalis iole, unbelievably scarce with the four records of eight individuals occurring 15 Aug to 15 Oct; max 5, Neale Woods, WASHINGTON Co, 21 Sep (NP). Feniseca tarquinius, four records of single individuals, Bellevue, Sarpy Co, 12 & 16 June and 20 to 21 July (JW, BP, LP, TEB). Satyrus acadica, more common than usual; 2 coll, Holbrook, FURNAS Co, SOUTH, 26 June (DRL); max counts, 12 plus, Victoria Springs SRA, Custer Co, 26 June (NED, JMR); and 29, Rowe Sanctuary Xerces Count, Buffalo Co, 4 July (HGN). S. calanus, more widespread than usual, especially in the east; 2 males and 1 female coll, Niobrara Valley Press, KEYA PAHA and BROWN Cos, NORTHWEST, 17 - 18 June (NED, HGN). Mitoura siva, 14 coll, 6 mi S of Gothenburg, Dawson Co, 5 May, flying with the next species (NED, LJD); 5 seen and coll, Swanson Res, HITCHCOCK Co, 7 May (RCR, DJR). M. gryneus, continues to spread in the southeast although numbers were very low over those of 1987 (TEB); 4 coll, 6 mi S Gothenburg, DAWSON Co, 5 May (NED), flying with M. siva. Incisalia henrici, Fontenelle Forest, SARPY Co, 13 and 24 Apr (BP). Leptotes marina, coll, Rowe Sanctuary, BUFFALO Co, 28 Sep 1986 (NED); very scarce in 1988 with only one record; coll, Stratton, HITCHCOCK Co, SOUTHWEST, 17 July (RCR, DJR). Hemiargus isola, numbers very scarce, especially compared with 1987 abundance. Glaucopsyche lygdamus, coll, near Hayes Center,

HAYES Co, 7 May (RCR, DJR). Libytheana bachmanii, more common and widespread than usual, mid Aug - mid Sep; "fairly common", Holbrook area, Furnas Co, 11 Sep (DRL). Speyeria idalia, generally fewer numbers and less widespread than 1987; max counts, 50, Rowe Sanctuary Xerces Count, Buffalo Co, 4 July (HGN); and 30, Stolley Prairie, Douglas Co, 23 June (TEB); the latter location was 100% burned earlier in 1988 and butterfly numbers were considerably down over 1987. Clossiana selene, max, 100's seen, 5 mi N of Nenzel, Cherry Co, 23 July (NED, HGN). Thessalia fulvia, coll, Niobrara Valley Pres, BROWN Co, NORTH, 18 June (NED, HGN). Phyciodes texana, seen, Holbrook, Furnas Co, 22 Sep (DRL). Polygonia comma, numbers high in forested areas of extreme east; max 89, Fontenelle Forest Xerces Count, Sarpy Co, 30 July (GR); and 25, Neale Woods, Washington Co, 3 Aug (TEB). P. progne, coll, Holbrook, Furnas Co, SOUTHWEST, post-1975 (DRL); coll, Niobrara Valley Pres, KEYS PAHA Co, 17 June (NED). Nymphalis vau-album, coll, Niobrara Valley Pres, KEYS PAHA Co, 17 June (NED). Vanessa cardui, much more common than 1987, especially in late summer and autumn; max 30, Omaha, Douglas Co, 25 Sep (TEB); seen, Omaha, Douglas Co, 6 Nov, LATE (TEB). Junonia coenia, exceptionally scarce with only one reported all season. Asterocampa celtis, more abundant than even 1987 in forested areas in extreme east; max 335, Fontenelle Forest Xerces Count, 30 July (GR); and 97, Neale Woods Xerces Count, Douglas Co, 30 July (EV). Satyrodes eurydice, more common than in the average year; max 50, Victoria Springs SRA, CUSTER Co, 26 June (NED, JMR); 6 coll and seen, Champion Mill SRA, CHASE Co, SOUTHWEST, 16 July (RCR, DJR). Danaus plexippus, fairly common in the east all summer, rather scarce elsewhere; max 25, Omaha, Douglas Co, 25 Sep (TEB). D. gilippus, male seen, Holbrook, Furnas Co, 21 Sep (DRL).

MOTHS: About 200 species were reported statewide. For the most part only those considered less than common according to modern references are outlined below. Species listed for Neale Woods are represented by specimens in the Neale Woods Nature Center collection (TEB). YPONOMEUTIDAE - Yponomeuta multipunctella, Neale Woods, Washington Co, 25 June (TEB). TORTRICIDAE - Eucosma giganteana, 2 coll, Stolley Prairie, Douglas Co, 14 July (TEB). Archips argyrospila, Neale Woods, Washington Co, 18 June. LIMACODIDAE - Lithacodes fasciola, photo, Indian Cave SP, Richardson Co, 25 July (BP, TEB). Apoda biguttata, Neale Woods, Washington Co, 25 June (TEB). PYRALIDAE - Desmia maculalis, coll, Niobrara Valley Pres, Brown Co, 7 June (NED). Diastictis argyralis, coll, Kearney, Buffalo Co, 18 May 1987 (NED). Urola nivalis, Stolley Prairie, Douglas Co, 14 Aug (TEB). THYRIDIDAE - Thyris sepulchralis, Neale Woods, Washington Co, 11 June. Dysodia oculatana, photo, Fontenelle Forest, Sarpy Co, 23 June (BP). GEOMETRIDAE - Itame ribearia, Neale Woods, Washington Co, 25 June. Enconista dislocaria, coll, Kearney, Buffalo Co, 9 May (NED). Ennomos subsignaria, Neale Woods, Washington Co, 22 July. Metanema inatomaria, coll, Kearney, Buffalo Co, 18 Aug (NED). Probole amicaria, Neale Woods, Washington Co, 31 July. Leptostales rubromarginaria, Fontenelle Forest, Sarpy Co, 23 July (TEB). Trichodezia albivittata, Fontenelle Forest, Sarpy Co, 30 May (TEB); Neale Woods, Washington Co, 3 June. Heterophleps refusaria, Neale Woods, Washington Co, 25 June. APATELODIDAE - Olceclostera angelica, Neale Woods, Douglas Co, 25 June. LASIOCAMPIDAE - Gloveria arizonensis, max 7, 12 mi S of Chadron, Dawes Co, 5 July (RCR). SATURNIIDAE - Antheraea polyphemus, Neale Woods, Douglas Co, 17 June. Actias luna, final instar larva on Salix sp, suburban Omaha, Douglas Co, 17 July (JH, MH); one, Neale Woods, Douglas Co, 14 Aug (TEB). SPHINGIDAE - Sphinx drupiferarum, max 10, Halsey, Thomas Co, 19 May (BP, LP, TEB). NOTODONTIDAE - Nadata gibbosa, Indian Cave SP, Richardson Co, 25 July (BP, TEB). Coloradia pandora, max 95, usually hundreds, 12 mi S of Chadron, Dawes Co, 4 Aug, max earlier than in average year (RCR). ARCTIIDAE - Apantesis blakei, coll, Kearney, Buffalo Co, 3 Aug (NED). A. virgo, coll, nr Kearney, Buffalo Co, 25 July (NED). Cycnia tenera, Stolley Prairie, Douglas Co, 15 June (TEB). NOCTUIDAE - Synedoida howlandi, coll, Kearney, Buffalo Co, 17 July (NED). Ascalapha odorata, coll, Kearney, Buffalo Co, 8 July (NED); seen, 12 mi S of Chadron, Dawes Co, 1 Aug (RCR). Argyrostromis anilis, seen, Harlan Co Res, Harlan Co, 7 May (NED); coll, Kearney, Buffalo Co, 11 May (NED); coll, Beatrice, Gage Co, 14 May (NED); Neale Woods, Washington Co, 31 July (TEB). Catocala epione, coll, Kearney, Buffalo Co, 6 July and 22 Aug 1984 (NED, ver by JJ). C. nebulosa, Bellevue, Sarpy Co, 21 July (BP, TEB). C. neogama, coll, Kearney, Buffalo Co, 11, 12, 18 and 25 July and 9 Aug (NED). C. nuptialis, coll, Kearney, Buffalo Co, 14 and 25 July (NED). Paectes oculatrix, Indian Cave SP, Richardson Co, 25 July (BP, TEB). Raphia abrupta, coll, near Beatrice, Gage Co, 14 May (NED). Simyra henrici, Neale Woods, Douglas Co, 1 Aug. Psychomorpha epimenis, coll, near Kearney, Buffalo Co, 4 Apr (NED); Neale Woods, Washington Co, 6 Apr; Fontenelle Forest, Sarpy Co, 12, 13 and 16 April (BP, LP); Neale Woods, Douglas Co, 17 Apr (JW). Dipterygia rozmani, Neale Woods, Douglas Co, 14 Aug (TEB). Stiria rugifrons, coll, Kearney, Buffalo Co, 11, 17 and 18 Aug (NED). Catabena lineolata, near Loup City, Sherman Co, 29 July 1987 (LK). Faronta rubripennis, Neale Woods, Douglas Co, 14 Aug (TEB); coll, nr Kearney, Buffalo Co, 16 Aug (NED). Stretchia plusiaeformis, coll, 12 mi S of Chadron, Dawes Co, 20 Apr (RCR). Cerastis tenebrifera, Neale Woods, Douglas Co, 14 Aug (TEB). Schinia nundina, Neale Woods, Douglas Co, 7 Sep.

KANSAS. 1988 was not a good year for butterflies in Kansas. Numbers were low statewide almost all summer. There were occasional increases of a very local nature, but there also were weeks when even the alfalfa fields lacked sulphurs! This was the least productive summer of the ten years of the state atlas project. Only about a hundred new county record specimens and 11 sight records were submitted. Aglais milberti was collected for the first time in the state. State Coordinator and primary writer of this report: CAE. Contributors: SA, MB, DLE, BLG, DH, MER, MDS, TW, EW, VLW, VLWr.

BUTTERFLIES: Thorybes pylades, NORTON Co, NORTHWEST, 5 June (CAE). Erynnis martialis, CHASE Co, isolated colony, 11 June 1987 and in 1988 (MDS). Hesperia metea, COWLEY Co, SOUTH, 30 Apr (MDS). Atrytone agogos, GRAY Co, 11 June (MDS) and Sheridan Co, 23 Jun (CAE), rare in western part of state. Problema byssus, MONTGOMERY Co, SOUTH, 1 Sep (MDS). Poanes hobomok, SHERIDAN Co, south of its main range, 23 May (CAE); and 12 June (VLW, VLWr). P. zabulon, NORTON Co, NORTHWEST, 5 June (CAE). Heraclides cresphontes, THOMAS Co, 3 Sep (EW) and Meade Co, 17 Sep (CAE), rare in west. Pterourus glaucus, seen, MORTON Co, 7 July (CAE), rare in extreme southwest. Pontia protodice, more common this year than in past seven years, Ottawa, Franklin Co (BLG). Phoebis sennae, appeared in Apr, Ottawa, Franklin Co, then scarce or none until late July, many during Aug, and some still seen 2 Nov, LATE (BLG); THOMAS Co, NORTHWEST, 15 Sep (VLW, VLWr). P. agarithe, albinic, RICE Co, 22 Sep (MB). Feniseca tarquinius, seen, SHERIDAN Co, 23 June and FORD Co, 8 Aug (CAE), far west of its normal range. Hylolycaena hyllus, HAMILTON Co, 6 July (CAE), rare in southwest. Harknclenus titus, SHERIDAN Co, 23 June (CAE), rare in northwest. Satyrus acadica, GRANT Co, SOUTH, 6 July (CAE). S. calanus, COMANCHE Co, 9 June (MDS), local in southwest. Calycopis cecrops, SUMNER Co, 1 May (CAE); MARION Co, 21 Sep (MDS); COWLEY Co, 30 Apr (CAE); CHASE Co, 2 Oct (MDS), all west of previously known range. Mitoura gryneus, SHERIDAN Co, 23 June (CAE), local in northwest. Incisalia henrici, six new counties, now collected from almost all counties in eastern third of state. Leptotes marina, BOURBON Co, EAST, 11 Aug (MDS). Agraulis vanillae, only one, Ottawa, Franklin Co, 3 Sept and 3 Nov, LATE (BLG). Dryas iulia, STEVENS Co, 18 Sep (TW), second specimen for state. Speyeria cybele, more common during June than anytime since 1981, Ottawa, Franklin Co, (BLG); coll, THOMAS Co, NORTHWEST, 14 June (VLW, VLWr). S. idalia, COMANCHE Co, 3 Sep (SA), rare in southwest. Thessalia fulvia, THOMAS Co, 11 June (EW) and 18 June (VLW, VLWr); SHERIDAN Co, 12 June (VLW, VLWr); unusually common in Ellis Co (CAE). Chlosyne lacinia, TREGO Co, 14 Oct (MER), the only report. Anthanasia texana, Ellis Co, 25 Sep (DH), the only report. Aglais milberti, nr Colby, THOMAS Co, STATE, 3 June (VLW, VLWr). Vanessa annabella, coll, LOGAN Co, 17 June (VLW, VLWr); coll, Ellis Co, 14 Oct and seen, 31 Oct (CAE). Asterocampa celtis, seen, MORTON Co, 7 July (CAE), rare and very local in southwest. A. clyton,

ten new counties, widespread in eastern and central areas in late Aug - mid Sep (MDS). Enodia anthedon, NORTON Co, 5 June (CAE), very local in northwest. Megisto cymela, common, THOMAS Co, 2 July (EW).

MOTHS: SATURNIIDAE - Hyalophora cecropia, larvae on Cephalanthus occidentalis, Ottawa, Franklin Co (BLG).

ZONE 6 SOUTH CENTRAL: OKLAHOMA, TEXAS, ARKANSAS, LOUISIANA. Coordinator: Edward C. Knudson (ECK). Contributors: Richard Boscoe (RB); H. A. Freeman (HAF); Lawrence Gall (LG); David Hawks (DH); Michael Israel (MI); Babs and Loren Padelford (P); Charles Sekerman (CS); Mack Shotts (MS); Steven Williams (SW). County in CAPS = new county record; (STATE) = new state record; (U.S.) = new United States record; P = National Park; NWR = National Wildlife Refuge; SP = State Park; WMA = Wildlife Management Area; NF = National Forest; UV = ultraviolet; MV = mercury vapor; bait = bait traps or baited trees; (sight) or (photo) = sight or photo record, no specimen available.

OKLAHOMA. Contributor: SW. He submitted a list including 18 butterfly and 12 moth species collected at various localities in Oklahoma, all included below.

BUTTERFLIES: Polites vibex, Hylephila phyleus, Clayton, Pushmataha Co, 18 Sept. Heraclides cresphontes, Clayton, Pushmataha Co, and Broken Bow, McCurtain Co, 18 Sept; Talihina, Leflore Co, 17 Sept. Zerene cesonia, Adair Co, 17 Sept. Phoebis sennae eubule, Talimena trail, Leflore Co, and near Westville, Adair Co, 18 Sept. Abaeis nicippe, McCurtain, Leflore, Latimer, Pushmataha, Adair, Haskell, & Sequoyah Co's, 17 & 18 Sept. Pyrisitia lisa, Pushmataha & Haskell Co's, 18 Sept. Everes comyntas, Talimena trail, Leflore Co, 17 Sept. Calephelis borealis, Talimena trail (Robert Kerr Nature Sanctuary), Leflore Co, 17 Sept. Agraulis vanillae, Idabel, McCurtain Co, 16 Sept. Speyeria cybele, near Westville, Adair Co, 17 Sept. Charidryas gorgone, eastern Cherokee Co, 17 Sept; south Haskell Co, 18 Sept. Polygonia comma, Robbers Cave SP, Latimer Co, 18 Sept. Vanessa cardui, Junonia coenia, Talimena trail, Leflore Co, 16 Sept, very abundant. Basilarchia archippus, Talimena trail, Leflore Co, 16 Sept. Anaea andria, NW of Hugo, Choctaw Co, and SW of Clayton, Pushmataha Co, 18 Sept. Asterocampa celtis, Robbers Cave SP, Latimer Co, 18 Sept.

MOTHS: TORTRICIDAE - Argyrotaenia quercifoliana; PYRALIDAE - Herculia olinalis; GEOMETRIDAE - Antepione thiosaria, Haematopsis grataria; NOCTUIDAE - Trichoplusia ni, Lithacodia muscosa, Condica confederata, Spodoptera frugiperda, Phosphila miseloides, Euxoa tessellata, Agrotis ipsilon, all from Tenkiller SP, Sequoyah Co, 17 Sept (SW). NOTODONTIDAE - Nadata gibbosa, Robbers Cave SP, Latimer Co, 18 Sept (SW).

TEXAS. Contributing: RB, HAF, MI, ECK, CS, SW. After a fairly mild and dry winter in SE Texas, much of the state continued through the summer and fall with below normal rainfall. Then Hurricane Gilbert and several other rainstorms brought some relief to south Texas in September. Flood conditions in the lower Rio Grande Valley brought long overdue replenishment of many resacas in extreme SE Texas.

BUTTERFLIES: Eparcyreus clarus, Lake Livingston SP, Polk Co, 14 May (SW). Chioides catillus albofasciatus, Goose Island SP, Refugio Co, 27 May, and Kerrville, Kerr Co, 16 July (both SW). Urbanus procne, Brownsville, Cameron Co, 25 & 26 Oct, common (CS). Urbanus doryssus, Santa Ana NWR, Hidalgo Co, 24 June (close sight) (ECK). Astraptus fulgurator azul, Santa Ana NWR, Hidalgo Co, 25 June (ECK). Cogia outis, Mason, MASON Co, 28 Aug (SW). Pellicia arina, Santa Ana NWR, Hidalgo Co, 24 June, at MV-UV (ECK). Staphylus ceos, Audubon Palm Sanctuary, Cameron Co, 24 March (SW). Staphylus mazans, New Braunfels, Comal Co, 28 Apr (MI); Attwater Prairie Chicken NWR, Colorado Co, 12 March (SW). Achlyodes thraso tamenund, Beeville, Bee Co, abundant, 22 & 23 Oct (CS). Grias stigmatica, Audubon Palm Sanctuary, Cameron Co, 24 March (SW). Timochares ruptifasciatus, Brownsville, Cameron Co, 25 & 26 Oct (CS). Nastra neamathla, Stephen F. Austin SP, Austin Co, 15 May (SW). Decinea percusius, Cameron Co, females collected 27 March, oviposited on unidentified grass, some adults produced (RB). Hesperia viridis, Mountain Home, Kerr Co, 1 May (MI). Pompeius verna, Victoria, Victoria Co, 27 March (SW). Poanes zabulon, Garland, Dallas Co, one each 29 June & 13 July (first seen in many years) (HAF). Poanes viator, Lake Charlotte, Liberty Co, 14 May (SW). Euphyes ruricola, New Braunfels, Comal Co, 28 Apr (MI). Amblyscirtes celia, Garland, Dallas Co, reported as much more common than usual (HAF). Lerodea dysaules, Brownsville, Cameron Co, 25 & 26 Oct (CS). Oligoria maculata, Lake Charlotte, Liberty Co, 14 May (SW). Panoquina ocola, Beeville, Bee Co, abundant, 22 & 23 Oct (CS). Battus philenor, YOAKUM, GAINES, DAWSON, Sterling, & Glasscock Co's, 27 and 28 Aug (SW). Pterourus pilumnus, Rancho Santa Margarita, Starr Co, 25 March (sight) (by SW, who reports it "more common" at El Sabinal NP, Cerralvo, Nuevo Leon, Mexico, about 30 miles S of border). Pterourus troilus, Mother Neff SP, CORYELL Co, 20 Aug (SW). Eurytides marcellus, Lake Livingston SP, Polk Co, 14 May (SW). Appias drusilla, Pelican Island, GALVESTON Co, 13 May (SW). Falcapica midea, Attwater Prairie Chicken NWR, COLORADO Co, 12 March; Goose Island SP, REFUGIO Co, 27 March (both SW). Colias philodice, Lake Livingston SP, POLK Co, 14 May (SW). Anteos maerula, West Galveston Island, GALVESTON Co, 9 Sept (SW). Phoebis sennae eubule, CORYELL, HAMILTON, COMMANCHE, HALE, DAWSON, & STERLING Co's, 20 to 28 Aug (SW). Pyrisitia lisa, CALDWELL, MILAM, and NOLAN Co's, 20 Aug (SW). Pyrisitia nise, Starr Co, 5 Oct, females oviposited on Leucania pulverulenta and reared to adult (RB). Ministrymon clytie, Brownsville, Cameron Co, 25 & 26 Oct (CS). Mitoura gryneus, Comal Co, 21 March, ovipositing on Juniperus ashei, reared to adults (RB); Mountain Home, Kerr Co, 1 May (MI). Incisalia irus hadra, Polk Co, 20 March, ovipositing on Baptisia sp. - larva later accepted Lupinus texensis (RB). Incisalia henrici solatus, Comal Co, 21 March, oviposited (in captivity) on Ungradia speciosa; on 21 April revisited site and found larvae on U. speciosa, boring in seed capsule (RB). Parrhasius m-album, Tomball, Harris Co, 5 July (SW). Strymon alea, Comal Co, 12 April, ovipositing on Bernardia myricaefolia, larvae fed upon buds, flowers, foliage, and seed capsules (RB). Brephidium exile, Glaveston, Galveston Co, 9 Aug (SW). Lasaia sula peninsularis, Brownsville, Cameron Co, 25 & 26 Oct (CS). Libytheana bachmanii larvata, Denver City, YOAKUM Co, 27 Aug (SW); Beeville, Bee Co, 22 and 23 Oct, extremely abundant (CS). Dryas iulia, Comfort, KENDALL Co, 18 July (SW). Nymphalis antiopa, Amarillo, Randall Co, 21 Aug (SW). Junonia coenia, BELL, HAMILTON, TAYLOR, NOLAN, GARZA, and STERLING Co's, 20 to 28 Aug (SW). Siproeta stelenes, Cameron, Hidalgo, & Starr Co's, 24 & 25 March (SW). Euptoeita hegesia hoffmanni, Rancho Santa Margarita, Starr Co, 24 March (SW); Beeville, BEE Co, 22 and 23 Oct (CS). Charidryas nycteis, Guadalupe River SP, Comal Co, 30 Apr (MI). Chlosyne janais, Starr Co, 23 March, ovipositing on Carlowrightia parvifolia and reared (RB). Dymasia dymas, Fredericksburg, GILLESPIE Co, 28 Aug (SW). Mysecia ethusa, Hidalgo Co, 5 Oct, 1986, ovipositing on Adelia vaseyi (reared) (RB). Biblis hyperia, Cameron, Hidalgo, & Starr Co's, 24 and 25 March (SW); Cameron Co, 5 April, ovipositing on Tragia sp, adults reared (RB). Anaea andria, COMMANCHE & STERLING Co's, 21 to 28 Aug (SW). Asterocampa clyton texana, Denver City, YOAKUM Co, 27 Aug (SW).

MOTHS: All collected by ECK unless otherwise indicated. As there are many species from the same counties, the county will be given only once for each locality. OPOSTEGIDAE - Opostega quadristrigella, Double Lake, Sam Houston NF, San Jacinto Co, 1 May. TINEIDAE - Hybroma servulella, Double Lake, Sam Houston NF, 8 May. GRACILLARIIDAE - Phyllonorycter occitanicus, Brazos Bend SP, Ft. Bend Co, 12 June. OECOPHORIDAE - Idioglossa miraculosa, Double Lake, Sam Houston NF, 1 May. ELACHISTIDAE - Biselachista cucullata, Double Lake, Sam Houston NF, 8 May (STATE). GELECHIIDAE - Anacampsis levipedella, Six Mile, SABINE Co, 14 May. YPONOMEUTIDAE - Zelleria celastrusella, Brazos Bend SP, 12 June. ARGYRESTHIIDAE - Argyresthia austerella, Double Lake, Sam Houston NF, 16 Apr. TORTRICIDAE - Olethreutes astrologana,

Daingerfield SP, MORRIS Co, 15 May. Retinia comstockiana and R. houseri, Double Lake, Sam Houston NF, 5 June. Eucosma atascosana, Lake Corpus Christi, Nueces Co, 30 Sept. Eucosma graduatana, Double Lake, Sam Houston NF, 8 Oct. Zeiraphes claypoleana, Daingerfield SP, 15 May. Satrania tantilla, Six Mile, 14 May. Corticivora clarki, Daingerfield SP, 15 May; Double Lake, Sam Houston NF, 8 May (STATE). Acleris maculidorsana, Double Lake, Sam Houston NF, 1 May. Niasoma metallicana, Double Lake, Sam Houston NF, 8 May. LIMACODIDAE - Apoda y-inversum, Tomball, Harris Co, 5 July (SW). PYRALIDAE - Uingeriessa onyxalis & Microthyris anormalis, Santa Ana NWR, Hidalgo Co, 24 & 25 June. Pyrausta homonymalis, Daingerfield SP, 15 May. Helvibotys freemani, Lamprosema n.sp., Polygrammodes sanguinalis, Neodavisia melusina, Orycrometopia fossulatella, Audubon Palm Sanctuary, Cameron Co, 27 & 28 Sept. Immyrta nigrovittella, Double Lake, Sam Houston NF, 16 Apr (STATE). THYRIDIDAE - Dysodia oculatana, Lake Corpus Christi SP, 30 Sept. Meskea dysperaria, Double Lake, Sam Houston NF, 8 May. PTEROPHORIDAE - Exelastis cervinicolor, Brazos Bend SP, 12 June. GEOMETRIDAE - Itame varadaria, Columbus, COLORADO Co, 30 July (SW). Patalene epionata, Synchlora irregularia, Semaopis marginata, Audubon Palm Sanctuary, 27 & 28 Sept. Hydria prunivorata, Six Mile, 14 May. Eupithecia peckorum, Double Lake, Sam Houston NF, 8 Oct. SATURNIIDAE - Sphingicampa bicolor, S. blanchardi, S. albolineata & Rothschildia forbesi, Audubon Palm Sanctuary, 27 & 28 Sept. SPHINGIDAE - Manduca jaminearum, Double Lake, Sam Houston NF, 5 June. Sphinx libocedrus, Falcon SP, Starr Co, 11 Apr. Erinnyis alope, Lake Corpus Christi SP, 30 Sept. Cauthetia spuria & Eumorphia satellitia, Audubon Palm Sanctuary, 27 & 28 Sept. Eumorphia pandorus, Houston, Harris Co, 25 July (SW). NOCTUIDAE - Zanclognatha martha, Six Mile, 14 May. Sigela eoides, Double Lake, Sam Houston NF, 16 Apr (STATE). Anomis impasta, A. exacta, Concana mundissima, Ephyrodes cacata, Massala obvertens, Thysania zenobia, Audubon Palm Sanctuary, 27 and 28 Sept. Litoprosopus futilis, Houston, 16 May (SW). Epidromia pannosa, Bentsen SP, Hidalgo Co, 29 Sept (2nd STATE). Hypocala andremona, Garland, DALLAS Co, 2 - 4 Nov (HAF). Latebraria amphipyroides, Kakopoda cincta, Santa Ana NWR, 24 & 25 June. Ascalapha odorata, Houston, 15 July - 10 Aug (at least 6) (SW). Zale aeruginosa, Six Mile, 14 May. Ophisma tropicalis, Audubon Palm Sanctuary, 27 & 28 Sept. Catocala pretiosa, C. lincolna, C. mira, C. orba, C. clintoni, C. andromedae, Six Mile, 14 May. Nola clethrae, Double Lake, Sam Houston NF, 16 Apr (STATE). Eusceptis flavifimbriata, Audubon Palm Sanctuary, 27 & 28 Sept. Proxenus miranda, Tomball, 5 July (SW). Balsa labecula, Double Lake, Sam Houston NF, 16 Apr. Cephalospargeta elongata, Santa Ana NWR, 24 & 25 June. Amolita fessa, Tomball, 5 July (SW). Homohadena induta, Falcon SP, 11 Apr. Heliothis turbatus, Double Lake, Sam Houston NF, 8 Oct. Schinia tuberculum, S. siren, S. regia, S. saturata, S. rivulosa, S. bifascia, S. ultima, S. hanga, S. nubila, S. sordida, S. citrinella, Lake Corpus Christi SP, 30 Sept. Schinia olivia, S. cupes, Falcon SP, 11 Apr.

ARKANSAS. Contributing: P, MS (with LG & DH), SW. MS (collecting with LG and DH) submitted an impressive list of Catocala, including 4 new State records and two possible new species or forms. SW and P both contributed good butterfly lists plus a few moths from SW. To save space, the counties will be listed only once for each locality and Queen Wilhelmina abbreviated to Q Wil.

BUTTERFLIES: Pyrgus communis, Devil's Den SP, Washington Co, 12 Oct (P). Atalopedes campestris, Petit Jean SP, Conway Co, 10 Oct (P). Polites vibex, Queen Wilhelmina SP, Polk Co, 16 Sept (SW). Poanes hobomok, Eureka Springs, Carroll Co, 17 Sept (SW). Pterourus troilus, Polk, Scott, Logan, Carroll, & Benton Co's, 17 & 18 Sept (SW). Pterourus glaucus, Q Wil SP, 17 Sept (SW). Pontia protodice, Devil's Den SP, 13 Oct (P). Artogeia rapae, Pea Ridge, Benton Co, 17 Sept (SW). Colias philodice, Waldron, Scott Co & Booneville, Logan Co, 16 Sept (SW). Zerene cesonia, Devil's Den SP, 12 Oct (P); Booneville, 16 Sept (SW). Pheobis sennae eubule, Holla Bend NWR, Yell Co, 11 Oct; Devil's Den SP, 13 Oct (P); Polk, Scott, & Logan Co's, 16 Sept (SW). Abeias nicippe, Petit Jean SP, 10 Oct (P); Polk, Scott, Logan, Franklin, and Benton Co's, 16 & 17 Sept (SW). Pyrisitia lisa, Mena, Polk Co and Booneville, Logan Co, 16 Sept (SW). Nathalis iole, Holla Bend NWR, 11 Oct (P). Everes comyntas, Devil's Den SP, 12 & 13 Oct (P); Q Wil SP, 16 Sept (SW). Calephelis borealis, Q Wil SP, 16 Sept (poss STATE) (SW). (Coordinator's Note: Recent records of this species from Oklahoma & now Arkansas need to be reviewed by a specialist. Mike Rickard & I, who located the Oklahoma colony in 1985, felt that the insect and its habitat fit much better with C. borealis, than with either C. muticum or C. virginensis.) Libytheana bachmanii, Q Wil SP, also Logan and Franklin Co's, 16 Sept (SW). Agraulis vanillae, Mena, 16 Sept (SW). Polygonia comma, Eureka Springs, 17 Sept (SW). Nymphalis antiopa, Devil's Den SP, 13 Oct (P). Vanessa cardui, Mt. Nebo SP, Yell Co, 12 Oct (P); Q Wil SP, 16 Sept, very common (SW). Euptoieta claudia, Devil's Den SP, 12 Oct (P); Logan Co, near Caulksville, 16 Sept (SW). Speyeria cybele, Devil's Den SP, 13 Oct (P); Y-City, Scott Co, 16 Sept and Eureka Springs, 1 Sept (SW). Charidryas gorgone, Waldron, 16 Sept; Bentonville, Benton Co, 17 Sept (SW). Basilarchia arthemis astyanax, Holla Bend NWR, 11 Oct (P); Q Wil SP, 16 Sept (SW). Basilarchia archippus, Devil's Den SP, 12 Oct (P); Q Wil SP, 16 Sept (SW). Asterocampa celtis, ontoon Park, Conway Co, 11 Oct (P). Cyllopsis gemma, Devil's Den SP, 13 Oct (photo) (P). Cercyonis pegala, Q Wil SP, 16 Sept (SW).

MOTHS: SATURNIIDAE - Actias luna, Huntsville, Madison Co, 16 Sept (SW). NOCTUIDAE - Catocala sps: MS (in company with LG & DH) collected in southern Arkansas in early June. In White River NWR, Arkansas Co, 6 & 7 June, the following Catocala sp were taken: piatrix & maestosa (larvae on Water Hickory); nuptialis (larvae on Lead plant); orba (STATE), clintoni, ilia, minuta, mira, pretiosa (STATE), and lineella. An unidentified Catocala sp was also collected. In Moro Bay SP, Bradley Co, 8 & 9 June, MS, LG, & DH collected Catocala innubens, C. epione, C. ilia, C. ultronis, C. orba, C. messalina, C. crataegi (STATE), C. pretiosa, C. lincolna, C. mira, C. clintoni, C. alabamae, C. andromedae, C. gracilis, C. connubialis, C. micronympha, C. amica, & C. lineella, plus the same undetermined C. sp from White River and another, different, undetermined C. sp. At the Sulphur River WMA, Miller Co, near Texarkana, on 9 and 10 June, the same collectors took Catocala messalina, C. pretiosa, C. alabamae, and again the same unidentified sp from White River. MS also reports the following Catocala sp (collected at bait) from 6 miles east of Paragould, Greene Co, 15 June thru 30 Aug; piatrix, marmorata (STATE), amatrix, carissima, nuptialis, amica, lineella, and the same unidentified sp noted from three localities above. SW reports Chaetagnatha sericea from Huntsville, Madison Co, 16 Sept.

LOUISIANA. SW submitted the only record, that of a Noctuid moth, Choeophora fungorum, Crowley, Acadia Parish, 27 Nov.

ZONE 7 ONTARIO/QUEBEC. COORDINATOR: Ross Layberry (RAL). Contributors: W.J.D.Eberlie (JE); W.M.M.Edmonds (WE); Nick Escott (NE); Carolyn Gondor; Michael Guru; Barry Harrison; Quimby Hess (QH); Bill Lamond (WL); Jeff Larson (JL); Tom Mason; Jack McGregor (JM); Kevin McLaughlin (KM); Marg Pickles; John Prideaux; Duncan Robertson (DR); W.G.Stewart; George Sutton (GS); Irene Trigg (IT); Nick Tsovolos (NT); Alan Wormington (AW); Reginald P. Webster (RW); Bruce Wigg (BW).

ONTARIO. BUTTERFLIES: Staphylus hayhurstii, Point Pelee, Essex Co, 17 July, first from Point Pelee since 1976 and earliest record (AW). Erynnis baptisiae, South Walsingham Sand Ridges, Norfolk Co, 5 July, 1987, verified by Don Lafontaine (WL). Erynnis horatius, Point Pelee, Essex Co, 13 August, first record for Point Pelee, ovipositing on Frost Grape, Vitis riparia. A single egg hatched 18 August, then the larva fed on Red Oak until 22 August when it died (AW).

Erynnis martialis, Point Pelee, 11 August, first record for Point Pelee (AW). Pholisora catullus, Toronto Waterfront, 12 August, ova and larvae on Lambs Quarters and Pigweed, now over-wintering as fourth instar larvae (WE). Poanes viator (2nd county record) plus Euphyes dion, S Haldimand Twp, Northumberland Co, 31 July (JE). Eurytides marcellus, Windsor, Essex Co, June 16 (JL). Papilio machaon hudsonianus, Murrillio, a suburb of the City of Thunder Bay, June 4 (IT). Papilio cressphontes, Rock Chapel Sanctuary, Wentworth Co, 7 August (KM). Artogeia virginienensis, ten locations in Waterloo, Wellington and Halton Counties, 7-28 May (WL); Halton Agreement Forest, Campbellville, Halton Co, about 24 adults on May 3, about 36 adults on May 6, with oviposition on toothworts in large patches in boggy areas (which must be Dentaria diphylla in this habitat, RAL), and 7 adults and a 1 cm larva on toothwort on May 29 (JM). Phoebis sennae, Ojibway Park, Windsor, Essex Co, 8 May (JL). Feniseca tarquinius, Bayham Twp, Elgin Co, 19 June, SW record for Ontario (WS). Epidemia epixanthe, 24 & 26 July, and Epidemia dorcus, 28, 30, 31 July at Nellie Lake, Cochrane Distr (GS). Satyrus acadica, 8 km N of Serpent River, Algoma Distr, 20 July; 6 km W of Massey, Algoma Distr, 21 July; Hardwood Lake, Sudbury Distr, 21 July; first records for Algoma and Sudbury Districts (RAL). Satyrus calanus, Beals Lake, Sudbury Distr, 8 July, second record for District, (only other is a specimen in Canadian National Collection labelled only Sudbury Distr) (RAL). Satyrus carvaevorum, 2 larvae found on saplings of White Oak at Stoco Fen, Hastings Co, 5 June, emerged as adults 28, 30 June (JE). Strymon melinus, Point Pelee, 22 April, one specimen, not fresh and an early record by 53 days; almost certainly a successful overwintered individual (AW). Everes comyntas, one worn specimen at Wilmore Park, Toronto, 16 October, late record (NT). Euptoieta claudia, Toronto waterfront, 10 August (WE). Clossiana bellona, Point Pelee, 25 June, first record for Point Pelee (AW). Nymphalis vau-album seems to have had a population explosion in 1988; Nellie Lake, Cochrane Distr, 24 July to 3 August, a dozen in a bait trap on most days (GS); an estimated 500,000 seen between Thessalon, Algoma Distr, and Chapleau, Sudbury Distr, a distance of about 200 km, 7 August (BW); a few seen at bait 11-16 September, and one at a UV light, 11 September, at Kingston, Frontenac Co (DR); common at Bridget Lake, Gargantua Bay and Agawa Rock, all Algoma Distr, 18 July (RAL). Coenonympha inornata, Stevens, Kowkash, and Geraldton, Thunder Bay Distr, 25 June to 8 July, first records from vicinity of City of Thunder Bay (NE). Oeneis jutta, 7 km north of Field, Nipissing Distr, 19 June, first record for Nipissing Distr (QH).

MOTHS: YPOMOMEUTIDAE - Atteva punctella, Kingston, Frontenac Co, 1, 17 October (DR); Cedarwyn Camp, Essex Co, 18 July, 1987; Backus Conservation Area, Norfolk Co, 3 July, 1987 (AW). COSSIDAE - Prionoxystus macmurtrei, Huntsville, Muskoka Co, 19 June & 4 July (DR). GEOMETRIDAE - Epimecis hortaria, Cedarwyn Camp, Essex Co, 24 June and 18 July, 1987 (AW). Probole nyssaria, St. Williams Forestry Station, Norfolk Co, 4 July, 1987 (AW). Itame subcessaria, Huntsville, 18, 26 July (DR). Semiothisa ocellinata, Kingston, 3 August (DR). Hypagyrtis unipunctata, Huntsville, 21 June, 3, 4, 6, 7 July (DR). Plagiodis kuetzingi, Huntsville, 30 May (DR). Idea dimidiata, Kingston, 25 June (DR). Anticlea multifurcata, Huntsville, 3 June (DR). Orthonama centrostrigaria, Kingston, 27 November (DR). LASICAMPIDAE - Tolyte vellea, Huntsville, 1, 3, 8 September; Kingston, 16 September (DR). SPHINGIDAE - Agrus cingulatus, Oxley, Essex Co, 6 October, 1987, at flowers of Bouncing Bet, (Saponaria officinalis), (AW). Sphinx eremita, Hwy 3, east of Leamington, Essex Co, 17 July, 1987 (AW). Erinnyis ello, Point Pelee, Essex Co, 20 September, 1987, at flowers of Bouncing Bet; first Ontario record since the 1890's (AW). Erinnyis obscura, Point Pelee, Essex Co, 26 & 27 September, 2 & 3 October, at flowers of Bouncing Bet; first Ontario records since 1917 (AW). Eumorpha fasciata, Point Pelee, 4 September, on flowers of Bouncing Bet; first ONTARIO record (AW). Xylophanes tersa, Point Pelee, 25 August, 1, 3, 9 September, all at flowers of Bouncing Bet, only three previous Ontario records (AW). Hemaris thysbe, Huntsville, 3 June, and Kingston, ovipositing on Viburnum trilobum on 10 June and 6 September; also seen 14 June and 3, 4 August (DR). NOTODONTIDAE - Datana drexlii, St. Williams Forestry Station, 2 July, 1987 (AW). Furcula borealis, Huntsville, 3 July (DR); Arner, Essex Co, 29 August, 1987; St. Williams Forestry Station, 4 July, 1987 (AW). Heterocampa subrotata, Point Pelee, 27, 29 June, 1987, second and third CANADIAN records (AW). APATELODIDAE - Apatelodes torrefacta, Point Pelee, 19 June, 1987, 9 July; Arner, Essex Co, 22 June, 1987 (AW). MIMALONIDAE - Cicinnus melsheimeri, Cedarwyn Camp, Essex Co, 10 June, 1987 (AW). ARCTIIDAE - Haploa clymene, St. Williams Forestry Station, Norfolk Co, 4 July (AW). Grammia virguncula, Huntsville, 25 July (DR). Cynia tenera, Huntsville, 20 June (DR). LYMANTRIIDAE - Leucoma salicis, Kingston, 12 July (DR). NOCTUIDAE - Phosphila miselioides, Point Pelee, 13 August, 1987 (AW). Lacinipolia implicata, Point Pelee, Essex Co, 29 August (AW). Psychomorpha epimenis, St. Williams Forestry Station, Norfolk Co, 5 May, 1987; Point Pelee, May 6, 1987, only two previous Ontario records (AW); Point Pelee, Essex Co, 3 to 5 & 8 and 12 May (AW). Calyptra canadensis, Huntsville, 19, 26 July (DR). Synedoida grandirena, St. Williams Forestry Station, 3 July, 1987 (AW). Hypocala andremona, Point Pelee, Essex Co, 20 August, at flowers of Bouncing Bet, second Ontario record (AW). Catocala serena, Cedarwyn Camp, Essex Co, 31 July, 1987 (AW). Catocala innubens, Kingston, 6 August (DR). Catocala crataegi, Arner, 22 June, 10 July; Cedarwyn Camp, 17, 18 July (AW). Catocala grynea, Kingston, 2, 3, 5 August (DR). Diachrysa balluca, Huntsville, 18 and 22, 23 July (DR). Plusia putnami, Huntsville, 19 and 20 June (DR). Acronicta afflicta, Huntsville, 19 June (DR). Oncocnemis piffardi, Huntsville, 2 September (DR). Lacanobia tacoma, Huntsville, 31 May, 4 June (DR). Leucania multilinea, Kingston, 27 September (DR). Xestia badinodis, Kingston, 30 September (DR). LIMACODIDAE - Prolimacodes badia, Cedarwyn Camp, 21 June, 10, 17, 24 July, 1987 (AW). Adoneta spinuloides, Cedarwyn Camp, 30 June, 1987 (AW). Parasa chloris, Cedarwyn Camp, 18 July, 1987 (AW).

QUEBEC. BUTTERFLIES: All records are from Reginald P. Webster. Hesperia comma laurentina, St-Redempteur, Lotbiniere Co, 8 August. Papilio brevicauda, Coastal marsh at Rimouski, Rimouski Co, several worn adults, ova and second instar larvae on Ligusticum scoticum, 22 June. Of 12 fifth instar larvae found on 14 July, 4 emerged 27-29 July under natural conditions. There seems to have been a partial second generation in 1987 and 1988; fresh adults seen 3 August, 1987, many last instar larvae on L. scoticum 23 August, 1987. Of the 40 collected, 38 emerged in 1988 as brevicauda and 2 as P. polyxenes. Ova and larvae also found on Heracleum maximum, 10 km east of Matane, Matane Co and several other sites. Papilio polyxenes, Rimouski, 1st to 5th instar larvae found on Daucus carota, 22 June; half emerged 8-11 July, rest in diapause. One of 12 larvae found on 14 July on L. scoticum emerged 26 July as polyxenes. Feniseca tarquinius, St-Redempteur, Lotbiniere Co, many larvae feeding on woolly aphids 15 August to 25 September. Epidemia epixanthe, in a bog at St-Redempteur, Lotbiniere Co, 28 June to 1 September, many adults were seen feeding on exudates on the inner side of pitcher plant leaves. Mating pairs were seen only inside the pitcher plants! Incisalia lanoraieensis, Bog 5 km SW of St-Jean-Chrysostome, Levis Co, 18, 19, 24 May (common); Bog at Bernieres, Lotbiniere Co, 18 May; Bog 5 km E of La Durantaye, Bellechasse Co, 21 May; Bogs 15 and 20 km SW of Villeroy, Arthabaska Co, 9, 12, 20 May; the most common Incisalia in the area. Incisalia nippon, Bog 20 km SW of Villeroy, Arthabaska Co, 9, 12, 20 May. Lycaeides idas, St-Raphael, Bellechasse Co, 24 June to 9 July. Polygonia gracilis, near Camp Mercier, Parc des Laurentides, Montmorency Co, (abundant) and Chemin de la Brulee, Parc des Laurentides, Montmorency Co, 26 July to 8 August. Euptoieta claudia, a chrysalis found in a garden at St-Raphael, Bellechasse Co, 1 November, 1987 by Ronald Lepage; Emerged 3 November, but was deformed after surviving 15 degrees F. Boloria eunomia, Bog 2 km east of La Durantaye, Bellechasse Co, 30 May and 7 June, 1987; and Bog at St-Redempteur, Lotbiniere Co, 10-12 June. At both places ovipositing was observed on Cranberry. Boloria titania, Chemin de la Brulee, Parc des Laurentides, Montmorency Co, 15-29 July (very common). Oeneis jutta, Bog at St-Redempteur, Lotbiniere Co, 29 May to 10 June (flies in equal abundance every year); Chemin de la Brulee, Parc des Laurentides, 27 June (flies only in even-numbered years). Oeneis chryxus calais, Mont-Albert, 800 m, Gaspé-Ouest Co, 6,

7 July. Oeneis chryxus strigulosa, near Portes de l'Enfer, 800 m, Parc des Laurentides, 27 June, indistinguishable from chryxus in Michigan.

MOTHS: All are from Reginald Webster. SATURNIIDAE - Hyalophora columbia, cocoons were found in bogs at St-Raphael, Bellechasse Co, (10 of 15 emerged 28 May to 10 June under natural conditions); 5 km SW of St-Jean-Chrysostome, Levis Co; 3 km E of La Durantaye, Bellechasse Co; St-Charles, Bellechasse Co; plus 15 and 20 km SW of Villeroy, Arthabaska Co. NOCTUIDAE - At St-Raphael, 9 species of Catocala were taken at fermented bait, including C. semirelictica, 25 & 28 July, C. crataegi, 28 July, 8 August, and C. blandula, 2, 5, 8 August. In or near a bog 5 km SW of St-Jean-Chrysostome, Levis Co, 14 species of Lithophane were taken at bait, including L. thaxteri, 30 August. Sympistis funesta and Anarta richardsoni, Mont-Jacques Cartier, Parc de la Gaspesie, 13 July. ARCTIIDAE - Platarctia parthenos, Parc des Laurentides, Montmorency Co, many wandering larvae early to mid-September. Spilosoma prima, in bog at St-Redempteur, Lotbiniere Co, adults, including two mating pairs found resting on vegetation during the day, 30 May to 10 June. GEOMETRIDAE - Leucobrephos brephoides and Archicaris infans, 10 km W of Camp Mercier, Parc des Laurentides, Montmorency Co, 11 May, while there was still 1 to 2 feet of snow on the ground.



ZONE 8 MIDWEST: MISSOURI, KENTUCKY, WEST VIRGINIA, OHIO, INDIANA, ILLINOIS, IOWA, MINNESOTA, WISCONSIN, MICHIGAN.

Coordinator: Leslie A. Ferge (LF). Contributors: Thomas J. Allen (TA), Valeriu Albu (VA), George Balogh (GB), James W. Becker (JWB), Larry E. Becker (LEB), Jim Bess (JB), Cathy Bleser (CB), Susan S. Borkin (SB), Robert Borth (RB), Tanya Bray (TB), John V. Calhoun (JVC), Thomas W. Carr (TWC), Hoe H. Chuah (HHC), James H. Conover (JHC), Charles V. Covell Jr. (CVC), Elizabeth K. Covell (EKC), Dave Cuthrell (DC), Yves Pascal Dion (YD), Jennifer Eick (JE), David Eiler (DE), Ted Enterline (TE), Carol Ferge (CF), Loran D. Gibson (LDG), J. Michael Gilligan (JMG), Todd M. Gilligan (TMG), Dana Gring (DG), Ron Harms (RH), Richard A. Henderson (RAH), Ted Herig (TH), David F. Hess (DH), Jeffrey D. Hooper (JDH), David J. Horn (DJH), David C. Iftner (DCI), Hugo Kons Jr. (HK), Irwin Leeuw (IL), Karl Legler (KL), Alma M. Long (AML), Leland L. Martin (LLM), Mike McInnis (MM), Joseph L. McMahon (JLM), Eric H. Metzler (EHM), Jim Mouw (JM), William Neal (WN), Mogens Nielsen (MN), Tim Orwig (TO), C. Douglas Overacker (CDO), Barbara Padelford (BP), Loren Padelford (LP), James C. Parkinson (JCP), David K. Parshall (DKP), Harry Pavulaan (HP), Troy Payne (TP), John Perona (JP), Joseph E. Riddlebarger (JER), Roy W. Rings (RWR), Ronald F. Rockwell (RFR), Brian Scholtens (BS), Clark Schultz (CS), Henri C. Seibert (HCS), Ernest Shull (ES), Ann K. Stafford (AKS), Raymond J. Sullivan (RS), Ann Swengel (AS), Paul M. Thompson (PT), Richard L. Waldrep (RLW), Reed A. Watkins (RAW), John Weber Jr. (JW), William Westrate (WW), James R. Wiker (JRW), Barbara Wilson (BW), Donald J. Wright (DJW), Roger A. Ziebold (RAZ).

GENERAL COMMENTS: Record heat and drought were reported throughout the Midwest Zone, with temperatures in the 90° to 100°+ range for a large part of the season. Rain finally brought relief in late August and September. In many areas, herbaceous plant life was badly stressed, dried up, or in poor condition. Many wetland areas went completely dry. Lepidoptera numbers were down considerably in most of the zone, but better numbers were reported in scattered pockets, mainly in the north, where the drought seemed a bit less severe. Despite the adverse conditions, many contributors had successful seasons. The most notable event of the season was the outbreak of P. protodice, infrequently encountered in recent years, but found in large numbers in many localities throughout the zone. The initial northward movement occurred early in the season, indicated by a pair taken in SW Wisconsin in late May. By June, it was common in Illinois, Indiana and Ohio, while by September some populations flourished as far north as southern Michigan and central Wisconsin. V. cardui also became abundant, particularly in Illinois and Ohio, having its best year since 1983. The influx of southern migrant butterflies into northern areas was smaller than that seen last season, and later in the season, with most species appearing in late summer. P. sennae did not become as widespread as last year, but it was noted in southwest Iowa and found commonly in west-central Illinois, where populations were lower than those of the past two years. Migrants, widely reported and common last year, but rare or absent this year, include Z. cesonia, E. lisa, N. iole, and J. coenia. Among the moths, the Sphingidae had a particularly good year, with a number of rarely seen southern species being taken in Michigan and Illinois. H. lineata was abundant in Michigan and Wisconsin. New county records are designated by capitalized county names, and new state records by the STATE notation. All dates 1988 unless otherwise noted.

MISSOURI. BUTTERFLIES: T. confusus, 28 May, Franklin Co (HP). S. hayhurstii, 25 May, St. Francois Co (HP). E. martialis, 13 - 15 May, Iron Co (HP). H. metea, 9 - 30 Apr, St. Francois & Franklin Cos, common in cedar glades, tends toward ssp. licinus (HP). P. zabulon, 3 June, Cass Co (DE). A. hianna, 30 Apr - 1 May, Franklin, St. Francois, ST. GENEVIEVE Cos (HP). A. hegon, 24 Apr - 28 May, St. Francois Co (HP). P. joanae, 8 Apr, St. Francois Co (HP). E. olympia, 26 Mar - 24 Apr, St. Francois, WAYNE Cos (HP). Z. cesonia, 16 Apr, Franklin Co (HP). P. sennae, 16 Apr, Franklin Co, early (HP); 3 July, Atchison Co (HP). E. lisa, nicippe, N. iole, 14 Oct, Barry Co (BP). M. gryneus, 4 Apr - 6 May, St. Francois, St. Genevieve Cos, nectaring on Viola pedata in cedar glades (HP). I. henrici, 26 Mar - 17 Apr, St. Francois, Wayne Cos (HP). E. ontario, 28 May, Franklin Co, abundant at 10:00 AM, gone at noon (HP). C. neglecta-major, 13 May, WAYNE Co, 1st confirmed STATE record, eggs found on Cimicifuga racemosa; 25 May, IRON Co, a fresh pair (HP). C. ebenina, 16 Apr, Franklin Co, one female at base of south-facing cliff, the larval host Aruncus dioicus numerous on SE facing cliffs along Meramec River (usually on N facing slopes); 13 May, Iron Co, eggs and larvae on A. dioicus leaves and flower buds; 25 May, St. Francois Co, fully grown larvae on A. dioicus (HP). V. cardui, 30 Apr, Cedar Co (BP).

KENTUCKY. A detailed report was received from CVC, including data provided by participants in the Kentucky Lepidopterists spring field trip and the Xerces Society butterfly count. A dry summer was reported, but good numbers of butterflies were encountered.

BUTTERFLIES: A. cellus, 21 May, Menifee Co (CVC). S. hayhurstii, 21 May, Powell Co (CVC). E. horatius and P. communis, 23 July, Oldham Co (CVC). A. campestris, 25 Sept - 8 Oct, Jefferson Co (CVC). A. hegon, 21 May, Menifee Co (DG, LDG, TP). A. aesculapius, 21 May, Powell Co (CVC, MM, RAW). P. virginianensis, 5 Apr - 21 May, Bullitt & Menifee Cos (CVC, ECK). P. protodice, Z. cesonia, P. sennae, E. lisa, 15 Sept, Falls of the Ohio, Jefferson Co (CVC, EKC). C. cecrops, 21 May, Menifee, Powell Cos (CVC, RAW). I. henrici, 5 Apr, Bullitt Co (CVC). S. melinus, 23 July - 2 Oct, Oldham & Jefferson Cos (CVC). C. neglecta-major, 21 May, Menifee & Powell Cos (CVC, TP). C. ebenina, 5 Apr, Bullitt Co (CVC, EKC). E. claudia, 2 Aug - 2 Oct, Jefferson Co (CVC, EKC). E. phaeton, 21 May, Powell Co (CVC). A. andria, 8 Oct, Jefferson Co (CVC). E. creola, 21 May, Menifee Co (CVC).

MOTHS: Melipotis jucunda, 15 Sept, Falls of the Ohio, Jefferson Co, common on sandy shore (CVC).

WEST VIRGINIA: TA reports that 106 new county records for butterflies were added in 1988, and thanks the volunteer help in the survey efforts who collected many of the records.

BUTTERFLIES: P. ocola, 24 July, Jefferson Co (TA). E. lucilius, 7 May, Mineral Co (TA). P. communis, 31 May, Randolph Co (TA). H. metea, 25 Apr, Lewis Co (TA). E. bimacula, 2 July, Pendleton Co (RLW). A. hegon, 10 May, Ritchie

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Co (TA). E. midea, 8 Apr - 10 May, Doddridge, Fayette, Lewis, Ritchie, Upshur Cos, abundant (TA). E. laeta, 25 Apr, Pendelton Co (RLW). P. m-album, 18 Aug, Boone Co (TA). C. cecrops, I. augustus, 25 May, Boone Co (TA). I. henrici, 13 Apr, Lewis & Ritchie Cos (TA). G. lygdamus, May, Hampshire Co (TA). C. ebenina, Boone Co, larvae abundant in May (TA). C. neglecta-major, May, Marion, Marshall, Ohio, Wetzel Cos, larvae collected in early June (TA). S. cybele, 12 June, Raleigh Co (PT). C. gemma, 25 Apr, Lewis & Ritchie Cos (TA).

OHIO. The Ohio Lepidopterists continue to add data to the Ohio Survey of Lepidoptera. The butterfly report, compiled by David Iftner, includes one new state record and 443 county records. Eric Metzler compiled the moth report, listing 12 new state records, mainly Tortricidae, & numerous county records. Records for both categories were received from 30 contributors. The season was one of the hottest and driest on record. The drought ended abruptly with heavy rains in mid-August, however, both plants and animals alike were stressed, with herbaceous vegetation drying up everywhere, and wetlands going completely dry. Numbers of butterflies and moths were way down, and many moth specimens were found to be undersized. P. protodice was widespread and common, and V. cardui experienced its best year since 1983. Immigrants rarely seen or absent include A. campestris, H. phyleus, E. lisa, E. nicippe and J. coenia.

BUTTERFLIES: A. lycaeides, 7 May - 11 June, MEIGS Co (DKP), PIKE, NOBLE, MONROE Cos (JVC). T. confusus, 29 May, ADAMS Co, STATE (DKP). E. baptisiae, 9 Apr - 12 May, BUTLER Co, (JWB), ROSS Co (JVC), WARREN Co (DCI); plus 19 Aug, MUSKINGUM Co (JER). P. communis, 13 Aug - 14 Sept, FAIRFIELD Co (DCI), ERIE, UNION, WARREN Cos (JVC). N. lherminier, 27 Aug, HIGHLAND Co (DKP). T. lineola, 29 May - 4 July, ADAMS, ASHLAND, BROWN Cos (DKP), FAYETTE Co (DCI), BELMONT Co (RFR), BUTLER, HAMILTON Cos (JWB). H. leonardus, 18 Aug - 10 Sept, BELMONT Co (RFR), ADAMS, BROWN, HENRY, HIGHLAND Cos (DKP). P. mystic, 6 June, RICHLAND Co (DKP). A. campestris, 4 Oct, GREENE Co (HHC). A. delaware, 28 June - 5 Aug, BELMONT Co (JVC), DARKE Co (HHC), HARRISON Co (DCI), PIKE, SANDUSKY Cos (DKP). P. massasoit, and E. dion, 13 - 23 July, DARKE Co (HHC), FULTON Co (DKP). E. dukesi, 13 July, FULTON Co (DKP). E. conspicua, 13 - 23 July, FULTON Co (DKP), TUSCARAWAS Co (DCI). A. hianna, 22 May, MEIGS Co (JVC). A. hegon, 2 May - 1 June, ADAMS Co (DKP), CLERMONT Co (LEB), PIKE Co (JVC). A. vialis, 12 May - 11 June, BROWN Co (LEB), MONROE, NOBLE, ROSS Cos (JVC). P. cresphontes, 28 May, WOOD Co (JMG). P. protodice, 3 June - 26 Sept, CLINTON, ERIE, FAYETTE, HURON, KNOX, LICKING, MADISON, MORROW, SENECA, UNION and WARREN Cos (JVC), HANCOCK Co (TMG), HARDIN Co (AML), FULTON & HENRY Cos (DKP), FAIRFIELD and SHELBY Cos (DCI). E. virginensis, 15 May, HARRISON Co (RAW). P. sennae & E. nicippe, JEFFERSON Co (4-H via DCI). H. hyllus, 4 Oct, OTTAWA Co (DCO, AKS). H. titus, 25 June thru 4 July, BROWN Co (LEB), BELMONT and HARRISON Cos (RFR), PIKE Co (DKP). S. acadica, 8 May - 23 July, DARKE, SCIOTO, WARREN Cos (HHC), FULTON Co (DKP). S. edwardsii, 24 June - 15 July, ADAMS, BROWN, HIGHLAND, PIKE Cos (DKP). S. caryaevorum, 19 - 27 June, VINTON Co (DKP), WOOD Co (DCI). S. liparops, 5 - 17 July, ASHLAND Co (DKP), BELMONT Co (RFR). C. cecrops, 29 May, HIGHLAND Co (DKP), 27 Aug, ROSS Co (DKP). M. gryneus, 30 Apr - 12 May, BROWN Co (DCI, DKP), CLERMONT Co (LEB), PIKE Co (DCI); 6 - 8 July, CLINTON, SHELBY Cos (DKP). I. henrici, 30 Apr, BROWN Co (DCI, DKP). I. nippon, 14 - 29 May, COLUMBIANA Co (VA), HIGHLAND, PIKE Cos (DKP). E. ontario, 24 June, ADAMS Co (DKP). S. melinus, 8 - 18 Sept, FAIRFIELD & FAYETTE Cos (DCI), HANCOCK Co (TMG). C. neglecta-major, 1 June, PIKE Co (JVC). C. ebenina, 28 May - 1 June, MEIGS Co (DCI, JVC), JACKSON, PIKE, ROSS Cos (JVC). G. lygdamus, 16 Apr - 15 May, ADAMS Co (JVC), ROSS Co (JLM). E. claudia, 13 June - 8 Sept, FAIRFIELD, PERRY Cos (DCI), OTTAWA Co (TMG), PIKE Co (JVC). S. aphrodite, 28 June - 7 July, HIGHLAND, JACKSON MEIGS Cos (DKP). C. nycteis, 11 June, MONROE, NOBLE Cos (JVC). E. phaeton, 5 July, ASHLAND Co (DKP). P. progne, 30 Apr, PREEBLE Co (RAW) and 31 July, SANDUSKY Co (DCI). N. milberti, 8 July to 18 Oct, FAIRFIELD Co (DCI), HARRISON, PICKAWAY Cos (DKP). V. cardui, 2 July to 3 Oct, BROWN, CLERMONT Cos (LEB), ALLEN, FAIRFIELD, HARDIN, MEDINA, PERRY, SHELBY Cos (DCI), HARRISON, HENRY, SCIOTO Cos (DKP), OTTAWA Co (DJH), WARREN Co (JVC). E. anthedon, 31 May - 11 June, BROWN Co (LEB), MONROE, NOBLE Cos (JVC). S. eurydice, 1 Aug, KNOX Co (DKP). H. sosybius, 1 June, JACKSON, PIKE Cos (JVC).

MOTHS: Ethmia zelleriella, 30 May, FULTON Co (RWR). Antaeotricha schlaegeri, 12 - 29 May, GEauga & WILLIAMS Cos (RWR). Antaeotricha leucillana, 30 May, FULTON Co (RWR). Episimus argutatus, 29 Apr, SCIOTO Co, STATE (VA). Zomaria interruptolineata, 14 May, SCIOTO Co, STATE (DJW). Spilonota ocellana, 30 May, FULTON Co (RWR). Eucosma glomerana, 3 - 10 Sept, HAMILTON Co, STATE (LDG), ADAMS Co (LDG, DJW). Epiblemma tripartitana, 10 Sept, ADAMS Co, STATE (LDG, DJW). E. brightonana, 10 Sept, ADAMS Co, STATE (LDG). Notocelia trimaculana, 17 May, HAMILTON Co, STATE (DJW). N. culminana, 10 Sept, ADAMS Co, STATE (LDG). Ancylis nubeculana, A. laciniana, Pseudogalleria inimicella, 14 May, SCIOTO Co, STATE (DJW). Argyrotaenia alisellana, 13 June, FULTON Co (RWR). Clepsis melaleucana, 30 May, FULTON Co (RWR). Tortricidia testacea, 18 July, FULTON Co (RWR). T. flexuosa, 18 July, FULTON & WILLIAMS Cos (RWR). Chlorochlamys chloroleucaria, 11 Aug, HANCOCK Co (JMG). Dysstroma hersiliata, 14 June, HANCOCK Co (JMG). Sphinx canadensis, 17 July, WILLIAMS Co (RWR). Crambidia pura, 10 Sept, ADAMS Co, 2nd Ohio specimen (DJW). C. cephalica, 11 Aug, SCIOTO Co (EHM). Catocala judith, 27 July, WILLIAMS Co (RWR). Nycteola frigidana, 10 Sept, ADAMS Co (DJW). Nola sorghiella, 2 Sept, HAMILTON Co, 2nd Ohio specimen (DJW). Papaipema marginidens, 24 Sept, SCIOTO Co (JDH). Chaetagnela cerata, 17 Oct, SCIOTO Co (JDH). C. sericea, 1 Oct, LUCAS Co (TWC). Xanthia togata, 1 - 15 Oct, LUCAS Co (TWC), WILLIAMS Co (RWR). Melanchra assimilis, 17 July, WILLIAMS Co, STATE (RWR). Lacinipolia anguina, 13 May, COLUMBIANA Co, STATE (VA). Leucania inermis, 4 June, LUCAS Co (TWC). Protorthodes oviduca, 13 May, COLUMBIANA Co (VA, EHM). Ulolonche culea, 11 Aug, HANCOCK Co (JMG). Anomomyia dilucida, 24 Sept, SCIOTO Co (JDH). Schinia oleagin, 18 Aug, ADAMS Co, reared on Kuhnia eupatorioides (JDH).

INDIANA. Detailed reports were received from ES and DE. ES found an extreme fluctuation in climate this season, from a cold April and wet May, to a long summer drought and wetter than normal November. Butterfly numbers were generally down, with reduced populations and fewer species seen.

BUTTERFLIES: P. communis, 20 Aug, JASPER Co (DE). H. metea, 30 May, JASPER Co (GB). P. viator, 23 July, WHITLEY Co (DE). A. hianna, 30 May, Jasper Co (GB). P. cresphontes, 14 May, Kosciusko Co (ES); 4 Sept, RANDOLPH Co (DE). P. protodice, 30 May - 4 Sept, Jasper Co, abundant (GB, DE), Franklin, Kosciusko, Pulaski, WAYNE Cos (DE). E. napi, 27 June - 23 July, LaGrange Co, in Tamarack bog (ES), Kosciusko Co (DE, ES), NOBLE Co, in fen (DE). P. virginensis, 16 - 17 Apr, Clark, JENNINGS, SCOTT Cos (DE, ES). E. midea, 16 - 17 Apr, Clark, Floyd, Jefferson and JENNINGS Cos (DE, ES). S. melinus, 20 Aug - 4 Sept, JASPER, RANDOLPH, WAYNE Cos (DE). C. ebenina, 17 Apr, CLARK Co (DE, ES). E. claudia, 13 Aug, Wabash Co (ES). C. bellona, 16 Apr, FLOYD Co (DE, ES). E. phaeton, 30 May, Wabash Co (ES). V. cardui, 20 Aug, JASPER, PULASKI Cos, common (DE). S. eurydice, 23 July - 3 Aug, Kosciusko Co (DE), NOBLE Co (ES).

MOTHS: Citheronia regalis, Manduca jasminearum, 14 July, Brown Co (ES). Hemaris gracilis, 30 May, Jasper Co, at Phlox pilosa flowers (GB). Hyles lineata, 3 Sept, Wabash Co, very common (ES). Peridea basitriens, 12 June, Union Co (ES). Schizura concinna & Spilosoma latipennis, 14 July, Brown Co (ES). Metalectra discalis, 13 July, Brown Co (ES). Catocala amestris, 30 May, Jasper Co, larvae on Amorpha canescens (GB).

ILLINOIS. Despite the hot and dry summer, JRW reported having a very good year, and DH found butterflies to be in good numbers. DH reported Speyeria species to be up, and both P. protodice and V. cardui in abundance. P. sennae was also common, but not reaching the levels of the past two seasons. D. plexippus populations were low.

BUTTERFLIES: E. icelus, 27 June, CLARK Co (JRW). E. baptisiae, 11 July, McDonough Co (DH). H. phyleus, 30 Aug. - 14 Oct, Mason, Union Cos (JRW). H. ottoe, 2 - 5 July, Mason, MENARD Cos (JRW), Winnebago Co (IL). H. leonardus, 9 - 26

Sept, Mason Co (JRW). P. mystic, 20 June, Will Co (JRW). P. byssus, 11 - 21 July, Mason Co (JRW), McDonough Co (DH). P. massasoit, 25 June, Cook Co (IL). E. bimacula, 20 June, Will Co (JRW). A. hianna, 10 to 18 May, Mason, MENARD, MORGAN, Pope Cos (JRW). A. aesculapius, 29 Apr, UNION Co (JRW). A. belli, 18 May, MASSAC Co, 3rd county in state (JRW). E. philenor, 25 Sept, McDonough Co (DH). E. protodice, 27 May thru 3 Nov, Mason Co (PT), McDonough Co (DH). F. midea, 8 May, MENARD Co (JRW). Z. cesonia, 1 June thru 30 Sept, MONROE, Mason, MASSAC, WHITESIDE Cos (JRW); 15 Sept, Lake Co, ovipositing on Amorpha canescens (IL). P. sennae, 19 May thru 3 Nov, McDonough Co (DH), "many counties" (JRW). F. tarquinius, 28 Apr thru 25 Aug, Jackson, Pope, Union Cos (JRW), Kane Co (IL). G. xanthoides dione, 14 June, Cass Co (PT). S. acadica, 20 June, Will Co (JRW). C. cecrops, 29 Apr - 18 May, Pope Co (JRW). M. grynea, 9 Apr - 19 May, Pope and Union Cos (JRW); 11 July, McDonough Co (DH). I. polios, 2 May, Lake Co (JRW). I. henrici, 5 Apr, Menard Co (JRW). I. nippon, 29 Apr, Pope Co (JRW). E. ontario, 18 May, POPE Co (JRW). L. marina, 29 Sept, Mason Co (JRW). G. lygdamus couperi, 3 May, WINNEBAGO Co (JRW). A. milberti, 17 Sept, JO DAVIESS Co (JRW). V. cardui, 14 June thru 14 Nov, Cass Co (PT), McDonough Co (DH). S. idalia, 14 June - 29 July, Cass, Mason Cos (PT), Grundy Co (JRW). E. phaeton, 20 June, Cook Co (JRW). E. phaeton ozarkae, 19 May - 1 June, Jackson, Pope, Union Cos (JRW). E. anthedon, 28 June, McDonough Co (DH). E. creola, 31 May - 13 June and 9 - 16 Aug, Jackson, Union Cos (JRW). S. eurydice, 20 June, Cook, Will Cos (JRW).

MOTHS: All (JRW) except as noted. Citheronia regalis, 12 June - 15 Aug, Union Co. Sphingicampa bisecta, 12 June - 21 July, Mason, Union Cos. Callosamia angulifera, 1 June, Pope Co; 7 Aug, Union Co. C. promethea x angulifera, possible wild hybrid, 31 May, Union Co. Agrius cingulata, 15 Aug, Union Co. Dolba hyloeus, 11 July, Union Co. Sphinx eremitus, 26 July, Menard Co. S. frankii, 11 July, Union Co. S. drupiferarum, 15 June 1987, Menard Co. Erinnyis ello, 7 Aug, Union Co. Eumorphia fasciata, 8 Aug, Union Co. Xylophanes tersa, 16 Oct, Mason Co. Grammia figurata, 1 June, Pope Co. Catocala angusii f. lucetta, 30 Aug, Union Co. C. whitneyi, 2 July, Winnebago Co (IL). Ascalapha odorata, 7 - 8 Aug, Union Co, two females. Schinia jaguarina, 10 June, Mason Co. S. lucens, 2 - 7 July, McHenry, Winnebago Cos (IL).

IOWA. TO reports that it was a better season in western Iowa than in the eastern part of the state, due to more areas having occasional rain. However, numbers of most butterflies were down. JM found the season starting very early, with an extremely dry summer, yet had a good moth collecting season.

BUTTERFLIES: E. horatius, 17 July, Woodbury Co (TO). E. martialis, 19 Apr to 4 June, Monona & Woodbury Cos (TO). E. baptisiae, 10 Aug - 10 Sept, Sac Co (DC), PLYMOUTH Co (TO). O. powesheik, 27 - 30 June, Dickinson, Osceola Cos (TO). T. lineola, 23 June, LEE Co (TO). H. ottoe, 26 June - 1 July, Plymouth, Woodbury Cos (TO). H. leonardus pawnee, 20 Aug to 1 Oct, Fremont Co, nectaring on Liatris (BP); PLYMOUTH & Woodbury Cos, discovered at 10 sites (TO). P. verna, 23 June, Lee Co (TO). A. campestris, 4 Sept, PLYMOUTH Co (TO). A. arogos iowa, 26 - 30 June, Dickinson, Woodbury Cos; 17 Sept (late), Plymouth Co (TO). P. massasoit and E. conspurca, 28 June (early), CLAY Co (TO). A. hianna, 17 - 27 May, PLYMOUTH, Woodbury Cos (TO). L. eufala, 10 Sept, PLYMOUTH Co (TO). H. cresphontes, 15 July - 4 Sept, PLYMOUTH Co (TO). P. protodice, 11 July thru 10 Sept, Cass, Fremont Cos (TB, BP, BW); Harrison Co (TB); Lyon Co (DC); CHEROKEE, PLYMOUTH, Woodbury Cos (TO). E. olympia, 19 Apr - 12 May, Pottawattamie Co (TB, BP, LP), Woodbury Co (TO). Z. cesonia, 8 July to 9 Oct, Fremont Co (TB); PLYMOUTH, Woodbury Cos (TO). P. sennae, 21 July thru 6 Sept, Fremont Co (BP); Pottawattamie, Harrison Cos (TB). E. lisa, 5 Sept, Fremont Co (TB). N. iole, 5 Aug, Sac Co (DC). M. grynea, 1 May, PLYMOUTH Co (TO). S. melinus, 26 May to 9 Oct, Fremont Co, nectaring on Lespedeza (BP), Sac Co (DC), Plymouth, POCAHONTAS & Woodbury Cos (TO). L. marina, 8 July, PLYMOUTH Co, 2nd STATE record (TO). H. isola, 8 July - 24 Sept, Fremont Co (BP), PLYMOUTH Co (TO). L. melissa, 4 June and 24 Aug to 15 Oct, Lyon, MONONA, Woodbury Cos (TO). S. idalia, 1 July - 17 Sept, Lyon, Plymouth, Woodbury Cos (TO), Sac Co (DC). A. milberti, 25 Sept, Buchanan Co (DC). V. cardui, 25 May - 2 Oct, Fremont Co (TB, BP, LP), Polk Co (BP, LP), CHEROKEE, Plymouth, SIOUX Cos (TO).

MOTHS: Eacles imperialis, late June, Boone Co (E. Conroy via TO). Sphingicampa bicolor, 16 May, Hardin Co (JM), 12 July, Linn Co (D. Schlicht via TO). Manduca sexta, 17 Aug, Hardin Co (JM). Pachysphinx modesta, 10 July, Franklin Co (JM). Deidamia inscripta, 5 May, Hardin Co (JM). Amphion floridensis, 5 July, HARDIN Co (JM). Ecopantheria scribonia, June, Woodbury Co (W. Buchholtz via TO). Ascalapha odorata, 10 July, FRANKLIN Co, at bait (JM). Catocala serena, 4 July, Hardin Co (JM). C. obscura, 11 Aug, Franklin Co (JM). C. residua, C. subnata, 15 Aug, Hardin Co (JM). C. cecropia, 10 July, Franklin Co (JM). C. nuptialis, 11 Aug, FRANKLIN Co (JM). Psychomorpha epimenis, 15 Apr - 2 May, Harrison Co (JW), Pottawattamie Co, on plum blossoms (BP, LP), Plymouth, Woodbury Cos (TO). Schinia lucens, 28 June, Plymouth Co (TO).

MINNESOTA. **BUTTERFLIES:** O. powesheik, 20 - 23 June, Big Stone, Clay, Lincoln, Polk, Swift Cos (AS). T. lineola, 6 July, Koochiching Co (DE). H. dacotae, 20 - 22 June, Clay, Lincoln Cos (AS). P. massasoit, 21 June, Swift Co (AS). F. tarquinius, 6 Aug, Hubbard Co (JW). G. xanthoides, 20 June, Rock Co (AS). I. nippon, 10 May, Hubbard Co, nectaring on serviceberry (JW). L. melissa, 20 - 22 June, Clay, Rock Cos (AS). P. saepiolus, 18 June, Lake Co (RB). N. vau-album, 26 Apr, Cook, Lake Cos, sighted (AS), 3 - 6 July, Hubbard Co (JW), Koochiching Co, common (DE). V. cardui, 8 - 9 May, Clearwater, Hubbard Cos (JW). E. claudia, 21 June - 30 July, Hubbard Co, nectaring on hoary alyssum (JW); Big Stone, Clay, Traverse Cos, sighted (AS). S. idalia, 20 - 22 June, Chippewa, Clay, Lincoln, Rock, Swift, Traverse Cos, sighted/photographed (AS). O. macounii, 18 June, Lake Co (RB).

MOTHS: Archicreus infans, 26 Apr, Cook Co, sighted (AS). Sphinx luscitiosa, 18 June, Lake Co (RB). Catocala briseis, 2 Aug, Hubbard Co (JW).

WISCONSIN. Twelve reports were received, providing excellent statewide coverage. The appearance of spring-emerging butterfly species was a bit advanced from "normal", but not as early as last season. Drought and record-breaking heat were the rule for much of the season, with relief coming in late August. The numbers of butterflies and moths were down considerably, yet many noteworthy species were reported. The season ended early and abruptly, with very little activity noted after early October. The highlight of the year was the extensive outbreak of P. protodice, recorded in 17 of the counties in the southern half of the state, and appearing in substantial numbers in August and September. The Nymphalid populations appear to be on the increase in the north. N. vau-album, very rarely seen since its last population peak in 1980, was reported in numbers, particularly in the northeastern counties. A good number of migratory butterfly species appeared in August and September, much later in the season than last year. Species seen in large numbers last year but rare or absent this year include E. lisa, N. iole, Z. cesonia, and J. coenia.

BUTTERFLIES: E. horatius, 20 Aug, WAUKESHA Co, STATE (RS), 19 Sept 1987, JEFFERSON Co (LF). E. persius, 14 - 27 May, Adams Co (JCP), Burnett Co (CF, LF, AS), Jackson Co (AS), Juneau Co (AS, LF). P. communis, 5 Aug - 9 Oct, Crawford Co (JCP, LF), Dane Co (KL), Grant Co (JCP), Sauk Co (JCP, AS), Winnebago Co (CS). H. phyleus, 11 - 24 Sept, Crawford Co (JCP, LF). H. leonardus, 21 Aug - 10 Sept, Green Co (JCP), Juneau Co, on Joe-Pye Weed flowers (LF). P. verna, 12 July, Waukesha Co (RS). A. campestris, 7 - 28 Aug, Milwaukee Co (SB), WAUKESHA Co (RS). A. hianna, 22 - 27 May, Eau Claire Co (JCP), Burnett Co (CF, LF), Grant Co (RB, LF). A. hegon, 17 May - 10 June, Langlade, Marathon & VILAS Cos (RB), Forest & JACKSON Cos (AS). P. cresphontes, 22 May - 2 Oct (late), Dane Co (KL), Grant Co (KL, JCP), Jefferson Co (LF),

Sauk Co (AS), Walworth Co (SB). P. protodice, 22 May - 9 Oct, COLUMBIA, GREEN Cos (AS), CRAWFORD, RICHLAND Cos (CF, LF, JCP), Dane Co (CB, CF), GRANT Co (RB, LF, JCP), IOWA, JACKSON, Marathon, Monroe, VERNON & WOOD Cos (JCP), Jefferson, WALWORTH Cos (RB, LF), Sauk Co (CF, LF, JCP, AS), Waukesha Co (LF), Winnebago Co (CS). P. occidentalis, 19 Sept 1981, ONEIDA Co, STATE, det. by A. Shapiro and P. Opler (LF). P. virginienensis, 31 May - 10 June, Forest Co (AS), Langlade Co (RB). E. lisa and N. iole, 11 Sept, Crawford Co (JCP). G. xanthoides dione, 29 June - 7 July, Grant, SAUK Cos (AS). E. epixanthe, 29 June, OCONTO Co (CB). E. dorcas, 24 June, ASHLAND Co (AS), MARINETTE Co (JRW). E. helloides, 26 May - 21 Aug, ADAMS Co (LF), Burnett, ROCK Cos (AS), Marinette Co (JRW). I. irus, 17 May, JACKSON Co (AS). I. henrici, 17 - 27 May, Burnett Co (AS, LF); JACKSON Co (AS). S. melinus, 13 Aug, Milwaukee Co (SB); 24 Sept, CRAWFORD Co (LF). E. amyntula, 27 May, Burnett Co (CF, LF). L. idas nabokovi, 28 June - 3 July, Oconto Co, 2nd site discovered; Florence Co (CB). L. melissa samuelis, 26 - 27 May and 3 - 13 July, Burnett Co (CF, LF, AS), Eau Claire Co (JCP), Jackson, Sauk, Wood Cos, sighted (AS). P. saepiolus, 14 June, Bayfield Co (AS). P. faunus, 14 July, Marathon Co (JCP). J. coenia, 4 Aug, Sauk Co, sighted (KL). C. frigga, 21 - 31 May, Forest Co (AS), Langlade Co (JCP), Vilas Co (RB). C. freija, 17 - 20 May, Oneida Co (GB, JCP). C. harrisii, 20 - 22 June, Marathon Co (JCP), Price Co (JRW). C. inornata, 17 June - 12 July, Bayfield Co (RB, CF, LF, AS); Douglas Co (CF, LF, KL), Ashland, Vilas Cos (AS), PRICE Co (JRW). E. discoidalis, 17 - 20 May, Oneida Co (GB, JCP). O. chryxus strigulosa, 14 - 20 May, Florence Co (GB), Marinette Co (JCP), Vilas Co (GB).

MOTHS: Ostrinia marginalis, 17 May, Vilas Co (GB). Eoreuma crawfordi, 27 June 1987, GRANT Co, STATE (GB). Hemileuca sp, 25 Sept, Marathon Co, in wetland (JCP). Hyalophora columbia, 25 May, Douglas Co (AS). Sphinx eremitus, 14 July, Marathon Co (JCP). S. gordius, 4 June, Dane Co (LF). S. drupiferarum, 20 June, Marathon Co (JCP). Hammaris gracilis, 27 - 29 May, Burnett Co, at flowers of Phlox pilosa (CF, LF). Hyparpha aurora, 27 May, BURNETT Co (LF). Apantesis carlotta, 17 Sept, IOWA Co (LF). Mocis texana, 21 May, Grant Co (LF). Catocala vidua, 2 Aug, Milwaukee Co (RB). C. illecta, 25 June, Grant Co (JCP). C. abbreviatella, 25 June - 6 July, Grant Co (LF, JCP). C. nuptialis, 6 - 20 Aug, Trempealeau Co (RB, JCP). C. whitneyi, 2 July, Green Co (RB). C. amestris, 25 June - 6 July, Grant Co (JCP), Sauk Co (LF). C. clintoni, 14 July, MARATHON Co (JCP). Agraphe oxvgramma, 10 Sept, OZAUKEE Co (LF). Pseudoplossia includens, 29 Sept, Dane Co, at UV and Aster flowers (LF). Syngrapha microgama, 11 June, Vilas Co (JCP). Tarachidia binocula, 27 May, Burnett Co, 17 Sept, IOWA Co (LF). Psychomorpha epimenis, 13 Apr - 17 May, Green Co (LF), Sauk Co (CF, LF, JCP, AS). Lemmeria digitalis, 30 Sept, MARATHON Co (JCP). Spartiniphaga panatela, 19 June, BAYFIELD Co (LF). Macronoctua onusta, 3 Sept, MARATHON Co, in bog (JCP). Papaipema cerina, 20 Aug - 17 Sept, Grant, Richland, TREMPLEAU Cos (JCP). P. circumlucens, 1 Aug 1987, TREMPLEAU Co (LF). P. lysimachiae, 10 Sept, WALWORTH Co (LF). P. baptisiae, 17 Sept, Iowa Co (LF). P. apassionata, 9 Sept, OZAUKEE Co (LF). P. eupatorii, 1 Oct, DANE Co (LF). Properigona costa, 3 Aug, SAUK Co (LF). Magusa orbifera, 10 - 25 Sept, MARATHON Co (JCP), Ozaukee Co (LF). Stiriodes obtusa, 6 July, DANE Co (LF). Hillia irus, 3 to 29 Sept, in Tamarack bogs, DANE Co (LF), MARATHON Co (JCP), OZAUKEE Co (GB, LF). Anarta cordigera, 17 to 21 May, Langlade Co (JCP), Oneida Co (GB, JCP). Faronta rubripennis, 20 Aug, Trempealeau Co (JCP). Euxoa quebecensis, 19 June, BAYFIELD Co (LF). Anomogyna dilucida & Eugraphe subrosea, 10 Sept, OZAUKEE Co, in Bog (LF). Schinia septentrionalis, 10 Sept, Green Co (JCP). S. lucens, 25 June, Grant Co (JCP, LF).

MICHIGAN. Detailed reports were sent by GB and MN, who also reported for several others. Spring and summer will long be remembered as one of the hottest and driest on record. The drought, starting in May, persisted through most of August, causing shrubs and trees in the central counties to show signs of stress and dying. Temperatures of 90°F+ were prevalent. The rains broke the drought in September, with October being one of the wettest in many years. Despite the drought, little impact was noted on moth populations, especially the Catocala and Papaipema. Catocala were up in many counties, particularly in the north. TH and MN recorded 42 species of Catocala, their best yet! Many southern species of Lepidoptera were found in lower peninsula counties, with Hyles lineata being unusually abundant. P. protodice made a dramatic comeback in the southern counties after years of scarcity or absence. GB submitted a number of records from the Maxton Plain of Drummond Island, Chippewa County (abbreviated as MPDI in the species list). This is a unique alvar community, having thin vegetation on a base of solid limestone.

BUTTERFLIES: E. lucilius, 19 - 21 May, MPDI, Chippewa Co (GB). E. baptisiae, 25 Sept, Monroe Co (MN). P. centaureae wyandot, 7 May (early), Otsego Co (TH, MN). H. comma laurentina, and H. leonardus, 19 - 20 Aug, MPDI, Chippewa Co (GB). P. zabulon, 13 Aug thru 11 Sept, CASS & ST. JOSEPH Cos (MN, WW). A. hegon, 3 June, Cass Co (WW). A. vialis, 16 Aug, St. Joseph Co (MN). P. glaucus, 25 Sept (late - found nectaring on Liatris), Monroe Co (MN). P. protodice, 16 Aug - 15 Oct, Allegan, Berrien, Cass, Monroe and St. Joseph Cos (MN). P. virginienensis, 20 May, Iron Co (YD). E. olympia, 19 - 21 May, MPDI, Chippewa Co (GB). C. philodice, 25 Sept, Monroe Co, ovipositing on Vicia and the prey of mantids (MN). I. polios, 19 - 21 May, MPDI, Chippewa Co (GB). I. eryphon, 28 May, Luce Co (TH). G. lygdamus couperi, 12 June, Keeweenaw Co (JP). E. claudia, 16 Aug, St. Joseph Co (MN). P. eunomia dawsoni, 7 - 9 June, Chippewa, Gogebic and Luce Cos (AS). C. selene myrina, 2 Sept, Van Buren Co, nectaring on Boneset and prey of a Phymata sp (MN). C. frigga, 20 - 29 May, Baraga, Iron, LUCE, Schoolcraft Cos (JB, YD, TH, WN). C. freija, 5 - 20 May, Iron Co (YD, JP). E. discoidalis, 5 - 20 May, Iron Co (YD, JP). O. chryxus strigulosa, 16 - 20 May, Dickinson Co (YD), Iron Co (GB, YD). O. jutta ascerta, 20 May, Iron Co (YD).

MOTHS: Ethmia bipunctella, 12 Aug, Leelanau Co (GB). Sesia spartani, 11 thru 17 June, KALAMAZOO Co (GB). Synanthedon pyri, 8 - 13 June, Kalamazoo Co (GB). S. refulgens, 8 June to 8 Sept, KALAMAZOO Co, STATE, long range extn from Gulf States (GB, W. Taft). S. rubrofascia, 10 - 19 July, Allegan Co (GB). S. decipiens, 6 - 10 July, Allegan Co (GB). Carmenta anthracipennis, 28 Aug, Allegan Co (GB). C. ithacae, 24 to 27 July, Kalamazoo Co (GB). C. pyralidiformis, 24 July to 29 Sept, Kalamazoo Co (GB). Phaneta ambodiadaleia, 5 Apr, Kalamazoo Co (GB). Uresiphita reversalis, 13 Aug, Charlevoix Co (GB). Udea itysalis itysalis, 3 July, Lake Superior dunes, Chippewa Co (GB). Loxocrambus awemensis, 18 June, Muskegon Co, dunes (GB). Anerastia lotella, 3 July, Lake Superior dunes, Chippewa Co (GB). Atascosa glareosella, 22 July, Allegan Co (GB). Itame abruptata, 17 June, BARRY Co, fen (GB). Semiothisa transitoria, 22 July, Allegan Co (GB). Orthofidonia flavivenata, 18 May, Chippewa Co, bog (GB). Apodrepanulatrix liberaria, 16 to 30 Sept, Cass, Kalamazoo Cos (GB). Scopula quadrilineata, 10 - 17 June, Barry and Kalamazoo Cos, fens (GB). S. frigidaria, 3 July, Chippewa Co (GB). Hydriomena bistriolata, 9 May, MONTCALM Co, STATE (GB). Stamnodes gibbicostata, 17 Sept thru 15 Oct, Cass Co (GB, MN). Eupithecia bowmani, 19 - 21 May, MPDI, Chippewa Co (GB). Agrias cingulata, 30 Sept, CASS Co (WW). Dolba hyloeus, 13 Aug (late), ST. JOSEPH Co (MN). Ceratomia hageni, 16 Sept, ST. JOSEPH Co, 2nd STATE record (TH). Paratreia plebeja, 7 Aug, CASS Co, 2nd STATE record (WW). Crambidia casta, 20 Aug, MPDI, Chippewa Co (GB). Haploa clymene, 22 July, MONROE Co (MN). Lymantria dispar, 23 - 30 July, CLINTON, OTSEGO Cos (TH, MN). Allotria elonympha, 26 June, Cass Co (WW); 21 Aug, Berrien Co (IL). Catocala coelebs, 26 July thru 17 Aug, Chippewa Co (GB), DELTA Co (TH). C. defecta, 16 Aug, Barry Co (MN). C. lacrymosa, 13 Aug, St. Joseph Co (TH). C. semirelecta, 29 July to 19 Aug, Chippewa and Mackinac Cos (GB), Otsego Co (RAH, MN). C. amestris, 5 to 7 June (larvae), Barry Co (JB, MN). C. sordida, 22 July, MONROE Co, SE extension (MN). C. grynea, 30 July, OTSEGO Co, N extension (MN). C. dulciola, 25 June to 9 July, Cass Co (GB, MN). Tarachidia tortricina, 30 July - 1 Aug, OTSEGO Co (MN). Colocasia flavicornis, 7 May, OTSEGO Co (MN). Luperina stipata, 8 Aug - 10 Sept, BARRY, CASS Cos (MN). Meropleon ambifusca, 12 Aug thru 16 Sept, BARRY, Cass Cos (MN). Lemmeria digitalis, 30 Sept, Kalamazoo Co, fen (GB). Spartiniphaga inops, 16

Sept, Cass Co (GB). Papaipema cerina, 11 Sept - 15 Oct, BERRIEN Co (MN), Cass Co (GB, MN). P. astuta, 16 Sept thru 16 Oct, Cass Co (GB, RAH, MN). P. leucostigma, 6 Sept, CLINTON Co (TH). P. speciosissima, 17 Sept, Cass Co (MN). P. eupatorii, and cerussata, 30 Sept, Kalamazoo Co, fen (GB). P. limpida, 16 Sept, Cass Co (MN). Platyperigea meralis, 9 Sept, ALLEGAN Co (MN). Platypolia anceps, 17 Sept 1987, ONTONAGON Co (JB). Pachypolia atricornis, 24 and 25 Sept, Cheboygan Co (JB). Choephora fungorum, 16 - 18 Sept, Cass, ST. JOSEPH Cos (MN). Oncocnemis riparia, 18 June to 3 July, Chippewa, Muskegon Cos, dunes (GB). Anarta cordigera, 18 to 21 May, MPDI, Chippewa Co, Dickinson Co, bog (GB). Egira alternans, 6 May, Allegan Co (GB). Euxoa aurulenta, 18 June, Muskegon Co, dunes (GB). Schinia indiana, 4 and 5 June, Montcalm Co, on Phlox pilosa (GB). S. bina, 4 June, Montcalm Co (GB). S. lucens, 27 June to 2 July, ST. JOSEPH Co, 2nd STATE record (JB, TH, MN).



ZONE 9 SOUTHEAST: ALABAMA, FLORIDA, GEORGIA, MISSISSIPPI, NORTH CAROLINA, SOUTH CAROLINA, TENNESSEE, VIRGINIA, BURMUDA. Coordinator: Andrew F. Beck (AFB). Contributors: Dave Baggett (HDB, via CVC); Richard W. Boscoe (RWB); Charles V. Covell, Jr. (CVC); Terhune S. Dickel (TSD); David L. Eiler (DLE); Mecky Furr (MF); William J. Garnett (WJG); Roger Hammer (RH, via TSD); William T. Hark (WTH); John A. Hyatt (JAH); Elaine S. Kruer (ESK); Ron Leuschner (RL); Steve and Julie Loftin (SJL); Bryant Mather (BM); Babs and Loren Padelford (BLP); Harry Pavulaan (HP); Maria Plonczynski and Drew Hildebrandt (P&H); Fred Rindge (FR, via BM); Charles A. Sekerman (CAS); Paul M. Thompson (PMT); Richard D. Ullrich (RDU); Richard L. Waldrop (RLW); Wayne Weaver (WW, via SJL); and William D. Winter (WDW). Morton S. Adams (MSA), John G. Franclemont (JFG) and Eric Quinter (EQ) provided determinations for several of the reports. As usual, this report represents only a portion of the records received because of space limitations and all are 1988 unless indicated otherwise. Records published in other outlets (e.g., the Southern Lepidopterists News) are not included here. This was a good year for collecting in the southeast, especially in the spring and fall, and (in extreme southern areas of Florida) during the winter. Drought conditions ruined summer collecting throughout the zone, affecting the diurnal species to a greater degree than the nocturnal (AFB in north FL, SJL in central TN, MF in western TN). We experienced a mild winter and early spring in the extreme southeast with leps on the wing all winter even in north Florida and the phenology of spring-blossoming trees and shrubs advanced anywhere from 2 to 6 weeks. A few late cold snaps in March did not affect the abundant spring flight. HP submitted records for C. "neglectamajor". Until the status of this taxon is clarified, we are withholding these from publication. They are available through HP or AFB. Abbreviations used: Bch = Beach; CLLANM = Check List of the Lepidoptera of America North of Mexico; Co = County; Crk = Creek; det = determined/determination; Hwy = Highway; mi = miles; Mtn = Mountain; nr = near; Rd = Road; SR = Secondary Road; St Pk = State Park; vic = vicinity. County name in caps indicates a county record.

MIGRATORY SPECIES: Several contributors noted the abundance of P. sennae eubule and A. vanillae nigrior, especially in the coastal areas during late summer and fall. WTH reports P. sennae eubule noticeably absent in northern VA this past fall.

ALABAMA. No records.

FLORIDA. BUTTERFLIES: P. pigmalion okeechobee, Ft. Myers Bch, Lee Co, 22 Nov (BLP); Long Key, Monroe Co, and Upper Key Largo, Monroe Co, 2 Apr (both DLE); Upper Key Largo, Monroe Co, 20 Mar, numerous (CVC). P. leo, Upper Key Largo, Monroe Co, 20 Mar (HDB). U. dorantes, Janes Scenic Drive, Collier Co, 30 Mar (DLE); Upper Key Largo, Monroe Co, 20 Mar (CVC). E. brunnea floridensis, Upper Key Largo, Monroe Co, 20 Mar (HDB). P. oileus, Janes Scenic Drive, Collier Co, 30 Mar; Copeland, Collier Co, 30 Mar; Upper Key Largo, Monroe Co, 2 Apr (all DLE). N. neamaltha, Eglin Air Force Base, Ocala Co, 3 and 4 Oct; C. tripunctis, vic Hillsboro, Palm Beach Co, 17 Oct, (both CAS). L. accius, Upper Key Largo, Monroe Co, 20 Mar (CVC). A. numitor, vic Hillsboro, Palm Beach Co, 17 Oct; C. minimus, Eglin Air Force Base, Ocala Co, 3, 4 Oct (both CAS). H. phyleus, Upper Key Largo, Monroe Co, 20 Mar (CVC). H. meskei straton, Eglin Air Force Base, Ocala Co, 3 and 4 Oct; W. otho, Snake Rd, 1 mile N of Hwy 84, Broward Co, 11 Oct; P. verna, Eglin Air Force Base, Ocala Co, 3, 4 Oct (all CAS). A. logan (=delaware), Janes Scenic Drive, Collier Co, 30 Mar (DLE). E. arpa, Eglin Air Force Base, Ocala Co, 3, 4 Oct (CAS). E. pilatka, Janes Scenic Drive, Collier Co, 30 Mar (DLE). A. capucinus, Ft. Lauderdale, Broward Co, 11, 12 Oct (CAS); Upper Key Largo, Monroe Co, 20 Mar (CVC). L. eufala, Upper Key Largo, Monroe Co, 20 Mar (HDB). O. maculata, Snake Rd, 1 mile N of Hwy 84, Broward Co, 11 Oct (CAS); Janes Scenic Drive, Collier Co, 30 Mar (DLE). C. ethlius, Spring Hill, Hernando Co, 4 - 5 Dec (RL). P. panoquin, Janes Scenic Drive, Collier Co, 30 Mar (DLE); St. Augustine, Flagler Co, 18 Apr, nectaring on Melilotus alba (AFB). P. ocala, Spring Hill, Hernando Co, 4 and 5 Dec (RL). B. polydamas lucayus, vic Lovers Key St Pk, Lee Co, 13 Oct (RDU). E. andraemon bonhotei, Upper Key Largo, Monroe Co, 8 and 9 Oct (seen) (ESK). A. drusilla neuwoegeni, Long Key, Monroe Co, 2 Apr (DLE). P. protodice, Hernando, Citrus Co, 7 May (AFB). P. philea, Ft. Meyers, Lee Co, 7 Oct (RDU). P. agarithe maxima, Upper Key Largo, Monroe Co, 20 Mar, numerous (CVC). C. simaethis, Upper Key Largo, Monroe Co, 20 Mar (CVC). I. nippon, Delancy Lake, Putnam Co, 28 Feb, EARLY; DeLand, VOLUSIA Co, 13 Mar 1985, SOUTH; E. favonius, Ocala National Forest, Marion Co, 14, 15 May, abundant; Hernando, Citrus Co, 7, 8 May, abundant (all AFB); Ft. Myers, Lee Co, 6 Apr (RDU). P. m-album, Ft. Myers, Lee Co, 2 Apr (RDU). S. martialis, Upper Key Largo, Monroe Co, 20 Mar (CVC). S. columella modesta, Ft. Lauderdale, Broward Co, 11, 12 Oct (CAS); Upper Key Largo, Monroe Co, 20 Mar (CVC). E. angelia, Sanibel Island, Lee Co, 22 Nov, det by AFB (BLP). H. thomasi bethunebakeri, Big Pine Key, Monroe Co, 10 Oct (RDU). C. ladon, Jacksonville, Duval Co, 3 Apr (AFB). C. virginianensis, Snake Rd, 1 mile N of Hwy 84, Broward Co, 11 Oct (CAS). J. evarete zonalis, vic Lovers Key St Pk, Lee Co, 13, 14 Oct (RDU). S. stelenes biplagiata, Orchid Jungle, Dade Co, 1 Apr; Big Cypress Preserve, Monroe Co, 3 Apr (seen) (both DLE). E. frisia, Upper Key Largo, Monroe Co, 20 Mar (CVC). E. monima, Upper Key Largo, Monroe Co, 8 Oct, moderately abundant (ESK). E. tatila tatilista, South Miami, Dade Co (no date given), larvae & pupae in nature on Bursera simaruba (Burseraceae, "Gumbo Limbo") (TSD); Upper Key Largo, Monroe Co, 20 Mar (CVC). M. petreus, Janes Scenic Drive, Collier Co, 30 Mar (seen); Everglades Nat Pk, Royal Palm Hammock, Dade Co, 31 Mar (seen); Orchid Jungle, Dade Co, 1 Apr (seen); Big Cypress Preserve, Monroe Co, 3 Apr (seen) (all DLE); vic Hillsboro, Palm Beach Co, 17 Oct (CAS). Anaea floralis, Big Pine Key, Monroe Co, 9 Oct (RDU). N. areolatus, Snake Rd, 1 mile N of Hwy 84, Broward Co, 11 Oct (CAS); SR-2, south of Lehigh Acres, Lee Co, 29 Mar (DLE). D. gilippus berenice, Snake Rd, 1 mile N of Hwy 84, Broward Co, 11 Oct. D. eresimus tethys, vic Hillsboro, Palm Beach Co, 17 Oct, common, all females (both CAS).

MOTHS: All records Janes Scenic Drive, Collier Co, 18 March, MV lamp (CVC), unless indicated otherwise. BLASTOBASIDAE - H. tartarella, SR 520 x SR 532, Brevard Co, 4, 5 Dec (RL). YPOMEUTIDAE - Lactura pupula. COSSIDAE - P. robiniae. LIMACODIDAE - P. badia. A. slossoniae; also No Name Key, Monroe Co, 19 Mar, MV lamp (CVC). E. delphinii. PYRALIDAE - S. oblitalis. Paraponyx obscuralis. Diacme mopsalis, No Name Key, Monroe Co, 19 Mar, MV lamp (CVC). GLYPHODES FLORIDALIS. Palpita magniferalis. THYRIDIDAE - H. enhydria, No Name Key, Monroe Co, 19 Mar, MV lamp (CVC). GEOMETRIDAE - S. gnophosaria. S. carpo (not listed in CLLANM). Anacamptodes defectaria. P. auriferaria, No Name Key, Monroe Co, 19 Mar, MV lamp (CVC). O. vesulia transponens. O. cubana. Nepheloleuca floridata. Sericoptera virginaria;

also No Name Key, Monroe Co, 19 Mar, MV lamp (CVC). E. niveociliaria, and I. pervertipennis, No Name Key, Monroe Co, 19 Mar, MV lamp (CVC). I. taturata. Pleuroprucha insularia. L. crossii. L. labeculata. LASIOCAMPIDAE - A. cribraria; also No Name Key, Monroe Co, 19 Mar, MV lamp (CVC). SPHINGIDAE - C. anteus. P. carteri, Upper Key Largo, Monroe Co, 20 Mar (CVC). E. ello, No Name Key, Monroe Co, 29 Dec, 1987; HOST PLANT, with adults ex larvae on Manilkara bahamensis (Sapotaceae, "Wild Dilly") (TSD). C. grotei, Bahia Honda State Rec Area, Monroe Co, 31 Jan, HOST PLANT, with adults ex larvae on Eriothalis fruticosa (Rubiaceae, "Black-Torch") (TSD). NOTODONTIDAE - Peridea angulosa. ARCTIIDAE - C. fidelissima vagrans, Upper Key Largo, Monroe Co, 20 Mar (CVC). U. bella, Spring Hill, Hernando Co, 4 and 5 Dec (RL); Sanibel Island, Lee Co, 28 Mar (DLE). Spilosoma virginica, I-75 & US-15, Charlotte Co, 27 Mar (DLE). Lymire edwardsii. Eucereon carolina. C. myrodora. NOCTUIDAE - Pseudocharis minima, No Name Key, Monroe Co, 19 Mar, MV lamp (CVC). P. pallidior, G. unica. Epidromia fergusonii, Homestead, Dade Co, (no date given), HOST PLANT, reared on Psidium guajava (Myrtaceae, "guava") in lab (TSD). E. nr paophilodes (=pannosa), No Name Key, Monroe Co, (no date given), HOST PLANT, 1 larva found in nature on Psidium longipes (Myrtaceae, "Long-Stalked Stopper"), larva in lab fed on Eugenia axillaris (Myrtaceae, "White Stopper"), on Metopium toxiferum (Anacardiaceae, "Poisonwood"), and on Rhus copallina (Anacardiaceae, "Southern Sumac") (TSD). M. obvertens. M. fasciolaris. A. odorata, Sanibel Island, Lee Co, 22 Nov (BLP); No Name Key, Monroe Co, 19 Mar, MV lamp (CVC). Mocis cubana, No Name Key, Monroe Co, 19 Mar, MV lamp (not listed in CLANM) (CVC). A. basigera. P. oculatrix. Proroblemma testa. A. connecta. E. unio. Callopietria floridensis. G. liquida. Leucania dorsalis, Fuchs Hammock and many other localities, DADE Co and MONROE Co, 1984 to present, NORTH AMERICA, det confirmed by MSA & JGF (TSD). Tricholita lutina, No Name Key, Monroe Co, 19 Mar, MV lamp (CVC).

GEORGIA. BUTTERFLIES: All records (RDU). E. tarquinius, Lilburn, Gwinnett Co, 19 June. S. aphrodite, Cooper Crk, Union Co, 9 July. C. nycteis, Cooper Crk, Union Co, 29 May.

MISSISSIPPI. MOTHS: All records are Rocky Springs, CLAIBORNE Co, 31 Oct (P&H) unless otherwise indicated. TINEIDAE - Acrolophus morus. TORTRICIDAE - Eucosma dorsisignatana. PYRALIDAE - Glyphodes sibillalis, Vicksburg, WARREN Co, STATE, 14 Oct, 1987 (FR). Diorcyctria amatella. LASTOCAMPIDAE - Tolype velleda. ARCTIIDAE - Leucanopsis longa. NOCTUIDAE - Zanclognatha obscuripennis, Palthis asopialis, Redectis pygmaea, Papaipema inquaesita (det EQ), P. rutila, Phlogophora periculosa, Amphipyra pyramidoides, Leucania latiuscula, Xestia badinodis, Anomogyna elimata, A. dilucida, STATE (det EQ).

NORTH CAROLINA. BUTTERFLIES: E. pilatka, (no location given), Currituck Co, 3 & 11 Sept, caged female oviposited on Cladium jamaicensis, larvae reared to adulthood (RWB). E. dion, (no location given), Currituck Co, 3 & 11 Sept, 1 caged female oviposited on Carex sp, progeny reared to adulthood (RWB). M. hesseli, 12 mi S of Bolton, Brunswick Co, 27 Mar (RLW). E. laeta, Dillingham, Buncombe Co, 2 June (RLW). C. ebenina, Balsam Mtn, HAYWOOD Co, 1 June, eggs and early larvae at 4500' elevation (HP); Dillard, Rabun Co, ex pupa 24 June (RLW); Big Cove, SWAIN Co, 31 May, late instar larvae at 3400', eggs & early instar larvae at 4300' elevation (HP); Round Knob, TRANSYLVANIA Co, 15 May (WJG). C. bellona, Big Cove, SWAIN Co, 1 June (HP).

MOTHS: THYRIDIDAE - Thyris sepulchralis, Harmon Den Wildlife Refuge, Haywood Co, 31 July (seen) (CVC).

SOUTH CAROLINA. No records.

TENNESSEE. BUTTERFLIES: S. hayhurstii, (no location given), SULLIVAN Co, 24 July (JAH). P. catullus, Wolf River Trail, Shelby Co, 26 April. P. zabulon, Cummins Mill Rd, Jackson Co, 23 May (both MF). E. marcellus, Nashville, Davidson Co, 9 Apr, abundant, about 30 per acre (SJL). P. protodice, Farmington, Shelby Co, 13 Oct (MF). E. midea, Nashville, Davidson Co, 9 April (SJL). C. philodice and Z. cesonia, Farmington, Shelby Co, 13 Oct (MF). E. sennae eubule, Nashville, Davidson Co, 25 Nov, LATE (SJL). E. tarquinius, Evins Mill, DeKalb Co, 22 Apr; Wolf River Trail, Shelby Co, 8 Apr (both MF). A. halesus, Nashville, Davidson Co, 28 Apr (WW). H. titus, Cordova, Shelby Co, 7 and 27 Jun; S. calanus falacer, Shelby Forest St Pk, Shelby Co, 18 May; I. henrici, Hatchie River Trail, Hardeman Co, 26 Apr; I. nippon, Hwy 57, 4 mi E of Saulsbury, Hardeman Co, 7 Apr (all MF). P. m-album, Nashville, Davidson Co, 28 Apr (SJL). A. vanillae nigrior, Hatchie River, Hardeman Co, 25 Aug (MF); (no location given), SULLIVAN Co, 9 Nov (JAH). N. antiopa, Nashville, Davidson Co, 9 Apr, seen after several year's absence (SJL).

MOTHS: NOCTUIDAE - All records Germantown-Shelby Forest area, Shelby Co, (MF). C. flebilis, 16 July; C. angusi f. lucetta, 15 July; C. agrippina, 19 July; C. relecta luctuosa, 17 & 21 July; C. nebulosa, 8,14,17 July.

VIRGINIA. BUTTERFLIES: E. dukesi, (no location given), Virginia Beach, 3 & 11 Sept, in association with a Carex sp. in shaded woods (RWB). P. protodice, Reston, Fairfax Co, 22 Aug; Vienna, Fairfax Co, 2 Sept (both HP); (no location given), SCOTT Co, 21 May (JAH). H. titus, Craig Hollow, Montgomery Co, 8 July (AFB). E. comyntas, vic University of Virginia, Albemarle Co, 4 Nov, LATE (WTH). S. diana, Mountain Lake area, Giles Co, 15 Aug, nectaring at Carduus sp (thistle) (WTH); Craig Hollow, Montgomery Co, 8 July (AFB); Poverty Hollow, Montgomery Co, 13 and 15 Aug, nectaring at wild pink mint (WTH). S. aphrodite, Flint Hill, Rappahannock Co, 11 June (PMT). S. idalia, Poverty Hollow, Montgomery Co, 8 July (AFB). C. bellona, Flint Hill, Rappahannock Co, 11 June, abundant (PMT). B. archippus nr watsoni, Vienna, Fairfax Co, 22 Aug thru 13 Sept (HP); Back Bay Wildlife Refuge, Virginia Beach, 27 Aug, most individuals seen were of this phenotype (HP). S. eurydice, Mountain Lake area, Giles Co, 22 July, in copula, 3850' elevation (WTH).

MOTHS: All records (WTH). GEOMETRIDAE - B. betularia, Pembroke, Giles Co, 31 July. X. urticaria, Pembroke, Giles Co, 12 Aug. C. armataria, Mountain Lake area, Giles Co, 22 July. SATURNIIDAE - C. angulifera, Pembroke, Giles Co, 2 Aug. SPHINGIDAE - Paonias myops, Pembroke, Giles Co, 26 July. E. pandorus, Pulaski, Pulaski Co, 3 Aug. D. myron, Pembroke, Giles Co, 26 July. ARCTIIDAE - H. miniata, Pembroke, Giles Co, 31 July. H. fucosa, Mountain Lake area, Giles Co, 22 July, adults stridulating when molested. H. aurantiaca, Pembroke, Giles Co, 31 July. A. arge, Mountain Lake area, Giles Co, 14 Aug. NOCTUIDAE - C. micronympha f. gisela, Mountain Lake area, Giles Co, 11 August. C. amica, Pembroke, Giles Co, 31 July.

BERMUDA. No records.

ZONE 10 NORTHEAST: LABRADOR, NEWFOUNDLAND, MARITIMES, NEW ENGLAND, NEW YORK, PENNSYLVANIA, NEW JERSEY, MARYLAND, DELAWARE, DISTRICT of COLUMBIA. Coordinator: Dave Winter (DW). Contributors: William Anderson (WA); Charles Bier (CB, via DS); Dan Boyer (DB, via RS); Stanwood Bolton (SB); William Boscoe (WB); Brian Cassie, for the Massachusetts Butterfly Atlas Project (BC, via DW); Tom Dodd (TD, via BC); Edna Dunbar (ED, via BC); Mark Fairbrother (MF, via BC); John Fales (JF); Bob Gardner (BG, via RS); Robert Godefroi (RG, via DW); Paul Goldstein (PG); Stephen Goldstein (SG); Henry Hensel (HH); James Holmes (JH); Mark Kasprzyk (MK, via BC); Phil Kean (PK); Warren Kiel (WK); Ron Leuschner (RL);

Lyn Lovell (LL, via BC); Donna Munafo (DM, via BC); Mark Pawlak (MP); Roger Pease (RP); Edward Peters (EP); Calvin Schildknecht (CS); Kathryn Schneider (KS, via DS); Dale Schweitzer, in part for The Nature Conservancy (DS); Tim Simmons (TS); Richard Smith (RS); Leslie Trew (LT, via RS); Anthony Wilkinson (AW, via DS); Richard Waldrep (RLW); Rene Wendell (RW, via BC).

MIGRATORY SPECIES: V. cardui, late and scarce, Adams Co, PA (CS); scarce in Coos Co, NH (JH). E. claudia very numerous in Adams Co, PA (CS); one in Lincoln, Middlesex Co, MA, 13 July (MP); ten other localities in MA, including numerous on drying lake bed of Quabbin Reservoir, Worcester Co (SB, BC, MF). Danaus plexippus low in Norfolk Co, MA (DW) and Adams Co, PA (CS); also poor in southern NJ (DS); the fall flight in Calvert Co, MD, was extremely light, with a maximum of 15 individuals in a whole day, 21 Sept (JF).

NEWFOUNDLAND. No reports.

PRINCE EDWARD ISLAND. No reports.

NOVA SCOTIA. **MOTHS:** Heptaerotia phyllophora, 5 July, Terre Noire, Cape Breton Highlands. Melanchra pulverulenta, 5 July, and Lacanobia atlantica, 5 July, Terre Noire (all EP).

NEW BRUNSWICK. **MOTHS:** (HH, all Edmundston except as noted). Sphinx luscitiosa, 17 June; Agrius cingulatus, 2 Oct. Holomelina lamae, ova from ♀ captured in crowberry bog near Shippagan, reared on broad-leaved plantain, adults 23 Aug to 10 Sept. Apantesis virgo, larvae hibernating from 1987 produced adults 20 May to 12 July, including form "citrinaria". Abrostolis urentis, 17 June; Eosphoropteryx thyatyroides, 4 and 26 Aug; Syngrapha selecta, 6 Aug; Plusia venusta, 2 Aug; Brachyonychia borealis, 8 May; Oncocnemis piffardi, ♀ 22 Aug, ♂ 30 Aug; Papestra quadrata ingravis, 13 & 16 June; Stretchia plusiaeformis, 23 Apr to 6 May; Triphaena pronuba, 8 Aug.

VERMONT. **BUTTERFLIES:** E. claudia, 17 July, Marlboro (CS).

MOTHS: Lacinipolia implicata, 23 August, Williston, Chittenden Co (DS).

NEW HAMPSHIRE. **BUTTERFLIES:** Erora laeta, abundant, 28 May, Grafton Co (RG); and 29 May, Randolph, Coos Co (JH). G. lydamus, abundant, late May to early June where first discovered in 1986, Whitefield, Coos Co, and now present in sites a number of miles away (JH); oviposition on Vicia americana observed (WK).

MOTHS: (all the records of WK are from Whitefield, Coos Co, and of JH are from Jefferson, Coos Co, unless noted). Sthenopis auratus, 6 July, 1987 (WK); larva allegedly a borer in ostrich fern. Acrolophus morus, 13 Oct, Concord, Merrimack Co (JH). Bondia commonana, 24 June (WK). Yponomeuta multipunctella, 18 July (JH). Archepandemis borealis, 16 July, at 3009', Jefferson Notch, Coos Co (WK). Synclita oblitalis, 6 Aug (WK). Pyrausta orphisalis, 5 Aug, and P. acronalis, 19 July, plus Vaxi critica, 20 July (JH). Tosale oviplagalis, 3 ♀, 8 - 19 July, probable STATE (WK). Thyris maculata, 29 June, Franconia, Coos Co (JH). Cepphis decoloraria, 21 June; Eulithis flavibrunneata, 21 July; Ecliptopera silaceata albolineata, 18 July; Sparargania magnoliata, 25 July; Ceratonia amyntor, 22 June (all JH). Hyles gallii, 19 Sept (late, but fresh, WK). Hypoprepia miniata, 4 Aug; Apantesis doris, 23 May, and a fresh ♂ on 10 Aug, implying a 2nd brood (WK). Catocala semirelictata, 8 Aug (JH) plus 23 Aug and 14 Sept (WK). C. coccinata, 20 July, West Rumney, Grafton Co (WB). Acronicta spinigera, 10 July; A. interrupta, 9 July; A. sperata, 17 and 18 June; Papaipema cataphracta, 1 October; Enargia mephisto, 6 - 9 July; Odoconta cinereola, 6 July to 8 Aug; Lithophane georgii, 19 Sept (all WK). Adita chionanthi, 8 Aug (JH) and 10 - 12 Aug (WK). Euagrotis illapsa, 18 Sept; Schinia nr obscurata, 9 July; S. arcigera, 2 Aug (all WK).

MAINE. **BUTTERFLIES:** H. comma laurentina, 27 - 30 Aug, Islesboro, WALDO Co; first report from coastal Maine in over fifty years (DW). Coenonympha inornata, 3 Sept, N Whitefield, LINCOLN Co (MP).

MOTHS: Noctua pronuba, 19 Aug, Islesboro, Waldo Co (DW).

MASSACHUSETTS. **BUTTERFLIES:** P. viator, 3 Aug, Mystic River Reservation, Middlesex Co (RG), and flying within many stands of Phragmites in eastern Mass, late summer (BC, TD). S. edwardsii, over 1000 seen, Myles Standish State Forest, Plymouth Co, 8 July (BC, MK). M. hesseli, found 26 May to 11 June at seven new locations; Foxboro and Sharon, Norfolk Co; Raynham, Freetown, and Dighton, Bristol Co; Westboro, Worcester Co; plus North Andover, Essex Co (SB, BC, TD, SG, LL, DM). Erora laeta, found at 5 sites, 28 May to 12 July, at Florida, Lenox, and Mt. Greylock in Berkshire Co, and at Bernardston and Buckland in Franklin Co (BC, ED, EF, RW). A. celtis and A. clyton were both reared from larvae found on Celtis sp in a city park in Springfield, Hampden Co (RP). C. inornata, 10 June and 15 Aug, within Boston (Dorchester), Suffolk Co; and Cambridge, Middlesex Co, 2 Aug; as well as Worcester, Worcester Co, 19 June and 13 Aug (MP).

MOTHS: E. imperialis, 19 July to 10 Aug, over 30 sight/collection records from Chilmart, Chappaquiddick, Edgartown, Oak Bluffs, and W. Tisbury, Dukes Co; Deidamia inscripta, 3 - 11 June, Edgartown and W. Tisbury; Cycnia inopinatus, 31 May to 11 June, and 6 specimens on 6 Aug (2nd brood), Edgartown (PG, TS). Zale helata, 18 June, Shirley, Middlesex Co; C. judith, 21 Sept, Shirley (EP). C. residua and C. vidua, 24 Aug, Middlesex Fells, Middlesex Co (RG). C. connubialis "pulverulenta", 21 Aug, Shirley; Pseudoplusia includens, 5 Oct, Shirley (EP). Eutelia pulcherrima, 14 June, W. Tisbury (PG, TS). Acronicta connecta, 6 Aug, Dedham, Norfolk Co, ? STATE (DW). Papaipema arctivorens, 10 Oct and P. furcata, 5 Oct, Shirley (EP). Bellura densa 3 Sept, Dedham, ? STATE (DW). **ERRATUM:** Catocala alabamiae, reported for Plymouth Co in 1987, is determined by DS to be an aberrant C. praeclara.

CONNECTICUT. No report.

RHODE ISLAND. No report.

NEW YORK. **MOTHS:** Papaipema speciosissima ab. "regalis", and seven specimens of the un-named ostrich fern feeding Papaipema, 27 Sept, Eldorado Beach, Jefferson Co (KS).

PENNSYLVANIA. **BUTTERFLIES:** A. rapae, at blacklight 21 Sept, Willow Grove (WB). E. epixanthe was located in Lycoming, Sullivan, Tioga, and Wayne Cos in early July (AW). N. j-album, 22 Sept, Cold Spring, Adams Co, 1st one seen in 50 years observing (CS). An extensive search for S. idalia in eastern and central PA since 1985 uncovered but a single colony in 1988 (county withheld, AW).

MOTHS: Crambidia pura, Cisthene plumbea, and C. packardii, 25 Aug, shale barren along Sideling Hill Creek, Fulton Co (CB). Dyspyralis illocata, 17 July, Powdermill Preserve, Westmoreland Co (RL). Catocala maestosa, 19 Aug, plus C. connubialis melanic, 14 July, Willow Grove, Montgomery Co (WB).

NEW JERSEY. BUTTERFLIES: (all DS). H. attalus slossonae, common in dry fields, 6 July thru 9 Aug, Lakehurst. P. protodice, formerly very common, not seen in Cumberland Co (but see Delaware). N. j-album, 2 Sep, and Anartia jatrophae, 10 Aug, Port Norris, STATE record. P. tharos, 13 Nov, LATE, Dividing Creek, Cumberland Co. L. arthemis astyanax, common in Port Norris in September, with one banded form seen.

MOTHS: (all DS). Inguromorpha basalis, 6 July, Earle Naval Weapons Depot (closed to the public), Monmouth Co. Monoleuca semifascia, 3 July, in unburned pine woods, Lakehurst, Ocean Co. Glenoides texanaria, 1 Oct to 4 Nov, at bait and light in hardwood swamp. Pero zalissaria, 30 Sept and 18 Oct, Dividing Creek, Cumberland Co. Eusarca fundaria, 16 Aug, Port Norris, Cumberland Co. Nemoria lixaria, 18 Oct, 3 at light in hardwood swamp, and Cisthene plumbea, 11 Sept at bait in hardwood stand, Dividing Creek. Macrochilo louisiana, July and early Aug, local in Carex stands, Lakehurst, OCEAN Co. Meropleon cosmion, 17 Oct, Hammonton, Atlantic Co. Ommatostola lintneri, 4 Nov, LATE, Dividing Creek salt marshes. Spartiniphaga carterae, limited to a single stand of Calamovilfa brevifolia, Lakehurst. Paipema duovata, 4 Nov, LATE, Dividing Creek salt marshes. Lithophane querquera has become well established in south Jersey in the past eight years; hundreds at bait 28 October, continuing to 24 December, Dividing Creek. Metaxaglaea violacea, up to 2,000 per night at bait, 24 Oct, Dividing Creek. Faronta rubripennis, 3 July to 8 Aug, associated with larger Carex stands, Lakehurst, OCEAN Co. Chytonix sensilis, 8 Aug, Earle NWD. Agrotis buchholzi, common, 17 May to 11 June, and 7 & 8 Aug, only in recently burned pitch pine lowland areas, Lakehurst. Xestia bolii, 18 Oct, Dividing Creek.

DELAWARE. BUTTERFLIES: (all Sussex Co). S. hayhurstii, 10 Aug, Delaware Wild Lands Cypress Swamp, COUNTY (BG). E. dion, 23 July, 1987, near Shorts Beach, STATE record (WA & RS); also DWLCS, 10 Aug (BG). P. protodice, 27 Aug, near Laurel, many dozens (RS); and Cape Henlopen, 15 Oct (BG) (but see New Jersey). H. hyllus, 17 Aug, Prime Hook NWR (RS, LT). S. kingi, 10 - 14 July, DWLCS (BG, PK. RS). I. irus, Nanticoke Wildlife Area, Bethel (RS).

MARYLAND. BUTTERFLIES: H. sassacus, 25 May, extremely abundant in Savage River SF, Garrett Co (RLW). A. campestris, 1038 counted in Calvert Co, 20 July (JF). P. senna eubule, lemon-yellow o, 3 Dec, LATE, Huntingtown, Calvert Co (JF). E. ontario, 18 June, abundant at Little Orleans, Allegany Co (RLW). B. archippus, at light, 13 Sept, Huntingtown (JF). MOTHS: Fulgora exiguua, 27 Aug, St. Michaels, Talbot Co. Nemoria saturiba, 27 Aug, St. Michaels, a marked Northern range extension (RL).

DISTRICT OF COLUMBIA. BUTTERFLIES: In 1977 - 78, JF had surveyed the butterflies of Rock Creek Park in Washington, DC, in detail, finding 58 species. A limited review in 1988 indicated that no major changes had occurred in the butterfly fauna, despite the 1988 drought and some spraying for gypsy moth control. One additional species, E. ruricola metacomet, was observed.



ZONE 11 HAWAII / PACIFIC ISLANDS. Coordinator: J.C.E. Riotte (R). Contributors: Capt. Edward Carus and S. L. Montgomery, B. P. Bishop Museum's Fatu Hiva (Marquesas) Expedition (M); David Preston, Bishop Museum, Honolulu, HI, U.S.A. (P); Bryon Stevenson, Grass Valley, CA, U.S.A. (S); Joseph D. Zeligs, Bethesda, MD, U.S.A. (Z). The weather in 1988 was still mostly on the dry side, but late in the year the rains finally came again. The butterfly populations on the Hawaiian Islands were visibly influenced by this dryness, and scarce. As in the year before, only Danaus plexippus and Agraulis vanillae seemed to be undisturbed by the weather.

HAWAIIAN ISLANDS. (Z) collected on Oahu on the well known Mt. Tantalus where he was able to net the endemic Vanessa tameamea and Udara blackburni which latter also was found on other elevated localities. A new locality for V. tameamea was found by (P) at Aiea Heights, also on Oahu. The albino form of D. plexippus was sighted by (Z), also on the Big Island of Hawaii, besides in several locations on Oahu, where it is not uncommon anymore. (S) collected mainly on the Big Island of Hawaii and, besides more or less everything well known and common, collected the small lycaenid Brephidium exilis at the sea shore near Haena, where it was common. This species was collected for the first time by the coordinator at Waianae, Oahu, about 5 miles inland, feeding on plants of a Crasulaceae.

PACIFIC ISLANDS. The Marquesas Expedition brought rich material which awaits much further work. Already it can be said that we now have a long series of the endemic Marquesan sphingid, Agrius cordiae Riotte [the picture of which in D'Abrera's Sphingidae Mundi (1986:14) is not this species but Agrius convolvuli, which is not even from the Marquesas, but from Eimeo, in the Society Islands (I. J. Kitching, BMNH, in lit.)]. From the Society Islands (M) brought the big surprise of an, up to now, unknown sphingid which will be duly described by (R) soon. With this conclusion, one may say that 1988 was, the weather notwithstanding, not without importance for the Pacific Islands.



ZONE 12 THE NORTHERN NEOTROPICS: MEXICO, CENTRAL AMERICA, THE ANTILLES. Coordinator: Eduardo C. Welling M.
No report was received before press time.



ZONE 13 SOUTH AMERICA. Coordinator: Boyce A. Drummond (BD). Contributors: George T. Austin (GA), Keith S. Brown, Jr. (KS), Curtis Callaghan (CC, via KB), Charles V. Covell, Jr. (CV), Thomas C. Emmel (TE), Ronaldo B. Francini (RF, via KB), Terry Harrison (TH, via SP), Richard Hesterberg (RH, via SP), Phil Holzbauer (PH, via SP), H. Miers (HM, via KB), L. Otero (LO, via KB), Steven Passoa (SP). Several of our reports allow comparisons to the same localities as reported in previous Season Summaries. These include Keith Brown's visits to Colombia (1987 Season Summary), his update on several longterm projects in SE Brazil (see Season Summaries for 1984 - 87), especially on Papilionidae and Acraeinae, and Tom Emmel and Boyce Drummond's Holbrook Travel expedition to Tinalandia, Ecuador (1986 - 87 Season Summaries), with 20 collectors. Missing this year is an update on butterfly community diversity being monitored as part of WWF's Minimum Critical Sizes of Ecosystems project in AMAZONAS, BRAZIL, by Keith Brown, who reported that fieldwork in the Amazon Basin was not possible in 1988. Weather in Ecuador was as expected during visits by the Holbrook group and Charlie Covell, but Keith Brown reported a very wet winter on the Brazilian coast and an exceedingly cold, totally dry winter in the southern half of Brazil, extending through the end of the year.

COLOMBIA. ANTIOCHIA. (All records by KB in January and July). Rio Claro was quite dry but yielded Eurytides pausanias cleobrotas, Euselasia amphidecta, Haetera piera macleannania, Amphidecta callioma, 4 spp of Eurybia, Mesosemia nr epidius, and Orimba pythiodes. Higher up at the Rio Samaná area were found Callithomia hezia laying on Lycianthes sp,

and Ethemopsis radiata. Vallesol (KM 104) still (see 1987 Season Summary) had strong populations of Heliconius hecalesia and Eueides lineata emsleyi, and, surprisingly, Neruda godmani, as well as a very striking new species of Symmachia.

VALLE DEL CAUCA. (All records by KB in January; cf with 1987 Season Summary, which contains August records for these localities). A female Eurytides columbus was taken on the San Antonio hilltop (2200m) and E. protesilaus was observed ovipositing on Phoebe cinnamomifolia nearby at Bitaco (1500m). The Alto Anchicayá reserve gave both blue and very white forms of Morpho theseus, Callithomia beronilla, Anaea laura, Prepona licomedes, Consul panarista pandros, Anteros allectus, Eurytides orabilis on vertical damp rocks, and many interesting moths at night. At Rio Tatabro, a yellow female of Temenis pulchra was taken. At KM 55 (below Querebral), Voltinia theata (Riodininae) was flying in late afternoon. On a ridge near San José, east of Buenaventura, the enormous Anteros acheus kupris was found. Near Lago Calima, Heliconius cydno was almost pure zelinde in contrast with the highly hybridized population (cynides x zelinde) of the year before; Dulcedo mimica was found below the dam on the south slope.

META. (All records by KB in July). The region of Cubarral showed Mazia amazonica flying together with Janatella leucodesma, 3 Heliconius (ismenius, numata, heurippa), 5 Eurytides (dioxippus, serville, xeniades halex, agesilaus, and ariarathes), Ituna lamirus, Dygoris dircenna, Hamadryas chloe, Battus latinus, and Papilio zagreus.

VENEZUELA. MONAGAS. In June KB found many Ithomiinae at the Cueva del Guácharo, including Athesis clearista, Eutresis hypereia, Olyras crathis, and Godrysis kedema ssp nov.

DELTA AMACURO. In June, KB found a red Papilio anchisiades (otherwise identical to "matusiki") near Tucupita and common Heliconius antiochus salvini in disturbed woods at Los Macanales (east of Sierra Imataca).

MIGRATORY SPECIES. In BOLIVAR, north of El Manteco, KB observed Eunica macris males crossing the highway over a 70 km front at the rate of 1/m/min over most of the day of June 27, indicating perhaps 8 million crossed that day.

ECUADOR. PICHINCHA. TE and BD led a group of 20 collectors to the Hotel Tinalandia resort (670m), 17 kms east of Santo Domingo de los Colorados, from May 7 to 15. Weather was typical for May (based on TE's visits here for 20 years), with mostly clear, moderately warm days and rainy evenings. Collecting for both butterflies and moths was superb. SP and TH spent this week looking for larvae, and encouraged others to help.

BUTTERFLIES: Fresh banana peels and banana fruits (the small oritos) attracted great numbers of Ithomiinae, although a rancid dead snake set out for bait attracted nothing. Heliconius cydno, sapho, doris, and euechia were particularly abundant this year in sunny places along the roads where Lantana bushes abounded. Marpesia were diverse (7 spp) and abundant, as were Brassolini (8 or 9 spp), and Hesperidae (ca. 90 spp). GA alone collected over 312 species; 87+ Hesperidae (28 genera identified so far); 13 Papilionidae (7 Papilio, 2 Eurytides, Battus polydamus, and 3 Parides); 25 Pieridae (3 Dismorphia, 2 Enantia, Pereute leucodrosima, 4 Phoebis, 2 Aphrissa, Archonias tereas, Pieriballia mendela, 3 Leptophobea, Itaballia morana, Perrhybris lypera, Appias drusilla, and 5 Eurema); 52 Lycaenidae (22 Lycaeninae and 30 Riodininae); 135 Nymphalidae, including 15 Heliconiini (11 Heliconius, 2 Eueides, Dione juno and Dryas iulia), at least 25 Ithomiinae (3 Mechanitis, 2 Hypothyris, 2 Oleria, 5 Ithomia, and 1 each of Tithorea, Melinaea, Methona (= Thyridia), Godrysis, Hyposcada, Napeogenes, Pteronymia, Scada, Hypoleria, Greta, Miraleria, and Heterosais, plus unidentified species), 2 Danainae, 4 Acraeinae (all Actinote), 8 or 9 Brassolini (4 Caligo, 3 or 4 Opsiphanes, 1 Eryphanis), 25 Satyrinae (including Cithaerias, Dulcedo polita, Manataria, Pierella, 4 Taygetis, Oxeoschistus, Cissia, Euptychia, and Chloereuptychia), and 54 Nymphalidae (2 Historis, 2 Prepona, 7 Adelpha, 2 Anartia, Precis, Doxocopa, Smyrna, Panacea, 7 Marpesia, Hypanartia, Colobura, Tigridia, Consul, 2 Anaea, Diaethria, 2 Callicore, 2 Dynamine, Pyrrhoglyra, Biblis, 2 Catonephele, Eunica, 9 Phycoides, 3 Hamadryas, and 2 Siproeta). Caerois gerdrudtus (Fab.) was collected on banana as young larvae by SP and TH and the adults were reared and determined by RH, providing a new host record, and perhaps the first record for Morphinae on banana.

MOTHS: SP and TH operated a mercury vapor light on the upper patio, just below the golf course. The dominant species was a grass looper noctuid, Mocis latipes (Gn.), which was in outbreak phase. BD noticed that rotting fruit in the area was covered at night by clouds of M. latipes, but that the same fruits during the day attracted large numbers of the ubiquitous satyrid, Euptychia hermes. Choice Saturniidae at lights included Copiopteryx, Rothschildia, and Automeris spp. TH collected 20 species of Sphingidae, including Eumorphia labruscae L., Oryba kadeni Sch. and 4 Xylophanes spp. Arctiidae and Ctenuchidae were very common. The incredible volume of moths at the light made Microlepidoptera difficult to collect, but SP recorded over 40 species of Oecophoridae. Among larvae collected by SP were 2 general feeders on shrubs, an undermined Epiinae apateloide (near Tarchon) and megalopygid (near Megalopyge), both conspicuous because of their large size and bright coloration. Hylesia umbrata (Saturniidae) "pupal pouches" were found by PH and BD on trunks of Terminalia and Theobroma respectively; SP reared adults from both (det by LeMaire). SP and TH collected a larva of Tebenna sp (Choreutidae) (det by Heppner), from a small forb at the base of a tree.

ORIENTE. CV collected with a small group in eastern Ecuador between November 3 - 17, especially the areas around Baeza and Tena (NAPO Province), Puyo (PASTAZA Province), and Banos (TUNGURAHUA Province). Dominant butterfly groups were Hesperidae, Riodininae, and Satyrinae, with only moderate numbers of Nymphalidae, although Ithomiinae were plentiful. Papilionidae were scarce. Weather was predominantly overcast, with little sunshine each day. Moth collecting was moderately good at Tena, and a Thysania agrippina came to light at a hotel in Puyo.

BRAZIL. (All records are by KB except as noted). A very wet winter on the coast and an exceedingly cold, totally dry winter in the interior of the southern half of the country (still dry at year's end) gave unpredictable population cycles, very delayed in the interior, where fall populations (April to June) had been very dense.

SOUTHEAST. Espírito Santo [ES], Rio de Janeiro [RJ], São Paulo [SP], Bahia [BH], Minas Gerais [MG], Santa Catarina [SC]. ACRAEINAE: RF concluded his study of Acraeinae biology, permitting recognition of at least 18 distinct species of Actinote in SE Brazil, separable by larvae, habitat, genitalia, and wing scales, but rarely by wing-pattern. One is still unnamed, but the others may be termed pellenea, pyrrha, carycina, notabilis, magnifica, discrepans, melanisans, rhodope, alalia, surima, mamita, genitrix, morio, zakani, parapheles, quadra, and canutia. As many as 12 can be sympatric in a single locality, with nearly simultaneous broods of abundant adults in late spring and early fall (December and April in normal years). ADULT PAPILIONIDAE: KB's mark-recapture and juvenile studies on swallowtails, reported in previous Season Summaries, continued intensively in 1988; a total of 1220 marks were placed on 21 species in 6 SE localities (see 1987 Season Summary for details), giving over 11,000 swallowtails marked to date; 58 on Battus (polydamas and polystichtus; 8% recaptured), 37 on Parides (zacynthus and anchises nephalion; 8% recaptured), 240 on males of Eurytides (asius, bellerophon, doliceon, nigricornis, telesilaus, protodamas, and lysithous; 10% recaptured; longest time between marking and last capture, 17 days for asius, 16 for nigricornis), and 875 on Papilio (cleotas, scamander, torquatus, hectorides, himeros, thoas, astyalus, androgeus, and anchisiades; 22% recaptured; longest time between marking and last capture - scamander, 27 days (one recaptured 9 times in this period in the same spot), astyalus, 19 days, torquatus and hectorides, 15 days]. Maximum estimated population sizes (based on mark-recapture) were - E. telesilaus (Linhares, ES, 18 OCT) = 54; P. astyalus (Campinas, SP) in fall (10 APRIL) = 673 and in

spring (18 NOV) = 198, and (Linhares, ES, 16 OCT) = 507; P. torquatus (Campinas, SP, 11 APR) = 60; P. hectorides (Campinas, SP, 9 MAR) = 34; P. scamander (Campinas, SP, 31 MAR) = 20. On the endangered species watch, the Parides ascanius colony in Barra de São João, RJ, still strong in February, went extinct (as expected from habitat disturbance, though foodplant remained abundant) by late December, when only one old male was marked in a nearby area. LO continued monitoring the genetic deterioration of the isolated colony of P. ascanius in Rio as well as a vigorous colony of P. tros there. The mimetic E. lysithous harrisianus in its only large colony (Barra de São João, RJ) had an excellent year with a third generation in February and a spring population over 200 during all of October (of 84 marked, 8 were recaptured up to 21 days later; population continues about 25% sebastianus), but the habitat was progressively destroyed during the year; many eggs and larvae were found on Annona acutiflora; the species did not appear in the Poço das Antas reserve this year. The last large colony of Papilio himeros in Linhares, ES was essentially annihilated by swamping of its foodplant, and by parasitoid and predator encouragement by a large invasion of P. astyalus (formerly absent there, but introduced on Citrus); in October, 150 astyalus were marked in two days, versus only 2 males of himeros, and all the eggs of both (on Esenbeckia leiocarpa, two groups of plants) failed to hatch; in December, only a single old male could be found. JUVENILE PAPILIONIDAE: Papilio torquatus, reared in large numbers on E. leiocarpa in Campinas, SP, does not compete with himeros on this in Linhares, ES, using instead the little known Euxylophora paraensis, also Rutaceae; in Ribeirão Preto, SP it uses Esenbeckia febrifuga, ignored in Campinas, SP, and has dimorphic green or black larvae. The pupa of himeros is like that of hectorides, but the larva is unlike that of any "heraclides" type, with large green patches dorsally. As expected, larvae and pupae of Eurytides agesilaus and E. asiis (found on Rollinia emarginata in Ribeirão Preto, SP, and an Annona cacas in Joinville, SC, showed them both to be members of the marcellus group, near E. philolaus. All stages and oviposition of E. telesilaus were obtained (in Linhares and Joinville) on Rollinia laurifolia; the mature larva is all pale green, the 4th instar is constantly marked, 2nd and 3rd are very variable. Sibling larvae (21) of E. nigricornis from Ribeirão Preto (SP) varied in 5th instar from almost all green to almost all black dorsally, passing through horse- and dog-faced patterns on thorax; adults included individuals with black antennae (nigricornis) and orange (f. embrikstrandii), indicating fusion with E. protesilaus and possibly other taxa. Papilio scamander was successfully hybridized with U.S. P. glaucus by Mark Scriber in April, supporting the unity of the "Pyrhosticta" and "Pterourus" groups; hand pairing with torquatus was also easy, but no eggs hatched. Also effected were two himeros x torquatus crosses, with over 70 eggs laid in December, of which only 7% hatched; no larvae went beyond 3rd instar. Parides chamissonia, an isolated taxon from the subtropical SANTA CATARINA coastal scrub, gave unique larvae, but characteristic bunichus pupae; adult females would not mate with bunichus males from Campinas (SP). One larva and pupa of Eurytides dolicaon were obtained by H. Miers in Joinville, SC; they are unlike any other member of the genus. Since the generotype, the very close E. iphitas, has still not been rediscovered (last seen in 1930s), dolicaon may have to carry the weight of the genus.

PERNAMBUCO. On May 1, a range of hills (300 m) north of Vicência was confirmed as one of the last refuges for general NE fauna, including Scada karshina delicata, Morpho achillaena ankreon, M. menelaus ssp, M. epistrophus nikolajevna, Hypoleria oreas ssp nov, and Eueides vibilia (vibilia x unifasciatus).

BAHIA. Heliconius nattereri was finally rediscovered in its home state in a literal "endangered species refuge," a 600 m high mountain range near Camacá where Melinaea mnasias thera and Eresia erysice (both "officially extinct", as not seen in 50 years), were also rediscovered. Napeogenes xanthone, Papilio himeros baia and Moschoneura methymna were recorded, along with Eresia lansdorffi jacinthica (male normal, mimicking Heliconius erato, female like tiger ithomiines) and a new subspecies of E. perna transitional to aveyrona (suggesting unity between these species), Pierella draconitis (farthest south known), Placidula euryanassa and Epityches eupompe (confirmed farthest north known), and Menander felsina (very far from Restinga!), also Chloreuptychia chloris, and a very dark Barbicornis basilis.

ESPÍRITO SANTO. In central ES, the two large colonies now known of Heliconius nattereri were followed by mark-recapture from March to June, peaking at near 130 and 60 individuals; the latter colony may have many satellites in a broader region, totalling hundreds of individuals; this region also had large populations of many Morpho spp, unusual Actinote, Eueides pavana and Pteronymia hemixanthe in numbers. Perrhybris flava, rare in summer (February), was nearly absent in the large Santa Leopoldina colony in Spring (Oct - Nov), with only two seen in several visits, perhaps due to the extremely wet weather there. Eurytides lysithous sebastianus (pure) was frequent in Linhares (Oct - Nov).

MINAS GERAIS. Hypothyris euclea (nina x laphria) was found in Divinópolis, establishing a new state record and indicating that this species is expanding. In mid-February, in Campos de Jordao (1500 - 2000 m) along the MG/SP border, Orobassolis ornamentalis (not seen since 1968) could not be relocated, but Andean Satyridae (Pseudocercyonis, Neomaenas, Pampasatyrus, Catargynnis, various Pedalioides) and Pieridae (Leptophobia, Hesperocharis, Catasticta, Pereute, Tatochila, Colias) were common.

SÃO PAULO. In Ribeirão Preto were found unusual populations of Morpho achilles and M. anaxibia (very violet); nearby in Cajuru is a site with Agrias claudina godmani and Morpho rhetenor mattoqurossensis (together with anaxibia). Skipper censuses were made in two sites in the fall: (1) the Ilha de Cardoso (coast of São Paulo, Paraná border), April 3 and 4, gave a total list of 213 spp of butterflies, of which 124 were skippers (3 Pyrrhopyginae, 66 Pyrginae, 55 Hesperinae), 79 species with only one individual, 40 caught before the second of any was seen on abundant the Composite flowers; (2) Campinas, April 11, gave 240 spp, of which were 112 spp were skippers (4 Pyrrhopyginae, 69 Pyrginae, 39 Hesperinae), 45 with only 1 individual seen. The foodplant of Prepona chalciope in Japi was confirmed as Hybanthus atropurpureus (Violaceae), an important and unexpected family for Charaxinae.

RIO DE JANEIRO. The Fazenda União near Rio Dourado proved to be full of species never before recorded south of Espírito Santo, including Heliconius nattereri (sight record only by CC), Chloreuptychia herseis, Caeruleuptychia angelica, Mesosemia sifia and another species, Oleria astraee, and also quite common Eurytides (protesilaus?) travassosi. Castniidae were almost absent this year from Barra de São João, but this site yielded several unusual butterflies; Symphachia probetor, Adelpha thesprotia, and Zonia zonia.

SANTA CATARINA. The hilltop in Joinville yielded Arcas ducalis, Atildes torfrida, and Menander felsina in November.

From The Editor's Desk

June Preston



The Season Summary issue has always been a hassle to get to the printer on time, especially when some of the Zone

Coordinators aren't able to get their reports to me by my deadline. However, the poor collecting in some areas because of the drought conditions in 1988 has resulted in shorter reports for some of the zones, which has made it a little easier getting this issue out. We have had reports from most of the Canadian Provinces and Territories and all but a few of the states in the U.S.A. All in all, the Western hemisphere is fairly well covered each year. Thanks to all of you who participated.

Metamorphosis

JOHN C. SPENCER.....

Word was received recently of the death on August 5, 1988 of John C. Spencer of Pasadena, California. Mr. Spencer had been a member of the Society for 23 years, from 1964 through 1986. He is survived by his wife Margaret, now of Richmond, Virginia, two sons, David and Geoffrey and his brother Tony. His butterfly collection was bequeathed to the National History Museum of Los Angeles County.

Information from Julian Donahue
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J. W. TILDEN.....

James Wilson Tilden, called "Bill" by all who knew him, left us on December 27th just four days short of his 84th birthday. Although as vigorous as ever mentally and with his fantastic memory intact, his physical abilities were failing. Death resulted from injuries incurred in an accidental fall at his home in San Jose.

Bill was born in Mendocino County, California, near Philo on December 31, 1904. His parents were Thomas Jefferson and Charlotte Elvira Ruddock Tilden. He is survived by his wife, Hazel Irene Miller Tilden and their three children - James Wilson of Thailand, Bruce Allen of San Jose and Janice Elaine of Denver, Colorado. He also leaves two brothers - Thomas C. Tilden of Santa Cruz and Earl R. Tilden of Alaska.

Bill spent his early years in farm country near Philo, Turlock, Fresno, and Hilmar, graduating from Hilmar High School in 1922. He had hoped to then enroll at the University of California, Berkeley for a degree in English literature. But this was not to be. The money simply was not available, so Bill went to work. In 1923 his father purchased an 84 acre farm in the Santa Cruz Mountains and this became Bill's home base for many years. For the next 15 years he worked at a great variety of occupations in many parts of the State.

In September 1938 Bill enrolled at San Jose State College (now University) and graduated with an AB in Biology in 1942. After three years service in the United States Navy, he entered Stanford University completing his MA in 1947 and his PhD in 1948. For the next 22 years he taught at San Jose State, rising through the ranks from Instructor to Professor. His teaching over the years included more than 30 different courses. His primary teaching assignment was in entomology (ten different courses) but he also taught courses in botany, ecology, pest and vector control, ornithology, and general biology. More than fifty of his students have gone on to earn doctorates in entomology.

In June 1970 Bill retired, as Emeritus Professor of Entomology. The strongest unifying theme throughout Bill's life was his great interest in insects, particularly the butterflies, moths, and beetles. He could now devote nearly full time to these pursuits. However, he did manage to carry on work with birds, plants and philately. Also his extensive collection of jazz and classical records was always a source of great pleasure, as were the football games on TV, especially when the 49ers won.

Bill told me that he made his first insect collection at the age of seven. At that time he did not know how to care for them and they soon became dust. His interest was aroused again some years later when he saw an ad for a book by James Sinclair of San Diego, Instructions for Collecting and Preserving Valuable Lepidoptera. The author proclaimed in glowing terms that you could make big money by following his instructions. Five dollars was a lot of money in those days, but Bill scraped it up and sent for the book, as did many of us. We did learn the fundamentals of collecting and did acquire a fascinating life-long interest but the "big money" did not then materialize.

Bill became a serious collector in about 1927 and was soon corresponding and exchanging specimens with lepidopterists all over the country. He first wrote to William D. Field (then in Kansas) in 1932 and to me in 1933. From me, he wanted a perfect pair of Pachysphinx modesta occidentalis and any Underwings I might find in the Los Banos area of Merced County. My records show that I provided the sphingids and 30 Underwings at that time.

Under Carl D. Duncan at San Jose State and G. F. Ferris at Stanford, Bill expanded his interests to include most orders of insects as well as the other terrestrial arthropods. His collection, particularly the Lepidoptera and Coleoptera, continued to grow each year. Bill joined the Pacific Coast Entomological Society in 1939, became a Life Member in 1943 and served as President in 1960. He was elected a Fellow of the California Academy of Sciences in 1968. He was also active in many other scientific and professional organizations.

Bill Tilden became a Charter Member of the Lepidopterists' Society in 1947 during its first year of existence. His great interest and involvement in the activities of the Society continued throughout his lifetime. In the 1950s and 1960s he was one of a dedicated group that reviewed and abstracted current publications for the Recent Literature on Lepidoptera section in the early Lepidopterists' News and later the Journal. In 1954 Bill was one of the members responsible for establishing the Pacific Slope Section of the Society. From 1957 to 1959 he served on the Executive Council and he was Editor of the News of the Lepidopterists' Society from 1959 through 1964. Bill then served as Vice-President in 1970 and was elected President in 1978. In 1984 he was honored by receiving the John Adams Comstock Award from the Pacific Slope Section of the Society. Over the years many of his papers and scientific notes appeared in Society publications.

Bill and Hazel were well-known personally to many Society members through their attendance at annual meetings. They made it to as many of the national and Pacific Slope meetings as they possibly could. At the 1986 Pacific Slope Section meeting in the Chiricahua Mountains of Arizona, when I informed people that Bill would not be there because his Doctor would not approve a trip to that elevation, the reaction of Gloria Harjes was representative of sentiments expressed by others. She said, "It just doesn't seem right to have a meeting without Bill here."

Bill published in many journals and on many subjects other than butterflies and moths - more than 100 publications altogether. Some of his best-known publications on Lepidoptera include his three books: Butterflies of the San Francisco Bay Region, 1965. University of California Press; A Field Guide to Western Butterflies, with Arthur C. Smith, 1986. Houghton Mifflin Co.; and California Butterflies, with John S. Garth, 1986. University of California Press. Among his major journal articles are The Butterfly Associations of Tioga Pass, Wasman Journal of Biology, 1959; Yosemite Butterflies, with John S. Garth, Journal of Research on the Lepidoptera, 1963; An Analysis of the W. G. Wright Butterfly and Skipper Plesiotypes in the Collection of the California Academy of Sciences, Occasional Papers, CAS, 1975 and The Butterflies of Crater Lake National Park, Oregon, with David H. Huntzinger, Journal of Research on the Lepidoptera, 1977.

A complete bibliography and a complete biography will appear in a future issue of the Journal of the Lepidopterists' Society.

Bill described a number of new butterfly species and subspecies and both butterflies and moths have been named in his honor. A listing will appear in the Journal article mentioned above.

The Tilden Lepidoptera Collection was left to the California Academy of Sciences in San Francisco and has been transferred to their Department of Entomology.

Memorial services will be held at 2 p.m., May 27th at Philo Methodist Church in the northern California town of Philo where Bill was born. Contributions in his honor may be sent to: The Lepidopterists' Society Memorial Fund, c/o James P. Tuttle, Treasurer, 3838 Fernleigh Avenue, Troy, Michigan 48063-5715, USA.

Submitted by Arthur C. Smith
* * * * *

Notices



BIG BEND NAT'L PARK SEEKING INSECT DATA

Big Bend National Park is initiating a concerted effort to accumulate base line information on its flora and fauna. One of the several projects involves compiling an annotated checklist of the invertebrates of the park, including the localities, when found, the collector, the identifier, and localities where specimens are currently stored. We would appreciate any assistance in providing us with the above information of those specimens collected from Big Bend National Park. The information may be forwarded to either the park, in care of Carl M. Fleming, Big Bend National Park, TX 79834, USA, or to Dr. Arnold Van Pelt, Greensboro College, Greensboro, NC 27401-1875, USA. Dr. Van Pelt is compiling the data base.

EAGLE HILL ADVANCED AND PROFESSIONAL WILDLIFE SEMINARS

The Eagle Hill Wildlife Research Station in Steuben, Maine in 1989 is presenting two seminars of interest to Entomologists.

(1) During the week of June 25 - July 1, 1989 a seminar on Forest Entomology for Professionals will be presented by Richard Dearborn, senior entomologist of the Maine State Forest Service. Emphasis will be on the overall role of insects in the northeastern forests. There will be extensive field work, lab identifications and discussions of the life history stages, including immatures. Mr. Dearborn is a specialist in life history stages of most species groups, especially beetles.

(2) During the week of July 2 - 8, 1989 a seminar on The Lepidoptera: Moths, Advanced Techniques will be presented by Dr. Charles V. Covell, Jr. of the University of Louisville. Emphasis will be on the use of advanced techniques for identification of specimens including use of wing venation and genitalia preparations. There will be extensive field work plus discussions of systematics. Dr. Covell is a specialist on the Geometridae and is author of the Field Guide to the Moths of Eastern North America (Peterson Series), and a well known Lep. Soc. member.

There are also seminars on Ornithology, Ecology of Marine Invertebrates or of Seaweeds or of Small Mammals, Mycology, Glacial Geology of Downeast Maine, Coastal Field Botany, The Bryophytes and Natural Science Illustration. Again this year scholarships and stipends for seminars and research and independent study projects are available. For further information, write to Eagle Hill Wildlife Research Station, Steuben, ME 04680, USA. Or phone, day or evening, (207) 546-2821.

NEW LISTINGS IN FEDERAL REGISTER

The Federal Register of Friday, January 6, 1989, Part IV, contains the latest listings of species of Butterflies and Moths proposed as candidates for the List of Endangered and Threatened Wildlife. Although there are some errors in the listings and some names have not yet been published, this list contains the names of about 140 species of butterflies and moths, in 5 categories. The categories include: those species for which the Fish and Wildlife Service has sufficient data for listing; those species where more information is necessary; those species believed to be extinct; those species that at present do not meet the criteria for the Endangered Species Act's definition of a species; and those considered to be more abundant than originally believed but still could be reconsidered in the future. Free copies of this Federal Register may be obtained by writing to Paul Opler, Office of Information Transfer, U.S. Fish and Wildlife Service, 1025 Pennock Place, Suite 212, Fort Collins, Colorado 80524, USA. Copies are also available from The Xerces Society, 10 SW Ash Street, Portland, OR 97204, USA.

COLLECTING IN COSTA RICA

NATURALISTS RANCH & LODGE, TRANSWORLD BUTTERFLY COMPANY-LS, Apartado 6951, San Jose, COSTA RICA, Central America. 1989 LEPIDOPTERISTS EXPEDITIONS PROGRAM IN COSTA RICA: Visit Naturalist Lodges in Lowland rainforest, Montane rainforest and Cloud forest. Collect, photograph or study Lepidoptera. We obtain collecting permit & export permit for you. Fully inclusive of accommodation, all meals, transport to and from airport, field-trips and more - at the lowest rates. Request our new brochure with color photograph of lodge today! (50¢ stamp).

INTERNSHIPS AVAILABLE

The Lloyd Center for Environmental Studies is seeking two interns, one for the summer and on for the fall session, to assist with a continuing light-trap survey and to help develop population and distributional surveys of state listed rare Lepidoptera (Massachusetts). Housing and a small stipend are provided to interns. Applicants should have completed their sophomore year in college. Starting dates are May 15 and September 5. For information contact Mark J. Mello, Research Coordinator, Lloyd Center for Environmental Studies, Box 7037, South Dartmouth, MA 02748, USA.

ICZN

The following application was published on December 16, 1988 in Vol. 45, Part 4 of the Bulletin of Zoological Nomenclature. Comment or advice on these applications is invited for publication in the Bulletin and should be sent to the Executive Secretary, I.C.Z.N., British Museum (National History), Cromwell Road, London SW7 5BD, U.K.

Case No. 2623

Papilio carthami Hübner, [1813] and Syrichthus serratulae major Staudinger, 1879 (currently both in Pyrgus; Insecta, Lepidoptera): proposed conservation of the names carthami and major. R. de Jong, Rijksmuseum van Natuurlijke Historie, Postbus 9517, 2300 RA Leiden, The Netherlands. Abstract. The purpose of this application is to conserve the skipper butterfly specific names carthami Hübner, [1813] and major Staudinger, 1879 by suppression of the senior name major.

POSSIBLE INDEX TO SEASON SUMMARIES?

At the Society's Business Meeting in Pittsburgh, considerable interest was expressed by those present in preparing an index for the Season Summaries that have been published to date. The proposed index would list every year and page number that a particular species of lepidoptera appeared on in the Season Summaries. Other forms of information could also be indexed, such as listing all geographic locality data published in the Season Summaries for all or certain groups of lepidoptera. The index would be published by the Society, perhaps as a MEMOIR. Updates could also be published.

President Donahue appointed a committee to investigate this matter. We are interested in learning if anyone has already prepared an index, even a partial one, to the Season Summary. Secondly, we would like to hear from members to learn how and why the Season Summary is used (i.e., to plan collecting trips, to obtain distribution records, etc.). Finally, we would like to obtain your ideas and suggestions for such an index. In particular, we would like to know what types of information from the Season Summaries members think should be indexed (i.e., species, locality, etc.) and the format in which the index should be published. Preparation of an index will require a great deal of effort and we would like to make sure that it is of value to our members and others who might use the index.

Thus, if you know of any compiled indices to the Season Summaries or have ideas and suggestions, please contact: Richard A. Arnold, 104 Mountain View Court, Pleasant Hill, CA 94523, USA.

ADDRESS INFORMATION REQUESTED ON R. de la MAZA

A recent letter from Peder Skou in Denmark and another from Louise Fall, Book Division Manager for BioQuip indicate that there has been considerable difficulty in obtaining copies of R. de la Maza's newly published book, Mariposas Mexicanas. Mrs. Fall would like to contact Sr. de la Maza but has no available address. Sr. de la Maza may be unaware that Lepidopterists in North America and Europe are trying, unsuccessfully, to buy his book from booksellers specializing in Lepidoptera titles. If he can be reached, BioQuip would be happy to underwrite his membership dues for The Society. Anyone who knows the current address for R. de la Maza is requested to contact Louise Fall, 17803 La Salle Avenue, Gardena, California 90248, USA. Phone (213) 324-0620.

SOUTHERN LEPIDOPTERISTS SOCIETY

The Southern Lepidopterists Society was organized to promote the scientific interest and knowledge of the lepidoptera fauna of the southern region of the United States. A quarterly newsletter keeps members well informed. Field meetings are held several times a year at various locations throughout the region. Dues are \$5.00 annually. Anyone wishing to join should contact: Tom Neal, 3820 N.W. 16th Place, Gainesville, FL 32605, USA.



Research Notices

● **WANTED** - Live (or fresh frozen on dry ice or liquid nitrogen) five or more specimens each of Parnassilines; Megathymids; and Hedyliids (formerly Geometrids) for molecular research. Permits will be provided if necessary. Please contact Julie Martin, Department of Entomology, Louisiana State University, Baton Rouge, LA 70803, USA. Phone (504) 388-1634.

● **WANTED:** Names and locations of commercial distributors or individuals who can supply Clearwing Borer Moth (Sesiidae) pheromone chemicals. These can be chemical companies, research institutions, agricultural outfits, etc. Suggestions or possible leads invited. In return, I will send free Sesiidae pheromone to interested collectors supplying useful information. Dr. John Holoyda, 5407 N. Oketo Ave., Chicago, IL 60656, USA.

● I have been studying the distribution and biology of Papilio indra in Utah for about 8 years, and for the last 4 years have been emphasizing P. indra minori and kaibabensis throughout their entire range of Utah, Colorado, New Mexico and Arizona. I am also looking at distribution, use, and preference of their various larval food plants, along with distribution changes in larval parasites, and the frequency of parasitism for these indra races between localities throughout their entire range. I plan to continue this work for maybe 2 more seasons.

I am interested in correspondence with anyone who has ever collected minori and/or kaibabensis, either adults or immature stages. I need distribution records, but information on food-plants or parasites will also be helpful. I need collecting data for ALL areas, but especially for: **ARIZONA** - Navajo Co. & Apache Co.; **COLORADO** - Montezuma Co. (esp. Mesa Verde Natl. Park and vicinity), La Plata Co., Dolores Co., & San Miguel Co.; **NEW MEXICO** - any records.

Collecting locations will be kept confidential, if preferred, and exact locations will not be published. Contributors will be acknowledged in future publications. Thank you for your assistance. Send correspondence to: Dr. Wayne H. Whaley, Dept. of Zoology, 574 WIDB, Brigham Young University, Provo, UT 84602, USA.

● **REQUEST FOR CONTRIBUTION TO A FORTHCOMING BOOK:** We have nearly completed the field work, juvenile studies, and color plates for the book on biological dynamics of the SWALLOWTAILS OF THE AMERICAS which Hamilton Tyler left unfinished when he passed away in 1983. We are now seeking further information on population studies (any species) and juveniles (especially Graphilines, also rarer Papilio), including loan of color slides of larvae and pupae, adult behavior and habits, and unusual hybrids or aberrations. We are also seeking interesting space fillers, unusual stories or folklore ("Swallow Tales") about the man/papilionid/ habitat interfaces, or the inevitable exaggeration or whimsy ("Hard-to-Swallow Tales"), and especially striking poetry (including Haiku) and cartoons. If previously published or by third parties, these must be accompanied by a full reference to first publication or copyright holder, with address of author/cartoonist or publisher, so that we can request permission to reprint. All accepted material used in the book will be attributed to author or contributor and compensated in cash and/or copies of the book, according to your desires. Among the special items we would like to be able to include, and need to know about or receive copies of papers on, are the following:

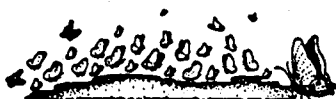
- (1) Mark-recapture studies on any American Papilionidae.
- (2) Experimental studies of any sort with field populations - juveniles or adults - or with captive (laboratory) populations.
- (3) Experimental genetics and hybridization studies, especially including cases which "Didn't work"; studies of interfertility, especially in closely related species; breeding through of sets of siblings giving variable adults.
- (4) Any chemical or biochemical studies of swallowtails, their foodplants, or the interface, including feeding experiments.
- (5) Unusual localities or behavior for any species.
- (6) Details of any well-documented swallowtail migration, colonization, or other special behavior including hilltopping, courtship, oviposition and diapause.
- (7) Records of predation on swallowtails or of parasites in juveniles or adults (with correct names for all organisms, please!).
- (8) Studies related to American swallowtail farming and ranching, or conservation.
- (9) Has anyone followed a swallowtail in a hang glider or ultralight airplane?

This could be a chance for you to publish your best slides in color, or have your work appreciated by a wide audience within a broad context of similar studies. We would also be happy if you would like to read and criticize any chapters of the book, within your areas of interest, in manuscript form. Please write to Keith S. Brown Jr. (C.P. 6588, Barão Geraldo, Campinas, São Paulo 13.082 Brazil) or to Kent Wilson (P.O. Box 1097, Edmond, OK 73083-1097, USA) if you have suggestions or material to contribute.

● **WANTED for study:** Members of the genus Piruna from anywhere, but especially Mexico and Arizona. I am in the process of revising the group. I will be happy to determine specimens of Piruna and will return them promptly. They can be spread on pins or papered, but complete data is desired with each specimen. H. Avery Freeman, 1605 Lewis Drive, Garland, Texas 75041, USA.

● **WANTED for revision of species with M. J. Smith:** geographical and seasonal distribution and hostplant records for Thessalia leanira, especially for Idaho, Colorado, Utah (Box Elder, Carbon, Duchesne, Garfield, Piute, Salt Lake, Sanpete, Sevier, Uintah, Wasatch and Wayne counties), California (Calaveras, Fresno, Glenn, Kings, Madera, Merced, Placer, Sacramento, San Benito, San Joaquin, San Mateo, Sutter and Yuba counties), Oregon (except Harney, Jackson, Josephine, Lake and Malheur counties), Baja California Norte (south of Sierra San Pedro Martir). Also any other unusual distribution record. Does anyone know the basis for the reported occurrence in Clackamas County, Oregon In Howe (1975)? George T. Austin, Nevada State Museum, 700 Twin Lakes Drive, Las Vegas, NV 89107, USA.

● WANTED: Caterpillar "mummies" and parasitic wasps reared from mummified caterpillars. For revision of braconid genera Alciodes and Rogas, which mummify lepidopteran larvae. Mummified host caterpillars shrink to smaller than normal size, may discolor, but remain inflated when dry and retain identifiable characteristics. Wasps emerge through a circular emergence hole cut near rear of mummy. Collected mummies should be isolated in separate vials or capsules to keep wasps associated. Please send mummy, wasp, data, name of host caterpillar and host plant (if known). All "mummies" are of interest, but this spring in particular I'm looking for volunteers to help collect mummies of the eastern tent caterpillar, Malacosoma americanum, from as many localities as possible. These are easily found in early to mid-May stuck on the layers of silk inside the tents on wild cherry. Also, I would like help finding mummies of the fall bollworm, Hyphantria cunea, later in the summer. For further information and collecting capsules, please write: Scott R. Shaw, Museum of Comparative Zoology, Harvard University, Cambridge, MA 02138, USA.



Forthcoming Meetings

XERCES SOCIETY, 16TH ANNUAL MEETING

The 16th Annual Meeting of the Xerces Society will be held at Woodland Altars, Peebles, Ohio from June 2 to 5, 1989. Approximate cost will be \$57.00 per person. The agenda includes the presentation of papers, field trips and the business meeting. Abstracts must reach the Xerces Society headquarters by March 31, 1989 for consideration. To attend, contact The Xerces Society, 10 SW Ash Street, Portland, OR 97204, USA or phone (503) 222-2788, by May 1, 1989.

THE LEPIDOPTERISTS' SOCIETY 40TH ANNUAL MEETING

The University of New Mexico Biology Department and Richard Holland will host the 40th Annual Meeting of the Society in Albuquerque, New Mexico from Thursday, July 27 to Sunday, July 30, 1989. This will be a joint meeting with the Pacific Slope Section. The preregistration form and more detailed information appears on page 11 of NEWS #1, 1989. It is important that you mail your preregistration form immediately. There will be no general mailing of registration forms or call for papers. Deadline for receiving papers is May 15. To obtain the registration packet, mail the form on page 11 of NEWS #1, 1989 today, if you haven't already done so. For additional information write or call Richard Holland, 1625 Roma NE, Albuquerque, New Mexico 87106, USA. Phone (505) 842-0126.

New Members



The listing of new members was too long for the space available so will be published in the next issue instead of this one.

Address Changes



ADAMSKI, DAVID: Department of Entomology, National Museum of Natural History, NHB-127, Smithsonian Institution, Washington, DC 20560.
AJILVSGI, GEYATA: P.O. Box 286, Wimberley, TX 78676-0286.
ANDERSON, CHRISTA L.: 5004 Marina Cove, Prospect, KY 40059.

BABCOCK, WILLIAM F.: 485 St. Andrews Drive, Akron, OH 44303.
BASIC FOUNDATION, THE: P.O. Box 47012, St. Petersburg, FL 33743.
CASSEL, WILLIAM S. (M.D.): 554 New Highway, #2D, Hauppauge, NY 11788.
CONOVER, JAMES H.: 1661 728 Orchid Street, Lady Lake, FL 32659.
DUNLAP, CARLOS L., Jr.: Rural Route 02, Box 321, McArthur, CA 96056-9301.
EISELE, ROBERT C. (Rev.): 163 Washington Street, Dover, NH 03820.
FINKELSTEIN, JORDAN W. (M.D.): Human Development and Family Studies, Penn State University, University Park, PA 16802.
GILMOUR, DAN: 1206 Barnett, Harrisburg, IL 62946.
HALL, STEPHEN: 15 Chatsworth Crescent, Allestree, Derby DE32 4P, ENGLAND.
HANUS, JEAN: 7 rue Blainville, 75005 Paris, FRANCE.
KAMMERER, GREGORY T.: 155 West 81st Street, #52, New York, NY 10024.
KEVERLINE, JEFF: 2429 East Sweet Street, Visalia, CA 93291.
KLINGLER, MARK A.: 434 South Graham Street, #4, Pittsburgh, PA 15232.
LANDOLT, PETER J.: 2247 SW 43rd Place, Gainesville, FL 32608.
LEVY, JACK N. (Dr.): Dept. of Medicine, Division of Hematology & Oncology, University of California, Los Angeles, CA 90077.
McGUIRE, WILLIAM W. (Dr.): 100 Black Oaks Lane, Wayzata, MN 55391.
MEYER, RICHARD P.: 1613 Duke Drive, Bakesfield, CA 93305-1621.
MOODY, ERIC J.: 100 Crescent Street, Auburndale, MA 02166.
OGATA, MASAMI: 11-23, Kusunoki-cho, Ashiya-shi 659, JAPAN.
PITTAWAY, ANTHONY R.: 2 Meadow Close, Moulshord (Nr. Wallingford), Oxon, OX10 9JL, ENGLAND.
URBANSKI, LEO S.: 3379 Bayside Lane, San Diego, CA 92109-7626.
WEST, FRANKLIN M.: 1108 Van Deirse, Greenville, MI 48838.
WEST, ANNA M.: 1108 Van Deirse, Greenville, MI 48838.
WOLFE, KEITH: 616 Alumrock Drive, Antioch, CA 94509.
YOUNG, MICHAEL E.: 713 Locust Street, Denver, CO 80220.

CORRECTIONS AND MINOR CHANGES TO THE 1988 MEMBERSHIP DIRECTORY

ALLEN, ROBERT L.: change phone no. to "(714) 768-5852".
ALLYSON, Y. SUZANNE: change last name to "Allyson-Morello".
BRANDT, JOHN H.: change address to "P.O. Box 5003".
BRIDGES, CHARLES A., III: change apt. # to "308".
CALLAHAN, DANIEL: change Box No. to "30".
COOK, CARL: change street address to "469 Crailhope Road".
CORELLA, RAMON: delete "P.O." before "Box 5838".
DONLY, J. H.: 53 Conistan road, Unionville, Ontario L3R 8K6, CANADA: Rhop., Macro., esp. Catocala, Sphingidae, Ornithoptera. Photography. Coll., Exch., Buy. [Inadvertently omitted from Directory; Asst. Secretary's mistake].
GIBSON, RICK: delete "South" from street address.
GILLMORE, RICHARD: change ZIP Code to "32773".
HABECK, DALE H.: replace "(Archer Road Lab)" with "0711 IFAS".
HARA, MASAYUKI: make 3 minor changes; complete correct address should read: 3790 Shimoganeke, Nakasu, Suwa-City, Nagano-Pref. 392, JAPAN.
HISER, DAVID L.: last name should begin with capital "H".
LAMOND, STEVE: replace street address with "P.O. Box 446".
LANDRY, JEAN-FRANCOIS: add title "Dr." (congratulations!).
LANGE, W. HARRY: delete "Jr." from name.
McLEOD, DAVE: change "Circle" to "Crescent" in address.
MERRITT, JAMES R.: in street address, change "SE" to "Street".

NAGASAKI, FUMIO: add postal (ZIP) code "520".
 ONG, S. K.: change postal code to read "112-99".
 PAINE, CLARE A.: add address: 1338 Branham Lane, San Jose, CA 95118-2537.
 REGIER, JEROME C.: change "Zoology" to "Entomology Dept.". SIMS, STEVEN R.: change Mail Zone to "GG4C".
 SITTER, MARK P.: add "LS" suffix to P.O. Box 23404.
 SUYDAM, RAY M.: change street name to "Laurel Forest Circle N.E.". TAKACS, RICHARD WILLIAM: change city name from "Bainbridge" to "Chagrin Falls"; everything else the same.
 TAYLOR, MILTON D.: change street address to "531 Wilmac Drive".
 TRONE, JOHN W.: change street number from "4740" to "4744".
 WARD, WILLIAM G.: add "S.E." suffix to street address.

The Market Place

Buy • Sell • Exchange • Wants



Items submitted for inclusion in this section are dealt with in the manner set forth on page 9 of the Jan/Feb 1989 NEWS. Please note that in keeping with the guidelines of the Society, henceforth no mention of any species on any threatened or endangered species list will be accepted in these items. This will include all Ornithopterans now and for the foreseeable future. Items will be accepted from members only and will be printed only once unless entry in the maximum of two successive issues is requested. Please keep items short. A maximum of 100 words is allowed. SASE in an ad stands for self addressed stamped envelope.

The Society, as always, expects all notices to be offered in good faith and takes no responsibility for the integrity of any advertiser. Any disputes arising from such notices must be resolved by the parties involved outside of the structure of the Society.

DESPERATELY SEEKING: Source of supply for discontinued 12-inch circline blacklight bulb (Sylvania FC12T10-BL-RS or equivalent) to keep aging light trap going. Surplus stock, overseas substitutes, custom fabrication? Call collect (207) 546-2045. **ALSO WANTED:** Copy of Heinrich, Revision of N.A. moths of the subfamilies Laspeyresiniinae and Olethreutinae, USNM Bull. 132, 1926. Michael Roberts, Box 71A, Steuben, ME 04680, USA.

FREE MEMBERSHIP in The Ohio Lepidopterists when you purchase a copy of The Butterflies of Indiana by Ernest Shull at the regular price of \$25.00 (add \$2.50 for shipping costs). As a member of The Ohio Lepidopterists you get four quarterly newsletters and bargain prices on envelopes, pins, books, etc. Send your check or money order to: David C. Iftner, Treasurer, 2161 Heatherfield Ave., Worthington, Ohio 43235, USA.

FOR SALE: Entomological Cabinet with glass topped drawers. SASE for details. David Rahn, 3205 W. Rochelle Road, Irving, TX 75062, USA.

FOR TRADE: Hyalophora euryalus cocoons. Dark o looks like gloveri. Trade for other papered or live silk moths. Bill Cornelius, P.O. Box 57, Albion, CA 95410, USA.

WANTED: Contact with suppliers of Lepidoptera from all continents with both dried and live specimens for bulk purchasing. Please forward price list which shows price per specimen and price for bulk quantity of each species. Contact Mark Bryant, 2408 Viking Drive, Independence, MO 64057, USA.

WANTED: Calif. Dept. of Agriculture Bur. Ent. Occ. Papers #17 and #27; U.C. Publ. Ent. #32 (1964); Am. Mus. Nov. #1569 (1952). Any condition fine. State price. Larry Turner, 361 Lighthouse Ave., Pacific Grove, California 93950, USA.

FOR EXCHANGE OR SALE: Ova of H. cecropia, A. pernyi, A. luna and some others. Send a SASE for reply to Mark A. Howe, RR #1, Box 217, Lake Village, IN 46349, USA.

NO LONGER FOR SALE: Due to the lack of interest in A. zephyria and A. lo neomexicana cocoons and ova, I will no longer rear and sell cocoons or ova. Sorry! Jim Coleman, 5812 Leta Rd NE, Albuquerque, NM 87107, USA.

FOR SALE: Cocoons of H. cecropia, A. luna, A. polyphemus, C. promethea and papered specimens. Also literature on lepidoptera and how to rear them. Ova of these species available in June. Send a SASE for price list. Dr. Gardiner E. Gregory, Star Route 79, Box 259, Orland, ME 04472, USA.

FOR SALE OR EXCHANGE: Rhop of Africa and Madagascar, Parnassius of Europe, Coleoptera of Africa (Goliathus, Ranzania, Megalorrhina, etc.), Carabidae of Europe. **WANTED:** Saturniidae of USA (esp Hyalophora), Parnassius of Asia, Morphos, Coleoptera of USA and Central America (esp. Dynastinae, Lucanidae, Cetoniinae, Rutelinae), Carabidae of USA and Asia, Winged Phasmida. Giovanni Brunetti, Via Montevettore 10-60100 ANCONA, ITALY.

WANTED: South American Papilionidae of the genus Eurytides from unusual areas like Guyanas, Bolivia, amazonian Venezuela, eastern amazonian Peru, eastern Colombia, with full data, A1 quality not mandatory. Especially requested: E. lacandones, E. dioxippus, E. pausanias, E. ariarathes. Dr. Maurizio Bollino, Via Regina Elena 22, 73100 Lecce, Italy.

WANTED: Cocoons and pupae of: Actias luna, Antheraea polyphemus, Hyalophora cecropia, Callosamia promethea, Papilio glaucus, Papilio polyxenes asterius, various Nymphalidae, etc. from Southern Ontario area and Northern USA. David A. McCallum, 394 Meadowcrest Rd., Kingston, Ontario, Canada K7M 3S5. Phone (613) 389-1126.

NEW BOOKS FOR SALE: Butterflies of the South East Asian Islands (4 volumes). Volume 1 covers Papilionidae (457 pp.), vol. 2 Pieridae and Danaidae (623 pp.), vol. 3 Satyridae (including Amathusiinae) and Libytheidae (in Japanese - 500 pp.), and vol. 4 Nymphalidae (in Japanese - 558 pp.). Volumes provided with slip cases or dust jackets. Color photography is superb and all species, subspecies and most forms are presented in full life sized formats. Extensive coverage of general biology and ecology is presented for each species. Distributions of species and subspecies are represented on detailed range maps. Drawings of genitalia are presented. Although volumes 3 and 4 are available in Japanese only, Latin scientific names and range maps provide valuable information not represented in other works. Send a SASE requesting a free color brochure on the series to: Connie L. Whaley, Wymount Terrace 8B-477, Provo, UT 84604, USA. Phone (801) 377-2043.

FOR SALE: Catalogue of Hesperidae (Lepidoptera: Rhopalocera). A 6-part catalogue of the 9327 species-group names of the Hesperidae of the World. Part 1: Species-group names with data and references. Part 2: Index to Genera (Synonymic Lists). Part 3: Index to Authors and Bibliography. Part 4: Bibliography (2134 references). Part 5: Index to Journals and Serials. Part 6: Index to Bibliography by Year. Appendix 1: Family-group Names. Appendix 2: Genus-Group names (Synonymic List). 8.5 x 11 in., 461 pp. (hardbound), \$70.00 in North America, \$72.50 elsewhere (includes postage). Available from Charles A. Bridges, 502 W. Main St., Apt. 308, Urbana, Illinois 61801, USA. Also available: Catalogue of Lycaenidae & Riodinidae (\$95.00/\$97.50), Catalogue of Papilionidae & Pieridae (\$85.00/\$87.50), Catalogue of Family-group and Genus-Group Names (Butterflies) (\$60.00/\$62.50), Bibliography (Butterflies) (Lists 19407 publications on butterflies) (\$75.00/\$77.50).

FOR SALE: Light traps for use with 12 volt batteries or 120 volt AC, portable and light weight with 8 or 15 watt bulb. Beetle screen and rain drain. For more information and pricing, contact: Leroy C. Koehn, 2946 N.W. 91st Ave., Coral Springs, FL 33065, USA. Phone (305) 344-3873.

FOR SALE: First brood S. cynthia cocoons from May 1989 adults. They will emerge in August. Available around JULY 10th. Will allow rearing of diapause cocoons from this first brood offspring. SASE for more information or CALL (717) 272-6597 after 4 P.M. Jeff Frey, 364 Oaklyn Rd., Lebanon, PA 17042, USA.

WANTED: Any of the following books - Colorado Butterflies by Brown, Eff and Rotger; Evolution of Skipper Butterflies in Genus Erynnis by Burns; Butterflies by Macy and Shepard; Checklist of the Lepidoptera of Canada and the U.S.A. (Parts I and II) by McDunnough; The Monarch Butterfly by Urquhart. State condition and price. Vincent P. Lucas, 800 Brick Mill Run, #301, Westlake, Ohio 44145.

FOR SALE: PACKARD, A. S. 1895. Monograph of the Bombycine moths of America North of Mexico. Part I, family Notodontidae. Leather bound congressional volume. Good condition but the leather is in need of restoration. Send inquiries along with SASE to Steve Stone, 18102 East Oxford Drive, Aurora, Colorado 80013. Phone (303) 690-8649.

FOR SALE OR TRADE: Papilio kahli, A 1 condition. WANTED: (Sesiidae) Melittia satyriniformis, snowii, grandis, Proserpinus clarkiae, flavofasciata, Euproserpinus wiesti, euterpe, phaeton. John Polusny, 641 Martin Ave. E, Winnipeg, Manitoba R2L 0Z7, Canada.

WANTED: Contact with breeders of tropical Saturniidae, particularly Argema mittrei and Copiopteryx sp. - I am interested in purchasing cocoons and/or ova. Also want to purchase Moths and How to Rear Them by P. Villiard and Silkmoth Rearing Handbook by W. J. B. Crotch. Ronald Mack, Jr., 28 Brigham Hill Rd., Grafton, Massachusetts, 01519, USA.

FOR SALE: A limited number of Parnassius phoebus golovinus ♂♀, in A+ perfect condition, collected by myself on the Seward Peninsula of Alaska in 1988. Also specimens of the same in A, A-, and B quality at reduced prices. Contact Tom W. Kral, 6600 N. Galaxy Rd., Tucson, AZ 85741.

WANTED: Seeds of, Ferula communis, Seseli dioicum, Montanum, P. heterophylla, and Angelica archangelica. ("These are in the UMBELLIFERAE FAMILY"). Send amounts & prices of the above, to RANDY ROBINETTE, 4800 State Rt. 5, Ashland, KY 41101, U.S.A. or call - (606) 928-3401 after 4:00 pm E.S.T.

MEMBERS' COMMERCIAL NOTICES

KIKUMARO OKANO, 1016-1, Tokura, Mishima, JAPAN 411.

FOR SALE: Scudder, S.H., The Butterflies of the Eastern United States and Canada, with special reference to New England, published by the author (1888 - 1889), 3 vols., red cloth, XI + 1956 pp, 3 colored maps and 89 lithographed plates of which 36 are partly or fully colored. I believe this to be the greatest book on butterfly systematics in North America. Price \$2,000 plus postage.

AMERICAN BIOLOGICAL SUPPLY CO., 1330 Dillon Heights Ave., Baltimore, MD 21228, USA. AVAILABLE NOW: "Florida Butterflies" by Gerberg & Arnett, \$9.95 plus \$1.50 shipping & handling. 137 full color illustrations, 96 pp. Also available, "American Insects" by Arnett, \$85.95 plus \$2.00 shipping & handling. 850 pp. with 1200 illustrations. Please send a check with your order. Send for AMBI entomological supply catalogue (\$1.00 to cover postage).

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INFORMATION ABOUT THE SOCIETY.....

Membership in the Lepidopterists' Society is open to all persons interested in any aspect of Lepidopterology. Prospective members should send the TREASURER, James P. Tuttle, 3838 Fernleigh Ave, Troy, Michigan 48083-5715, USA, phone (313) 689-6687, the full dues for the current year, \$25.00 US, together with mailing address and a note about areas of interest in the Lepidoptera; student membership (must be certified) \$15; sustaining membership \$35; life membership \$500. Remittances must be in US dollars, payable to the Lepidopterists' Society. All members will receive the JOURNAL (published quarterly) and the NEWS (published bimonthly). A biennial membership directory will comprise the last issue of the NEWS in even-numbered years.

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Manuscripts submitted for publication in the JOURNAL are to be sent to Dr. Boyce Drummond, EDITOR, JOURNAL of the Lepidopterists' Society, Natural Perspectives, P.O. Box 9061, Woodland Park, Colorado 80866-9061, USA. Phone (719) 687-6596. See the inside back cover of a recent issue of the JOURNAL for editorial policies.

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