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ZONE 1 THE FAR NORTH: ALASKA, YUKON/NORTHWEST TERRITORIES, NORTHEAST SIBERIA. Coordinator: Kenelm W. Philip (KP). Contributors: Lee Guidry (LG), Eric Hegsted (EH), Norbert G. Kondla (NK), Alexander Oleinek (AO), Gary B. O'Shea (GO), Harold E. Rice (HR), Ronald Alan Royer (RR), Matt Turner (MT), Jon D. Turner (JT), and collectors for the Alaska Lepidoptera Survey. The initials 'HSP' are used for joint activities of the Holbrook Seward Peninsula group, consisting of Guidry, O'Shea, Philip, Rice, and the Turners. Previously unreported localities or species are emphasized; collecting is by ALS volunteers unless noted. Note regarding Alaska Lepidoptera Survey: K. Philip, in conjunction with Holbrook Travel's Alaskan Lepidopterists' Expedition of 1990, spent the periods 10 June - 2 July and 19 - 23 July on the Seward Peninsula. Collecting was along the highway system with the exception of one bush plane trip to a remote site north of Brevig Mission. The five participants in the Holbrook party generously made their data available to the ALS. From 5-18 July, K. Philip (with logistic support from the Institute of Biological Problems of the North, Magadan) collected in Provideniya and Anadyr', Chukotka, Magadanskaya Oblast', USSR (see map below). Species names follow Lep. Soc. Memoir #3.

YUKON TERRITORY. Weather: The season was reported locally to have been hot and dry in the north, but wet and slightly delayed in the south (RR). Poor weather and advance of the season affected the northern Dempster Highway, 8-12 July, and collecting was spotty at North Fork Pass (as usual) 8-9 July. Conditions at Montana Mountain were better, 6 and 13 July. Range extensions: *Polites draco* from Minto Landing; *Speyeria mormonia* from mile 39-40 Dempster Highway. Both of these may represent new northern records for the YT.

BUTTERFLIES: OGIUVIE MTS. - Dempster Highway km 145-149 (from the Blackstone River about halfway up to Windy Pass), 5 July (NK), *Pieris napi*, *Colias hecla*, *C. pelidne*, *C. philodice*, *Lycaeides idas*, *Agriades rusticus*, *Clossiana freija*, *C. titania/chariclea*, *Phyciodes pratensis*, *Polygonia faunus*, *Coenonympha kodiak*, *Erebia rossii*, *E. disa*, *E. theano*, *Oeneis bore*, *O. polixenes*. This portion of the Dempster can provide excellent roadside collecting in early to mid-July provided that the roadside ditches are damp. North Fork Pass, 8-9 July (RR), additional species (see 1981/84/87/89 Season Summaries), *Papilio machaon*. *Erebia theano* was common, as usual, here in July. Tombstone Campground, Dempster Highway, 5 & 7 July (NK), additional species (see 1987 Season Summary), *Pterourus glaucus*, *Colias palaeno*, *Lycaeides idas*, *Plebejus saepiolus*, *Clossiana freija*, *Phyciodes pratensis*, *Polygonia faunus*, *Coenonympha kodiak*. Dempster Highway mile 39-40, about 5-6 miles S of Tombstone Campground, 9 July (RR), *Colias philodice*, *Epidemia dorcas*, *Lycaeides idas* (common), *Vacciniina optilete* (common), *Speyeria mormonia*. YUKON HIGHWAY 11 (Silver Trail) - Keno Hill, 27-28 June, 2-4 July (NK), additional species (see 1986/89 Season Summaries), *Parnassius evermanni* (common), *Pterourus glaucus*, *Epidemia dorcas*, *Celastrina argiolus*, *Lycaeides idas*, *Agriades rusticus*, *Plebejus saepiolus*, *Vacciniina optilete*, *Clossiana improba*, *C. freija*, *C. distincta*, *Nymphalis antiopa*, *Erebia youngi*, *Oeneis bore*. Keno City, 4 July (NK), *Basilarchia arthemis*. Five Mile Lake day use area, mile 36.1 Silver Trail, 4 July (NK), *Papilio machaon*, *Pterourus glaucus*, *Colias philodice*, *Lycaeides idas*, *Clossiana titania*, *Basilarchia arthemis*. Silver Trail, km 4-15, 4-5 July (NK), *Ervynnis persius*, *Papilio machaon*, *Pterourus glaucus*, *Pontia occidentalis*, *Colias philodice*, *C. palaeno*, *C. alexandra christina*, *Epidemia dorcas*, *Everes amyntula*, *Glaucopsyche lygdamus*, *Lycaeides idas* (common), *Plebejus saepiolus*, *Vacciniina optilete*, *Clossiana titania*, *Phyciodes pratensis*, *Basilarchia arthemis*. YUKON HIGHWAY 2 (Klondike Highway) - Stewart Crossing, 4 & 6 July (NK), additional species (see 1979 Season Summary), *Papilio machaon*, *Pieris napi*, *Colias alexandra christina*, *Epidemia dorcas*, *Lycaeides idas*, *Plebejus saepiolus*, *Vacciniina optilete*, *Clossiana titania*, *Phyciodes pratensis*. Minto Landing, 26 June (NK), *Polites draco*. Junction with Tatchun Lake Road, 7 July (NK), *Colias philodice*, *C. palaeno*, *C. alexandra christina*, *Lycaeides idas*, *Clossiana titania*, *Phyciodes pratensis*, *Aglais milberti*, *Euphydryas anicia*. Carmacks, 28 June, 7 July (NK), additional species (see 1973/79 Season Summaries), *Papilio machaon*, *Pontia occidentalis*, *Pieris napi*, *Everes amyntula*, *Glaucopsyche lygdamus*, *Plebejus saepiolus*, *Phyciodes pratensis*, *Nymphalis antiopa*, *Euphydryas anicia*. Lake Laberge, 26-30 June, 7 July (NK), additional species (see 1987-89



1990 Season Summary



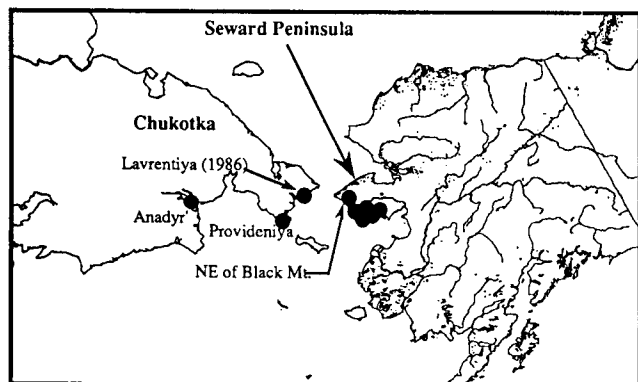
Season Summaries), Pterourus glaucus. Parnassius phoebus was abundant as usual, appearing before 26 June. Montana Mountain, 30 June, 6 & 13 July (NK, RR), additional species (see 1985/86 Season Summaries), Anthocharis sara, Colias hecla, C. palaeno, Lycaena phlaeas, Erebia fasciata. Clossiana improba and Erebia mackinleyensis were abundant. Montana Mountain, a third of the way up, 30 June (NK), Euchloe creusa, Plebejus saepiolus, Clossiana frigga. YUKON HIGHWAY 8 (Tagish Road) - Tagish, 5 July (RR), Polites draco common. ALASKA HIGHWAY - Duke River, mile 1099 AH, 8 & 9 July (NK), additional species (see 1979/87 Season Summaries), Lycaeides idas, Plebejus saepiolus, Phyciodes pratensis, Nymphalis antiopa. Colias alexandra christina was very abundant. Whitehorse, 11 July (NK), additional species (see 1975/81 Season Summaries), Parnassius phoebus, Pterourus glaucus. Whitehorse, Fish Lake Road, 29 June (NK), additional species (see 1987 Season Summary), Glaucopsyche lygdamus, Clossiana frigga. Canyon Mountain, nr. Whitehorse, 29 June (NK), Erynnis persius, Pterourus glaucus, Colias philodice, Glaucopsyche lygdamus, Phyciodes pratensis. CAMPBELL HIGHWAY (EH) - head of east arm Frances Lake, 26 April - 21 July, Carterocephalus palaemon, Hesperia comma, Papilio machaon, Pterourus glaucus, Pieris napi, Colias hecla, C. gigantea, C. palaeno, Epidemia dorcas, Celastrina argiolus, Glaucopsyche lygdamus, Lycaeides idas, Vacciniina optilete, Clossiana selene, C. frigga, C. freija, C. titania, Polygonia faunus, Nymphalis vau-album, N. antiopa, Aglais milberti, Vanessa atalanta, Oeneis jutta (common). Simpson Tower, Frances Lake, 3900-5500 feet, 8 July, Parnassius eversmanni, Papilio machaon, Colias palaeno, Clossiana improba, C. polaris, C. freija, Oeneis melissa (common).

ALASKA. Weather: Interior Alaska had a warm summer with major forest fires in late July, placing a dense pall of smoke over much of the interior. The Seward Peninsula had an early spring (butterflies were well out by 10 June), but the weather deteriorated as the season progressed, and from 19 June to 2 July there was rain or fog over 60% of the time. New collecting site: Continental divide 8 miles NE of Black Mt., 16 miles N by W of Brevig Mission, Seward Peninsula. Habitat is barren limestone scree and blockfield on ridges, with closed plant cover only on valley floors (sedge flats) and along the sides of smaller streams (tundra meadow). Access to this site is by bush plane from Nome. The only place a plane can land is on the ridgetop, and that is a very exposed area--tents must be able to survive strong winds! (Some did, some did not...) This site is on the edge of a large area (York Mountains) of exceedingly barren terrain which presumably supports a somewhat limited butterfly fauna, some of which may have developed differences from populations living in less barren parts of the peninsula.

BUTTERFLIES: NORTHWEST ALASKA - Cape Thompson, Ikiyaktusak Creek, 6-10 July, Colias hecla, C. thula, C. palaeno, Agriades rusticus, Boloria napaea, Clossiana chariclea, Erebia rossii, E. youngi, Oeneis melissa. SEWARD PENINSULA (HSP) - Mile 52.5 Council Road, 30 June, additional species (see 1986 Season Summary, and note that this site was at mile 54 in 1986; the road has been realigned), Colias hecla, Procllossiana eunomia, Boloria napaea. The existence of a thriving colony of Erebia mackinleyensis at this site is confirmed. Mile 41 Council Road, 12, 17, 30 June, additional species (see 1979/81/86/87 Season Summaries), Clossiana frigga. Bonanza Hill, mile 6 Glacier Road, 29 June, additional species (see 1986 Season Summary), Clossiana improba, Erebia disa. Mount Distin, 20 June, additional species (see 1976/86 Season Summaries), Euchloe creusa, Procllossiana eunomia, Erebia rossii, E. occulta. Mile 18 Teller Road, 10, 13 & 15 June, additional species (see 1976/79-81/86/87 Season Summaries), Clossiana frigga. Mile 28 Teller Road, Sinuk River, 10-14 June, Euchloe creusa was very abundant. Mile 38.8 Teller Road, 16 June, 1 July, Parnassius eversmanni, Colias hecla, C. nastes, C. palaeno, Vacciniina optilete, Boloria napaea, Clossiana freija, C. chariclea, Oeneis polixenes, Erebia rossi, E. disa, E. youngi, E. occulta. This site is unique in one respect: the Teller Road crosses Erebia occulta habitat, and vehicle-killed occulta were lying on the road surface. Mile 42 Teller Road, 14, 16 June, 1 July, additional species (see 1976/79/81 Season Summaries), Pieris napi, Colias palaeno, Clossiana frigga, C. chariclea, Oeneis melissa, Erebia occulta. Continental divide, 8 miles NE of Black Mountain (16.5 miles N by W of Brevig Mission), 550-1150 feet, 21-25 June, Parnassius eversmanni, Colias thula, Boloria napaea, Clossiana polaris, C. improba (a striking, dark population, very different from other Seward Peninsula improba), C. chariclea, Erebia rossii, E. youngi, E. occulta, Oeneis melissa, O. polixenes. Mile 2.25 Pilgrim Hot Springs Road, 18 June, Papilio machaon, Erebia fasciata, Oeneis melissa. Pilgrim Hot Springs, 18 June, Pieris napi. On 8 September an ALS volunteer obtained one Nymphalis antiopa at this site. A few additional Seward Peninsula sites were collected (KP) before and after the Holbrook expedition: Mile 15.5 Teller Road, 13, 29 June, Parnassius eversmanni, Colias hecla, C. palaeno, Boloria napaea, Procllossiana eunomia, Clossiana chariclea, Erebia disa, E. youngi, E. occulta, Oeneis bore, O. polixenes. Council, 2 July, Pieris napi, Colias palaeno, Glaucopsyche lygdamus, Coenonympha kodiak. For no known reason, Pontia occidentalis failed to appear on the Seward Peninsula this summer. Parnassius phoebus emerged shortly before 21 July. KENAI PENINSULA - Mystery Hills, north of mile 57-63.5 Sterling Highway, 29 May and 24 June, Carterocephalus palaemon, Pieris napi, Colias nastes, Agriades rusticus, Polygonia faunus, Speyeria mormonia, Clossiana chariclea. Skilak Loop Road (from mile 58 to mile 75.2 Sterling Highway), 21 April thru 11 August, Pterourus glaucus, Pieris napi, Colias philodice, Euchloe ausonides, Plebejus saepiolus, Nymphalis antiopa, Aglais milberti, Polygonia faunus. Turnagain Pass, 29 June, 21 July, Epidemia dorcas, Speyeria mormonia.

MOTHS: INTERIOR ALASKA - Fairbanks and vicinity, 2-19 May, there was an unusual abundance of Brephos infans, coming to damp ground on gravel roads. KENAI PENINSULA - Skilak Loop Road, 20 April to 3 June, Isturgia truncataria, Eulype hastata. Mystery Hills, north of mile 57 Sterling Highway, 24 June, Spargania luctuata (common). Turnagain Pass, 29 June, Parasemia plantaginis.

MAGADANSKAYA OBLAST'. Weather: Provideniya was cool with a number of days of rain and fog, 5-13 July. Collecting was



1990 ALS collecting sites

possible for about half of that time. Anadyr' had only one good collecting day, 15-18 July. New collecting sites: Provideniya, a seaport town on a fiord near the end of the Chukotsk Peninsula. Habitats were severely limited: the only productive ones were scree and blockfield on hilltops (1500--2100 feet), and lush tundra meadow in one protected valley at sea level. Anadyr', at the mouth of the Anadyr' River, west side of Gulf of Anadyr', Chukotka. Accessible habitat was mainly Eriophorum tundra near sea level, with collecting essentially limited to stream valleys. At both of these localities, transportation posed major problems. The road from Provideniya to Chaplino is so rough that a military 6x6 truck is the only vehicle that can negotiate it, and collecting at Provideniya on a day-trip basis is effectively restricted to a 10-mile radius around the town. At Anadyr' the only road runs south along the seacoast, and gives access to no additional habitats. See the accompanying map for locations of these (and other) sites.

BUTTERFLIES: PROVIDENIYA (KP) - Hilltop above town, 1500--2200 feet, 6, 9 July, Colias nastes, Agriaes aquilo, Clossiana distincta (common), Oeneis melissa. Bay of Flowers, 4 miles N of town on Provideniya Bay, 7, 10 July, Boloria napaea, Clossiana freija, C. distincta, C. chariclea, Oeneis melissa, Q. polixenes. ANADYR' (KP) - stream 6 miles S of town, 15, 17 July, Colias palaeno, Clossiana polaris, C. freija, Oeneis nr. polixenes, Erebia rossii (common), E. disa, E. fasciata. About 2 miles east of Gora Dionisiya, 11 miles SSW of town, 16 July, Erebia rossii, E. disa. LAVRENTIYA BAY (AO) - West side of bay 6 miles NW of Lavrentiya, July 1986, Colias hecla, Boloria napaea, Clossiana frigga, C. polaris.



ZONE 2 PACIFIC NORTHWEST: IDAHO, OREGON, WASHINGTON, BRITISH COLUMBIA. Coordinator: Jon H. Shepard (JHS). Contributors: Josh Burgel (JB), Vern Colvin (VC), David L. Eiler (DLE), C. D. Ferris (CDF), Paul C. Hammond (PCH), John Hinchliff (JH), Lloyd Janz (LJ), Stanley Jewett, Jr (SJJ), Norbert Kondla (NK), Ronald H. Leuschner (RHL), H. Loechelt (HL), David V. McCorkle (DVM), Robert M. Pyle (RMP), Mike Rickard (MR), Ronald A. Royer (RAR), Sigrid M. Shepard (SMS), Ken Smith (KS), Steve Summers (SS), John Vernon (JV). General Collecting Conditions: Except for one nonresident (CDF) no contributor commented on collecting conditions. The coordinator found conditions near normal and interprets the lack of comments by others to confirm this. Abbreviations: CMGD = Campground, Cr = Creek, FS = Forest Service, Gd Stn = Guard Station, Gdns = Gardens, NF = National Forest, SR = State Road, vic = vicinity of. Site or county name in CAPS = site or county record; STATE, DISTRICT, PROVINCE, EARLY, SE, etc = records for that category.

MIGRATORY SPECIES: E. claudia, individual specimens at several localities in SE BC (JHS & LJ). N. californica, only one specimen per locality recorded by CDF from Bear Lake Co, ID & Wheeler Co, OR. V. cardui reported by CDF from Bear Lake and Franklin Cos, Idaho. A. campestris records by RMP from Clark and Klickitat Cos, WA are STATE records. A. bredowii and J. coenia, STATE records from Idaho, are presumably migratory or windblown.

IDAHO. CDF reported poor collecting due to dry conditions in the southeastern part of the state along the Wyoming and Montana borders. By contrast Eiler reports, though not specifically mentioning collecting conditions, many species from Boise, Custer and Blaine Cos. None were unrecorded species. Eiler reports several populations of C. tullia as near ampelos and not elko.

BUTTERFLIES: E. anicia macyi, SR-21 about 6 mi S of Grasmere, campground in small grove of trees in sagebrush desert, el 5,000', OWYHEE Co, 21 June, STATE (DLE). J. coenia, Copenhagen Basin Rd, off Hwy 36, Cache NF, 8000'-8300', FRANKLIN Co, 22 June, STATE (DLE) (a sight record). A. bredowii, Justis Park, Mink Creek, Pocatello, BANNOCK Co, late June, STATE (JB).

OREGON. JH reports weather conditions as good.

BUTTERFLIES: E. afranius, Ochoco NF rd 2600/600, .8 mi from Jct Hwy 26 & 29, WHEELER Co, 29 June (CDF). P. mardon, Dead Indian Rd, 20 mi ENE of Ashland, JACKSON Co, 4 July (JV, MR). P. mystic, Fish Lake Rd, 6 mi N of Halfway, BAKER Co, 11 July (KS). P. sonora sonora, Sled Spring at St Hwy 3, WALLOWA Co, 14 July (PCH). Q. yuma, Summer Lake Rest Area, Lake Co, 7 Aug (JH); Fence Cr, N of Imnaha, Wallowa Co, 19 July (JH). P. indra, Ochoco NF rd 2600/600, .8 mi from Jct Hwy 26 & 29, WHEELER Co, 29 June (CDF). C. pelidne skinneri, East Rim, Steens Mtn, Harney Co, 5 and 6 Aug (DVM, PCH), confirms an earlier small sample. E. c. comyntas, Storage Ave, Halfway, BAKER Co, 5 July (KS). E. enoptes enoptes, Silver Creek at FS Rd 2917, LAKE Co, 23 June (SS). P. icaioides icarioides, Hilard Rd Gd Stn vicinity, COLUMBIA Co, 19 May (VC). P. icaioides fenderi, LANE & POLK Cos, 18-23 May (PCH); Benton & Yamhill Cos, 15-30 May (PCH); the coordinator has withheld details due to the endangered status of this subspecies which was thought to be extinct (contact Paul Hammond if you are interested in details). S. coronis, Ochoco NF rd 2600/600, .8 mi from Jct Hwy 26 and 29, WHEELER Co, 29 June (CDF). E. editha edithana, Malheur NF rd 2820, HARNEY Co, 28 June (CDF). P. zephyrus, Ochoco NF rd 2600/600, .8 mi from Jct Hwy 26 & 29, WHEELER Co, 29 June (CDF). P. oreas silenus, Warm Springs at Hwy 26, JEFFERSON Co, 20 July, 1980 (SJJ). E. epipsodea, Ochoco NF rd 2600/600, .8 mi from Jct Hwy 26 & 29, WHEELER Co, 29 June (CDF).

MOTHS: A. sphacelina, KOA Camp at Sisters, DESCHUTES Co, 6 Aug, PACIFIC NORTHWEST Record. I. denticulella, Malheur Wildlife Refuge, HARNEY Co, 3-6 Aug, STATE. G. bolanderi, Malheur Wildlife Refuge, HARNEY Co, 3-6 Aug, PACIFIC NORTHWEST (all RHL).

WASHINGTON. **BUTTERFLIES:** E. clarus californicus, SR 4, 1.5 miles E of W Cape Horn, WAHIAKUM Co, 5 May (RMP). A. campestris, Parkway Plaza Bldg Gdns, Vancouver Mall, CLARK Co, 28 Aug, STATE (RMP), and Chapin Reservoir, Eyrie Rd, White Salmon, KLICKITAT Co, 22 Sept (RMP). M. r. plicateria, SR 4, 1.5 mi E of W Cape Horn, WAHIAKUM Co, 5 May (RMP). E. c. comyntas & C. argiolus, Altoona, Wahkiakum Co, 26 Feb, EARLY (RMP). S. callippe semivirida, SW Shore of Sprague Lake, ADAMS Co, 12 July (RMP). S. hydaspe rhodope, SR 101 at Quinalt Ridge Rd, GRAYS HARBOR Co, 25 Aug (RMP). P. oreas silenus, SR 101 at Quinalt Ridge Rd, GRAYS HARBOR Co, 25 Aug (RMP). Q. melissa beanii, summit Chopaka Mtn, Okanogan Co, 22 July (RMP), eastern range extension.

MOTHS: L. arietis & L. wyatti, Pacific Beach St Park, GRAYS HARBOR Co, 31 July (JHS).

BRITISH COLUMBIA. JHS, SMS & LJ exhaustively searched, together and separately, the extreme SE corner of the province S of Hwy 3. Although most SE records show for one locality, Procter Lake, most species were repeated at other localities. There were only a few good collecting sites amongst some of the heaviest logging sites in the Province, especially close to Canadian and US Nat'l Parks. All Procter Lake = same data and all are SE RECORDS. All Sage Cr CmGD = same data and all are SE RECORDS. NK found conditions from mi 0-60 of Alaska Hwy were good.

BUTTERFLIES: E. ?afranius, vic Procter Lake (proposed ecological reserve), 21 July, SE (JHS & SMS). Q. garita, PROCTER LAKE. H. comma, Sage Cr CmGD, 21 July, SE (JHS & SMS). A. vialis, PROCTER LAKE. P. glaucus/rutulus hybrid swarm, PROCTER LAKE. P. rapae, SAGE CR CMGD. P. napi, .5-1.5 miles S of Flathead Pass, 18 July, SE (JHS & SMS). C. philodice, PROCTER LAKE. E. eurytheme, PROCTER LAKE. C. alexandra, SAGE CR CMGD. C. interior, PROCTER LAKE. L. mariposa, PROCTER LAKE. E. amyntula, PROCTER LAKE. L. idas, SAGE CR CMGD. P. saepiolus, PROCTER LAKE. P. acmon, .5-1.5 mi S of Flathead Pass, 22 July, SE (LJ). I. icarioides, PROCTER LAKE. E. claudia, Michele Cr, nr McGillivray, 2.9 mi S of Hwy 3 on rd to Corbin, 17 July, DISTRICT (JHS & SMS). S. atlantis, PROCTER LAKE. S. mormonia, PROCTER LAKE. S. hydaspe, .5-1.5 mi S of Flathead Pass, 18 July, SE (LJ). B. selene, PROCTER LAKE. B. epithore, PROCTER LAKE. P. tharos, PROCTER LAKE. C. palla, SAGE CR CMGD. E. anicia, PROCTER LAKE. E. gilletti, Michele Cr, nr McGillivray, 2.9 miles S of Hwy 3 on road to Corbin, 15 July, PROVINCE (LJ); PROCTER LAKE & 2nd Provincial Record. N. milberti, SAGE CR CMGD. L. lorquini, Hwy 3 at Spring W of Morrissey, 19 July, SE (JHS & SMS). C. oetus, PROCTER LAKE. E. epipsodea, PROCTER LAKE. E. magdalena, Summit Pass, Alaska Hwy, 4 July, DISTRICT (RAR).



ZONE 3 SOUTHWEST: ARIZONA, CALIFORNIA, NEVADA. Coordinator: Robert L. Langston (RLL). Contributors: George T. Austin (GTA), Jim P. Brock (JPB), Laurence Crabtree (LC), Neil Dankert (ND), Ken Davenport (KD), Pete J. Domphose (PJD), David L. Eiler (DLE), John F. Emmel (JFE), Clifford D. Ferris (CDF), Youssef Hashash (YH), Ron H. Leuschner (RHL), Richard P. Meyer (RPM), Scott North (SN), Bruce A. O'Hara (BAO), James C. O'Hara (JCO), Ken Osborne (KO), Barbara & Loren Padelford (BP, LP), Mike A. Rickard (MAR), Kilian Roever (KR), Raymond Schryver (RS), Charles A. Sekerzman (CAS), Arthur M. Shapiro (AMS), Oakley Shields (OS), Ann B. Swengel (ABS), William L. Swisher (WLS), Paul M. Thompson (PMT), John B. Vernon (JBV) and Ralph E. Wells (REW). The entire Southwest experienced a fourth year of extended drought, resulting in EARLY records for a few species, and LATE dates for others. However, SE Arizona had early and above normal precipitation, plus parts of Nevada experienced unusual late season rains. Migratory species and strays were reported for all three states. The butterfly species follow the taxa and sequence of Ferris, C. D., 1989, Lep. Soc. Memoir #3.

ARIZONA: Contributors: JPB, ND, KD, CDF, RHL, RPM, BAO, JCO, BP, LP, KR, ABS and WLS. Four STATE records are included with sixteen COUNTY records for butterfly species. These were mostly NORTH range extensions from Mexico, but a few were found further WEST. Fewer moths than usual reported, and none were determined as new for their localities, but several rarities were cited. January to early March were unusually cold, but on about 14 March the Southwest turned warm (WLS). Two weather fronts from the NW, on 2 and 19 February brought fair amounts of rain to as far south as the Phoenix area of central AZ (WLS). However, winter and spring were generally well below average in precipitation (KR). Although most of spring was quite dry, summer rains broke early in the southeast part of AZ leading to an early influx of Pieridae (JPB). The summer rains were well above average in southern AZ, with the "monsoon" beginning in early July and continuing until early October (KR). Butterflies abundant in Santa Cruz Co in August, 1990 (CDF). Because of the extended "monsoon" conditions, vegetation was lush with many wildflowers in bloom. Lighting for moths was dismal, and the season seemed to be several weeks behind (CDF).

MIGRATORY SPECIES: Influxes of Anteos clorinde nivifera, Phoebis sennae marcellina, P. agarithe and Kricogonia lyside were seen in the Santa Rita Mtns by mid-Jul, EARLY (JPB). By 5-12 Aug, P. agarithe ♂♂ were common, but only 1 ♀, Sycamore Cyn and vicinity, Santa Cruz Co (CDF). A. g. nivifera in the Huachuca Mtns, 7 Sept & Chiricahua Mtns, 10 Sept (ABS). Libytheana bachmanii larvata, six photos, Florida Wash, Madera Cyn, Pima Co, 8 Aug (BP, LP), plus sighted and photographed in Santa Cruz/Pima Cos, 7-9 Sept (ABS), but no migratory tendencies reported. Nymphalis californica was seen in the Hualapai Mtns, Mohave Co, 24 March (KD). Vanessa cardui, Atacosa Mtns, Sycamore and Yanks Cyns, Santa Cruz Co, 5-12 Aug (CDF) and in Cochise/Pima Cos, 5-8 Sept (ABS), but no migrations reported. Danaus plexippus, Sycamore Cyn complex, 5-12 Aug (CDF) and 6 locations in Cochise, Pima and Santa Cruz Cos, 5-9 Sept (ABS) -- dates too early in season for the autumn migration.

BUTTERFLIES: Polythrix octomaculata, Temporal Gulch, Santa Rita Mtns, SANTA CRUZ Co & STATE, 29 Sept (KR) -- the only other Polythrix recorded for AZ is P. mexicana, Box Cyn, Pima Co, 4 Oct 1967 (Bruce Griffin) -- both species are reported from Texas (KR). Autochthon cellus in numbers, E of Peña Blanca campground on Ruby Rd, 8 Aug (RPM) to W of Peña Blanca Lake, 5-12 Aug (CDF), both Santa Cruz Co, and also Cave Creek Cyn, 8 Aug (BP, LP), 5 Sept (ABS), plus Ramsey Cyn, 9 Aug (BP, LP), all in Cochise Co. Thorybes pylades, ovipositing on Cologania angustifolia, 2 July, reared to adults, Sawmill Cyn, Huachuca Mtns, Cochise Co (JPB). Timochares ruptifasciatus, Sycamore Cyn near Ruby, SANTA CRUZ Co, 4 Sept (JPB) -- previous for AZ was in Pima Co, 20 Sept 1924!! Erynnis funeralis, larvae on Galactia wrightii, 15 May, reared to adults, Box Cyn, Santa Rita Mtns, Pima Co (JPB). Pyrgus albescens, larvae on Sphaeralcea fendleri, 9 May, reared to adults, Soldier Cyn, Santa Catalina Mtns, Pima Co (JPB). Piruna cingo [as mexicana and/or microsticta in previous Summaries, lists and publications], E of Peña Blanca campground on Ruby Rd, 8 Aug (RPM) and Alamo Cyn W of Peña Blanca Lake, plus Sycamore & Yanks Cyns, all Santa Cruz Co, 5-12 Aug (CDF). Ancyloxypha arene, sighted, Saguaro NM, Rincon Unit, 4000', PIMA Co, 9 Sept (ABS). Lerodea eufala, larva on Cynodon dactylon, 16 May, reared to adults, Pontatoc Cyn, Santa Catalina Mtns, Pima Co (JPB). Panoquina ocola [genitalia dissected, Type Loc "Florida, Georgia, Texas"], Sycamore Cyn, SANTA CRUZ Co & STATE, 5-12 Aug (CDF). Agathymus baueri freemani abundant at seeps and in rocky canyons, Hualapai Mtns, Mohave Co, 15 Sept (RPM). A single ♂ stray Parides alopius, Garden Cyn, Fort Huachuca, COCHISE Co, STATE, U.S. & NORTH, 22 July (ND) -- photos of near mint spread specimen and note to NEWS (ND). Nominate Battus philenor, Big Horn Mtns at 1600', 20.7 mi SW of Aguila, Maricopa Co, 18 March (WLS). Papilio polyxenes asterius, "A" Mountain, 2899', Tucson, Pima Co, 17 March, EARLY (WLS). A worn ♂ Heraclides astyalus pallas, Florida Cyn, Santa Rita Mtns, 8 Aug (RPM) plus one ♀, Sycamore Cyn complex, 10 Aug (CDF), both SANTA CRUZ Co -- RPM specimen is 6th from AZ, 7th by CDF (fide R. Bailowitz). Pieris rapae, Wickenburg, MARICOPA Co, 18 Sept (KD). Anthocharis pima, Vulture Mtns, 2900' and Big Horn Mtns, 1600', Maricopa Co, 18 March (WLS). A. pima, abundant, Harcuvar Mtns, 2500', Yavapai Co, 18 March and Beaver Dam Mtns, 2300', 8.9 mi N of Littlefield, Mohave Co, 20 March (WLS). 4th state record of Anteos maerula, upper Garden Cyn, Huachuca Mtns, 2 Sept (JCO via BAO) -- 2nd Cochise Co record, 1st was 13 Sept 1973. 2nd state record of Phoebis philea, French Joe Cyn, Whetstone Mtns, COCHISE Co, 29 July (JPB) -- previous for AZ was in Pima Co, 16 Sept 1974. Third state record of philea, Chandler, MARICOPA Co, 25 Sept (KR). P. agarithe, Bullhead City, MOHAVE Co and WEST, 10 Aug (KR). Eurema lisa, Sycamore Cyn near Ruby, Santa Cruz Co, 4 Sept (JPB). E. nise, Elkhorn Ranch, Baboquivari Mtns, 12 May and Fresnal Canyon S of Arivaca, 6 Sept, both new for PIMA Co (JPB) -- previous for AZ were Cochise and Santa Cruz Counties. Callophrys comstocki, 7 mi E of Kayenta, NAVAJO Co, 19 April (KR) -- known previously from Mohave Co, April 1975, 1977. Apodemia hepburni, Sycamore Cyn, SANTA CRUZ Co, 18 Aug (KR) -- not reported in AZ in over 85 years; in old Oslar records from the Patagonia Mtns, Santa Cruz Co (KR). Photo of Thessalia theona thekla, Sheelite Cyn, Fort Huachuca, Cochise Co, 10 Aug (BP, LP). Chlosyne californica, abundant, lower slopes Hualapai Mtns, Mohave Co, 15 Sept, LATE 2nd brood (RPM). C. rosita browni, Sycamore Cyn, SANTA CRUZ Co, 25 Aug (Marcus Lindberg fide KR) -- previously from Guadalupe Cyn, Cochise Co, 11 Oct 1975 (Jim Werner fide KR). Larvae of both Dymasia dymas chara and Texola elada perse on Aniscanthus thurberi (Acanthaceae), and reared, Arivaca Lake, Pima Co, 3 Sept (KR) -- 1st record using this plant by chara for KR, but used frequently by perse. Hamadryas glauconome grisea, Continental, PIMA Co, 16 Sept (KR) -- one previous AZ record was Baboquivari Mtns, also Pima Co, 20 Sept 1970, was not determined until Jenkin's revision in 1983 when the subspecies was described (KR). Marpesia petreus, Sycamore Cyn near Ruby, Santa Cruz Co, 4 Sept (JPB). Asterocampa celtis antonia [as montis in previous Summaries and publications], one photographed, Florida Wash, Madera Cyn, Pima Co, 12 Aug (BP, LP) and several in a lower riparian canyon in the Hualapai Mtns, Mohave Co, 15 Sept (RPM), 17 Sept (KD) -- less than 50 air miles from CA where no Asterocampa species are known. Asterocampa idvja, Sonoita Creek, SANTA CRUZ Co, STATE, U.S. and NORTH, Sept (Marcus Lindberg fide KR). Photo of Cyllopsis pertepida maniola, Sheelite Cyn, Fort Huachuca, Cochise Co, 10 Aug (BP, LP). Photos of C. pyracmon nabokovi & Gyrocheilus patrobas tritonina, Chiricahua/Huachuca Mtns, Cochise Co, and G. p. t. sighted in Madera Cyn, Pima Co, 6-9 Sept (ABS).

MOTHS: SPHINGIDAE -- A single specimen of the diurnal Aellopos clavipes, Sycamore Cyn complex, Santa Cruz Co & "state", 7 Aug (CDF) -- state record according to the MONA fascicle, but already recorded in Santa Cruz Co by JPB, 19 Aug 1989 [in the 1989 Season Summary]. NOCTUIDAE -- Lithophane nasar, Greer, 8200', Apache Co, 6 June (RHL). LASIACAMPIDAE -- Quadrina diazoma, numerous, vicinity of Onion Saddle, Chiricahua Mtns, Cochise Co, 11 August (CDF). GEOMETRIDAE -- A single Lophochorista lesteraria, Sycamore Cyn complex, Santa Cruz Co, 9 August (CDF). Hydriomena perfracta centralis [Type Loc: Colorado], Greer, Apache Co, 6 June (RHL). TORTRICIDAE -- Anopia silvertanana, Greer,

CALIFORNIA: Contributors: LC, KD, JFE, YH, RLL, RHL, RPM, SN, BAO, KO, MAR, RS, CAS, AMS, OS, PMT, JBV and REW.

CORRECTION: Delete Speyeria coronis from Stanislaus Co as cited in the 1989 SS. It seemed the wrong habitat and too far inland, anyway. Examined by RLL and det. as S. callippe comstocki, already known from Stanislaus Co, and common in adjacent Alameda/Santa Clara Cos. There were fourteen new COUNTY records for butterfly species, three for subspecies, and three new COUNTY records for moths, plus several rarities and range extensions. The winter of 1989-90 was very dry with no rain at all in Dec 89 recorded at Sacramento or Davis (AMS), or the entire Bay Area (RLL). Jan 90 also warm and dry, with many false spring broods started (AMS). In Mariposa County, moderate snow and rain in Jan - early Feb (OS). Premature spring ended with a strong storm and cold wave 13-18 Feb (RLL, AMS), but adult butterflies and moths active through last week (RLL). Down to 15° F at Jerseydale, Mariposa Co mid-Feb with snow to early March (OS). Warming in March and April, many species in abundance along the coast (RLL), with spring emergences at Donner Summit, 7200', in April due to extremely low snowpack, but heavy snow in the Sierra 22 April (AMS) and lowland rains 22 & 23 April (RLL). Most Mojave Desert localities checked this spring were very dry, with the exception of NE of Victorville, south to the Ord Mtns, and the northern slopes of the San Bernardino Mtns (BAO) -- the area had snow earlier thus the vegetation was lush (BAO). Strongest May storm of record in northern CA on 26-30 May with another 18" of snow at Donner Summit which, however, melted fast (AMS). Abundant rains in the Bay Area freshened plants and extended the season of the spring flyers (RLL). These rains continued SE into Mariposa Co (OS). Summer was mostly cool with just three brief hot spells in the Central Valley (AMS). Unusually long, cool foggy periods along the coast, with 92° F on 8 June the hottest for all of 1990 in San Francisco (RLL). Rarely exceeded 100° F in Fresno (OS). Humboldt County was both warmer and drier this season (SN). By August, many species in reduced numbers, and even at the higher elevations most shut down due to drought (AMS). By Sept the drought was critical, creeks dried up entirely, and Interior Live Oaks were dying in the Central Valley from lower water tables (AMS). Autumn was dry, but cold. Light rains and snow fell several times in far northern CA, but not at Donner Summit until 31 Oct (AMS). Half inch of rain at Jerseydale in late Nov, with warm weather continuing until mid-Dec (OS). First decent rains came in mid-Dec, but little snow in the Sierra (AMS), with only 14" of snow at Jerseydale, 14-20 Dec (OS). This was followed by the great "pre-Christmas freeze" -- dry and extended very cold with broken pipes and serious losses to agriculture -- citrus, avocados, artichokes, etc, plus nurseries and the cut flower industry (RLL). In Jerseydale, Mariposa Co, 19-31 Dec was a steady succession of nights in the teens/low 20s. On 21 Dec it got down to 6° F, cold enough to crack plastic water pipes and freeze the water tank solid! (OS).

MIGRATORY SPECIES: Pontia protodice - Best since 1977, common in many Central Valley sites in March and thence to Nov (AMS); Migrated into Bay Area by early summer -- Mt Diablo (RLL, PMT), Antioch Dunes (KO, J. Steiner), Contra Costa Co, 15 June, XERCES Count Day; Newark, Alameda Co, and Alviso, Santa Clara Co, 1 July, XERCES Count Day (J. Caldwell, RLL, J. Steiner, others); Many flying thru San Bruno Mtns, 11-18 July, none before or after (RLL); Abundant, Marina Dunes & Salinas River Nat Wildlife Refuge, 17 July (V. Harris, RLL). Libytheana bachmanii larvata, 1 ♂, fair condition, Jerseydale, 3500', MARIPOSA Co, 13 Oct (OS). Nymphalis californica - An unusual FRESH ♀ under loose bark, Jct Hwy 178 & Kern Cyn Rd, Kern Co, 5 Feb (RPM); First hibernants 22 to 28 Feb, Jerseydale, Mariposa Co, not migrating (OS); 23 Feb to 23 March, San Bruno Mtns, San Mateo Co (RLL); Rancho Cordova, Sacramento Co, 24 Feb, and West Sacramento, Yolo Co, 11 March (AMS); Very light migration going SE, 18-19 March, Jerseydale (OS); Walker Basin, Kern Co, 20 March, some migrating S, others W (OS); One in Bonanza King Mine Cyn, San Bernardino Co, 25 March (KD); Poor numbers all year, no outbreaks or major migrations seen (AMS); Jerseydale, several fresh at mud, 4 June, and occasional in mid-Oct (OS); North Trinity Mtn at 4500', Humboldt Co, 1, 12 Aug (SN); San Bruno Mtns, San Mateo Co, several on 3 Oct, but none seen Nov-Dec (RLL). One Aglais milberti, North Sacramento, Sacramento Co, 21 Jan!, EARLY (AMS) -- few milberti records for lowland, Central Valleys of CA for any time of year; Several at Crooked Creek, White Mtns, Mono Co, 12 July (JBV). Vanessa cardui - One in West Sacramento, 28 Jan, EARLY, then not seen until 20 March, in Davis, both Yolo Co (AMS); Occasional adults migrating SE, Walker Basin, Kern Co, 20 March (OS); Worn adults did not appear in the San Bruno Mtns until 3 April, small numbers to 21 May (RLL); Fresh next brood in SBM by 2 July, no buildup, singles thru summer/autumn (RLL); Fresh at Crawford Creek, 2 mi N of Cecilville, Siskiyou Co, 3 July (MAR, JBV); Still flying at Woodfords, 5630', Alpine Co, 28 Oct (AMS); Flights at Suisun City, Solano Co & West Sacramento Co to early Dec (AMS); and, last seen San Bruno Mtns, 17 Dec (RLL). Danaus plexippus - Actively flying, Richmond, Contra Costa Co, 9 Jan, EARLY (RLL); Arrived early, 26 Feb, Gates Cyn, Solano Co, and strong, very abundant all season (AMS); Spring flybacks, San Bruno Mtns, San Mateo Co, 20 March to 13 April (RLL); Five very worn, Mt Diablo, Contra Costa Co, 10 April and one fresh 15 June, XERCES Count Day (RLL, PMT); One seen, Crawford Creek, 2 mi N of Cecilville, Siskiyou Co, 3 July (MAR, JBV); Five along Chews Ridge, Monterey Co, 7 July (RLL, D. Parkinson, PMT); One very worn, Hwy 395, near Willow Ranch Rd, Modoc Co, 2 Aug (RLL); One flying thru Carson Pass, 8573', Alpine Co, 28 Oct!, LATE for high elevation (AMS); Fewer than usual autumn numbers observed in Bay Area, with only two observed actively flying among the pines at Pacific Grove, Monterey Co, 13 Dec (V. Harris, RLL).

BUTTERFLIES: One Eparcyreus clarus californicus, 2 mi N of Cecilville, Siskiyou Co, 3 July (MAR, JBV). Thorybes pylades ova on Robinia pseudoacacia, Idyllwild, San Jacinto Mtns, Riverside Co, 17 June (JFE). Several Erynnis pacuvius pernigra, China Grade Rd, Santa Cruz Co, 24 June (KO, CAS). E. persius, Sugar Pine, MADERA Co, 4 Aug (KD) and North Sacramento, 9 July -- first on the floor of Sacramento Valley since mid-70s (AMS). Pyrrhus communis, Rancho Cordova, Sacramento Co, 15 Jan, EARLY (AMS). Heliopetes ericetorum, Mitchell Cyn, Mt Diablo, Contra Costa Co, 15 June, XERCES Count Day (RLL, PMT). Hesperia comma oregonia, fresh, 2 mi N of Cecilville, 3 July (MAR, JBV) and 2 mi S of Deadhorse Summit & Military Pass Rd, 10 mi N of Weed, 2 Aug (JBV), all Siskiyou Co. H. columbia, Sherman Pass Rd at 4500', 21 May (KD) -- new for Sherman Pass and 2nd Tulare Co record -- 1st from Fairview, 27 April 1964 by RLL. H. lindseyi common on serpentine, S Yuba River Cyn near Washington, NEVADA Co, 3 June (AMS). Ochlodes yuma abundant, Jackson Slough Rd at Sevenmile Slough, Sacramento Co, 24 and 29 Aug (JBV). Parnassius clodius sol, Fish Camp, Mariposa Co, 16 June (KD); Deadfall Meadow & Crawford Creek N of Cecilville, both Siskiyou Co, 3 July (MAR, JBV); and Stony Creek Campground (just outside of Sequoia Nat Park), Tulare Co, 6 July (RHL). Battus philenor hirsuta, Putah Creek near Davis, Yolo Co, 8 Jan, EARLY (AMS); & an unusual late emergence, San Bruno Mtns, San Mateo Co, 10 Oct, LATE (RLL) -- Only a single spring brood here in previous 9 years of surveys. One ♀ Papilio polyxenes coloro, Lake Hemet, 4330', San Jacinto Mtns, Riverside Co, 27 Oct -- unusual in mtns; the nearest Thamnosa is 12 mi E at Pinyon Flat (JFE). Pterourus eurymedon ova on cultivated Prunus virginiana in yard, Hemet, Riverside Co, 30 May (JFE). Pontia sisymbrii, W shore of Snow Camp Lake, 4500', 7 June 1989 and E side of North Trinity Mtn, 6100', 24 June 1990, both HUMBOLDT Co (SN). Pieris rapae, West Sacramento, Yolo Co, 4 Jan, EARLY -- no interruption of flight all winter (AMS). Paramidea lanceolata, Olancah Creek, 5200', Inyo Co, 7 May (JFE). Colias occidentalis chrysomelas, about 40 seen/coll, boggy area 1 mi below Letts Lake, Colusa Co, 1 June (JBV) and North Trinity Mtn, Humboldt Co, 1, 12 Aug (SN). C. alexandra edwardsii, Sierra Valley, 5000', Sierra Co, 1st brood seen in spring, 2nd brood 13 Aug, LATE (AMS); Masonic (ghost town E of Bridgeport), 9000', Mono Co, 13 July (JBV); Gazelle, SISKIYOU Co, 1st brood seen in spring, 2nd brood 15 August, LATE (AMS). C. alexandra harfordii common, Cumming Creek above Banducci Rd, Tehachapi Mtns, 21 & 27 April, EARLY for Kern Co (KD); and Lake Hemet, 4330',

Riverside Co, 27 Oct, LATE (JFE). Zerene eurymedice, Hemet, Riverside Co, 11 Feb, EARLY; and one ♀ apparent hybrid eurymedice/cesonia, Hemet, 25 Nov, LATE (JFE); American River Parkway, North Sacramento, 25 April, host plant present (AMS) -- 3 locales for the Sacramento Valley in the 1989 SS (RLL). Phoebis sennae marcellina larvae on Cassia odorata, NEW HOST, Indio, Riverside Co, 6 Oct (JFE). Eurema mexicana, first Hemet record on 12 Nov (JFE) -- this species usually further E and SE on the deserts. Tharsalea arota, Big Hill Rd, 6 miles E of Hoopa, HUMBOLDT Co, 1 Aug (SN). Chalceria heteronea (with blue ♀♀, to be named by JFE), North Trinity Mtn, 5800'-6300', 15 mi E of Hoopa, HUMBOLDT Co, 1, 12 Aug (SN). Series of 15 Habrodais grunus lorquini, Little Falls Creek, Lopez Cyn, SAN LUIS OBISPO Co, 11 July (KD) -- subspecies NEW for COUNTY, as earlier known only from sight records at Lopez Cyn, and believed to be nominate grunus (KD). Nominate Satyrium sylvinum (♀ with tails), Tassajara Rd 3 mi S of Jamesburg, Monterey Co, 7 July (RLL) -- most populations in Monterey Co and the Bay Area are subspecies dryope. S. auretteorum, Deer Island, Novato, MARIN Co, 4 June (JBV) and 2 mi N of Cecilville, Siskiyou Co, 3 July (MAR, JBV). Mitoura spinetorum, O'Connors Flat, 6 air mi N of Fort Bidwell, MODOC Co, 22 June (LC) and Eliot Corner, Mariposa Co, 1 June (YH, PMT). M. "siva" (Juniper-feeding, brown) swarming by the thousands, between Sierraville & Loyalton, Sierra Co, 21 June, very LATE (AMS). Mixed-up broods of Incisalia mossii doudoroffi (fresh adults, last-instar larvae and ova on Dudleya cymosa), Big Creek Reserve, 6 June, XERCES Count Day (PMT, others). I. mossii windi, 10 mi W of Weed at 7000', SISKIYOU Co, 17 June 1985 (JBV). Brephidium exile, 4 mi E of Cedarville, 29 July (LC) -- confirms 55 year old record for Modoc Co by W. Hovanitz, 1935; Abundant SE of Cow Palace (Main St, Brisbane), San Mateo Co, 26 Oct (RLL); Shoreline, Candlestick Park, SAN FRANCISCO City and COUNTY, 2 Nov (RLL). One ♂ Leptotes marina, Del Puerto Cyn, STANISLAUS Co, 21 June 1966 (J. W. Tilden) -- specimen at Calif Acad Sci, fide RLL. Two ♂♂ Everes comyntas (genitalia in vial), Mark West Springs, Sonoma Co, 8 April 1961 (J. W. Tilden) -- confirms questionable Sonoma Co record, specimens at Calif Acad Sci, fide RLL. E. comyntas, Suisun Marsh, Solano Co, 5 Dec, LATE (AMS). Several E. amvntula, boggy area 1 mi below Letts Lake, COLUSA Co, 1 June (JBV). False brood of Celastrina argiolus echo, Gates Cyn, 950', Solano Co, 9 Nov, LATE (AMS). Euphilotes enoptes langstoni, Olancha Creek, 5200', INYO Co, 7 May (JFE) -- Type Loc, 6 mi S of Sherwin Summit, Mono Co. Lycaeides idas anna, Stony Creek Campground (just outside Sequoia Nat Park), Tulare Co, 6 July (RHL); and fair numbers, Crooked Creek, White Mtns, Mono Co, 12 July (JBV) -- almost into Inyo Co where not yet recorded (RLL). L. idas ricei, North Trinity Mtn, Humboldt Co, 1, 12 Aug (SN). L. melissa, Cedar Pass, 6305', Warner Mtns, Modoc Co, 2 Aug (RLL); and Woodfords, Alpine Co, 28 Oct, LATE for 5000' (AMS). Apodemia mormo, Veeder Trail, Garland Regional Park, Monterey Co, 25 July (V. Harris, RLL); and Loveness Rd, 2 mi W of Hwy 139, MODOC Co, 5 Sept (LC). Agraulis vanillae incarnata, west side of San Jose, 25 March, EARLY, until 20 Oct (PMT); Berkeley, Alameda Co, 23 June, XERCES Count Day (F. Hsu, RLL); 2 worn, Kensington, Contra Costa Co, 9 Dec, LATE (RLL). Speyeria cybele pugetensis, western side of North Trinity Mtn at 4500', Humboldt Co, 1, 12 Aug, EAST range extension (SN) -- further east is subsp leto territory. S. coronis, China Grade Rd, Santa Cruz Co, 24 June (KO, CAS); and common on Chews Ridge, Monterey Co, 7 July (RLL, D. Parkinson, PMT). S. callippe subsp common, 2-4 mi S of Johnsondale and along Sherman Pass Rd to 4500', Tulare Co, 21 May (KD) -- all specimens completely silvered and do NOT represent a macaria/inornata blend zone, contrary to what has been published (KD). S. hydaspe, Sugar Pine, MADERA Co, 4 Aug (KD). Thessalia leanira, Devil's Creek drainage, 2540', Monterey Co, 6 June, XERCES Count Day (PMT, others); Mitchell Cyn, Mt Diablo, Contra Costa Co, 15 June, XERCES Count Day (RLL, PMT); and very worn by 2 July, Hat Creek, Shasta Co (MAR, JBV). T. leanira alma, Olancha Creek, 5200', Inyo Co, 7 May (JFE). Charidryas damoetas malcolmi, Sonora Pass, Mono Co, 16 Aug (RS, PMT). C. hoffmanni, North Trinity Mtn, 6000', 15 mi E of Hoopa, 1 Aug (SN) -- 2nd Humboldt Co record, 1st by Ken Hansen, 1984. Phyciodes pratensis montanus, synchronous with P. orseis herlani, Devil's Gate, Mono Co, 16 Aug (RS, PMT). A single ♂ P. C. orseis, Deadfall Meadow, Siskiyou Co, 3 July (MAR, JBV). A single ♂ Euphydryas chalcedona, San Bruno Mtns, San Mateo Co, 23 Feb, very EARLY, while many post-diapause larvae still on Scrophularia californica (RLL). E. chalcedona (small, dark unnamed taxon), Cedar Pass, 6305', Warner Mtns, Modoc Co, 9 July (BAO) and Blue Lakes Rd, South Warner Mtns, Lassen Co, 9 July (BAO). E. editha rubicunda, Stony Creek Campgd, Tulare Co, 6 July (RHL). A good flight of E. editha (unnamed), Bowen Ranch Rd, Ord Mtns, San Bernardino Co, 14 April (BAO). Polygonia faunus rusticus COMMON, Stony Creek, Tulare Co, 11-12 June -- previously known from only two specimens from this county (KD). Junonia coenia, San Bruno Mtns, 2 Jan, EARLY (RLL) and North Sacramento, 5 Jan, EARLY (AMS). Basilarchia weidemeyerii latifascia, Masonic (a ghost town E of Bridgeport), 9000', Mono Co, 13 July (JBV). Adelpha bredowii californica, I and II instar larvae on Quercus kelloggii, Idyllwild, Riverside Co, 7 July (JFE). Cercyonis sthenele silvestris, 2 mi S of Deadhorse Summit, Siskiyou Co, 2 Aug (JBV). C. sthenele paulus, Adin Pass, 5173', Modoc Co, 1 August (RLL). Oeneis nevadensis, 4 mi SW of Old Station, Shasta Co, 2 July (MAR, JBV); 2 miles N of Cecilville, Siskiyou Co, 3 July (MAR, JBV); and Blue Lakes Rd, South Warner Mtns, 15-19 mi SE of Likely, Lassen Co, 9 July (BAO).

MOTHS: SPHINGIDAE -- One fresh Arctonotus lucidus, Jerseydale, 3500', MARIPOSA Co, 31 Jan (OS). **SATURNIIDAE** -- Saturnia albafasciata, Alder Spring Rd, 1.1 mi E of Camp Ellendale, GLENN Co, 26 Oct (REW); and Toomes Camp Rd, 2880', 11.1 mi W of Paskenta, TEHAMA Co. & NORTH, 27 Oct (REW); and 11.2 mi NW of Middletown, 1640', Lake Co, 1st time in Type Loc county since types collected (REW). Antheraea polyphemus, Jerseydale, Mariposa Co, 29 July, LATE, rare 2nd brood (OS). Many Coloradia pandora, Mammoth Lakes, 8000', Mono Co, 1 Aug (RHL). **CTENUCHIIDAE** -- Ctenucha multifaria, Cañada Cyn, 21 June, 10 July & upper Robinson Cyn Rd, 21 June, both Monterey Co, NORTH & INLAND (RLL). **ARCTIIDAE** -- Arachnis "citra" (yellowish HW one which is NOT a subsp of picta), along Rock Creek, Tom's Place, 7100', Mono Co, 10 Aug (RHL). Cisthene faustinula, Carmel Valley, Monterey Co, 25 July (RHL). **NOCTUIDAE** -- Euxoa bostoniensis, Pseudobryomima muscosa & Coplabepharon contrastum, Tom's Place, 7100', 10 Aug (RHL). C. absidum & C. hopfingeri, Mammoth Lakes, 8000', Mono Co, 1 Aug (RHL). Orthosia hibisci & Pleroma cinerea, Carmel Valley, Monterey Co, 13 Dec, EARLY for 1991 season (RLL). Oncocnemis corusca, Aguanga, Riverside Co, 10 March, 21 April (RHL). Sepsis castanea, San Bruno Mtns, San Mateo Co, 2 May, 2nd season in 10 years of surveys (RLL). Schinia vacciniae & Catocala verrilliana, Mt Shasta City, "Kampground of America", 3500', 7 Aug (RHL). C. hermia and Synedroida hudsonica, Walker on Walker River, 6500', Mono Co, 9 Aug (RHL). S. nichollae ? (very dark like ones from B.C., not like subsp garthi from Yosemite) and Bomolocha sp (not like Eastern ones or the Calif B. vega), Feather River at Belden, 2400', Plumas Co, 8 Aug (RHL). **GEOMETRIDAE** -- Three of the rare Cheiloscelis graefiaria, along Rock Creek, Tom's Place, 7100', Mono Co, 10 Aug (RHL). Eupithecia macrocarpa, Carmel, Monterey Co, 6-7 April (RHL). Hydriomena nubilofasciata, San Bruno Mtns, San Mateo Co, 5 Jan, EARLY after dry Dec 1989 (RLL). Pterotaeta powelli, P. obscura and Hesperumia fumosaria impensa, Mt Shasta City, "KOA", 5300', 7 Aug (RHL). H. latipennis & Hulstina xera, below Cedar Pass at 5900', Warner Mtns, Modoc Co, 2 Aug (RHL). **PYRALIDAE** -- Loxostege brunneitincta, Stony Creek Campgd (just outside Sequoia Nat Park), Tulare Co, 6 July (RHL). Manhatta setonella quite common, Tom's Place, 7100', Mono Co, 10 Aug (RHL). **OLETHREUTIDAE** -- Phaneta misturana, South San Francisco, San Mateo Co, 16 April (RLL). **PLUTELLIDAE** -- Euceratia securella, San Bruno Mtns, San Mateo Co, 2 May (RLL). **INCURVARIIDAE** -- Grevy obscura, Kern Cyn at 2000', Kern Co, 29 March (RHL).

NEVADA: Contributors: GTA, PJD, DLE, BAO, RHL and WLS. Two STATE records included with thirteen COUNTY records for butterfly species. One STATE record combined with a COUNTY record for a sphingid moth.

The 1989-90 winter rainfall in central and northern NV was well below normal. From Beatty, Nye County north as far as Fallon, Churchill County, conditions were extremely dry in mid-March, with no annual plant growth visible (WLS). 1990 was the fourth consecutive year of drought in NV. Northern NV, especially had a very cool wpring, early June was

cool and cloudy. GTA collected in a snow shower N of Wells in Elko County on 12 June. In mid-July eastern NV was under the influence of tropical "monsoons" with several days of heavy rainfall. Southern NV also had similar conditions into August, which produced localized heavy rain. Nonetheless, collecting was rather favorable with good flights of most taxa (GTA). Vegetation in Elko County seemed greener than expected on 20-21 June (DLE).

MIGRANTS and STRAYS: The nominate Battus philenor had its best year of record in southern NV (Las Vegas, southward); Earliest recorded on 22 Aug, increased into early Sept, and last seen on 14 Sept (GTA); Average of one in yard per day thru most of this period at Henderson, Clark Co (PJD). One Heraclides crespontes on Lantana in backyard, Las Vegas, CLARK Co & STATE, 19 Aug 1989 (GTA). Phoebis sennae marcellina - Worn individuals in the Newberry Mtns, Clark Co, 22 Aug, then in the hundreds by 7 Sept, majority fresh (GTA); Very few by 14 Sept, and none seen on 25 Sept (GTA); Common north to Henderson (PJD); A few as far north as Kyle Cyn to 8500', Spring Mtns, Clark Co (GTA). A single P. philea at Sacatone Wash, Newberry Mtns, CLARK Co & STATE, 22 Aug (GTA, PJD). The largest flight of record for Eurema nicippe in NV, similar pattern to marcellina (above), but at least ten times as many (GTA). Very small flight of Libytheana bachmanii larvata, seen only in the Newberry Mtns, 22 Aug, 25 Sept (GTA). Only one Euptoieta claudia, Kyle Cyn, Spring Mtns, Clark Co, 30 Aug (GTA). Vanessa cardui was generally rare throughout NV, a slight northward movement was noted from 27 April through 4 May over most of the state (GTA). Danaus plexippus generally uncommon in NV in the spring and summer, a relatively small movement observed in Clark Co from mid-Sept thru early Oct (GTA).

BUTTERFLIES: Pyrgus scriptura, US 6 at Esmeralda County line, MINERAL Co, 21 Aug 1989 (GTA). Pholisora catullus, Newberry Mtns, NV 163, 9.8 mi E of US 95, CLARK Co, 22 Aug (GTA, PJD). Hesperia uncus subsp, 2 mi N of Buffalo Pass & Papilio indra nevadensis, vicinity of Buffalo Pass, Desatoya Mtns, both NEW for CHURCHILL Co, 16 May (GTA). P. polyxenes coloro, Indian Springs Valley, 3500', 8 mi W of Indian Springs, Clark Co, 21 March (WLS). Pieris napi mcdunnoughi unusually small, Owyhee Cyn, 5900' off NV 225, Wild Horse Range, Elko Co, 21 June (DLE) [GTA prefers to recognize pallidissima as distinct from Rock Mountain mcdunnoughi]. Anthocharis cethura "near pima" [intermediate, with some white -- the Mojave Desert populations are not like southern AZ pima], North Muddy Mtns, 1800', 2.1 mi W of Glendale, Clark Co, 19-20 March (WLS); Indian Springs Valley at 3500', Clark Co, 21 March (WLS); Amargosa Desert, 2700', 1 mi W of Jct Hwys 95 & 160, Nye Co, 21 March with Euchloe hyantis lotta (WLS). Colias philodice eriphyle, NV 229 near milepost 33, North Ruby Valley and 3 miles NW of Secret Pass, 6000', Elko Co, 20 June (DLE). A single Eurema mexicana in the Newberry Mtns, Clark Co, 14 Sept -- very rare in NV (GTA). Gaeides editha obscuramaculata (=nevadensis), Maggie Creek, 7.6 mi N of Newmont Mine Rd, EUREKA Co, 13 July (GTA). Satyrium californicum, I-80 at Emigrant, Eureka Co, 8 June, EARLY -- previous earliest 15 June (GTA). S. saepium, SE slope of McClellan Peak, LYON Co, 31 July (GTA). Callophrys affinis, Highland Peak, Highland Range, Lincoln Co, 17 June, SOUTH for NV (GTA). Brephidium exile rare in NV in 1990 away from Clark County -- in some years it swarms N to the northern border (GTA). Everes myntula & Icaricia icarioides ardea, 3 mi NW of Secret Pass, 6000', Elko Co, 20 June (DLE). Icaricia lupini common and a fresh ♀ I. shasta, Kings Cyn Rd, 3.6 mi SW of end of pavement from Carson City, 6 July -- very LOW elevation, shasta usually above treeline (BAO). Plebejus saepiolus, Winz Creek, 5.8 miles S of Atlanta, LINCOLN Co, 18 June (GTA). Calephelis nemesis, Meadow Valley Wash at Carp, LINCOLN Co, 12 Sept (GTA). Thessalia leanira, 1.8 mi E of Pinto Summit on US 50, Diamond Mtns, EUREKA Co, 17 May (GTA). Phyciodes orseis herlani, Kings Cyn Rd, 3.6 mi SW of end of pavement from Carson City, 6 July, LOW elevation (BAO). Euphydryas editha lehmani, Highland Peak, Lincoln Co, 17 June, SOUTH for NV (GTA). Polygona satyrus, 3.3 mi W of Carrol Summit, Desatoya Mtns, CHURCHILL Co, 16 May (GTA). Neominois ridingsii stretchii, 2.1 mi N of Atlanta, LINCOLN Co, 18 June (GTA).

MOTHS: SPHINGIDAE -- Sphinx libocedrus, Lee Cyn at 5000', Spring Mtns, CLARK Co and STATE, 24 May (RHL) -- definitely not asella, which is already known from this area (RHL). NOCTUIDAE -- Oncocnemis deserticola & O. aqualis, Lee Cyn at 5000', 24 May (RHL, Stephanie McKown).



ZONE 4 ROCKY MOUNTAINS: ALBERTA, MONTANA, WYOMING, UTAH, COLORADO and NEW MEXICO. Coordinator: Ray E. Stanford (RES), assisted by Katharine A. Stanford. Contributors: Charlotte Albright (CA), Valeriu Albu (VA), George T. and Ana Austin (GTA), Karólis Bagdonas and his "flying circus" (BFC), Larry D. Beutler and his family (LDB), Donald E. Bowman (DEB), John H. Brandt (JHB), James P. Brock (JPB), F. Martin Brown (FMB), Steven J. Cary (SJC), Terhune S. Dickel (TSD), Scott L. Ellis (SLE), Clifford D. Ferris (CDF), Michael S. Fisher (MSF), Clyde F. Gillette (CFG), Charles E. Harp (CEH), Joel M. Johnson (JMJ), Hugh E. Kingery (HEK), Steven J. Kohler (SJK), David Leatherman (DL), Ronald H. Leuschner (RHL), Marilyn Lutz and Gillian Bowser (ML), Michael L. McInnis (MLM), Richard P. Meyer (RPM), Robert C. Mower (RCM), Paul A. Opler (PAO), William D. Patterson (WDP), Floyd & June Preston (F&JP), Patrick J. Savage (PJS), James A. Scott (JAS), Michael J. Smith (MJS), Andrew D. Warren (ADW), Ernest H. Williams (EHW). Total 34, the highest since 36 in 1985. Ronald A. Royer didn't send a Zone 4 report this year, but I forgot to list his associates for 1989 as David Cook, Larry Cook, Royce Kovar and Leon Nesja. There were 3 state records and 168 county records for butterflies; totals for the 5 years 1986-1990 were 24 state and 1595 county records. Numbers for moth records are less clear. The several-year drought continued in the spring and early summer, but most parts of the Zone received abundant "monsoon" rain in August. The year for all records is 1990 except as indicated. Capitalized county names represent new county records for my files, but some additional moth data are probably new also. CDF and ADW submitted data from 4 states each, while CA, RHL, PAO and RES provided data from 3 states each. Thanks as always to all contributors and their helpers. A few non-obvious abbreviations: Cg = Campground; Cn = Canyon; Crk = Creek; Lk = Lake; LACM = Natural History Museum of Los Angeles County; NF = National Forest; NM = National Monument; NP = National Park; Rch = Ranch; SWA = State Wildlife Area.

ALBERTA. Contributor: VA. Welcome to a new contributor! We wonder whether the "old guard" took the year off? Moth data from southern AB are especially welcome.

BUTTERFLIES: Five of 39 species submitted are reported here, most new from the Banff region, and possible range extensions are indicated. Oarisma garita, Banff, 8 Jul. Euptoieta claudia, Minnewanka Lk, nr Banff, 11 Jul. Speyeria aphrodite, Minnewanka Lk, nr Banff, WEST, 14 Jul. Polygona progne, Minnewanka Lk, nr Banff, WEST, 11 Jul. Oeneis macounii, Johnston Crk, nr Banff, WEST, 13 Jul.

MOTHS: All 36 data received are reported here, by family as submitted. Sesiidae - Synanthedon novoarvensis, Banff, 10 Jul. Thyatridae - Habrosyne gloriosa, Banff, 14 Jul. Geometridae - Dysstroma truncata, Banff, 14 Jul. Ecliptopera silaceata, Banff, 12 Jul. Lobocleta quaesitata, Minnewanka Lk, nr Banff, 14 Jul. Metanema inatomaria, Banff, 14 Jul. Rheumaptera hastata and R. subhastata, Johnston Crk, nr Banff, 13 Jul. Scopula sentinaria, Minnewanka Lk, near Banff, 14 July. Semiothisa ocellinata, Banff, 14 July. Sparqania luctuata, Banff, 14 July. Trichodezia albovittata, Lake Louise, 12 Jul. Noctuidae - Agrotis mollis, Banff, 14 Jul. Anartomima secedens, Banff, 12 Jul. Autographa mappa, Banff, 12 Jul. Hyppa xylinoides, Banff, 14 Jul. Lacanobia liquida, Minnewanka Lk, nr Banff, 11 Jul. L. tacoma, Banff, 12 Jul. Melanchra adjuncta and M. pulverulenta, Banff, 12 Jul. Papestra cristifera, Banff, 12 Jul. Paradiarsia littoralis, Banff, 12 Jul. Synedoida adumbrata and S. petricola, Johnston Crk, nr Banff, 13 Jul. Syngrapha

igneae, Banff, 12 Jul. Xestia oblata, Banff, 12 July. Lymantriidae - Leucoma salicis, Banff, 12 Jul. Arctiidae - Apantesis ornata, Johnston Crk, nr Banff, 13 Jul. Parasemia plantaginis, Minnewanka Lk, nr Banff, 11 Jul. Platarctia parthenos, Banff, 12 Jul. Notodontidae - Clostera albosigma, Banff, 12 July. Furcula scolopendrina, Banff, 12 Jul. Pheosia rimosa, Banff, 12 Jul. Lasiocampidae - Malacosoma disstria, Banff, 12 Jul. Phyllodesma americana, Lake Louise, 12 Jul. Sphingidae - Hyles gallii, Banff, 12 Jul.

MONTANA. Contributors: CA, SJK. There were no comments on collecting conditions.

BUTTERFLIES. 47 records were received, including 21 county records (18 species). MT now has 73.88 avg species per county, and should reach 100 by the year 2000. Carbon County has the most species with 137, while McCone and Richland counties lag with 31 species each; 9 counties still have fewer than 40 known species. The state has 184 known species. Seven species are known from all counties, and 3 from all but 1. Pyrgus centaureae, Lima Peaks, BEAVERHEAD Co, 18 July (SJK). Carterocephalus palaemon, 4 miles S of Rimini, 7000', LEWIS & CLARK Co, 8 July (Bea Vogel/SJK). Parnassius clodius, Taft Rch, 1 mi E of Lakeview, BEAVERHEAD Co, 14 July (Bea Vogel/SJK). Colias pelidne, White Gulch, 6000', 24 mi NNE of Townsend, BROADWATER Co, 12 Aug (Bea Vogel/SJK). Lycaena mariposa, White Gulch, 6000', 24 mi NNE of Townsend, BROADWATER Co, 12 August (Bea Vogel/SJK). Callophrys affinis, Black Pine Rd, GRANITE Co, 26 June (SJK). Everes amyntula, Austin, LEWIS & CLARK Co, 17 Jun (Bea Vogel/SJK). Euphilotes enoptes, Skelly Gulch, 5000', 10 mi WNW of Helena, LEWIS & CLARK Co, 17 Jun (Bea Vogel/SJK). Glaucopsyche piasus, 9 mi SW of White Sulphur Spgs, 5200', MEAGHER Co, 24 Jun (Bea Vogel/SJK). Speyeria callippe calgariana, 2 mi E of Gilford, HILL Co, 20 Jun (SJK). Boloria kriemhild, Taft Rch, 1 mi E of Lakeview, BEAVERHEAD Co, WEST, 14 Jul (Bea Vogel/SJK). Euphydryas editha, Georgetown Lk, DEER LODGE Co, 26 Jun (SJK). Chlosyne palla, Taft Ranch, 1 mi E of Lakeview, BEAVERHEAD Co, 14 Jul (Bea Vogel/SJK). Phyciodes pallidus, 1 mi W of Priest Pass, POWELL Co, 5 Jul (SJK). Coenonympha inorata benjamini, 9 mi SW of White Sulphur Spgs, MEAGHER Co, 24 Jun (Bea Vogel/SJK); C. ochracea is already known from the county. C. haydenii, Taft Rch, 1 mi E of Lakeview, BEAVERHEAD Co, 14 July (Bea Vogel/SJK); Morrell Crk Rd, 1 mi E of Seeley Lk, MISSOULA Co, NW, 11 July (SJK); the total range of this species, with nearest relative in Asia, is surely nearly completely known. Neominois ridingsii, 2 mi E of Gilford, HILL Co, 20 Jun; 10 mi N of Chester, LIBERTY Co, 20 Jul; 3 mi S of Galata, TOOLE Co, NW, 20 Jun (all SJK). Oeneis chryxus, Randolph Crk, MINERAL Co, 9 Jul (SJK).

MOTHS: No data received.

WYOMING. Contributors: CA, BFC, CDF, JMJ, ML, RPM, PAO, RES, ADW, EHW. The solitary moth record came from JMJ. The several-year drought continued through June, but July and August were cool and wet (CDF).

BUTTERFLIES: 167 records were received, including 33 county records (25 species). WY now has 88.54 avg species per county, and needs 276 additional county records to reach 100 avg spp/Co. Albany Co leads the parade with 141 spp, and Hot Springs and Sweetwater counties are tied in last place with 45 species each. The state has 203 known species. Four species are known from all counties, and 7 from all but 1. Erynnis persius/afraanius, female, Palmer Cn Rd, 16.5 miles W of Wheatland, PLATTE Co, 28 May (PAO). E. afraanius, YELLOWSTONE NP, 1987 (ML, det BFC). Pholisora catullus, Blacktail Trail, 0.5 mi from Lower Blacktail Cabin, YELLOWSTONE NP, 17 Jun (ML). Hesperia juba, one fresh male taken, Palmer Cn Rd, 16.5 mi W of Wheatland, PLATTE Co, 28 May (RES). Atrytonopsis hianna, Palmer Cn Rd, 14.5 - 16.5 mi W of Wheatland, Platte Co, 28 May (RES). Megathymus streckeri nr texanus, just north of Newcastle, Weston Co, confirmatory STATE record, 18 June 1988 (RPM). Papilio polyxenes asterius, now becoming established in western WY with 3 new county records and a confirmation - Thermopolis, HOT SPRINGS Co, 3 larvae on dill, 7 Aug 1989; adult taken, Pinedale, SUBLETTE Co, 27 July 1989, and 11 larvae on dill and parsley, Pinedale and Big Piney, August 1989; 4 adults taken plus 14 larvae seen, Jackson, Moose and Kelley, TETON Co, Jul-Aug 1989 (all BFC); Yellowstone NP, Aug 1989 (ML fide BFC). E. indra, several records including Union Pass Rd, SUBLETTE Co, 21 June 1989; Lake Jct nr Yellowstone Lk, YELLOWSTONE NP, 12 June 1989 (both BFC). P. rutulus, Palmer Cn Rd, 14.5--16.5 miles W of Wheatland, PLATTE Co, 28 May (RES); Madison Jct and Norris Jct, YELLOWSTONE NP, 5 Jul 1989 (BFC). P. multicaudatus, Palmer Cn Rd, 14.5--17.5 mi W of Wheatland, PLATTE Co, 28 May (PAO, RES). P. eurymedon, 4 records including north slope above headwaters of N Fk of Wind Rvr, PARK Co, 23 Jun 1989; Madison Jct, YELLOWSTONE NP, 19 Jun 1989 (both BFC). Pieris rapae, Mammoth Hot Spgs, YELLOWSTONE NP, 26 Aug 1935 (YNP coll'n, fide ML). Pontia occidentalis, Palmer Cn Rd, 14.5 mi W of Wheatland, PLATTE Co, 28 May (PAO). Euchloe ausonides, Palmer Cn Rd, 16.5 mi W of Wheatland, PLATTE Co, 28 May (RES). Colias alexandra, common, with many albinic females seen, Happy Jack Recr Area, Medicine Bow NP, Albany Co, 11-13 Jul (CDF). Eurema mexicana, 1 worn female, E Fk Field Station, FREMONT Co, 29 July 1989 (BFC). Satyrium sylvinum, Mammoth Hot Spgs, YELLOWSTONE NP, 9 August 1969 (YNP coll'n, fide ML). Callophrys sheridanii, Howard Eaton Trail, YELLOWSTONE NP, 15 May 1988 (ML). Incisalia eryphon, in association with Lodgepole Pine, Slough Crk Trail, YELLOWSTONE NP, 4 June 1989 (ML). Everes amyntula, a single worn female, Palmer Cn Road, 14.5 mi W of Wheatland, PLATTE Co, 28 May (PAO). Glaucopsyche lygdamus, one fresh male taken, Palmer Cn Rd, 16.5 mi W of Wheatland, PLATTE Co, 28 May (RES). Plebejus saepiolus, one fresh male taken, Palmer Cn Rd, 16.5 mi W of Wheatland, Platte Co, 28 May, EARLY (PAO). P. acmon, Palmer Cn Rd, 14.5-16.5 mi W of Wheatland, PLATTE Co, 28 May (PAO, RES). Speyeria aphrodite, Beartooth Butte, PARK Co, 3 August 1990 and two earlier years (EHW); Dunraven Pass, YELLOWSTONE NP, 25 July 1935 (C.C. Albright, in YNP coll'n, det CDF, fide ML). Euphydryas anicia, Palmer Cn Rd, 14.5-17.5 miles W of Wheatland, PLATTE Co, 28 May (PAO, RES, det CDF). Nymphalis antiopa, Palmer Cn Rd, 16.5 miles W of Wheatland, PLATTE Co, 28 May (PAO, RES). N. milberti, one worn specimen, nr Van Tassell, NIOBRARA Co, 25 May; another worn specimen, Palmer Cn Rd, 14.5 mi W of Wheatland, PLATTE Co, 28 May (both RES). Vanessa annabella, Mammoth Hot Spgs, YELLOWSTONE NP, 26 Aug 1935 (YNP coll'n, fide ML); based on Shapiro's work we now accept this as a good species distinct from V. carye. Erebia magdalena, Avalanche Peak, YELLOWSTONE NP, 18 July 1985 (Gillian Bowser/ML). Oeneis chryxus, limited numbers for this biennial species, Snowy Range, Albany Co, 26-27 Jul (CDF). Danaus plexippus, Beartooth Butte, PARK Co, 18 Jul 1989 (and 1985) (EHW).

MOTHS: Hemileuca hera, 1 mi S of Fossil Butte NM, Lincoln Co, 8 Aug (JMJ).

UTAH. Contributors: CA, GTA, LDB, JPB, CDF, CFG, JMJ, RHL, MLM, RCM, WDP, PJS, MJS, RES, ADW. Moth coverage was excellent (7 contributors). Severe drought continued for the fifth consecutive year, with the numbers of individuals observed about 10% of normal (CDF, JMJ, PJS).

BUTTERFLIES: 78 records were received, including 28 county records (25 species). UT now has 97.52 avg species per county (my database), and therefore needs only 72 additional county records to reach 100 avg spp/Co. Washington Co is highest with 135 species, and Carbon Co is last with a very impressive 70 species. I do not doubt that every county will have 100 species within a few years, a statistic that only Nevada will ever match. The state of UT has 206 known species, including the 1990 STATE RECORD of Euphyes vestris. Seventeen species are known to me from all 29 counties, and another eleven from all but one. CFG told me that about 40 species are known (or soon will be) from all counties, not including skippers, so UT and NV may be about equally well known in some respects. Thorybes mexicana, N Fork Virgin Rvr, KANE Co, SOUTH, 16 June (PJS). Erynnis pacuvius, Bountiful Peak, DAVIS Co, 8 Jul 1989 and 21 Jun 1990; E side of Francis Peak, MORGAN Co, 21 June (all PJS). Heliopetes ericetorum, a worn female, det by LDB/Steve Sommerfeld, Settlement Cn, 3.4 mi SE of Hwy 36, TOOELE Co, 5800', 13 Aug 1989 (LDB). Pholisora catullus, 4.8 mi N of Monarch Jct,

6800', DUCHESNE Co, 2 August (RES). Hesperopsis libya, SE of Garrison, MILLARD Co, 27 August 1988 (GTA). Polites themistocles, Kolob Plateau, WASHINGTON Co, SW, 19 Jun (PJS). Ochlodes yuma, Slick Rock Cn, Lake Powell, San Juan Co, 14 June 1989, EARLY (ADW). Euphyes vestris (probably kiowah), Oak Creek, 0.5 mile behind Visitors Center, Zion NP, WASHINGTON Co, STATE, WEST, 19 September (LATE date, but I have a 1 Oct 1967 specimen from Co), single male taken (WDP). Papilio bairdii fm brucei, one male taken, hill 14.6 miles NNW of Neola, 8000', Duchesne Co, 2 August (RES). Pontia sisybrii, The Cockscomb, Kane Co, 25 Apr 1987, confirmatory record and apparently first adult taken in Kane Co (PJS). Euchloe hyantis, 3.6 miles E of UT Hwy 150; 3.3 miles N of Deadman Mtn, 8700' (?HIGH), SUMMIT Co, 24 June (?LATE) (LDB). Anthocharis sara thooosa, Wah Wah Mtns, BEAVER Co, 11 May (PJS); the tentative record in last year's Season Summary for A. s. browni from Washington Co is indeed thooosa (fide RHL). Colias alexandra, the KANE Co record by PJS in 1987 completed this species from all UT counties, confirmed to me by CFG in Sep 1990. Tharsalea arota, Ogden Cn, 7.4 mi E of Ogden, WEBER Co, 7 August (RES). Lycaena cuprea snowi, W side of Wigwag Lk, 10700' (?LOW), DUCHESNE Co, 10 July (LDB). L. hyllus, Otter Crk, PIUTE and SEVIER counties, 2nd and 3rd STATE records, 19 Jul (PJS). Satyrium titus immaculosus, Magpie Cg, 18.5 mi E of Ogden, Weber Co, 7 August (RES). Callophrys paradoxa, many locations in eastern WASHINGTON Co, late March - mid April, associated with Eriogonum corymbosum and E. thompsonii; but still no sympatry with C. comstocki although an occasional specimen may be intermediate (PJS). Mitoura siva, WEBER Co, earlier year (CFG); now known to me from all UT counties. Incisalia eryphon, Wah Wah Mtns, BEAVER Co, 11 May (PJS). Euphilotes battoides baueri, 15 mi NW of Lund, IRON Co, second STATE record, 20 May (PJS). Plebejus acmon, S Willow Cn, Stansbury Mtns, Tooele Co, 6 Jul 1981 (PJS); confirms old USNM record, det PAO. P. shasta, Wah Wah Mtns, BEAVER Co, 18 July (PJS). Euptoieta claudia, Mt Nebo Scenic Loop, UTAH Co, 15 Jul 1988 (GTA). Speyeria cybele letona, common, 6.0-18.5 mi E of Ogden, Weber Co, 7 Aug (RES). S. nokomis, BEAVER Co, 20 August (PJS); 1.0 mi E of Neola, 6000', Duchesne Co, 2 August (?EARLY) (Katharine A. Stanford/RES); SE of Garrison, MILLARD Co, 27 Aug 1988 (GTA). S. edwardsii, a single specimen, SUMMIT Co, 1990 (CFG). S. hydaspe, a single specimen, probably a stray, but only a few miles from an established population in an adjoining county, SALT LAKE Co, 1990 (CFG). Euphydryas editha, Wah Wah Mtns, BEAVER Co, 13 June (PJS). Thessalia leanira alma, GRAND Co, published by M.J. Smith and J.P. Brock, Bull Allyn Museum 118, 11 Aug 1988. Phyciodes mylitta, Magpie Cg, 18.5 mi E of Ogden, Weber Co, 7 Aug (RES). Nymphalis californica, Wah Wah Mtns, BEAVER Co, 18 Jul (PJS). Cercyonis pegala, 8.5 mi NW of Roosevelt, 5400', DUCHESNE Co, 2 Aug (RES); the old USNM record from WASHINGTON Co is probably mislabeled, fide CFG and PJS, so I am deleting this record. C. sthenele, 8.5 mi NW of Roosevelt, 5400', Duchesne Co, 2 Aug (RES). C. oeta, Ogden Cn, 3.8 mi E of Ogden, WEBER Co, 7 Aug (RES).

MOTHS: Records for 34 species were received, a total of 39 data points. All are presented here. County records indicated by contributors are shown in capital letters; many others may be new also. Acossus undosus, Rilda Cn, Emery Co, 28 June (JMJ). Automeris io, Natural Bridges NM, SAN JUAN Co, STATE, NORTH, mid-July, year not stated, USU coll'n (MJS, NEWS of Lepid Soc, Jan/Feb 1990, page 2). Bruceia pulverina, Parowan Cn at Vermillion Cg, IRON Co, 29 June (RCM). Comadia bertholdi, just outside Bryce Cn NP entrance, Garfield Co, 23 Jun (RHL). Cydia colorana, Red Rock Cn, 10 mi W of Bryce Cn NP entrance, Garfield Co, 24 June (RHL). Euproserpinus wiesti, Bullfrog Cg, Glen Cn Recr Area, KANE Co, STATE, WEST, 21 Apr 1983, USU coll'n (MJS, NEWS of Lepid Soc, Jan/Feb 1990, page 2). Glaucina spaldingata, just outside Bryce Cn NP entrance, Garfield Co, 23 Jun (RHL). Grammia nevadensis, rest stop N of Cove Fort turnoff, Hwy. I-15, BEAVER Co, 16 Sep; rest stop N of Paragonah, Hwy I-15, IRON Co, 16 Sep; Garden City, W of Bear Lk, Rich Co, 31 August; White Rvr, 2.5 mi S of Bonanza, Uintah Co, 24 August (all RCM). G. williamsii, Parowan Cn at Vermillion Cg, Iron Co, 29 June (RCM). Hemaris senta, NF Rd 029, W of Strawberry Resvr, WASATCH Co [see Utahensis 3(2), Spring 1983], 19 June (CDF). Hemileuca griffini, larvae common, N and NW of Bullfrog Marina, Garfield Co, 13 April (PJS). H. nuttallii, La Sal Mts, Grand Co, 26 Jul (CA). Homeosoma albescentellum, just outside Bryce Cn NP entrance, Garfield Co, 23 Jun (RHL). Horisme incana, Red Rock Cn, 10 mi W of Bryce Cn NP entrance, Garfield Co, 24 Jun (RHL). Hulstia undulatella, Green Rvr KOA Cg, Emery Co, 22 Jun (RHL). Hyalophora gloveri, 3 specimens, Rilda Cn, Emery Co, 28 Jun (JMJ). Hyles gallii, Summit Spgs Ranger Station, S of Manilla, DAGGETT Co, STATE, 7 August 1965, USU coll'n (MJS, NEWS of Lepid Soc, Jan/Feb 1990, page 2); Chepeta Lake, Uinta Mts, DUCHESNE Co, 6 July (RCM); 7 males and 6 females, all fresh, Forest Service Camp C, Strawberry Resvr, WASATCH Co, 22 Jun, EARLY (JMJ). H. lineata, Rilda Cn, EMERY Co [see Utahensis 3(2), Spring 1983], 22 Jun (JMJ). Hypoprepia inculta, Parowan Cn at Vermillion Cg, IRON Co, 29 Jun (RCM). Lasionycta subfuscula, Red Rock Cn, 10 mi W of Bryce Cn NP entrance, Garfield Co, 24 June (RHL). Lophocampa argentata, Parowan Cn at Vermillion Cg, Iron Co, 29 June (RCM). L. maculata, same data, IRON Co (RCM). Lycomorpha grotei, Maple Cn Cg, Sanpete Co, 23 Jul (RCM). Mammifrontia leucania, Green Rvr KOA Cg, Emery Co, 22 Jun (RHL). Mycterophora monticola, just outside Bryce Cn NP entrance, Garfield Co, 23 June (RHL). Pachysphinx modesta, Parowan Cn at Vermillion Cg, IRON Co (would not be new for P. occidentalis, considered a subspecies of modesta by some), 29 June (RCM). Paonias myops, same data, IRON Co (RCM). Petrophila kearfottalis, Green Rvr KOA Cg, Emery Co, 22 Jun (RHL). Pheosia rimosa, Rilda Cn, Emery Co, 28 Jun (JMJ). Smerinthus cerisvi, 5 taken, Rilda Cn, EMERY Co [see Utahensis 3(2), Spring 1983], 28 Jun (JMJ). Sphinx dollii and S. vashti, Rilda Cn, EMERY Co (same reference), 28 Jun (JMJ). Trichoclea uscripta, just outside Bryce Cn NP entrance, Garfield Co, 23 Jun (RHL). Vitula pinei, Red Rock Cn, 10 mi W of Bryce Cn NP entrance, Garfield Co, 24 Jun (RHL).

COLORADO. Contributors: LDB, DEB, JHB, JPB, FMB, TSD, SLE, CDF, MSF, HEK, DL, RHL, MLM, PAO, F/JP, JAS, MJS, RES, ADW. The total of 19 contributors is the highest since 22 in 1981. Seven contributors provided moth data. Drought continued on the west slope, but the highest mountains and east slope enjoyed normal precipitation, and most species had that almost impossible "average" season.

BUTTERFLIES: 196 total records were received, including 45 county records (35 spp). 114 data points for 72 spp are included in this Summary. CO now has 101.32 avg spp/Co, which I wish were closer to California's 101.78, but in the long run we will prevail. We have 3 counties with more than 180 spp, and only 1 (Cheyenne) with fewer than 40. The state has 254 species, a very stable number. Six species are known from all counties, and that may never reach 10 since the mountain and prairie faunas are almost totally different. Epargyreus clarus, gardens of Ordway Nursing Center, CROWLEY Co, 10 Jul (RES). Erynnis funeralis, Rock Crk, El Paso Co, 1 Oct 1989, LATE (ADW). Pyrrhus scriptura, 2 mi W of Limon, Elbert Co, 27 July (MLM); Hwy 94, 7 mi E of Hwy 24, El Paso Co, 15 July (MLM); Westridge Estates, Horsetooth Resvr Rd, Larimer Co, 19 May (ADW). Piruna pirus, Walsenburg, Huerfano Co, 18 Sep, LATE (RES). Hylephila phyleus, Las Animas, 3900', BENT Co, SE, 8 Sep, LATE (PAO, RES). Yvretta rhesus, Westridge Estates, Horsetooth Resvr Rd, Larimer Co, 19 May (ADW). Hesperia viridis, on Bee Plant, 1.5 miles N of Manzanola, CROWLEY Co, 1 Sep (RES). Hesperia leonardus pawnee, unusually common, Mt Zion, Jefferson Co, 16 Sep 1989 (ADW). Polites sabuleti, 6 males taken, Greenwood Village, ARAPAHOE Co, 19 May - 2 June 1989 (ADW); 2 males taken, Las Animas, 3900', LOW, BENT Co, E/SE, 8 September (PAO, RES); Battlement Mesa, 2 mi S of Parachute, GARFIELD Co, 1 Sep (MSF). P. draco, Tintytown, 6900', LOW, Jefferson Co, 21 June (JAS). P. sonora, Arapahoe NWR, 4 mi S of Walden, JACKSON Co, 25 Jul (MSF). Atrytone arogos, many larvae on Andropogon gerardii, Horsetooth Reservoir, Larimer Co, 14-15 Sep; some adults emerged 25-27 Sep, very LATE, perhaps indoors (JAS). Euphyes vestris, Tintytown, Jefferson Co, 6 Sep, not latest record (JAS). Atrytonopsis hianna, Horsetooth Resvr, finally a real colony in Larimer Co, 19 May (ADW). Amblyscirtes spp have "dracula" larvae; A. oslari eats mostly Bouteloua curtipendula, while A. phylace prefers Andropogon gerardii (JAS). A. eos, Las Animas, 3900', Bent Co, 8 Sep, ties LATE (PAO, RES); 2 mi N of Hwy 16 exit from Hwy I-25, 6000', HIGH, El Paso Co, 30 Jul (ADW). Megathymus coloradensis, S of

road, 0.4 mi E of Box Elder Crk, ELBERT Co, 18 May (MSF). Papilio polyxenes, larva taken on poison hemlock and reared to adult female, 1.6 miles N of Manzanola, Crowley Co; confirms a sighting of several years earlier, 10 July (RES). P. polyxenes fm pseudoamericanus, Cherry Crk Resvr, Arapahoe Co, 12 Aug (ADW); only the 3rd or 4th state record for this rare form. P. glaucus, dark female, Two Buttes Dam, 4300', BACA Co, SE, 9 Sep (PAO). P. multicaudatus, Las Animas, 3900', BENT Co, 8 Sep; Eads, KIOWA Co, 2 Sep (both RES). Neophasia menapia, Fountain Valley, El Paso Co, 17 Jun 1988, EARLY (FMB). Pieris rapae, Walsenburg, Huerfano Co, 18 Sep, confirms sighting of an earlier year and the species for all CO counties (RES). Pontia beckerii, in willow bog 5 mi NW of Ward, 10100', Boulder Co, 26 Jul (ADW), weird but read on; ridge W of Hoosier Pass, above treeline at 11800', PARK/SUMMIT Co line, 28 June (Benoit Mery/F&JP), both incredibly HIGH records. P. occidentalis, cemetery nr Ordway Resvr, 4400', CROWLEY Co, 8 Sep; Walsenburg, Huerfano Co, 18 Sep (both RES). Euchloe ausonides, Greenwood Village and Cherry Creek Resvr, ARAPAHOE Co, 11 May 1989, and later (ADW). Colias eurytheme, still common, mainly winter form, southern El Paso Co, 24 Nov (ADW). Zerene cesonia, many seen in 1990, usually a rare stray; nr High Line Canal, Aurora, Arapahoe Co, new from the Canal habitat, 7 July (Robert M. Pyle/RES); John Martin Dam, 3800', BENT Co, 8 Sep (RES); Flagler SWA, 4 mi E of Flagler, 4700', KIT CARSON Co, 14 July (ADW); Horseshoe Mtn, 12500', HIGH (previous high 11312'), Park Co, 5 Jul (ADW). Eurema lisa, a fresh female, first record in decades, Two Buttes Dam, 4300', BACA/PROWERS Co line SE, 9 Sep, LATE (PAO). E. nicippe, nr High Line Canal, Aurora, Arapahoe Co, new from the Canal habitat, 7 Jul (Robert M. Pyle/RES); Ft Collins, Larimer Co, 30 Apr 1987, EARLY (SLE). Nathalis iole, common nearly statewide but no new county records; Berthoud Pass, 11315', Clear Crk Co, 11 July (ADW). Lycaena cuprea, St Louis Creek trailhead, perhaps LOW (I cannot find the locality), Grand Co, 17 July (MLM). L. xanthoides, Queens Lk SWA, KIOWA Co, 11 Jul (RES). L. rubida, Golden Gate Cn St Park, Gilpin Co, 26 Aug, fresh male seen (RES). L. helleoides, 8 mi W of Hot Sulphur Spgs, GRAND Co, 29 Jun (ADW); Walsenburg, Huerfano Co, 18 Sep (RES). Hypaurotis crysalus, Greenwood Village, no native oaks in miles, ARAPAHOE Co, 9 Jul 1989 (ADW). Satyrium titus, Lory St Park, uncommon in Larimer Co, 30 Jun (RES). S. liparops, some data, also only one taken (RES). S. acadicum, Sand Crk, Adams Co, 7 July (PAO, ADW); Flagler SWA, 4 miles E of Flagler, 4700', KIT CARSON Co, 14 July (ADW). S. sylvinum, is expanding its known range in eastern CO, into EL PASO and DOUGLAS counties (a Samuel A. Johnson manuscript, which I will not cite here to protect his publication); several more recent Douglas Co records from JAS and ADW, mainly Plum Creek area, mid-July 1988-1990. Callophrys apama, Apex Gulch, Jefferson Co, 20 Aug, LATE (JAS). C. sheridanii, Cottonwood Point, 4 mi S of Hot Sulphur Spgs, 9700', HIGH (previous high 9200'), Grand Co, 28 May (ADW). Leptotes marina, common, Sand Crk, Adams Co, 7 Jul (PAO, ADW); 1.5 mi S of Las Animas, BENT Co, 10 Jul (RES); Wheat Ridge, Jefferson Co, 24 Jul to 26 Sep (JAS). Everes comyntas, Springfield, 4300', BACA Co, SE, 9 Sep (PAO, RES). Celastrina argiolus, Two Buttes Dam, 4300', BACA Co, SE, one fresh female taken, 9 Sep, LATE (PAO). Euphilotes rita coloradensis, 3 miles E of Mesita, 7660', COSTILLA Co, SOUTH, 13 August, associated with Eriogonum microthecum var. simpsoni, det by JAS (LDB, ADW). Glaucopsyche piasus, Woodland Park, TELLER Co, 27 June 1989 (ADW), also 8 miles NW of Carr, WELD Co, 17 June 1989 (PAO). Libytheana bachmanii, Two Buttes Dam, 4300', BACA Co, SE, 9 Sep (RES); Ft Collins, Larimer Co, 17 June 1987, EARLY (SLE). Dione vanillae, being eaten by a Solitary Vireo, Hightower Mtn Quadrangle, 20 mi NE of Collbran, MESA Co, only second CO west slope record, 6 July (HEK/RES). Thessalia leanira/fulvia, reviewed by MJS and JPB in BAM 118, 11 August 1988; the 2 species are allopatric in CO, with leanira alma in Mesa, Delta and Montrose counties and fulvia elsewhere. Chlosyne nycteis, Powderhorn Ski Area, 8100', MESA Co; it would be a STATE record for nearby Utah, 9 June 1989 (ADW). Phyciodes tharos, 1 female at N Bear Crk Resvr, Jefferson Co, 24 Sep, rare in Denver area (JAS). P. pictus, Sand Crk, Adams Co, first record in area for several years, 7 July (ADW). P. pallidus, 4 mi SW of Florissant, 8600', TELLER Co, SOUTH, 26 June 1989 (ADW). Polygonia interrogatonia, several records from the eastern prairies, where it is locally common; Springfield and Two Buttes Dam, each 4300', BACA Co, SE, 9 Sep (PAO, RES); 1.5 mi S of Las Animas, Bent Co, 2 Sep (RES); Eads, Kiowa Co, 2 Sep (RES). P. satyrus, Lory St Park, Larimer Co, always uncommon there, 30 June (RES). P. oreas nigrozephyrus, delete the Jefferson Co record, a misdetermination (JAS). Nymphalis milberti, bivoltine in Jefferson Co, with fresh adults late Jun - early Jul and larvae late Aug - early Sep (JAS). Vanessa cardui, one fresh specimen, Denver, 24 Nov, LATE for east slope and 2nd latest for state (Katharine A. Stanford/RES). V. virginienensis, Springfield, 4300', Baca Co, 9 Sep (PAO); Mt Zion, Jefferson Co, 17 Nov, very LATE, one fresh male (ADW); 1 mile W of Keystone, SUMMIT Co, rare on west slope, 1 Jul (ADW). Junonia coenia, a banner year for this immigrant species, seen nearly everywhere on the east slope; Adams Co, Sep (JAS); Arapahoe Co, July (ADW); Springfield, Baca Co, 9 Sep (PAO, RES); John Martin Dam, 3800', Bent Co, 8 Sep, several on rabbitbrush (PAO, RES); Kit Carson, 4290', Cheyenne Co, 9 Sep (PAO, RES); Ordway Nursing Center, Crowley Co, 10 July (RES); Walsenburg, HUERFANO Co, extremely worn male on rabbitbrush, 18 Sep (RES); Mt Evans, above Summit Lk, 13600', HIGH, CLEAR CREEK Co, 30 Jun (DEB); several in Jefferson Co, Aug-Sep (JAS, ADW); Muir Spgs, Morgan Co, 3 Sep (DL). Basilarchia archippus, 1.6 mi S of Las Animas, 3900', Bent Co, 10 July and 8 Sep (RES); Ordway Resvr, 4400', CROWLEY Co, 8 Sep (RES); Flagler SWA, 4 mi E of Flagler, 4700', KIT CARSON Co, 14 July (ADW). Adelpha bredowii, one worn female 24 June and one fresh male 6 Sep, Tinytown, JEFFERSON Co, NORTH (JAS). Anaea andria, Two Buttes Dam, 4300', Baca/Prowers Co line, several seen, 9 Sep (PAO, RES); John Martin Dam, 3800', Bent Co, 2 Sep (RES); Muir Spgs, Morgan Co, 3 September (DL). Asterocampa celtis, Two Buttes Dam, 4300', Baca/Prowers Co line, 9 Sep, subspecies to be ascertained (RES); NE of Villagreen, T28S-R54W-E½S17, Las Animas Co, 29 August (DL). Satyroides eurydice, adults seen at site of 1988 introduction, Jefferson Co, 3,7,14,24 and 26 July (JAS). Coenonympha ochracea, Greenwood Village, ARAPAHOE Co, May or Jun 1983 (ADW). Oeneis alberta, common in NE South Park, Park Co, 2 June (JAS). O. chryxus, several seen, Lory St Park, Larimer Co, 30 Jun (RES). O. jutta, Caribou, WNW of Nederland, BOULDER Co, second east slope record and a possible SMALL breeding colony (please do not collect!), 30 June (MSF). Danaus plexippus, male seen on garden flower at close range, Walsenburg, HUERFANO Co, now known from all prairie counties, 18 Sep (RES). D. gilippus, oviposition on Asclepias speciosa, and second county record, Flagler SWA, 4700', 4 mi E of Flagler, Kit Carson Co, 14 Jul (Steve Dolanski/JAS/ADW); Lamar, 3600', Prowers Co, 9 Sep (PAO, RES).

MOTHS: 45 records were received, including 40 species, from 7 contributors. Abagrotis bimarginalis, Larimer Co, July (PAO/TSD). Acronicta atristrigata, Castle Rock KOA Cg, Douglas Co, 20 Jun (RHL). Agapema homogena, 4 miles SW of Florissant, Teller Co, 26-31 July 1989 (ADW). Apamea undescribed species, Larimer Co, July (TSD). Ascalapha odorata (= Erebus odora, Black Witch Moth), 11 miles NE of Alamosa, Alamosa Co, mid-Sep (JHB); one worn specimen, Ft Collins, Larimer Co, Sep (PAO); both are probably COUNTY records for this rarely encountered species in CO. Aseptis bultata, New Castle KOA Cg, Garfield Co, 21 Jun (RHL). Catocala, 10 species including hermia, junctura, luciana, neogame, semirelictata and ultronia at Hg vapor light, Ft Collins, Larimer Co, Sep (PAO). Coloradia luski, 4 mi SW of Florissant, Teller Co, 26-31 July 1989 (ADW). Depressaria umbraticostella (whew!), Castle Rock KOA Cg, Douglas Co, 20 June (RHL). Discestra obesula, Larimer Co, Jun (PAO/TSD). Doa ampla, Chimney Gulch, Jefferson Co, 8 Jul (PAO). Epilis truncataria, common, Hoosier Pass, 11500', Park/Summit Co line, 21 June (RHL). Euaerotis undescribed species, Larimer Co, August (PAO/TSD). Euscirrhopterus gloveri, Morgan Co, Jul (TSD). Euxoa auxiliaris, abundant from eastern plains in May and June up to over 11000' in July (PAO). E. dodi, Larimer Co, Aug (PAO/TSD). Grammia cervanoides, Horseshoe Mtn, 12500', Park Co, 2 July (DEB, ADW). G. williamsi, common, 8 miles W of Hot Sulphur Spgs, Grand Co, 29 June (Steve Stone/ADW). Hemaris senta, common, Cottonwood Point, 9700', 4 miles S of Hot Sulphur Springs, Grand Co, 28 May (Bob Twarkins/ADW). Hemileuca magnifica, 5th instar larvae on Eriogonum (to be determined), 3 mi E of Mesita, 7660', Costilla Co, 13 August (LDB). Hepialus pulcher, Endo Valley picnic area, Rocky Mtn NP, Larimer Co, 28 Aug (PAO). Holomelina fragilis, common,

High Line Canal habitat, Aurora, Arapahoe Co, 7 Jul (RES, det PAO). Homoqlaea carbonaria, Larimer Co, April (PAO/TSD). Hyles lineata, common on the eastern plains, including Bent, Cheyenne, Crowley, Huerfano, Kiowa and Prowers counties, 1-18 Sep (RES). Hyparpax aurostriata and H. minor, Castle Rock KOA Cg, 6400', Douglas Co, 20 June (RHL). Lasionycta leucocycla coloradensis, Larimer Co, Jul (TSD). Neleucania patricia, Larimer Co, Jul (TSD). Platarctia parthenos, 8 mi W of Hot Sulphur Springs, Grand Co, 29 June (Steven Stone/ADW). Polia noverca, New Castle KOA Cg, Garfield Co, 21 June (RHL). Stenoporpia dissonaria, Castle Rock KOA Cg, 6400', Douglas Co, 20 Jun (RHL). Trichordestra lilacina, Larimer Co, July (TSD). Ufeus plicatus, Larimer Co, Apr (PAO/TSD). Zale duplicata larga and Z. minerea norda, Castle Rock KOA Cg, 6400', Douglas Co, 20 June (RHL). TSD wishes to thank J. G. Franclemont and J. D. Lafontaine for their help with determinations.

NEW MEXICO. Contributors: SJC, CDF, MSF, CEH, RHL, PAO, ADW. Three of these provided moth records. CDF described the collecting as poor, for both butterflies and moths, despite drought relief in August. RHL found good numbers of moths, and SJC had good luck with butterflies, including several EARLY and LATE records.

BUTTERFLIES: 91 total records were received, including 41 county records (30 spp). 52 data points for 39 spp are listed here. NM now leads Zone 4 (and the USA except for AZ) with 105.52 avg spp/co, and 307 total spp. Grant Co has the largest total spp, 157, while Lea drags with only 43. Sixteen spp are known from all 33 counties, V. atalanta being the 1990 addition. Autochton cellus, Pine Cn, Hidalgo Co, 19 Aug, LATE (SJC). Thorybes mexicana, S Fk Percha Creek, Gila NF, 2 mi W of Kingston, SIERRA Co, 1 May (PAO). Cogia caicus, Pine Cn, Hidalgo Co, 19 August, LATE (SJC). Erynnis icelus, Pacheco Cn, NE of Tesuque, 7800', Santa Fe Co, 25 July, LATE (previous latest 11 July; latest CO record is 29 Jul 1973, RES) (CEH, det confirmed by H. A. Freeman). E. brizo burgessii, Shaefers Peak, 9400', HIGH, Colfax Co, 10 July 1988 (ADW). E. tristis tatus, Luciano Mesa, GUADALUPE Co, NORTH, 21 July (SJC). E. pacuvius, Shaefers Peak, 9400', COLFAX Co, NE, 10 July 1988 (ADW). E. afranius, Rusk Hill, CURRY/QUAY Co line, EAST, 21 April; Luciano Mesa, GUADALUPE Co, 22 April (both SJC). Celotes nessus, Sunflower Cn, QUAY Co, 8 Jun (SJC). Hylephila phyleus, both sexes taken, Mangas Spgs, Grant Co, 12-16 Oct (R. A. Fisher/CDF). Stinga morrisoni, Baldy Mtn, Colfax Co, 3 Jul, LATE (SJC). Hesperia pahaska, Cedar Crest, Sandia Mtns, Bernalillo Co, 7 Jun (RHL); Queen Cn, CURRY Co, 8 Jun (SJC). H. woodgatei, nr Kingston, SIERRA Co, 29 Sep (SJC). Atrytone logan laqus, Queen Cn, QUAY Co, 8 Jun (SJC). Atrytonopsis pittacus, E Florida Mtns, LUNA Co, 30 April (SJC). A. vierecki, Queen Cn, CURRY Co, 8 Jun (SJC). Amblyscirtes exoteria, Pine Cn, Hidalgo Co, 19 Aug, LATE (SJC). A. aenus, Queen Cn, CURRY Co, 8 Jun (SJC). A. oslari, Cañon Vercere, MORA Co, 7 June (SJC); Taos Cn, Taos Co, 5 Aug 1958, LATE (LACM, fide SJC). Papilio polyxenes, Red Rvr Fish Hatchery, off NM Hwy 3, Taos Co, second county record, 9 Aug (MSF). P. bairdii fm brucei, some data, TAOS Co, STATE, SOUTH (MSF). P. zelicaon, Baldy Mtn, COLFAX Co, EAST, 3 Jul (SJC). Euchloe olympia, Rusk Hill, CURRY Co, SE, 21 Apr; Luciano Mesa, GUADALUPE Co, WEST, 22 Apr (both SJC). Anthocharis sara ssp, Queen Cn, CURRY Co, EAST, 21 Apr (SJC); Luciano Mesa, GUADALUPE Co, 22 April (SJC); Cañon Vercere, MORA Co, 28 Apr (SJC, PAO). Colias scudderii, Baldy Mtn, COLFAX Co, NE, 3 July (SJC). Phoebis sennae, Rusk Hill, CURRY Co, 21 Apr; Luciano Mesa, GUADALUPE Co, 22 Apr (both SJC). Kricogonia lyside, Luciano Mesa, GUADALUPE Co, 22 Apr, EARLY (SJC). Atlides halesus, Three Rvrs Cg, LINCOLN Co, 29 Apr (SJC); Taos Cn, TAOS Co, 5 Aug 1958 (LACM). Satyrrium liparops, 2-3 mi N of jct Hwys 325/456, UNION Co, STATE, SOUTH, 22 Jun (MSF). Mitoura siva, Cañon Vercere, MORA Co, 7 Jun (SJC). Sandia mcfarlandi, Queen Cn, CURRY Co, EAST, 21 April (SJC); Cañon Vercere, MORA Co, 28 Apr (PAO). Fixsenia ontario, Queen Cn, CURRY/QUAY Co line, SE, 8 Jun (SJC). Hemiarqus ceraunus, nr Kingston, SIERRA Co, 29 Sep (SJC). Speyeria edwardsii, Baldy Mtn, Colfax Co, 3 Jul, LATE (SJC). Thessalia theona thekla, Three Rvrs Cg, Sacramento Mtns, LINCOLN Co, 29 April (SJC, PAO). Chlosyne nycteis, Sandia Mtns, BERNALILLO Co, 17 June 1945 (LACM). Vanessa atalanta, Queen Cn, QUAY Co, 21 Apr (SJC); now known from all 33 New Mexico counties. Basilarchia a. archippus, Canadian Rvr Cn, HARDING/MORA Co line, EAST, 7 June (SJC). Megisto rubricata, Queen Cn, CURRY/QUAY Co line, 22 July (SJC).

MOTHS: 13 data points were received, for 13 species, from 3 observers. Batrachedra enormis, Cedar Crest, Sandia Mtns, Bernalillo Co, 7 June (RHL). Catocala piatrix, Mangas Spgs, Grant Co, 12-14 Aug (CDF). Euagrotis beata, Cedar Crest, Sandia Mtns, Bernalillo Co, 7 Jun (RHL). Eupithecia neomexicana, same data (RHL). Gloveria gargamelle, Mangas Spgs, Grant Co, 12-14 Aug (CDF). Hemileuca eglantherina, Shaefers Peak, 9400', Philmont Scout Ranch, COLFAX Co, STATE, SOUTH, det and record status confirmed by Ric Peigler and Steve Stone, 10 Jul 1988 (ADW). Leucochlaena hipparis, Cedar Crest, Sandia Mtns, Bernalillo Co, 7 Jun (RHL). Matigramma imopinata, same data (RHL). Pseudacontia crustaria, same data (RHL). Pygoctenucha terminalis, same data (RHL). Quadrina diazoma, Mangas Spgs, Grant Co, 12-14 August (CDF). Sphingicampa hubbardi, same data (CDF). Stenoporpia vernata, Cedar Crest, Sandia Mtns, Bernalillo Co, 7 Jun (RHL).

ZONE 5 PLAINS: SASKATCHEWAN, MANITOBA, NORTH DAKOTA, SOUTH DAKOTA, NEBRASKA, KANSAS. Coordinator: Ronald Alan Royer (RAR). Contributors: Brian Berendes (BB), Jim Borg (JB) (via JS), Tanya Bray (TEB), Carl Christopherson (CC), Eric Conklin (EC) (via CC), Darin Curren (DC) (via CC), Neil Dankert (NED), Jim Darby (LJD), Ken Dimler (KD) (via CC), David L. Eiler (DLE), Jeff Germer (JG), Evron Helland (EH) (via CC), Ronald R. Hooper (RRH), Abnan J. Kean (AJK), Joseph E. Kean (JEK), Delise Kirkeide (DK), Paul Klassen (PK), Robert L. Langston (RLL), Jean Legge (JeL), Ron Leuschner (RL), James Lockhart (JaL) (via CC), Doug Long (DRL), Stanley Longfellow (SNL), Paul DeWaal Malefyt (PDM), Harold Nagel (HGN), Paul A. Opler (PAO), Barbara Padelford (BKP), Loren Padelford (LJP), June and Floyd Preston (J&FP), James Reiser (JMR), Lupe Rodehorst (LMR), Kilian Roever (KR), Daniel Grant Royer (DGR), James A. Scott (JAS), Steve Spomer (SMS), Ray E. Stanford (RES), Jim Strand (JS), Peter Taylor (PT), Nick Theis (NT), Ralph Wall (RW), John Weber, Jr. (JW), K. Wilburn (KW), Zac Zander (ZZ). Abbreviations: mm = mile marker; NF = National Forest; NP = National Park; PF = Provincial Forest; PP = Provincial Park; Res = Reservoir; SF = State Forest; SHP = State Historical Park; SP = State Park; SRA = State Recreation Area; WMA = Wildlife Management Area; WPA = Waterfowl Production Area; c = captured; n = near; p = photographed; prov = provincial; s = seen; > = more than. Capital letters indicate first record of occurrence.

SASKATCHEWAN. A late and cold spring caused poor collecting until late in June. Provincial Coordinator: RRH. All reports attributable to RRH.

BUTTERFLIES: Pholisora catullus, Val Marie (third prov record), 12 June. Thymelicus lineola, Assiniboia, July 18, 1984, PROVINCE.

MOTHS: Catocala aholibah, Fort Qu'Appelle, PROVINCE, 11 September. Capis curvata, Carrot River (second prov record), 23 July. Syngrapha alias, Fort Qu'Appelle, SOUTH, 31 July.

MANITOBA: Early spring was dry and cool; June was warm and moist; summer was warm, becoming dry; fall was warm and very dry. (The drought is not over!) In the southern agricultural areas most species (with certain exceptions noted below) were down in numbers again, especially in July; some usually common species were not seen at all. In other areas, numbers generally were more "normal." Provincial Coordinator: PK. Contributors: PT, DGR, RAR. Records not otherwise designated are attributable to PK.

MIGRATORY SPECIES: Vanessa cardui, no migration noted; few seen all season (as in recent years). There was a fairly strong migration of V. atalanta in June but few were seen the rest of the season. A fresh individual was seen at Pinawa, 24 Sept, LATE (PT). Danaus plexippus, common in June, was abundant and widespread in July and August; more than 80 being counted on about 10 acres in a short time.

BUTTERFLIES: Eparcyreus clarus, only one seen, Pinawa, 21 June (PT). Thorybes pylades, abundant at Sandilands PF, 6 June. Erynnis icelus, very common. E. brizo, uncommon, Elm Creek, June. E. juvenalis, 1 pr c, Sandilands PF, 29 May (DGR); locally common, Elm Creek, June. E. martialis, locally common (usually rare), Sandilands PF, 29 May (RAR), 6-7 June (PK). E. lucilius, locally uncommon, as usual, Northwest Angle PF and Lake Brereton, 31 July. Pyrrhus communis, common, Kola, 9-22 Aug. Carterocephalis palaemon mandan, average in south, uncommon Pinawa (PT). Ancyloxypha numitor, uncommon. Thymelicus lineola, near average numbers. Hesperia comma assiniboia, locally common, Oak Lake, Kola, Carberry, 9-27 August. H. comma laurentina, locally uncommon, as usual, Milner Ridge and Lake Brereton, 13 Aug. H. l. leonardus, average, Lake Brereton and East Braintree, 14 August. H. l. pawnee, rare, Oak Lake, 10 August, common, Carberry, 23 August. H. sassacus manitoboides, uncommon, as usual, Sandilands PF and Northwest Angle PF, 18-24 June. Polites peckius, uncommon. P. themistocles, uncommon. P. mystic dacotah, common. Atrytone logan, uncommon, Culross and Rathwell, 3-27 July. Poanes hobomok, common. Euphyes vestris metacomet, abundant, widespread in the south (PT). Atrytonopsis hianna, locally abundant, Pine Ridge, 6 June. Ambliscirtes hegon, uncommon as usual, Sandilands PF, 6-7 June. A. vialis, common, Sandilands PF, 6-7 June; usual low numbers, Pinawa (PT). Papilio polyxenes asterius, only one seen all season (PK). Pterourus glaucus, common, very fresh, Sandilands PF, 29 May (RAR); less common than usual elsewhere (PT). Euchloe ausonides mayi, 1 male c, very fresh, Sandilands PF, 29 May (RAR). Pontia protodice, one female taken (rare in Manitoba), East Braintree, 31 July. P. occidentalis, abundant in fall in south, including Culross (where it is usually rare). Pieris napi oleracea, uncommon in south. P. rapae, unusually scarce. Colias philodice, uncommon spring, common fall. C. eurytheme, few seen until fall, when it was common. C. interior, less common than usual. Feniseca tarquinius, uncommon, 1 c Sandilands PF, 29 May (DGR). Gaeides xanthoides dione, common, Coulter, Culross, 5-28 July. Hyloloycaena hyllus, uncommon. Epidemia epixanthe michiganensis, locally common, Milner Ridge, 30 July. E. dorcas, uncommon. E. helloides, spring brood uncommon, fall brood common, Oak Lake, 9 August. Harkenclenus titus, uncommon. Satyrium acadicum, S. edwardsii and S. liparops fletcheri, uncommon. Incisalia augustinus, uncommon, Sandilands PF, 29 May (RAR). I. polia polia and I. niphon clarki, abundant, Sandilands PF, 29 May (RAR); uncommon elsewhere (PK). I. henrici henrici, 10 c Sandilands PF, 29 May (RAR). Everes amyntula albrighti, uncommon. Celastrina argiolus, common in spring, southeast (PT), small summer brood, as usual. Glaucopsyche lygdamus couperi, abundant, Elm Creek, Sandilands PF; average numbers, Pinawa (PT). Lycaeides melissa, common in the late summer. P. saepiolus amica, uncommon. Euptoieta claudia, uncommon spring, locally abundant in fall, Culross. Speyeria cybele pseudocarpenteri, S. callippe calgariana, S. atlantis, S. electa dennisii, unusually scarce. S. aphrodite, common. Clossiana selene atrocotalis, C. bellona toddi and C. titania, uncommon. Chlosyne gorgone carlota, locally common, Pine Ridge, 6-18 June. C. nycteis and C. harrisii, uncommon. Phyciodes tharos/pascoensis very common. (A few populations from Coulter and Kola were similar to tharos, which is uncommon in Manitoba.) P. batesii, common. Polygonia comma, P. satyrus, P. faunus and P. progne, rare. Nymphalis vau-album, N. antiopa and N. milberti, common in spring, uncommon in July and September in southeast (PT). Vanessa virginiensis, scarce, as usual. Limenitis arthemis, uncommon. L. archippus, only 3 seen all season (by PT and PK). Lethe anthedon borealis, exceptionally common, 5-15 July, 38 counted in 45 minutes (PT). L. eurydice, common in southeast (PT); uncommon elsewhere. Megisto cymela, common. Coenonympha tullia, uncommon southwest, common southeast, 18 June. Cercyonis pegala ino, common. Oeneis macounii, absent on 29 May (RAR), then common, Sandilands PF, 19 June (PK); uncommon, Piney, 25 June. Q. uhleri varuna, common, Spruce Woods PF and Carberry, 13 June.

NORTH DAKOTA. The 1990 season in North Dakota began with a very warm April (Pontia occidentalis, the first pupal emergent to be collected, was common in Dunn County on 15 April). April was followed by a period of wide fluctuation in temperatures but near-normal precipitation. The summer exhibited steadily decreasing rainfall but generally normal temperatures. Fall was very dry. Coordinator: RAR. Contributors: JB, CC, EC, DC, KD, EH, DK, JaL, JeL, JS, JW. All records not otherwise indicated are attributable to RAR.

MIGRATORY SPECIES: There was an unusually strong migration of Vanessa atalanta during May and June, resulting in unusual abundance throughout the season. Danaus plexippus likewise exhibited a normal spring influx, with high numbers resulting in August and September.

BUTTERFLIES: Ancyloxypha numitor, BARNES Co, 28 June (JS). Pyrrhus communis, 5 Oct (JW). Hesperia uncas, MORTON Co, 16 August; common, Ward Co, 10-15 August. Hesperia comma, McLEAN Co, 23 Aug (JS); abundant, MORTON Co, 16 August; abundant, Ward Co, throughout August. Hesperia pawnee, uncommon, MORTON Co, 16 August; McLEAN Co, 23 August (JS); uncommon, Ward Co, 17 August. Polites mystic, BARNES Co, 26 May (PDM). Euphyes vestris, BARNES Co, 3 July (JeL). Pterourus glaucus (unusual 2nd brood), 2s Ward Co, 20 July; 1c (very dark), MORTON Co, 16 August. Pontia occidentalis, BURKE Co, 8 Sept (KD). Colias philodice, BARNES Co, 26 June; MORTON Co, 15 August. Satyrium liparops, McLEAN Co, 8 July (JB). Harkenclenus titus, McLEAN Co, 8 July (JB). Celastrina argiolus, PEMBINA Co, 28 May. Glaucopsyche lygdamus, WELLS Co, 18 June (DK); CAVALIER Co, 31 May (JS); BARNES and RANSOM Cos, 26 June. Euptoieta claudia, BURKE Co, 8 Sept (KD). Speyeria cybele, McLEAN Co, 13 July 1989 (JB). Speyeria edwardsii, BURKE Co, 8 Sept (KD) (via CC); Clossiana selene, BARNES Co, 26 June. Charidryas nycteis, PEMBINA Co, 12 July 1962 (NDSU Collection at Bottineau). Phyciodes tharos, STUTSMAN Co, 19 August. Polygonia interrogationis, McLean Co, 13 July 1989 (JB). P. comma, MOUNTRAIL Co, 2 Sept (EH). P. progne, PEMBINA Co, 29 May (JS); RANSOM Co, 26 June. Nymphalis antiopa, CAVALIER and PEMBINA Cos, 5 May; BURKE Co, 2 Sept (CC). Aglais milberti, Killdeer Mountains, DUNN Co, 19 May. Vanessa cardui, WELLS Co, 4 July (DK); MOUNTRAIL Co, 28 Aug (DC). Vanessa atalanta, WELLS Co, 13 May (DK); EMMONS Co, 23 May (JS); MOUNTRAIL Co, 1 Sept (EH). Basilarchia arthemis, MORTON Co, 27 June (JB). B. archippus, STUTSMAN Co, 19 August; MOUNTRAIL Co, 29 Aug (JaL). Asterocampa celtis, MORTON Co, 27 June (JB). Coenonympha inornata, WELLS Co, 7 June (DK). Cercyonis pegala, STUTSMAN Co, 19 August. Danaus plexippus, MOUNTRAIL Co, 4 Sept 1989 (EC); WELLS Co, 4 June (DK).

SOUTH DAKOTA. The drought in central South Dakota was finally broken this spring by several timely rain showers. Prairie grasses and flowers quickly responded. Cercyonis meadii was unusually common in the northern Black Hills during mid-August. There was one state record (Hesperia juba), also from the Black Hills. Work continues on the compilation of county records, with 130 added this year, only the most significant of which are reported here. State Coordinator: GMM. Contributors: BB, AJK, JEK, PAO, BKP, RES, ZZ. All records not otherwise noted are attributable to GMM.

MIGRATORY SPECIES: Junonia coenia accounted for three new county records, an indication that the species made a northward migration during 1990.

BUTTERFLIES: Ancyloxypha numitor, LaFramboise Island, HUGHES Co, 11 Aug; Richland Dam, JONES Co, 5 Aug (AJK); Sica Hollow SP, ROBERTS Co, 29 June; Gavins Point Hatchery, YANKTON Co, 7 Aug (JEK). Hesperia uncas, Potts Dam, POTTER Co, 28 July. H. juba, O'Neil Pass nr Cheyenne Crossing, LAWRENCE Co, STATE, 13 June (AJK). Polites peckius, MOODY Co, 1 July. Pompeius verna, Olivet, HUTCHINSON Co, 9 July. Ochloides sylvanoides napa, nr Bethlehem Cave, MEADE Co, 18 Aug.

Atrytonopsis hianna, LaCreek NWR, BENNETT Co, 27 May (RES). Papilio polyxenes asterias, LaCreek NWR, BENNETT Co, 26 May (RES). Pterourus glaucus, MOODY Co, 22 July (JW). Pontia occidentalis, LaCreek NWR, BENNETT Co, 26 May (PAO). Euchloe olympia, LaCreek NWR, BENNETT Co, 26 May; Whitlock Bay, POTTER Co, 21 May. Colias alexandria alexandria, Red Canyon, FALL RIVER Co, 24 July (AJK). Zerene cesonia, nr Gavins Point Hatchery, YANKTON Co, 7 Aug (JEK). Epidemia helloides, LaCreek NWR, BENNETT Co, 26 May. Satyrium acadicum, several males and females taken, Huron, BEADLE Co, 1 July. Mitoura siva, LaFramboise Island, HUGHES Co, 9 June; Hemiargus isola, JONES Co, 5 Aug. Celastrina argiolus, Huron, BEADLE Co, 1 July (JEK); Newton Hills, LINCOLN Co, 2 September (BKP); MOODY Co, 1 July; Sica Hollow SP, ROBERTS Co, 29 June. Glaucopsyche lygdamus oro, HUGHES Co, 14 May; SULLY Co, 22 June (ZZ). Lycaides melissa, MOODY Co, 22 July (JW). Agraulis vanillae, Pactola Reservoir, PENNINGTON Co, 22 July 1987 (RES); Speyeria cybele, Latham Dam, FAULK Co, 28 July (JEK); Sheriff Dam, JONES Co, 5 Aug (AJK); Newton Hills, LINCOLN Co, 3 Sept (BKP). S. idalia, males common, MOODY Co, 1 July; DOUGLAS and HUTCHINSON Cos, 9 July; POTTER Co, 28 July; JONES Co, 5 Aug. Clossiana bellona toddi, KINGSBURY and MOODY Cos, 1 July (BB). Charidryas gorgone carlota, LaCreek NWR, BENNETT Co, 27 May (PAO). Polygonia comma, HAND Co, 1 July (AJK); Newton Hills, LINCOLN Co, 2 Sept (BKP). P. progne, Newton Hills, LINCOLN Co, 2 Sept (BKP). Vanessa virginiensis, CODINGTON Co, 30 June (AJK). Junonia coenia, Brule Bottom, BRULE Co, 4 August (AJK); Medicine Lake, CODINGTON Co, 30 June; Newton Hills, LINCOLN Co, 3 Sept (BKP). Basilarchia arthemis astyanax, Newton Hills, LINCOLN Co, 2 Sept (BKP). Asterocampa celtis, Newton Hills, LINCOLN Co, 2 Sept (BKP). Satyrodes eurydice, MOODY Co, 1 July. Coenonympha tullia, LaCreek NWR, BENNETT Co, 27 May.

NEBRASKA. Collecting improved somewhat over 1989, as some areas received adequate moisture. Some early to mid-season species emerged 1-2 weeks earlier than usual. More than 20 contributors gathered 116 butterfly species, including 114 county records but no state records. This brings the state's average to more than 40 spp/county. Moth collecting was sporadic due to weather, but some good records were submitted. SMS bait-trapped a total of 15 spp of Catocala over the course of the summer. Special thanks to the following individuals: Dr. David Hardwick, for identification of Schinia; Dr. Lawrence Gall, for identification of the Catocala; RES, for identification of Erynnis; PAO, for furnishing museum records; KR, for furnishing photographs of Megathymus coloradensis larval tents, which greatly enhanced determination of this species' range in Nebraska. State Coordinator: NED. Contributors: TEB, LJD, DLE, JG, RRL, RL, DRL, SNL, HGN, PAO, BKP, LJP, JMR, LMR, KR, JAS, SMS, RES, NT, RLW, JW, KW.

MIGRATORY SPECIES: Hylephila phyleus, 1c, McCool Jct, YORK Co, 17 Sept (NT); also 5 specimens, Sarpy and Furnas Cos, 9 Sept - 5 Oct (DRL, BKP). Atalopedes campestris, late and not as common as usual. Phoebis sennae, 1c, Furnas Co, 15 Sept (DRL). Eurema lisa, Richardson and Buffalo Cos, earliest 16 June. E. nicippe, Nemaha, Richardson and Lancaster Cos, earliest 16 June. Nathalis iole, common in eastern 3/4, earliest 30 April. Leptotes marina, 1c, Elkhorn River marsh, STANTON Co, 28 July (SMS); c, Harry Strunk Lake, FRONTIER Co, 3 Sept (DRL); common, Furnas Co, 26 Sept (DRL). Hemiargus isola, occasional specimens in eastern half, earliest 7 July. Libytheana bachmanii, 1s (4 May) and 1c, Harlan Co Res, HARLAN Co, 25 Aug (NED, LMR); sighted 4 times, Nemaha and Sarpy Cos, 16 July-5 Oct (TEB, BKP, LJP). Junonia coenia, common in eastern half, earliest 7 July; 2c, Elkhorn River marsh, STANTON Co, 28 July (SMS); 3c/s, Limestone Bluffs WMA, FRANKLIN Co, 15 Aug (NED, LMR); 1c, in McCool Jct, YORK Co (JG, NT). Danaus plexippus, average numbers. D. gilippus, 1c, Rowe Sanctuary, BUFFALO Co, 25 June (HGN); 1c, 6 miles WNW of Benkelman, DUNDY Co, 25 Aug (RLW).

BUTTERFLIES: Achalarus lyciades, 2c, Indian Cave SP, NEMAHA Co, 16 June (SMS). Staphylus hayhurstii, 1c, in Holbrook, FURNAS Co, 21 Aug (DRL). Erynnis horatius, 1c, Niobrara Valley Preserve, BROWN Co, 20 June 1987 (SMS, det by RES). E. baptisiae, 1c, nr Pleasanton, BUFFALO Co, 16 Aug 1987 (NED, LJD); 1c, Quadhammer WPA, FRANKLIN Co, 3 July 1987 (NED); 1c, Calamus Res, LOUP Co, 30 July 1987 (SNL); 1c, Rulo Bluffs, RICHARDSON Co, 29 Aug (SMS); 1c, Cedar Point Biological Station, KEITH Co, WEST, 8 Sept (NED, LMR). Yvretta rhesus, 2c, Bull Cyn, BANNER Co, 27 May (NED, JMR, LMR). Hesperia uncas, 1c, nr Holbrook, FURNAS Co, 26 Aug (DRL). H. ottoe, 1c, Hwy 91, mm 3, BLAINE Co, 31 June (NED, LMR). H. leonardus pawnee, 1c, Juel Prairie, BUFFALO Co, 21 August (NED, HGN); 1c, nr Holbrook, FURNAS Co, 26 Aug (DRL); c, Harry Strunk Lake, FRONTIER Co, 3 Sept (DRL); >20s, Cedar Point Biological Station, KEITH Co, 8 September (NED, LMR). Polites mystic, 1c, 6 mi NW of Taylor, LOUP Co, 1 July (NED, LMR). Euphyes dion, 1c, Indian Cave SP, RICHARDSON Co, 16 June (SMS). E. bimacula, 1c, Niobrara Valley Preserve, KEYS PAHA Co, 31 June (Xerces Count); 1c, nr Leshara, SAUNDERS Co, 4 July (SMS). Megathymus coloradensis, 8 larval tents found, west of Sutherland, LINCOLN Co, 16 April (NED, LMR); 1c, east of Moorefield, FRONTIER Co, 22 April (NED, LMR); 5 tents found, east of Bartley, RED WILLOW Co, 22 April (NED, LMR); 1 tent found, north of Holbrook, FURNAS Co, 6 May (NED, DRL, LMR); 3 tents found, NW of Hayes Center, HAYES Co, 13 May (NED, LMR); c/s, nr Angora, MORRILL Co, early May (KR). Epidemia helloides, 1p, Nebraska NF, THOMAS Co, 2 Oct 1982 (JW). Satyrium acadicum, 5c, Niobrara Valley Preserve, KEYS PAHA Co, 31 June (Xerces Count). Mitoura siva, 1c, 6 mi E of Mullen, HOOKER Co, 25 May (NED, LMR). M. grynea, 1c, nr Kearney, BUFFALO Co, 10 May (NED, HGN); 1c, Prairie Dog WPA, KEARNEY Co, 4 May (NED, LMR); 1c, 9 mi N of Red Cloud, WEBSTER Co, 17 May (NED, HGN). Icaricia acmon, more records than usual, including, 1c, Carter Cyn, SCOTTS BLUFF Co, 27 May (NED, JMR, LMR); 2c, Crescent Lake area, GARDEN Co, 28 May (NED, LMR); 1c, 3 mi N of Smith Lake, SHERIDAN Co, 9 June (NED); 1c, McCool Jct, YORK Co, EAST, 31 Oct, LATE (NT). Clossiana selene, 1c, W of Whitman, GRANT Co, 8 June (NED); 2c, Crane Meadows, HALL Co, 20 June (NED, LMR). Polygonia progne, more records than usual, including, 1c, Victoria Springs SRA, CUSTER Co, 30 June (NED, LMR); 1c, Niobrara Valley Preserve, BROWN Co, 31 June (Xerces Count); c at Nine Mile Prairie, LANCASTER Co, on 8 separate dates between 16 July and 3 Sept (SMS); 2c, Bur Oak WMA, SEWARD Co, 18 August (SMS); 1c, 1 mi SE of Amherst, BUFFALO Co, 1 Sept (RLW). Vanessa virginiensis, more common than usual, eastern half (NED, DRL, BKP, LJP). Anaea andria, 1c, Rulo Bluffs, RICHARDSON Co, 16 June (SMS); 2c, 6 mi WNW of Benkelman, DUNDY Co, 1 Sept (RW); 1c, in McCool Jct, YORK Co, 3 Oct (JG, NT). Asterocampa clyton, unusually abundant in eastern half, 2c, Bur Oak WMA, SEWARD Co, 18 Aug (SMS); 5c, Limestone Bluffs WMA, FRANKLIN Co, 25 Aug (NED, LMR); 1c, McCool Jct, YORK Co, 21 Oct 1989 (JG). Enodia anthedon, 2c, Bur Oak WMA, SEWARD Co, 27 Aug (SMS).

MOTHS: TORTRICIDAE - Argyrotaenia pinatubana, c, nr Gothenburg, Dawson Co, 19 June (RL). PYRALIDAE - Desmia funeralis, c/s, 5 mi SW of Stanton, Stanton Co, 5 Oct (RL). Donacaula melinella albicostella, c, nr Gothenburg, Dawson Co, 19 June (RL). Meroptera cviatella, c, nr Gothenburg, Dawson Co, 19 June (RL). Tulsa finitella, c, nr Gothenburg, Dawson Co, 19 June (RL). GEOMETRIDAE - Protitame discalis, c, nr Gothenburg, Dawson Co, 19 June (RL). SPHINGIDAE - Proserpinus juanita, 1c, 6 mi S of Gothenburg, Dawson Co, 18 May (NED). Sphecodina abbotti, 1p, Fontenelle Forest, Sarpy Co, 17 June (BKP, LJP). Amphion floridensis, 1s, Indian Cave SP, Richardson Co, 16 July (BKP, LJP). ARCTIIDAE - Cisthene plumbea, c, nr Gothenburg, Dawson Co, 19 June (RL). NOCTUIDAE - Scoliopteryx libatrix, 1c, Buffalo Co, 6 Sept (KW). Catocala luctuosa, 1c, Nine-mile Prairie, Lancaster Co, 27 Aug (SMS). C. maestosa, 1c, Nine-mile Prairie, Lancaster Co, 27 Aug (SMS). C. ilia, several c, Nine-mile Prairie, Lancaster Co, starting 5 Aug (SMS). C. ceroqama, 4s, Neale Woods, Douglas Co, 13 July (BKP, LJP). C. parta, 1c, Nine-mile Prairie, Lancaster Co, 16 July (SMS). C. illecta, 1c, Nine-mile Prairie, Lancaster Co, 12 July (SMS); 1p, Neale Woods, Douglas Co, 13 July (BKP, LJP). C. nuptialis, several c, Nine-mile Prairie, Lancaster Co, 16 July (SMS). C. whitneyi, 1c, Nine-mile Prairie, Lancaster Co, 29 July (SMS). C. minuta, 1c, Nine-mile Prairie, Lancaster Co, 7-9 July (SMS). Abrostola aurentis, c, nr Gothenburg, Dawson Co, 19 June (RL). Spartinaphaga includens, c, nr Gothenburg, Dawson Co, 19 June (RL). Homohadena stabilis, c, nr Gothenburg, Dawson Co, 19 June (RL). Schinia volupta, 1c, in Kearney, Buffalo Co, 2 Aug 1989 (NED). S. siren, 1c, in

Kearney, Buffalo Co, 17 Aug 1988 (NED). S. lynx, 1c, in Kearney, Buffalo Co, 17 Aug 1988 (NED). S. gracilienta, 1c, in Kearney, Buffalo Co, 12 Aug 1988 (NED). S. cumatilis, 1c, in Kearney, Buffalo Co, 12 Aug 1988 (NED). S. citrinella, 1c, in Kearney, Buffalo Co, 24 May, 1989 (NED).

KANSAS. The Prestons report returning to Douglas Co on August 18 to find a population explosion of Asterocampa clyton clyton in progress. These butterflies numbered in the hundreds in their backyard in Lawrence for at least 2 weeks but were still coming to a bait trap in mid September. Three forms, proserpina, ocellata and apunctus were found among the nominotypical subspecies. Large numbers of A. celtis have been seen in the vicinity many times, and celtis was flying with the clyton but in very reduced numbers. A. clyton is usually quite scarce and some years does not appear at all, so the huge numbers of them in 1990 were quite noteworthy (J&FP).



ZONE 6 SOUTH CENTRAL: OKLAHOMA, TEXAS, ARKANSAS, LOUISIANA. Coordinator: Ed Knudson (ECK). Contributors: Valeriu Albu (VA); Richard Boscoe (RB); Hoe Chuah (HC); L.C. "Woody" Dow (WD); J.F. "Terry" Doyle III (JFD); David Eiler (DE); Chuck Harp (CH); Frank R. Hedges (FH); Jeremy Kuhn (JK); Michael Lefort (ML); Ron Leuschner (RL); James Norwood (JN); Paul Opler (PO); Mike Rickard (MR); Charles Sekezman (CS); Robert Warren (RW); Steve Williams (SW). County in CAPS = new county record; STATE = new state record; U.S. = new USA record; NF = National Forest; NP = National Park; NWR = National Wildlife Refuge; SNA = State Natural Area; SP = State Park; WMA = Wildlife Management Area; BL = UV blacklight; MV = mercury vapor light; bait = bait traps or bait stations; sight or photo = sight or photo record, but no specimen collected; Ps = parish.

OKLAHOMA. Contributors: DE, CH, FH, RL, RW. A lengthy, detailed report was submitted by CH (with RW), including over 100 new county records. CH reports good conditions for collecting, with above normal spring rains and mild weather into late autumn.

BUTTERFLIES: Epargyreus clarus, Chandler Lake, LINCOLN Co, 16 Aug - 2 Sept; Newkirk, KAY Co, 14 July; Luther, OKLAHOMA Co, 4 June (all CH). Achalarus lyciades, Camp Houston, WOODS Co, 25 May (CH, RW); Luther, OKLAHOMA Co, 28 Apr (CH). Thorybes bathyllus, Tuttle, GRADY Co, 10 June (RW); Luther, OKLAHOMA Co, 29 Mar (CH); Newkirk, KAY Co, 14 July (CH); Veterans Lake, MURRAY Co, 24 May (CH, RW). T. pylades, Veterans Lake, MURRAY Co, 24 May (CH, RW); Wellston, LINCOLN Co, 13 July (CH); Luther, OKLAHOMA Co, 26 Apr (CH). T. confusis, Luther, OKLAHOMA Co, 30 May; Chandler Lake, LINCOLN Co (CH). Staphylus hayhurstii, Camp Houston, WOODS Co, 25 May (CH, RW). Erynnis b. brizo, Miami, OTTAWA Co, 22 Apr (CH); Luther, OKLAHOMA Co, 4-21 Apr (CH); McAlester, PITTSBURG Co, 16-22 Mar (RW); Enterprise, MCINTOSH Co, 1 Apr (RW). E. j. juvenalis, Luther, OKLAHOMA Co, 8-21 Apr (CH). E. funeralis, McAlester, PITTSBURG Co, 22 March (RW). Celotes nesusus, Turner Falls, Murray Co, 4 Aug (FH). Hylephila phyleus, Aluma, OKLAHOMA Co, 18 June; Chandler Lake, LINCOLN Co, 13 July (both CH). Hesperia ottoe, Luther, OKLAHOMA Co, 9-16 June (on Echinacea pallida near dusk) (CH). H. viridis, Veteran's Lake, MURRAY Co, 24 May (CH, RW); Quartz Mtn, GREER Co, 22 Sept (CH). H. a. attalus, Luther, OKLAHOMA Co, 27 May - 16 June; Veteran's Lake, MURRAY Co, 24 May (both CH, RW); Wellston, LINCOLN Co, 8 June; Meridian, LOGAN Co, 10 June (both CH). Polites origenes, Luther, OKLAHOMA Co, 26 May - 12 June and 2-6 Sept, plus Chandler, LINCOLN Co, 2-4 Sept (CH); McAlester, PITTSBURG Co, 21-28 May (RW). P. themistocles, Luther, OKLAHOMA Co, 12-28 May; Wellston, LINCOLN Co, 28 May (both CH); Veteran's Lake, MURRAY Co, 24 May & Camp Houston, WOODS Co, 25 May & Sardis Lake, PUSHMATAHA Co, 22 May (CH, RW). Wallengrenia otho, Luther, OKLAHOMA Co, 20 May & Chandler Lake, LINCOLN Co, 2 Sept (CH). W. egeremet, Luther, OKLAHOMA Co, 26 May (CH). Atalopedes campestris, Luther, OKLAHOMA Co, 6 June; Wellston, LINCOLN Co, 13 June; Newkirk, KAY Co, 14 June; Clinton, CUSTER Co, 22 Sept (all CH). Atrytone arogos iowa, Checotah, MCINTOSH Co, 9 June (RL); Luther, OKLAHOMA Co, 8 June & Wellston, LINCOLN Co, 13 June & Meridian, LOGAN Co, 3 June (CH); Tuttle, GRADY Co, 10 June (RW). A. logan lagus, Veteran's Lake, MURRAY Co, 24 May (CH, RW); Chandler Lake, LINCOLN Co, 13 June (CH). Poanes zabulon, Luther, OKLAHOMA Co, 26 April (CH). Euphyes vestris metacomet, Luther, OKLAHOMA Co, 13 May; Meridian, LOGAN Co, 23 June; Wellston, LINCOLN Co, 13 June; Dougherty, MURRAY Co, 3 June (all CH). Atrytonopsis hianna turneri, Luther, OKLAHOMA Co, 28 Apr - 17 May (CH). A. loanni, STATE: Veteran's Lake, MURRAY Co, 24 May (CH, RW). Amblyscirtes alternata, McAlester, PITTSBURG Co, 17 Sept (RW). A. aenus form erna, Veteran's Lake, MURRAY Co, 24 May (RW). A. linda, Camp Houston, WOODS Co, 25 May (CH). A. nysa, Waynoka, MAJOR Co, 25 May (RW); Luther, OKLAHOMA Co, 13 July and Chandler Lake, LINCOLN Co, 13 July (both CH). A. vialis, Luther, OKLAHOMA Co, 13 Apr (CH). A. belli, Luther, OKLAHOMA Co, 28 Apr; Coyle, LOGAN Co, 13 July; NE of Coyle, PAYNE Co, 13 July (all CH). Lerodea eufala, Dougherty, MURRAY Co, 26 August; Luther, OKLAHOMA Co, 12 Sept; Clinton, CUSTER Co, 22 Sept (all CH). Pterourus g. glaucus, Chandler Lake, LINCOLN Co, 13 Jul (CH). Pontia protodice, Miami, OTTAWA Co, 22 Apr (CH). Euchloe olympia, Enterprise, MCINTOSH Co, 1 Apr & Boggy Depot, ATOKA Co, 12 Apr (RW); Miami, OTTAWA Co, 22 Apr (CH). Paramideia midea, Boggy Depot, ATOKA Co, 12 Apr (RW). Feniseca tarquinius, Luther, OKLAHOMA Co, 28 Apr, 6 Aug (CH). Calycopis cecrops, Boggy Depot, ATOKA Co, 12 Apr (RW). Incisalia nippon, McAlester, PITTSBURG Co, 17 March-3 Apr; Boggy Depot, ATOKA Co, 12 Apr (RW). Brephidium exile, Meridian, LOGAN Co, 3 June (CH). Calophelis borealis, McAlester, PITTSBURG Co (2nd known Co. in state) (Cameron Graham coll, no date). Chlosyne lacinia, Lugert, KIOWA Co, 22 Sept (CH). Phyciodes tharos, Boggy Depot, ATOKA Co, 12 Apr (RW). Enodia anhedon, Washita River, MURRAY Co, 24 May (RW). Danaus plexippus, Black Mesa SP, CIMARRON Co, 11 June (photo) (DE). Danaus gilippus berenice, Chandler Lake, LINCOLN Co, 13 July (CH).

MOTHS: [All at BL, unless otherwise indicated] **SESTIIDAE** - Synanthedon scitula, Luther, OKLAHOMA Co, 24 Aug (CH). **LIMACODIDAE** - Euclea delphinii, Luther, OKLAHOMA Co, 18 Aug (CH). **GEOMETRIDAE** - Idaea retractaria, Checotah, MCINTOSH Co, 9 June (RL). **APATELODIDAE** - Olceclostera angelica, Sardis Lake, Pushtamaha Co, 20 May (RW). **SATURNIIDAE** - Sphingicampa bisecta, Sardis Lake, PUSHTAMAHA Co, 20 May (RW). Hyalophora cecropia, Luther, Oklahoma Co, 3 May (CH). **SPHINGIDAE** - Ceratomia hageni, Checotah, McIntosh Co, 9 June (RL). C. catalpae, McAlester, Pittsburg Co, 1 June (RW); Luther, Oklahoma Co, 14-18 Aug (CH). Sphinx vashti, Luther, OKLAHOMA Co, 20 Apr - 5 May (CH). Paonias myops, Luther, OKLAHOMA Co, 14 Apr (CH). Eriinnys obscura, Luther, OKLAHOMA Co, 19-24 Sept (CH). Amphion floridensis, Potato Hill, PUSHTAMAHA Co, 20 May (RW). Sphecodina abbottii, Potato Hill, PUSHTAMAHA Co, 20 May (RW). Proserpinus juanita, Luther, Oklahoma Co, 16 June (on thistle) (CH). **NOTODONTIDAE** - Nerice bidentata, McAlester, Pittsburg Co, MV (RW). Litodonta hydromeli, Checotah, McIntosh Co, 9 June (RL). Hyparpax aurora, Luther, OKLAHOMA Co, 20 Aug (CH). **ARCTIIDAE** - Grammia parthenice intermedia, Luther, Oklahoma Co, 22 Oct - 10 Nov, MV (CH). Grammia figurata, Luther, Oklahoma Co, 14-31 Aug (CH). **NOCTUIDAE** - Pareuchaetes insulata, Luther, OKLAHOMA Co, 29 Aug (CH). Pygarcia spraguei, Luther, OKLAHOMA Co, 28 Aug (CH). **NOCTUIDAE** - Gabara gigantea, Checotah, MCINTOSH Co, 9 June (RL). Melipotis indomita, Luther, OKLAHOMA Co, 8-17 June (CH). Bulia deducta, Black Mesa SP, CIMARRON Co, 10 June (DE); Sardis Lake, Pushtamaha Co, 20 May (RW). Euclidia cuspidata, Luther, OKLAHOMA Co, 29 Aug (CH). Catocala, 37 species reported by CH, 1 (blandula), a new state record. New and interesting records reported here (see 1989 S.S.): C. consors, McAlester, Pittsburg Co, 7 Jul (RW); C. palaeogama, Luther, Oklahoma Co, 5-7 June, bait (CH); C. vidua, Luther, OKLAHOMA Co, 28 Aug - 10 Nov, MV & BL (CH); C. nuptialis, McAlester, Pittsburg Co, 4,5 June (RW); C. illecta, Sardis Lake, PUSHTAMAHA Co, 23 May, bait (CH, RW); C. coccinata, McAlester, Pittsburg Co, 1 Jun (RW); C. blandula, STATE, Luther, OKLAHOMA Co, 6-11 Jun, bait (CH); C. mira, McAlester,

PITTSBURG Co, 7 June, bait (RW); C. pretiosa, McAlester, PITTSBURG Co, 1 June (RW); C. alabamae, Luther, Oklahoma Co, 30 May - 12 June, bait (CH). Charadra deridens, Luther, OKLAHOMA Co, 23 June (CH). Eudryas unio, Luther, OKLAHOMA Co, 25 Aug (CH). Tarachidia lactipennis, Luther, OKLAHOMA Co, 12 Aug (CH). Cirrhophanus trianquilifer, Luther, OKLAHOMA Co, 26 Aug (CH). Plagiomimicus pityochromus, Luther, OKLAHOMA Co, 18 Aug (CH). Lacinipolia explicata, Luther, OKLAHOMA Co, 26 Aug (CH). Lacinipolia olivacea, McAlester, Pittsburg Co, 29 June, MV (RW). Derrima stellata, Luther, OKLAHOMA Co, 11 June (CH). Schinia [the following are all OKLAHOMA Co, records from Luther, 16 Aug - 5 Sept, all (CH)], S. arcigera, brevis, chrysellus, crenilinea, gaurea, nubila, nundina, obscurata, rivulosa, saturata, simplex, sordida, tertia, thoreau, trifascia, & ultima. S. tanena and errans were reported by RL from Checotah, MCINTOSH Co, 9 June.

TEXAS. Contributors: VA, RB, HC, WD, JFD, FH, ECK, JK, RL, JN, PO, MR, CS, SW. Generally, conditions in the state were favorable for collecting, with average to above average rainfall through most of the year, until fall, which was rather dry, with no tropical storms. No surprises in butterflies this year, with few new county records. Numerous moths were reported, with many new state records. For Texas reports, county will be listed only once for each locality, except in the case of a new Co record.

BUTTERFLIES: Astrartes fulgurator azul, Madero, Hidalgo Co, 18 Oct (CS). Urbanus teleus, Sta. Margarita Ranch, STARR Co, 13-19 Nov (PO). Urbanus procne, Brownsville, Cameron Co, 27 Oct (VA, HC). Coqia calchas, Santa Ana NWR, Hidalgo Co, 13-19 Nov, photo (PO). Coqia hippalus, 11 mi NW of Alpine, Jeff Davis Co, 28 July (JK). Thorybes confusus, Terrel, KAUFMAN Co, 22 Apr (VA). Timochares ruptifasciatus, Madero, 18 Oct (CS) and Sabal Palm Sanctuary, Cameron Co, 13-19 Nov, photo (PO). Chiomara asychis georgina, Bentsen SP, Hidalgo Co, 13-19 Nov, photo (PO); Mission, 27 Oct (VA, HC). Gesta gesta inivisus, Aransas NWR, Aransas Co, 19 Aug (SW). Heliopetes arsalte, Santa Ana NWR, 13-19 Nov (PO). Vidius perigenes, Bentsen SP & Sta Margarita Ranch, 13-19 Nov, photos (PO). Nastra neamathla, Sealy, AUSTIN Co, 28 Sept (CS). Cyamaenes odilia trebius, Mission, 27 Oct (VA). Yvretta carus, nr Mt Locke, Jeff Davis Co, 8,9 May (JK). Stinga morrisoni, nr Mt Locke, 7-9 April (JK). Atrytonopsis pittacus, 11 mi NW of Alpine, 7-9 Apr (JK). Amblyscirtes cassus, nr Mt Locke, 2 June, 28 July (JK). A. nereus, Davis Mts, Jeff Davis Co, 8,9 May (JK). A. phylace, Davis Mts, 28 July (JK). A. alternata, A. eos, Grand Prairie, Dallas Co, 16 Apr (VA). A. hegon, Red Hills Lake, SABINE Co, 10 March (MR, ECK). Oligora maculata, Armand Bayou, Harris Co, 14 July (SW). Lerodea dysaules, Brownsville, 17 Oct (CS), 27 Oct (VA, HC). Panoquina fusina evansi, Mission, 27 Oct (VA, CS). Nyctelius nyctelius, Sabal Palm Sanctuary, 13-19 Nov (PO). Agathymus neumoegeni florenceae, Jeff Davis Co, ex pupa Agave scabra, emer 5-9 Oct (JK); A. n. mcalpinei, Brewster Co, ex pupa A. scabra, emer 4-9 October (JK). Agathymus m. mariae, Hueco Tanks SP, El Paso Co, ex pupa, 22-24 Sept (HC). A. m. chinatiensis, 4-7 mi S of Shafter, Presidio Co, ex larva & pupa, emer 18-24 Oct (JK). A. estellae valverdiensis, Kinney Co, ex pupa coll 11-30 Apr, emer 26 Sept - 1 Oct (JK). Megathymus coloradensis stallingsi, Johnson Co, ex pupa in Yucca pallida, emer 11 March (JK). M. c. louisae, Kinney Co & UVALDE Co, ex larva & pupa, emer 25 Mar - 14 Apr (JK). M. g. kendalli, Bexar Co, 2 Apr; Burnet Co, ex larva & pupa, emer 24 Feb-2 Apr (JK). M. streckeri texanus, Crosby Co, 10 mi S of Crosbyton, 6,7 May; Floyd Co, 6 May, sight; Sweetwater, NOLAN Co, 10 May (all JK). Pterourus palamedes, SW reports good flight Aug-Sept in Aransas, Montgomery, Liberty, Polk, Tyler, Angelina, Newton, SHELBY, NACODOCHES & PANOLA Cos. Pontia protodice, SW reports a large outbreak in Apr-May in Austin, Ft Bend, Colorado, Fayette, Lavaca, Victoria, Calhoun, Refugio, Aransas, MATAGORDA, JACKSON Cos. Paramidea midea, Terrel, KAUFMAN Co, 22 Apr (VA). Ganyra josephina josepha, Falcon SP, Starr Co (PO); Madero, Penitas, Hidalgo Co, 19 Oct (CS). Ascia monuste, Madero, 27 Oct (VA, HC) & 18,19 Oct (CS); Bentsen SP, 13-19 Nov (PO). Eurema proterpia, Madero, 23 Oct, reared on Cassia texana (RB). Eurema nise, Sta Margarita Ranch, STARR Co, 13-19 Nov (PO). Atlides halesus, Co Rd 337, Real Co, 7 October (JK). Incisalia henrici solata, Pace Bend Park, Travis Co, 24 Feb (JK). Fixsenia ontario, JACKSON Co, 11 Aug (SW). F. polingi, Davis Mts, 2 June (JK). Strymon albatrus sedecia, Sabal Palm Sanct, 13-19 Nov (PO). Cario ino melicerta, Sta Margarita Ranch, STARR Co, 13-19 Nov (PO). Heliconius charitonius vasquezae, Salineño, STARR Co, 13-19 Nov (PO); Madero, 19 Oct (CS); Peñitas, 27,28 Oct (VA, HC). Dione moneta poeyi, Sta Margarita Ranch, STARR Co, 13-19 Nov (PO). Dryas iulia moderata, Madero, 19 Oct (CS); Bentsen SP, 13-19 Nov, photo (PO). Poladryas minuta, Floyd Co, 6 May (JK). Thessalia theona bolli, Co Rd 337, Real Co, 7 Oct (JK). Thessalia chinatiensis, Alpine, Brewster Co, 28 Sept (JK). Chlosyne endeis, Freer, Duval Co, reared on Carlowrightia parviflora, 8 Oct (RB). C. definita, Rio Hondo, Cameron Co, 27,28 Oct (HC). Charidryas nycteis, Terrel, KAUFMAN Co, 22 April (VA); Daingerfield SP, Morris Co, 5 Aug (SW). Texola elada, Freer, reared on Carlowrightia parviflora, 8 Oct (RB). Anthanassa texana, Houston Arboretum, Harris Co, 10 June (common) (SW). Polygonia interrogatonia, Salineño, STARR Co, 13-19 Nov (PO). Nymphalis antiopa, LAVACA Co, 5 May (SW). Junonia evarete, Sabal Palm Sanctuary, 13-19 Nov (PO). Siproeta stelenes biplagiata, Falcon SP & Bentsen SP, 13-19 Nov, photos (PO). Biblis hyperia aganisa, Sta Margarita Ranch, 13-19 Nov (PO). Cercyonis meadii melania, near Mt Locke, Davis Mts, 28 July, 11 Aug (JK).

MOTHS: INCURVARIIDAE - Prodoxus quinquelunctella, Palo Duro Canyon, Randall Co, 8 June (RL). TINEIDAE - Hypoplesia busckiella, Palo Duro Canyon SP, 21 June (JN). OECOPHORIDAE - Menesta tortriciformella, STATE, Red Hills Lake, SABINE Co, 10 March, BL (ECK). GELECHIIDAE - Ymeldia janae, STATE, Bellaire, HARRIS Co, 24 Apr (ECK). Stereomita andropogonis, STATE, Bellaire, HARRIS Co, 1 October, BL (ECK). SESIIDAE - Alcathoe autumnalis, Mission, 27 Oct (VA). COSSIDAE - Givira anna, PARKER Co (JN). G. arbeloides, G. lucretia, Val Verde Co, 12 June (JN). TORTRICIDAE - Phaenacsiophora confixana, STATE, Red Hills Lake, SABINE Co, 10 March (ECK). Olethreutes nitidana and O. fasciatana, Shepherd, San Jacinto Co, 2 May (WD). Proteoteras arizonae, STATE, Guadalupe Mts NP (hereafter GMNP), CULBERSON Co, 15 Sept (ECK). Choristoneura pinus, Shepherd, 5 May (WD). COCHYLIDAE - Henricus huachucanus, STATE, GMNP, CULBERSON Co, 19 Aug (ECK). ZYGAENIDAE - Acolothus falsarius, Houston, Harris Co, 19 Aug (SW). A. novaricus, GMNP, CULBERSON Co, larva coll on Vitis sp. July 1989, emerged Oct, 1990! (ECK). PYRALIDAE - Eudonia torniplagalalis alialis, Procybopteryx belialis, both STATE, GMNP, CULBERSON Co, 22 June (ECK). Lygropia octonalis, Devil's River SNA, Val Verde Co, 27 Oct (JFD). Thaumetopis edonis, Kickapoo Caverns SP, KINNEY Co, 26 October (JFD). Bertelia dupla, GMNP, 20 October (ECK). Dasypygia alternosquamella, STATE, GMNP, CULBERSON Co, 21 July (ECK). Eumysia mysiella, STATE, GMNP, CULBERSON Co, 30 Mar (ECK). Melitara dentata, Devil's River SNA, 27 Oct (JFD). GEOMETRIDAE - Semiothisa snoviata, Palo Duro Canyon SP, 21 June (JN). Stenoporpia asymmetra, 21 July, S. pulmonaria, 19 Aug, S. purpuraria, 15 Sept, all STATE, GMNP, CULBERSON Co (ECK). Anacamptodes humaria, NACODOCHES Co, 30 June (SW). A. pergracilis, Concan, UVALDE Co, 12 May (ECK). Biston betularia cognataria, STATE, GMNP, CULBERSON Co, 21 July (ECK). Episemasia cervinaria, Terrel, KAUFMAN Co, 22 Apr (VA). Drepanulatrix garneri, Concan, UVALDE Co, 12 May (ECK) (also collected earlier in the year by Noel McFarland, at this locality). Lytrosia unitaria, Coldspring, San Jacinto Co, 29 Apr, bait (ECK). Pero meskaria, Kickapoo Cav SP, KINNEY Co, 26 Oct (JFD). Nepytia swetti, STATE, GMNP, CULBERSON Co, 19 Aug (ECK). Chlorosea roseitacta, GMNP, 18 May (ECK). Xerochlora martinaria, STATE, GMNP, CULBERSON Co, 21 July (ECK). Pigia multilineata, Val Verde Co, 12 June (JN). Calothysanis amaturaria, Houston, 16 Sept (SW). Stamnodes formosata, STATE, GMNP, CULBERSON Co, 22 June, 21 July (ECK). Venusia comptaria, STATE, Red Hills Lake, SABINE Co, 10 March (ECK). V. duodecemlineata, STATE, GMNP, CULBERSON Co, 30 March (ECK). Eupithecia insolabilis, E. penumbra, both STATE, GMNP, CULBERSON Co, 15 Sept (ECK). EPIPLEMIDAE - Callizzia certiorata, STATE, GMNP, CULBERSON Co, 15 Sept (ECK). SATURNIIDAE - Hemileuca juno, El Paso, EL PASO Co, 22 October, MV (ECK). SPHINGIDAE - Laotloe juglandis, Kickapoo Cav SP, KINNEY Co, 29 October (JFD). Ceratonia hageni, Daingerfield SP, Morris Co, 13 Apr (JN). Sphinx asella, STATE, CULBERSON Co, 18 May (ECK). NOTODONTIDAE - Heterocampa

obliqua, Nacodoches, 30 June (SW). Hyparpax aurostriata, Uvalde Co, 8 June (JN). ARCTIIDAE - Lycomorpha splendens, Palo Duro Canyon SP, 21 June (JN). Grammia oithona, Terrel, KAUFMAN Co, 22 Apr (VA). Grammia blakei, Palo Duro Canyon, 8 June (RL). Ectypia mexicana, GMNP, 22 June (ECK). NOCTUIDAE - Synedoida grandirena, S.F. Austin SP, AUSTIN Co, 19 Aug (SW). Litocala sexsignata, GMNP, CULBERSON Co, 30 March, Diurnal, skipper mimic (ECK). Ascalapha odorata, High Island, Galveston Co, 27 Aug (SW). Callistege diagonalis, GMNP, 21 July (ECK). Catocala consors, Kickapoo Cav SP, KINNEY Co, 19 May (JFD). C. verrilliana, Weatherford, PARKER Co, 12 May (JN). C. orba, C. gracilis, Coldspring, 29 April (ECK). C. messalina, Concan, 12 May (ECK). C. frederici, Palo Duro Canyon SP, 21 June (JN). C. desdemona, Devil's River SNA, 27 May (JFD). C. clintoni, Coldspring, 29 Apr (ECK). C. nerissa, Uvalde Co, 8 June (JN). Cydosia aurivitta, Kickapoo Cav SP, 19 May (JFD). Spragueia magnifica, Jeff Davis Co, 14-16 June (JN). S. perstructana, Kickapoo Cav SP, KINNEY Co, 26 Oct (JFD). Acontia areoloides, STATE, GMNP, CULBERSON Co, 19 Aug (ECK). Anvcteola fotelloides, Val Verde Co, 12 June (JN). Cerma cerintha, Parker Co (JN). Acronicta hasta, Red Hills Lake, 14 Apr (ECK). Panthea gigantea, GMNP, 22 June (ECK). Apamaea grotei, STATE, GMNP, CULBERSON Co, 21 July (ECK). Oligia tonsa, STATE, GMNP, CULBERSON Co, 15 Sept (ECK). Papaipema furcata, STATE, Houston, HARRIS Co, 18 October (SW). Miricavira brillians, GMNP, 21 July (ECK). Selicanis cinereola, GMNP, CULBERSON Co, 20 October (ECK). Redingtonia alba, STATE, GMNP, CULBERSON Co, 19 Aug (ECK). Achytonix praecuta, STATE, GMNP, CULBERSON Co, 22 June (ECK). Eupsilia vinulenta, Coldspring, SAN JACINTO Co, 13 Feb, bait (ECK). Pleuromelloida conserta, STATE, GMNP, CULBERSON Co, 20 Oct (ECK) (also coll at Concan, UVALDE Co, in 1989, by McFarland). Cucullia oribac, STATE, GMNP, CULBERSON Co, 22 June (ECK). Opsigalea blanchardi, Jeff Davis Co, 14-16 June (JN). Oncocnemis obscurata, STATE, EL PASO, EL PASO Co, 22 Oct (ECK). O. polingii, STATE, GMNP, CULBERSON Co, 21 April (ECK). O. pernotata, Kickapoo Cav SP, KINNEY Co, 26 Oct (JFD). O. toddi, Devil's River SNA, VAL VERDE Co, 27 May (JFD). Hexorthodes emmendata, H. citeria, Jeff Davis Co, 14-16 June (JN). Ulolonche fasciata, STATE, GMNP, CULBERSON Co, 19 Aug (ECK). Agrotis dolli, El Paso, EL PASO Co, 22 Oct (ECK). Euxoa quadalupensis, E. albipennis, GMNP, 15 Sept (ECK). Richia parentalis, STATE, GMNP, CULBERSON Co, 15 Sept (ECK). Choephora fungorum, Houston, 22-28 November (SW). Abagrotis bimarginalis, STATE, CULBERSON Co, 19 August (ECK). Heliothis subflexus, Houston, HARRIS Co, 1 November (SW). Schinia lynx, Jackson Co, 22 July (SW). S. volupta, San Antonio, Bexar Co, 17 May (JFD). S. nundina, Richmond, Ft Bend Co, 15 Sept (VA). S. regia, Donna, Hidalgo Co, 27 Oct (VA). S. gloriosa, Weatherford, (JN). S. florida, Comanche, COMANCHE Co, 21 May (SW). S. chrysellus, Palmito Hill, Cameron Co, 27 Oct (VA).

ARKANSAS. Contributors: RL, SW. The county is listed only once per locality except for county records.

BUTTERFLIES: Epargyreus clarus, JOHNSON Co, 23 Sept. Battus philenor, JOHNSON and LITTLE RIVER Cos, 23 Sept. Pterourus glaucus, MADISON Co, 23 Sept. P. troilus, MADISON, JOHNSON, SEVIER Cos, 23 Sept. P. palamedes, MILLER Co, 22 Sept. Basilarchia archippus, Johnson Co, 23 Sept. Danaus plexippus, SCOTT, POLK Cos (all by SW).

MOTHS: PYRALIDAE - Petrophila hodgesi, Donacaula longirostrella, Devil's Den SP, Washington Co, 10 June (RL). GEOMETRIDAE - Lytrosis heitzmannorum, Devil's Den SP, 10 June (RL). Hypomecis umbrosaria, Walden, Scott Co, 23 Sept (SW). ARCTIIDAE - Haploa contigua, Devil's Den SP, 10 June (RL). NOCTUIDAE - Bomolocha baltimoralis, Ola, Yell Co, 23 Sept & Metalectra richardsi, Drasteria grandirena, Devil's Den SP, 10 June (RL). Zale galbanata, Hot Springs, Garland Co, 22 Sept & Caenurgina crassicaula, St Paul, Madison Co, 23 Sept (SW). Meganola spodia, Devil's Den SP, 10 June (RL). Eumicremma minima, Hot Springs, 22 Sept (SW).

LOUISIANA. Contributors: ML, SW.

BUTTERFLIES: Epargyreus clarus, Erynnis funeralis, Lerema accius, Hylephila phyleus, Ancyloxypha numitor, all NACHITOCHEs Ps, 26 Aug (SW). Pterourus glaucus, SABINE Ps, 26 August (SW). Battus philenor, Heraclides cresphontes, Pterourus troilus, P. palamedes, NACHITOCHEs Ps, 26 Aug (SW). Colias eurhytheme, Phoebis sennae, SABINE Ps, 26 Aug (SW). LEPHIDIUM isophthalma pseudofea, Cheniere, Jefferson Parish, 14 and 29 July (ML). Anthanax texana seminole, LaRose, LAFOURCHE Parish, 6 Oct, 4 Nov (ML). Vanessa cardui, Galliano, LaFourche Ps, 18, 19 October (ML). Basilarchia arthemis astyanax, SABINE, NACHITOCHEs Pss, 26 Aug (SW). Anaea andria, NACHITOCHEs Ps, 26 Aug (SW). Danaus plexippus, SABINE, NACHITOCHEs Pss, 26 Aug (SW).

MOTHS: SATURNIIDAE - Automeris louisiana, Leeville, LaFourche Ps, 21, 22 Jan, 11 May, 26 May (ML).



ZONE 7 ONTARIO/QUEBEC. Coordinator: Ross Layberry (RL). Contributors: Richard W. Boscoe (RB); R. L. Bowles (RLB); W. J. D. Eberlie (WE); Nick Escott (NE); Peter Hall (PH); Louis Handfield (LH); Barry Harrison; Quimby Hess (QH); Margo Holt; Tom Toyomi Ikeda (TI); Nancy Ironside; Seppo Koponen (SK); Bill Lamond (BL); Jeff Larson (JL); Francois Lessard (FL); John Prideaux; Rosemary E. Scott (RS); Don Tyreman; Alan Wormington (AW); Kirk Zufelt. County or District in CAPS = record for that area.

ONTARIO. AW collected in two new locations on the shore of James Bay and Hudson Bay: Ekwan (=17 km N of Ekwan Point, Kenora District, 53.26° N, 82.07° W), and Shagamu (=5 km east, mouth of Little Shagamu River, Kenora District, 55.49° N, 86.38° W).

BUTTERFLIES: Erynnis brizo, Caistorville Woods, HALDIMAND Co, June 2, (BL). Erynnis zarucco funeralis, Point Pelee, ESSEX Co, October 14, first CANADIAN record. Erynnis persius, Ekwan, July 1-28, second NORTHERN ONTARIO record. Pyrgus centaureae, Sagamu, July 1-12 (AW). Pholisora catullus, Zurich, Huron Co, July 26 plus August 9 & 11 (QH). Carterocephalus palaemon, Presqu'île Prov Park, NORTHUMBERLAND Co, no date (WE). Ancyloxypha numitor, (one) 2 km SW of Burnstown, RENFREW Co, July 2 (RL). Hylephila phyleus, Lasalle, Essex Co, (1 male) September 3, (1 male) October 14), LATE (JL). Polites mystic, Ekwan, July 28, NORTHERN record for Ontario (AW). Poanes zabulon zabulon, (1 male collected), Spring Garden Prairie, Windsor, ESSEX Co, June 8, first CANADIAN record (JL). Pieris virginiensis, (few seen, 1 collected), 4.2 km S of Elphin, LANARK Co, May 26 (RL). Pieris occidentalis, Shagamu, August 28 (AW). Euchloe olympia, Riley Lake, Muskoka Co, May 6 (RLB). Colias eurhytheme, abundant all over eastern Ontario, mid-August to late September (RL). Colias gigantea, Ekwan, July 1-28, fourth ONTARIO record. Colias pelidne, Shagamu, July 1-17 (AW). Colias cesonia, (1 male collected), La Salle, Essex Co, Sept 19, first Ontario record since 1972 (JL). Hylolycaena hylilus, 2.5 km W of Massey, SUDBURY District, July 21 (RL). Epidemia epixanthe, Byron Bog, near London, Middlesex Co, July 2 and 9 (RS); Bog, 1.2 km N of Obatanga Prov Park, ALGOMA District, July 19 (RL); Morrison Lake, Muskoka Co, July 13; Moose Lake, Muskoka Co, July 23 (RLB). Satvrium caryaeorum, Chaffey's Locks, Leeds Co, July 1, common, found 1 larva on Butternut (Juglans cinerea), pupated July 4, emerged July 14 (PH). Incisalia niphon, Erindale College, PEARL Co, May 1 (BL). Erora laeta, Algonquin Park, near East Gate, Nipissing District, May 26 (TI). Agriades franklinii, Sagamu, July 13, second ONTARIO record; Proclossiana eunomia, Shagamu, July 1-12; Clossiana frigga, Shagamu, July 11; Clossiana freija, Shagamu, July 11; Clossiana titania, Ekwan, July 28 (all AW). Chlosyne nycteis, Byron Bog, near London, Middlesex Co, July 6 (RS). Asterocampa clyton, 1.8 km south of Hwy 403 & 2, BRANT Co, August 1 (BL). Oeneis macounii, Ouimet, Thunder Bay District, June 30 (NE). Oeneis jutta, Shagamu, July 11; Oeneis melissa, Shagamu, July 1, 2, third ONTARIO record (AW). Danaus plexippus, Big Creek, Port Royal, Norfolk Co, Apr 26, EARLY (BL).

MOTHS: (All AW, no dates). NOCTUIDAE - Lasionycta leucycla albertensis (McDunnough), Polia richardsoni (Curtis), Syngrapha parilis, Shagamu, these occur all across northern Canada, but first ONTARIO records. Panthea virginaria complex, Moosonee, first EAST of Saskatchewan. Euxoa churchillensis McDunnough, second ONTARIO record. ARCTIIDAE - Grammia quenseli (Paykull), Shagamu, first ONTARIO record. GEOMETRIDAE - Phigalia denticulata Hulst, Point Pelee, First CANADIAN record. Entephria polata (Duponchel), Shagamu, second ONTARIO record.

QUEBEC. Mostly from FL, on a trip from Baie Comeau (km 0) to Labrador City (km 560) in extreme southwest Labrador, on Hwy 389N, the first collecting reported from this area. All records FL unless otherwise indicated.

BUTTERFLIES: Erynnis icelus, km 142, 154, 170, Hwy 389N, Saguenay Co, July 2. Pyrqus centaureae freija, Bogs, km 170, 406-408, 438, Hwy 389N, July 2,3; Taiga, between Schefferville and Greenbush, Nouveau-Quebec, July 10; Bog near Schefferville, July 12. Carterocephalus palaemon, km 142, 234, Hwy 389N, July 2. Papilio brevicauda, km 154, Hwy 389N, July 2. Papilio glaucus canadensis, km 142, Hwy 389N, July 2. Colias pelidne, (1 fresh white female), km 438, Hwy 389N, July 3; (1 fresh male), Lac Allspur, near Schefferville, July 7. Satyrium caryaevorum, Mountain Road, Gatineau Park, July 7, 8, 14, abundant at Milkweed (PH). Mitoura gryneus, Gatineau Park near Eardley, Gatineau Co (45.34° N, 76.05° W), a few seen May 26 & 1 male & 1 female caught May 27 (FL); 1 female caught June 1 (PH), 1 male caught June 2 (RL); FIRST PROVINCIAL records, a range extension of 116 km north of the nearest Ontario locations. There are almost no Red Cedars in the area between these locations, but a series of relict stands is in Gatineau Park, along a very steep, south-facing escarpment. Incisalia augustinus, km 170, Hwy 389N, July 2. Incisalia henrici, flying with I. lanoraieensis in a bog nr St-Louis-de-Blandford, Arthabaska Co, May 25. Caged females refused to oviposit on Blueberry but would on Mountain Holly (Nemopanthus mucronatus), on which larvae were reared to pupae (RB). Celastrina ladon, km 142, 154, 170, 234 & 240, Hwy 389N, July 2; Lac Allspur, near Schefferville, July 7. Agriades franklinii franklinii, between Schefferville and Greenbush, July 10; Schefferville, July 12, only in tundra habitat. Proclrossiana eunomia, km 170, 438, Hwy 389N, July 2,3; Bog near Schefferville, July 12. Clossiana selene, km 142, 234, 320, 406-408, Hwy 389N, July 2,3. Clossiana bellona, km 142, 406-408, Hwy 389N, July 2,3. Clossiana frigga saqa, km 170, Hwy 389N, July 2. Clossiana polaris polaris, Lac Allspur, nr Schefferville, July 7; between Schefferville and Greenbush, Nouveau-Quebec, July 10; Schefferville, July 12, all in tundra habitat. Clossiana freija, km 170, 406-408, 438, 478, Hwy 389N, July 2,3; Schefferville, July 12. Basilarchia arthemis, km 154, Hwy 389N, July 2. Polygonia satyrus, Mountain Road, Gatineau Park, July 8 (PH). Polygonia faunus, km 154, Hwy 389N, July 2. Nymphalis antiopa, km 154, 438, Hwy 389N, July 2,3. Erebia disa, km 142, 406-408, 438, Hwy 389N, July 2,3. Oeneis jutta, km 142, 170, 240, 406-408, 438, Hwy 389N, July 2,3. Oeneis melissa, Tundra near Schefferville, July 12.

MOTHS: NOCTUIDAE - Dicestra farnhami (Grote), Poste-de-la-Baleine, Nouveau-Quebec, August 2, first record EAST of Manitoba (SK). Lasionycta perplexa (Smith), Poste-de-la-Baleine, August 1, first record EAST of Alberta (SK). Euxoa macleani chimoensis Hardwick, Poste-de-la-Baleine, July 27,29, third location for species (SK). ARCTIIDAE - Dodia albertae Dyar, Schefferville, July 9,10 (LH).



ZONE 8 MIDWEST: MISSOURI, KENTUCKY, WEST VIRGINIA, OHIO, INDIANA, ILLINOIS, IOWA, MINNESOTA, WISCONSIN, MICHIGAN. Coordinator: Leslie A. Ferge (LF). Contributors: Valeriu Albu (VA), Bob Borth (BB), Cathy Bleser (CB), George Balogh (GB), Jim Bissell (JB), Steven Bransky (SB), Tom Barina (TB), Tanya E. Bray (TEB), Charles V. Covell Jr. (CVC), Dave Cuthrell (DC), David Evers (DE), David L. Eiler (DLE), Carol Ferge (CF), J. Michael Gilligan (JMG), Ronald V. Harms (RVH), Ted Herig (TH), Jeff Javorek (JJ), Hugo Kons, Jr. (HK), Karl Korpala (KK), Bob Leary (BL), Karl Legler (KL), Ronald H. Leuschner (RHL), Eric H. Metzler (EHM), Jim Mouw (JM), Steven J. Mueller (SM), Mogens C. Nielsen (MN), Frank Olsen (FO), Tim Orwig (TTO), Barbara Padelford (BP), Loren Padelford (LP), James C. Parkinson (JCP), David K. Parshall (DKP), Dennis P. Profant (DPP), Mary Alexis Pfutzenreuter (MP), John Perona (JP), Roy W. Rings (RWR), Ron Rockwell (RR), Brian Scholtens (BS), Clark Schultz (C), Henri C. Seibert (HCS), Ernest Shull (ES), James Scott (JS), Ann Swengel (AS), Scott Swengel (SS), S. N. Stephenson (SNS), Edward G. Voss (EV), Amy Wolf (AW), Dave Winter (DW), John Weber Jr. (JW), James R. Wiker (JRW). GENERAL COMMENTS: Erratic weather conditions were reported in parts of the zone, with above average rainfall in most areas, hampering weekend field work for a number of contributors. The season's most noted event was the outbreak of V. atalanta, reported as abundant in most of the states in the zone, with hundreds seen in some localities. This appears to have been the result of an early spring northward migration, which had reached as far as north-central Wisconsin by late April. A. andria was also more common than usual, with records from Ohio, Indiana, Kentucky, southern Illinois and southwestern Iowa. Migrants appearing northward in numbers included J. coenia and E. claudia, first reported from Minnesota and Wisconsin in early May and early July, respectively. E. lisa, not reported last year, arrived in southern Wisconsin by mid-June, and was found in Michigan's Upper Peninsula by mid-August. E. protodice was found in scattered localities, but in small numbers, apparently continuing to decline from its 1988 abundance. P. sennae, seen in many south-central Illinois counties last season, was scarcely seen there this year. New county records are indicated by county names in CAPITAL letters.

MISSOURI. BUTTERFLIES: A. aesculapius, E. phaeton ozarkae, 10 Jun, Wayne Co. S. caryaevorum, 10 Jun, CARTER Co (DW). **MOTHS:** PYRALIDAE - Scrobasis palliolela & Salebriaria nubiferella, 11 June, Miller Co (RHL). SATURNIIDAE - Anisota virginienensis, 9 June, CARTER Co (DW). NOCTUIDAE - Metalectra richardsi, Acronicta pruni, A. lithospila, 11 June, Miller Co (RHL).

KENTUCKY. BUTTERFLIES: C. bellona, 1 Apr, Louisville, not seen last year. V. atalanta, 22 Apr - 14 Oct, more than ever seen before in Louisville. H. leonardus, E. protodice, A. andria, 7 September, Hopkins Co. P. yehl, E. dion, P. protodice, Z. cesonia, E. nicippe, N. iole (abundant), H. hyllus, E. portlandia missarkae, S. appalachia (common), 8 Sept, Fulton Co (all CVC).

WEST VIRGINIA. VA submitted an extensive list of moths, noting a wet spring, but average summer and fall. Catocala were down, but Acronicta were very rich.

MOTHS: SESIIDAE - Paranthrene pellucida, 18 June - 2 July; Synanthedon rhododendroni, 17 June; S. viburni, 20 July; S. rubrofasciata, 10 June - 7 Sept; all Kanawha Co. GEOMETRIDAE - Glena cribrataria, 27-29 July, Wyoming Co; Eufidonia notataria, 26 May; Hypagyrtis piniata, 12 August; Phigalia denticulata, 2 Feb; all Kanawha Co. Probole nepiasaria, 27-29 July, Wyoming Co. Plagodis kuetzingi, 8 May & Caripeta divisata, 2 Sept, Kanawha Co. Nematocampa limbata, 17 June and Heterophleps refusaria, 7 May, Kanawha Co. ARCTIIDAE - Haploa confusa, 20 July, Pocahontas Co. Spilosoma dubia, 7 May, 1 June, Kanawha Co. NOCTUIDAE - Hypsoropa hormos, 30 Apr; Cissusa spadix, 10 Apr; Catocala subnata, 23 July; all Kanawha Co. Panthea acronyctoides, 27-29 July, Wyoming Co. Colocasia flavicornis, 2 Apr, Kanawha Co & 27-29 July, Wyoming Co. Acronicta dactylina, lepusculina, noctivaqa and longa, 27-29 July, Wyoming Co. Lithophane hemina, 8 May & L. laticinerea, 13 Apr, Kanawha Co. Copivaleria grotei, 2 Apr, Braxton Co. All records from (VA).

OHIO. The Ohio Lepidopterists butterfly summary was compiled by DKP, and the moth data by EHM. 1990 was officially the wettest year on record for Ohio, with 51 inches of rain compared to the normal of 36 inches. Spring collecting was almost impossible with rain every weekend, while the summer months were only a little better. Enthusiasm of moth collectors was not dampened, however, as the Ohio Lepidopterists concentrated on microlepidoptera for the Ohio Survey of Lepidoptera. Although most of the micros remain to be identified, a list of 94 micro species (mostly Tortricidae) collected by DPP and RWR was submitted. Butterflies seen in unusual abundance include A. hegon, C. neglecta-major and A. andria. V. atalanta was everywhere all season. Migratory species present included A. campestris, E. lisa and E. claudia.

BUTTERFLIES: E. baptisiae, 3 Sept, JACKSON, PIKE Cos (DKP). N. lherminier, 15 Aug, BROWN Co (DKP). H. phyleus, 17 Aug, Cuyahoga Co, (RR). H. leonardus, 25 Aug - 3 Sept, Jackson, Pike Cos (DKP). H. sassacus, 1-16 June, ASHTABULA Co (RR). P. coras, 25 Aug, TUSCARAWAS Co (DKP). P. themistocles, 26 Aug, ASHLAND Co (DKP). P. origenes, 24 June, PIKE Co (DKP). W. egeremet, 26 Aug, JACKSON Co (DKP). E. dukesi, 9-18 July, Lorain Co (RR). A. hegon, very common in Apr & May, Adams & Scioto Cos (DKP). P. virginensis, 27 Apr - 6 May, Geauga, Medina Cos (RR). E. lisa, 15-26 Aug, BROWN, JACKSON & PIKE Cos (DKP). E. helleoides, 28 August, Morrow Co, may be last Ohio colony (DKP). S. edwardsii, 24 June, JACKSON Co (DKP). S. carvaeorum, 25 June, HIGHLAND Co (DKP). C. neglecta-major, 7 May - 5 June, Adams, ROSS, Scioto, Vinton Cos, common (DKP). L. bachmanii, 3 Sept, JACKSON, PIKE Cos (DKP). A. vanillae, 18 July, ADAMS Co, second state record, reared from larva on Passiflora lutea (Peter Whan via DKP). E. claudia, 26 Aug, JACKSON Co (DKP). C. bellona, 26 August, PIKE Co (DKP). C. nycteis, 15 August, BROWN Co (DKP). E. phaeton, 13 June, Carroll & HARRISON Cos (RR). V. atalanta, 26 June, MEIGS Co (HCS). A. andria, 22 Apr, Scioto Co, common (DKP). A. celtis, 8 Aug, JACKSON Co (DKP). E. anhedon, 20 May - 17 June, Harrison & WASHINGTON Cos (RR). S. appalachia, 2-7 July, HENRY & Lorain Cos (DKP, RR). H. sosybius, 15-26 Aug, Adams, Jackson, ROSS & Scioto Cos (DKP).

MOTHS: GEOMETRIDAE - Epelis truncataria, 17 May, SUMMIT Co, STATE RECORD, common diurnally in cranberry bog (JB). SATURNIIDAE - Anisota senatoria, 10 Sept & Callosamia angulifera, 8 July, COLUMBIANA Co (RWR). SPHINGIDAE - Sphinx chersis, S. drupiferarum, Eumorpha achemon, HANCOCK Co (JMG). ARCTIIDAE - Clemensia albata, 27 Aug; Holomelina immaculata, 17 August; Grammia figurata, 1 June; all COLUMBIANA Co (RWR). NOCTUIDAE - Idia julia, 8 July; Dyspyralis puncticosta, 24 July; Catocala epione, 17 Aug; C. flebilis, 10 Sept; all COLUMBIANA Co (RWR). Agrapha oxygramma, 21 Sept, HOLMES Co (RWR). Panthea furcilla, 8 July; Apamea lignicolora, 7 Jul; Spodoptera exigua, 6 Oct; all COLUMBIANA Co (RWR). S. eridania, 6 Oct, COLUMBIANA Co, STATE RECORD (RWR). Spartiniphaga inops, Papaipema leucostigma, silphii and beeriana, 19-21 September, Erie Co, on wet prairie (GB). Copipanolis styracis, 14 March, HOLMES Co (RWR). Adita chionanthi, 8 Sept; Polia purpurissata, 17 Aug (third state record); both COLUMBIANA Co (RWR). Tricholita notata, 19-21 September, Erie Co (GB). Euagrotis forbesi, 26 June, COLUMBIANA Co, STATE RECORD (RWR). Schinia rivulosa, 30 July, COLUMBIANA Co (RWR).

INDIANA. ES and DLE reported a poor season, with fewer species found and smaller numbers of individuals than usual, yet rainfall and weather conditions appeared more favorable in contrast to the dry conditions of the previous two seasons. However, ES reported a good year for Catocala at bait.

BUTTERFLIES: E. clarus & T. bathyllus, 3 Aug, JENNINGS Co (DLE). W. egeremet, 9 July, NOBLE Co (DLE, ES). A. logan, 15 June, Kosciusko Co; 9 July, NOBLE Co (DLE, ES). H. cresphontes, 6 Aug, FRANKLIN Co (DLE). P. virginensis, E. midea, 16 Apr, Jennings Co (DLE). E. comyntas, 3 Aug; C. arqolus ladon, 16 Apr; P. comma, 3 Aug; all JENNINGS Co (DLE). P. proqne, 6 Aug, FRANKLIN Co (DLE). N. antiopa, 16 Apr, JENNINGS Co (DLE). V. atalanta, 15 March - 22 Oct, Wabash Co, 800-900 seen on Cotoneaster flowers on 18 May (DLE, ES). B. arthemis astyanax & A. celtis, 3 Aug, JENNINGS Co (DLE). A. andria, 10 Sept, Wabash Co (ES). C. gemma, 16 July, CRAWFORD Co, second state record (SM).

MOTHS: ARCTIIDAE - Cycnia inopinatus, 30 June, Kosciusko Co (ES). NOCTUIDAE - Catocala innubens, 24-26 July, Wabash Co (DLE). C. robinsoni, 12 Sept; C. dejecta, 10 Sept; C. relictata, 8-12 Sept; C. marmorata, 19 July; C. junctura, 24 July; C. dulciola, 28 June; all Wabash Co, at bait (ES). Eucrotopcnemis fimbriaris, 18 September, LaGrange Co (GB). Choephora fungorum, 16 June, Wabash Co (ES).

ILLINOIS. BUTTERFLIES: H. ottoe, 5 July, Cass Co, new locality (JRW). A. campestris, 22 May (early), Pope Co (JRW). P. byssus, 6 July, Peoria Co (DLE). P. massasoit, 28 June, Lake Co (JRW). E. dukesi, 28 September, Union Co (JRW). A. aesculapius, 23 May, 27 Aug, Jackson Co; 17 July, Union Co (JRW). A. belli, 23 May, Jackson Co, det by John Burns (JRW). P. protodice, 22 Aug, Whiteside Co (sight, AS). E. olympia, 1 May, Carroll & Whiteside Cos (sight/photo, AS); 11 May, Mason Co (JRW). P. sennae, 13 Sept, Mason Co, few seen (JRW). E. nicippe, 18-19 July, Pope and Jackson Cos (JRW). M. grynea, 24 April, Johnson Co (photo, AS); 15 July, CASS Co (JRW). C. bellona, 10 August, Iroquois Co (SB). C. gorgone, 1 May, Whiteside Co; 22 August, Carroll Co (sight, AS); 8-11 May, Hancock & Mason Cos (JRW). E. phaeton, 27 June, DU PAGE Co (JRW). A. andria, 24-26 April, Johnson, Pope, Massac & Union Cos (sight/photos, AS). E. creola, 17 July & 21 Aug, Union Co; 21 Aug, Jackson Co (all JRW).

MOTHS: GELECHIIDAE - Ethmia monticola fuscipedula, 23 Apr, 25 Jun - 10 Jul, MENARD Co, STATE RECORD, det George Godfrey (JRW). YPONOMEUTIDAE - Yponomeuta atomocella, 1-8 June, Menard Co (JRW); 12 June, Mason Co (RHL). COSSIDAE - Inguromorpha basalis, 17 July, Union Co (JRW). TORTRICIDAE - Eucosma giganteana, 29 June - 10 Aug, Menard Co (JRW). LIMACODIDAE - Parasa indetermina, 8 July, MENARD Co (JRW). THYATIRIDAE - Habrosyne gloriosa, 20 May, Union Co (JRW). SPHINGIDAE - Ceratomia hageni, 15 June, Grundy Co (SB). Sphinx franckii & Eumorpha fasciata, 21 Aug, Union Co (JRW). E. pandorus and E. achemon, 7 July, Grundy Co, abundant at phlox (SB). ARCTIIDAE - Phragmatobia lineata, 30 June, Iroquois Co, abundant (SB). NOCTUIDAE - Melipotis jucunda, 25 May, MENARD Co (JRW). Catocala serena, 8 July; C. robinsoni, 15 September; C. angusi, 12 Sept; all MENARD Co (JRW). C. insolabilis, 14 Jul 1985, MENARD Co & 17 Jul, Union Co (JRW). C. nebulosa, 12 Sept, MENARD Co (JRW). C. abbreviata, 25 Jun - 10 Jul, MENARD Co (JRW); 30 June, Iroquois Co (SB). Nycteola cinereana, 12 June, Mason Co (RHL). Tarachidia semiflava, 25 June - 10 Aug, Menard Co (JRW); 21 July, Mason Co (SB). Cirrophanus triangulifer, 18 August, MENARD Co (JRW). Euxoa immixta & E. declarata, 12 June, Mason Co (RHL). Heliothis subflexus, 21 July, Mason Co (SB). Schinia lucens, 5 July, Mason Co (JRW).

IOWA. BUTTERFLIES: H. phyleus, 4-6 Oct, Pottawattamie & Fremont Cos (BP, LP); 23 Oct, Madison Co (BS). H. ottoe, 15 June, Fremont Co (BP). H. leonardus ssp, Mills Co, intermediate between ssp leonardus and pawnee; Harrison Co, mostly like ssp pawnee, but somewhat intermediate to leonardus; Plymouth and Woodbury Cos, ssp pawnee; coll by Steve Spomer & Tim Orwig, det by James Scott (JS). A. arogos, 14 July, PALO ALTO Co (RVH). P. viator, 14 July, Palo Alto Co (RVH). P. protodice, 22 July, Fremont Co; 4 Oct, Pottawattamie Co; single individuals (BP); 30-31 July, CALHOUN & KOSSUTH Cos (RVH). E. nicippe, mid-June, Linn Co (FO); 23 October, Madison Co (BS). N. iole, 26 September, Fremont Co, 4 Oct, Pottawattamie Co (BP). G. xanthoides, 18 July, IDA Co, in fen (TTO). E. helleoides, 15 July, BUCHANAN Co (TTO, D. Schlicht). S. acadicum, 4 July, Linn Co (FO). I. henrici, 21 April, MILLS Co (DC, TTO); 26 April, Fremont Co (BP). L. marina, 11 July, Fremont Co (BP). G. lygdamus, 4 May, SAC Co (DC); 14-27 May, Pocahontas Co (RVH). L. melissa, 18 June, Pocahontas Co (RVH). S. idalia, 15 July, Monona Co (BP, LP); 30 July, CALHOUN Co (RVH). A. andria, 21 August,

Fremont Co (BP, TEB); 26 Sept, LINN Co (FO).

MOTHS: TORTRICIDAE - Eucosma giganteana, 3 Aug, Buena Vista Co (RVH). NOCTUIDAE - Catocala lacrymosa, 1 Aug, Sac Co (RVH). C. insolabilis, 13 July & C. relictata, 18 July, Franklin Co (JM). C. vidua, 27 July; C. maestosa, 28 Aug; C. nebulosa, 26 Aug; C. subnata, 2 Sept; all Hardin Co (JM).

MINNESOTA. BUTTERFLIES: E. baptisiae, 9 July, Houston Co; 30 July - 6 Aug, Winona Co (DC). H. leonardus, 16-17 Aug, Winona Co (DC). P. origenes, 25 June, Clay Co (AS); 10 July, Fillmore Co; 30 July, Winona Co (DC). A. arogos, 16-19 Jul, Lincoln, Pope, Clay Cos (sight, AS). A. hianna, 24 May, Fillmore Co (DC). P. protodice, 18 June, 16 July, Lincoln Co; 18-19 July, Clay Co (AS). E. lisa, 9 July, Houston Co (DC). G. xanthoides, 18 June - 19 July, Lincoln, Clay Cos (AS); 10 July, Fillmore Co (DC). E. epixanthe, 16-17 July, Cass, Hubbard Cos, (JW). S. caryaevorum, S. melinus, 6 July, Winona Co (DC). L. marina, 9 July, Houston Co (DC). G. lygdamus couperi, 28 May, Isanti Co (DC). L. melissa melissa, 30 May, 10 July, Fillmore Co (DC); 18 June - 16 July, Lincoln, Clay, Norman, and Becker Cos (sight, AS). L. melissa samuelis, 30 July - 7 Aug, Winona Co (DC). E. claudia, 18 June - 19 July, Clay, Douglas, Lincoln, and Pope Cos (sight, AS). S. idalia, 16-20 July, Clay, Douglas, Lincoln, Norman, Otter Tail and Pope Cos (sight, AS). E. phaeton, 9 July, Houston Co (DC). E. anthedon, 14 July, Hubbard Co, at paper birch sap from Yellow-Bellied Sapsucker wounds (JW). C. tullia inornata, 14-15 June, Isanti, Sherburne Cos (DC); 16 June, Rock Co (JS); 15 July, Cass Co (JW).

WISCONSIN. The 1990 season was marked by erratic weather conditions, particularly in the spring and fall. Freezing conditions, and snowfall, occurred in some areas in mid-May, and may possibly be responsible for the low numbers of some butterflies, such as the Lycaeides spp whose larvae are active at that time. The season was quite wet, with rain nearly every weekend. Despite the often impaired field opportunities, 20 contributors provided a wealth of data, covering all parts of Wisconsin.

SPECIES OF UNUSUAL ABUNDANCE: The state was invaded by V. atalanta during late April, following the onset of well above normal temperatures resulting from a strong and steady south wind. Sightings as far north as Outagamie, Brown and Lincoln Counties were reported 23-27 April, and hundreds were seen in several localities, with at least two broods produced (LF, HK, BL, KL, MP, CS, SS, AS, JRW). Small populations of P. protodice are persisting in the southwestern quarter of the state. Northeastern Wisconsin was plagued with a Forest Tent Caterpillar outbreak, with thousands of moths coming to lights in early July in Marinette and Oconto Counties, and extreme abundance in Outagamie County (LF, HK, MN). Extensive trapping by the Wisconsin Department of Agriculture revealed Gypsy Moth populations in 29 eastern counties, with record numbers east of Lake Winnebago from Door through Sheboygan Counties.

MIGRANTS: E. lisa, not seen last year, arrived in Grant and Dane Counties by 11 June, and was noted in Crawford, Monroe, Sauk and Trempealeau Counties through 10 September (GB, LF, KL, JCP, AS). N. iole was seen in Crawford and Sauk Counties (JCP, SS). E. claudia was found north to Jackson and Eau Claire Counties in July and August (LF, KL, SS, AS). J. coenia occurred from 2 May - 30 September, extending north to Outagamie and Marathon Counties, establishing a large breeding colony in Outagamie County (HK, KL, JCP, AS, CS).

BUTTERFLIES: A. lyciades, 16 June, GRANT Co, 3rd state record (JCP). E. martialis, 27 May, Burnett Co (JCP). E. persius, 27 May, Burnett Co (JCP); 28 May, MEMONINEE Co (HK); 4 June, CLARK Co (LF); 6 June, Monroe Co (AS). E. catullus, 2 Aug, Brown Co (MP); 16-29 July & 26 Aug, Winnebago Co (HK, CS). T. lineola, 19 June - 9 July, BROWN Co (MP); 14 July, ONEIDA Co (CF, LF). H. leonardus, 9 Aug, CLARK, Eau Claire, Jackson Cos, slight intergradation toward ssp pawnee (LF); 17 Aug, GREEN LAKE Co (BL). H. metea, 6 May, MONROE Co; 28 May, EAU CLAIRE Co (LF). P. verna, 23-26 July, DOOR Co (JRW). P. massasoit, 6 July, Oconto Co (LF); 9 July, Brown Co (MP); 10-21 July, Winnebago Co (HK), nectaring on Asclepias incarnata (CS); 13 July, COLUMBIA Co (KL); 20 July, Outagamie Co (HK); 22 July, Ozaukee Co (BB, TB); 23 July, Walworth Co (AS). P. viator, 17 July-16 Aug, Outagamie Co, 24 July, CALUMET Co (HK); 18 July - 12 Aug, Winnebago Co, on Asclepias incarnata (CS); 22 July, Ozaukee Co (BB, TB). E. dion, 12 July, Outagamie Co (HK); 18 July, TREMPALEAU Co (sight, KL); 22 July, Ozaukee Co (BB, TB); 23 Jul - 4 Aug, Door Co (BB, TB, JRW). A. hianna, 27 May, Douglas Co (JCP); 28 May, Sauk Co (AS); 4 June, CLARK Co (LF). G. xanthoides dione, 2-3 July, Sauk Co (SS, AS); 10 July, Bayfield Co (AS); 18 July, TREMPALEAU Co (photo, KL). E. epixanthe and dorcas, 10 July, Bayfield Co (photos, AS). E. helioides, 4 July, Oconto Co (LF); 18 July, TREMPALEAU Co (photo, KL). E. amyntula, 27 May, Burnett, Douglas Cos (JCP). L. idas nabokovi, 2-6 July, Oconto Co, low numbers observed (CF, LF). L. melissa samuelis, 28 May - 28 June and 20 July - 10 Aug, Adams, Burnett, Clark, Eau Claire, Green Lake, Jackson, Juneau, MARQUETTE, Monroe, Portage, Waushara, Wood Cos, small populations (50 or less) in all but three of 34 sites (report to USF&WS by Cathy Bleser, with data from CB, LF, AS, N. Braker and E. Epstein). P. saepiolus, 10 July, Bayfield Co (AS). C. muticum, 18 July, Fond du Lac Co, 15 seen in 30 minutes (BL). S. idalia, 4 July, Sauk Co, one seen (BB, TB); 4 July - 8 Aug, Green Co (AS); 24 July - 7 Aug, Dane/Iowa Co, new site (AS). C. freija, 24 May, DOUGLAS Co; 30 May, FOREST Co (photo, AS); 27 May, Oneida Co (JCP). C. gorgone, 26 May - 15 Sept, OUTAGAMIE Co (HK); 24 May - 9 Sept, Winnebago Co, larvae on Ratibida pinnata & Helianthus sp (CS); 27 May - 26 Aug, Grant, Monroe, and Sauk Cos (AS). P. batesii, 2 July, OCONTO Co (CF, LF). P. satyrus, 27 May, Forest Co (photo, KL). P. faunus, 22 May and 28 Aug, Bayfield Co (AS); 27 May, Douglas Co & 11 July, Marathon Co (both JCP). J. coenia, 20 July - 5 Oct, OUTAGAMIE Co (HK); 26 Sept, Marathon Co (JCP). A. celtis, 19 July, OUTAGAMIE Co (HK). C. tullia inornata, 23 June - 4 July, MARINETTE Co (AW, MN); 28 June, OCONTO Co (AW). O. chryxus strigulosa, 23 May, BAYFIELD Co (photo, AS); 27 May, Douglas Co (JCP).

MOTHS: SESIIDAE - Albuna fraxini, 14-16 June, Milwaukee Co, at Lesser Peachtree Borer pheromone (DW). TORTRICIDAE - Acleris minuta, Clepsia melaleucaria, 17 June, Ozaukee Co (RHL). PYRALIDAE - Crambus murellus, 11-12 June, Grant Co, on dry prairie (GB). GEOMETRIDAE - Semiothisa pallidata, 28-29 June 1986, 27-29 June 1987, GRANT Co, STATE RECORD, det by D. C. Ferguson (GB). Econista dislocaria, 11-12 June, GRANT Co, STATE RECORD (GB). Dysstroma hersiliata, 17 June, Ozaukee Co (RHL). SATURNIIDAE - Eacles imperialis, 14 July, Green Co (BB, TB). Hemileuca maia, 17 June, OZAUKEE Co, larvae feeding on Salix candida and Menyanthes trifoliata growing in close proximity, adults emerged 23 September (LF, MN). SPHINGIDAE - Dolba hyloeus, 16 July, MARATHON Co (JJ); 4 August, JACKSON Co, at flowers of Saponaria officinalis (LF). Sphinx canadensis, 28 July, BAYFIELD Co (SB). Hemaris gracilis, 27 May, Burnett Co (JCP). Eumorphia achemon, 14 July, Green Co (BB, TB). NOTODONTIDAE - Notodonta scitipennis, 17 June, OZAUKEE Co (LF). ARCTIIDAE - Arctia caja, 28 July - 1 Aug, BAYFIELD Co, abundant (SB); 17 Aug, Vilas Co (JCP). Apantesis carlotta, 26 May, Cyrcia inopinatus, 1 June, Green Co, on dry prairie (BB, TB). NOCTUIDAE - Macrochilo bivittata, 4 July, OCONTO Co; 21 July, KENOSHA Co; 3 August, JACKSON Co (LF). Catocala serena, 16 Aug, OUTAGAMIE Co; 23-25 Aug, WINNEBAGO Co (HK). C. palaeogama, 23 August, WINNEBAGO Co (HK). C. nebulosa, 9 Sept, Grant Co (JCP). C. subnata, 2 August - 15 Sept; C. luciana, 28 Aug - 14 Sept, OUTAGAMIE Co (HK). C. illecta, 3 July, Richland Co (BB, TB). C. abbreviatella, whitneyi, 3-14 July, Green, Sauk Cos, abbreviatella larvae on Amorpha canescens 26 May (BB, TB). Rachiplusia ou, 7-8 Sept, IOWA, KENOSHA Cos (JCP). Cerma cora, 11-12 June, GRANT Co (GB). Tarachidia binocula, 14 July, Green Co (BB, TB). Bagisara gulnare, 14 Jul, GREEN Co (BB, TB). Oligia bridghami, 31 Jul, BAYFIELD Co (SB). Parastichtis discivaria, Spartiniapha panatela, 4 July, OCONTO Co (LF). Papaipema cerina, 8-9 Sept, Grant, Trempealeau Cos (LF, JCP). P. lysimachiae, 16 August, WAUKESHA Co (LF); 7 Sept, IOWA Co (JCP); 8 Sept, TREMPALEAU Co (LF). P. baptisiae, 7-15 Sept, TREMPALEAU, WAUKESHA, KENOSHA Cos, det E. Quinter (LF). P. furcata, 23-24 Aug, WINNEBAGO Co (HK). P. maritima, 14 Sept, WAUKESHA

Co; 6 Oct, Kenosha Co, det E. Quinter (LF). P. eupatorii, 7 Sept, IOWA Co (JCP); 6 Oct, KENOSHA Co (LF). P. sciata, 14 Sept, WAUKESHA Co (LF). P. beeriana, 8 Sept - 6 Oct, Kenosha Co (JCP, LF); 14 Sept, Waukesha Co (LF). Hydroecia stramentosa, 9 Sept, Grant Co (JCP). Maqusa orbifera, 16 June, Waukesha Co (HK). Stiriodes obtusa, 16 June, Grant Co; 7 Sept, IOWA Co (JCP). Hillia iris, 14 Sept & Brachylomia algens, 20 July, WAUKESHA Co (LF). Oncocnemis riparia, 3 July, Sauk Co (BB, TB). Tricholita notata, 8 Sept, Kenosha Co (JCP). Euxoa divergens, 2 July, MARINETTE Co (MN); 4 July, OCONTO Co (LF). Heliothis borealis, 27 May, Burnett Co, barrens, on violet (JCP). Schinia indiana, 4 June, Eau Claire Co (CF, LF). Schinia septentrionalis, 8 Sept, Kenosha Co (JCP). Schinia lucens, 7-14 July, Green Co (BB, TB).

MICHIGAN. MN reported a peculiar year weatherwise, with above normal temperatures January - March, but May about three degrees below normal. Rain was above normal, except for March & August. Butterfly species appeared down from previous years, while moth species and numbers were generally good. Catocala species and numbers continued to be less than in previous years, especially at bait, although TH and MN recorded 37 species statewide. Forest Tent Caterpillar and Gypsy Moth defoliations continued in northern counties, with the oak and aspen forests especially hard-hit. V. atalanta was extremely abundant all year statewide; large numbers were seen along roads in Barry County in April. D. plexippus was again common, but no significant migrations were seen.

BUTTERFLIES: H. leonardus, 15 Aug, DICKINSON Co (MN). P. zabulon, 27 June and 8-9 Sept, Cass & St. Joseph Cos (MN). P. protodice, 7 July, Emmet Co, at Sisymbrium altissimum flowers (sight, EV). P. virginianus, 24 Apr, Cass Co (MN). E. lisa, 20 July - 15 Aug, Clinton & Dickinson Cos (MN, SNS). F. tarquinius, 8-12 Sept, Cass & St. Joseph Cos, ovipositing on Smilax sp vine with woolly aphids (MN). I. eryphon, 27-28 May, Chippewa Co (MN). L. melissa samuelis, 10 June, Montcalm Co (MN). C. freija, 18 May, Dickinson, Iron Cos (TH, MN). C. frigga, 27-28 May, Luce, Schoolcraft Cos (MN). S. appalachia leeuwi, 24 July - 15 August, DICKINSON, MANISTEE Cos (MN, SNS). O. macounii, 7 June, Isle Royale Nat'l Park, Keweenaw Co (SM). O. jutta ascerta, 27 May, Luce Co (MN).

MOTHS: HEPHALIDAE - Sthenopis quadriguttatus, 3 July, DICKINSON Co, at UV (MN). OECOPHORIDAE - Ethmia monticola fuscipedella, 17 Aug, Oceana Co, dunes (GB). SESTIIDAE - Alcatheae caudata, Synanthedon bolteri, 15-25 July, Allegan Co; S. fulvipes, 23 May - 4 June, Allegan, Kalamazoo Cos (GB). TORTRICIDAE - Archips georgiana, 29 June, Allegan Co (GB). PYRALIDAE - Crambus awemellus, 23-25 Aug, Maxton Plains, Drummond Island, Chippewa Co (GB). C. watsonellus, 19-25 Aug, Cheboygan, Chippewa, Emmet, Mackinac Cos, common on wet beach flat/interdunal fen habitat (GB). Loxocrampus awemensis, 17-20 Aug, Mackinac, Oceana Cos, dunes (GB). Thaumatopsis pectinifer, 10-17 Aug, Muskegon, Oceana Cos, common on dunes (GB). T. solutella, 6 Oct, Allegan Co, moist prairie remnant (GB). GEOMETRIDAE - Itame sulphurea, 28 June, Allegan Co, bog (GB). Epelis truncataria, 5 May - 2 June, Kalamazoo, Montcalm Cos, bogs and barrens (GB). Semiothisa denticulata, 11 Aug, Muskegon Co, dunes (GB). Idaeia violacearia, 10-11 Aug, Muskegon Co, new state record '89, persistent population on dunes (GB). Eupithecia bowmani, 24 Apr, Cass Co (MN); 27 Apr, Kalamazoo Co (GB). LASIOCAMPIDAE - Malacosoma californicum pluviale, 16 August, KEWEENAW Co (MN). SATURNIIDAE - Eacles imperialis pini, 1 July, Otsego Co (MN). SPHINGIDAE - Sphinx canadensis, 4 July, DICKINSON Co (MN). Hemaris gracilis, 2 June, Montcalm Co (GB); Houghton Co (JP). Eumorpha achemon, 17 Aug, Oceana Co (GB). LYMANTRIIDAE - Lymantria dispar, 27 July - 31 Aug, Monroe, Otsego Cos, egg masses on trembling aspen (MN). NOCTUIDAE - Synedoida adumbrata alleni, 28 May, Schoolcraft Co (MN). Zale calycanthata, 28 Apr, Otsego Co (MN). Euparthenos nubilis, 2 Nov, Clinton Co, late record (TH). Allotria elonympha, 27 June - 27 July, Cass & MONROE Cos (MN). Catocala coelebs, 9 Sept, HOUGHTON Co (JP). C. alabamae complex, 27 July - 4 Aug, Barry & MONROE Cos (MN). C. dulciola, 27 June - 18 July, Cass Co (MN). C. similis, 15 Aug, DICKINSON Co (MN). C. connubialis, 10 to 27 July, Monroe Co (TH, MN). C. semirelicta, 21 Aug - 1 Sept, Mackinac and Otsego Cos (TH, MN). Argyrogramma basigera, 28 Sept, CASS Co (MN). Agrappa oxygramma, 8-11 Sept, Cass and ST. JOSEPH Cos (MN). Syngrapha viridisigma, 16 Aug, KEWEENAW Co (MN). Merolonche dolli, 28 Apr, OTSEGO Co (TH, MN). Papaipema cerina, 28 Sept, Cass Co, at UV and bait trap (MN). P. rutila & astuta, 28 Sept, Cass Co (MN). P. sciata, 6 Oct, Allegan Co, moist prairie remnant (GB). Lithophane amanda, 24-28 Apr, CASS, Otsego Cos; L. disposita, lepida and tepida, 27 Apr, Otsego Co (MN). Feralia jocosca and major, 4 May, SCHOOLCRAFT Co (DE). Adita chionanthi, 26 Sept, Otsego Co (MN). Agrotis obliqua, 27 & 28 May, CHIPPEWA, SCHOOLCRAFT Cos (MN). Copablepharon longipenne, 17 Aug, Oceana Co, common on dunes, second time collected in Michigan (GB). Euxoa sinelinea, 20 July, Otsego Co (MN). E. aurulenta, 17 Aug, Oceana Co, dunes, late record (GB). Metalepsis fishii, 19 May, CHIPPEWA Co (MN). Ufeus plicatus, 2 Apr and 2-20 Nov, BAY, Ingham Cos (KK). Heliothis borealis, 28 May, LUCE Co (sight, MN). Schinia indiana, 2 June, Montcalm Co (GB). S. nundina, 11 August, Muskegon Co (GB).



ZONE 9 SOUTHEAST: ALABAMA, FLORIDA, GEORGIA, MISSISSIPPI, NORTH CAROLINA, SOUTH CAROLINA, TENNESSEE, VIRGINIA, BERMUDA. Coordinator: Andrew F. Beck. Contributors: Lee Adair (LA), Dave Baggett (HDB), Warden Beebe (WB), John Calhoun (JVC), Dan Callahan (DC), Dave Eiler (DLE), Ron Gattelle (RG), Rick Gillmore (RIG), Bill Grooms (WG), Grooms and Pavulaan (G&P), Bill Hark (WTH), John Kutis (JK), Marc Minno (MM), Tom Neal (TN), Harry Pavulaan (HP), Chuck Sekerman (CAS), and the Southern Lepidopterists' Society Newsletter (SLSN, Leroy Koehn, editor). Thanks to all. The 1990 collecting season was characterized in the southeastern USA by warm weather and less-than-normal rainfall, although it was wetter than a few of the previous seasons. (I have no climate info from Bermuda, but then I have never received a single collection record from there in 7 years of coordinating!) Several contributors commented on the early start and late end to the season, and several sent local newspaper articles on unusually temperate local weather. The phenomenon was world wide. The 3 major climatological systems for recording Earth's temperature all reported that 1990 was the warmest year on record (see SCIENCE, 18 January 1991, p.274). With net in hand, we are seeing range extensions up and down the east coast, and we're seeing many early and late records. We didn't receive reports from many of our regular contributors. We know that a number of these folks have abandoned this society for the more informal, interactive environment of local societies, but we encourage them still to send us collection records so they may be published in a more widely read and permanent literature. For this report, we have drawn records from local newsletters to which we have access. Abbreviations used: Co = County, CR = County Road, Crk = Creek, E = east, Ft = Fort, mi = mile(s), Mt = mountain, N = north, NF = National Forest, nr = near, NW = northwest, NWR = National Wildlife Refuge, p = page, R = River, Rd = Road, S = south, SF = State Forest, SP = State Park, SR = State Road, St = Saint, var = variety, W = west.

ALABAMA. BUTTERFLIES: E. juvenalis, Conecuh NF, Covington Co, Mar 21; SR-49 & Tallapoosa R, Tallapoosa Co, Mar 24. E. horatius, Conecuh NF, Covington Co, Mar 21. L. accius, Dauphin Island, Mobile Co, Mar 22. B. philenor, Conecuh NF, Covington Co, Mar 21; SR-49 & Tallapoosa R, Tallapoosa Co, Mar 24. P. glaucus, P. palamedes, E. marcellus, Conecuh NF, Covington Co, Mar 21. E. marcellus, SR-49 & Tallapoosa R, Tallapoosa Co, Mar 24. C. cecrops, Conecuh NF, Covington Co, Mar 21. P. tharos, Conecuh NF, Covington Co, Mar 21; SR-49 & Tallapoosa R, Tallapoosa Co, Mar 24. E. portlandia, H. sossybius, Conecuh NF, Covington Co, Mar 21. D. plexippus, Dauphin Island, Mobile Co, Mar 21, abundant, (all DLE). **MOTHS:** GEOMETRIDAE - Euchlaena obtusaria, Conecuh NF, Covington Co, Mar 21, daytime capture (DLE).

BERMUDA. No reports.

FLORIDA. BUTTERFLIES: *T. confusus*, Sumter, Polk, Citrus & Pasco Cos, Feb 19 - Sept 3 (all JVC). *E. brizo somnus*, Polk Co, Mar 13 (JVC) & SR-16 near Penney Farms, Clay Co, March (SLSN). *E. juvenalis*, Blackwater R SF, Okaloosa Co, Mar 21 (DLE). *E. zarucco*, CR-314, Marion Co, Oct 11,12 (CAS). *P. communis*, Polk, Pinellas & Pasco Cos, Sept 1 - Dec 31; *P. catullus*, Dade City, Pasco Co, Sept 1-8 (all JVC). *N. lherminier*, CR-314, Marion Co, October 10,11, abundant (CAS); *H. attalus*, Withlacoochee SF, Hernando Co, Mar 26 & Williston, Levy Co, Sept 22 (both JVC) plus SR-16 near Penney Farms, Clay Co, Mar (SLSN). *P. baracoa*, Williston, Levy Co, Jul 21 & Dade City, Pasco Co, Dec 31 (both JVC). *P. themistocles*, CR-314, Marion Co, Oct 10,11, abundant & different from White Mt, AZ population (CAS). *P. verna*, Gulf Hammock, Levy Co, Sept 22 & *A. arogoos*, Chasshowitzka, Citrus Co, Sept 22-23 (both JVC). *A. delaware*, nr Orlando, Orange Co, May 6; Haines City, Polk Co, Oct 10; 6 mi NW of Cedar Key, Levy Co, Oct 4; Taylor Crk Rd nr SR-520, Orange Co, Oct 8 (all CAS). *P. byssus*, Wilcox, Gilchrist Co, Sept 22 and *P. zabulon*, Crystal Springs, Pasco Co, Feb 14 (both JVC). *P. aaroni howardi*, Taylor Crk Rd, Orange Co, Oct 8 (CAS). *E. arpa*, Chasshowitzka, Citrus Co, Sept 22 (JVC) & W of Eau Gallie, Brevard Co, Apr 10, in small wet prairie (HDB via SLSN). *E. pilatka*, *E. dion*, 6 mi E of Destin, Walton Co, Oct 3 (CAS); *E. dukesi*, Hillsborough Co; Crystal Springs & Cabbage Swamp, Pasco Co, Aug 18 - Sept 30 (JVC). *E. perryi* (one female only), near Orlando, Orange Co, Oct 6 (CAS). *A. capucinus*, Highlands Co, Oct 14 (JVC). *A. loammi*, Taylor Crk Rd, Orange Co, Oct 8 (CAS). *A. aesculapius*, Gulf Hammock, Levy Co, Sept 22, abundant (JVC). *P. ocola*, Oct 3-11, abundant throughout N FL (CAS). *M. cofaqui*, Sumter Co, Mar 22 (JVC). *P. palamedes*, Blackwater R SF, Okaloosa Co, Mar 21 (DLE). *E. marcellus*, Taylor Crk Rd, Orange Co, Oct 6 & 8 (CAS). *P. protodice*, Hillsborough, Levy, Sumter, Polk, Pasco, Hardee, Pinellas and Gilchrist Cos, February 23 - December 31 (JVC). *C. cesonia*, SR-16 nr Penney Farms, Clay Co, March (SLSN). *S. calanus*, Yankeetown, Levy Co & St Catherine, Sumter Co, Apr 5-17, EARLY (JVC); *S. liparops*, Hernando Co, Apr 14, EARLY (JVC via SLSN); *I. irus*, SR-215 nr Middleburg, CLAY Co, STATE, March 8, larvae on *Lupinus perennis* (Leguminosae) (TN via SLSN); SR-16 nr Penney Farms, Clay Co, March (RIG via SLSN). *I. henrici margaretae*, DeLand, Volusia Co, Feb 17. *E. favonius*, Bowling Green, Hardee Co; Hillsborough Co; Yankeetown, Levy Co; Crystal Springs, Pasco Co; Oldsmar, Pinellas Co; Ft Meade, Polk Co and St Catherine, Sumter Co, Mar 22 - Apr 16, EARLY (all JVC). *B. isophthalma pseudofea*, Cedar Key, Levy Co, Oct 4,5, abundant (CAS). *C. ladon*, SR-16 nr Penney Farms, Clay Co, March (SLSN). *C. virginianensis*, CR-314, Marion Co, Oct 11 (CAS). *L. bachmanni*, Zephyrhills, Pasco Co; St Catherine, Sumter Co & Istachatta, Hernando Co, Apr 4-16 (all JVC). *E. claudia*, Hillsborough Co, Apr 23 - July 8, ova & larvae on *Linum medium* var *texanum*; Wilcox, Gilchrist Co, Apr 23 - July 8 plus *A. texana seminole*, Gulf Hammock, Levy Co & Wilcox, Gilchrist Co, September 22 (all JVC). *P. tharos*, Blackwater R SF, Okaloosa Co, Mar 21 (DLE). *B. archippus floridensis*, Taylor Crk Rd, Orange Co, October 6,8, abundant (CAS). *S. appalachia*, Wilcox, Gilchrist Co; Hillsborough Co & Cabbage Swamp, Pasco Co, Mar 28 - Sept 22 and *C. gemma*, Hillsborough Co; Wilcox, Gilchrist Co & Pasco Co, Feb 13 - July 8 (all JVC). *H. sosybius*, Blackwater R SF, Okaloosa Co, Mar 21 (DLE). *C. cymela viola*, Polk, Levy, Hardee, Citrus, Hernando, Hillsborough & Pasco Cos, Mar 6 - Apr 5 (all JVC). *D. plexippus*, nr Blackwater R SF, Okaloosa Co, Mar 21 (DLE).

MOTHS: SESIIDAE - *Paranthrene asilipennis*, SR-16 nr Penney Farms, Clay Co, March, ovipositing on sapling oak stump (SLSN). PYRALIDAE - *Nymphuliella daeckealis*, Blackwater R SF, Santa Rosa Co, May 26 (JK via SLSN). GEOMETRIDAE - *Lytrosis sinuosa*, SR-20 & Waccasassa R, Levy Co, Mar 14 (SLSN); *Scopula purata*, Appalachian NF near Wilma, Liberty Co, May 26; *Ecliptopera atricolorata*, SR-20 and Waccasassa River, Levy Co, April, several found (both JK via SLSN). SPHINGIDAE - *P. ficus*, Miami, Dade Co, Apr 28, in flight in midafternoon (WB). LYMANTRIIDAE - *Dasychira dominickaria*, Appalachian NF nr Wilma, Liberty Co, May 26 (JK via SLSN). NOCTUIDAE - *Melanomma auricinctaria*, SR-20 & Waccasassa R, Levy Co, April, several found; *Baileya doubledayi*, Blackwater R SF, Santa Rosa Co, May 26; *Tripudia flavofasciata*, SR-20 & Waccasassa R, Levy Co, Mar 14; *Exyra fax*, *E. semicrocea*, Appalachian NF nr Wilma, Liberty Co, May 26 (all JK via SLSN); *Lithacodia carneola*, Miccosukee, Leon Co, Apr 14 (LA via SLSN); *Schinia jaguarina*, Ordway Preserve, Putnam Co, May 19, associated with *Baptisia perfoliata* (Leguminosae) (MM via SLSN).

GEORGIA. BUTTERFLIES: *E. clarus*, *E. juvenalis*, Atlanta, DeKalb Co, Mar 18 (DLE). *P. glaucus*, Atlanta, DeKalb Co, Mar 18 (DLE).

MISSISSIPPI. BUTTERFLIES: [All records Sandhill Crane NWR, Jackson Co, March 23 (DLE)], *T. pylades*, *P. palamedes*, *D. plexippus*.

NORTH CAROLINA. BUTTERFLIES: *E. clarus*, McFarland, Hoke Co, Feb 17, EARLY (HP). *I. henrici*, nr Pinebluff, Moore Co & Norrington Crossroads, Harnett Co, Feb 17, EARLY (HP). *E. nicippe*, nr Hoffman, Richmond Co, Feb 17, EARLY (HP).

MOTHS: SATURNIIDAE - *C. promethea*, Brunswick Co, Feb 18, pupae on *Magnolia virginiana* (Sweetbay, Magnoliaceae) (HP); *C. securifera*, JOHNSTON, WILSON Cos, Feb 3, pupae on *M. virginiana* (WG via HP); ROBESON, SAMPSON, HARNETT, HOKE, GREENE, MARTIN, BRUNSWICK, BLADEN, CUMBERLAND, RICHMOND, SCOTLAND & MOORE Cos; all pupae collected on *M. virginiana* in mid February with identification confirmed on emergence (HP).

SOUTH CAROLINA. BUTTERFLIES: (All records RG via SLSN) *A. lyciades* & *T. pylades*, SR-357 nr Holly Springs, Spartanburg Co, May 9; *P. communis*, Goose Creek, February 14; *C. minimus*, Cape Romain area, Charlestown Co, May 26; *H. attalus slossonae*, Aiken SP, Aiken Co, June 1; *P. origenes*, Cape Romain area, Charlestown Co, May 26; *P. palamedes*, nr Aiken SP, Aiken Co, April 20,26, in White Cedar bog (*Chamaecyparis thyooides*, Cupressaceae); *P. protodice*, Cape Romain area, Charlestown Co, May 26, UNCOMMON in coastal area; *H. titus mopsus* and *S. edwardsi*(?), Aiken SP, Aiken Co, June 1 (the latter showing significant character overlap with typical *S. calanus*. See SLSN, June 1990, p.21); *M. hesseli* and *I. henrici*, nr Aiken SP, Aiken Co, Apr 20,26, in White Cedar bog; *S. cybele*, SR-29, 1 mi E of I-85, Spartanburg Co, May 11, EARLY; *P. tharos*, Goose Creek, Feb 14.

TENNESSEE. MOTHS: THYATIRIDAE - *Habrosyne scripta*, Sevier Co, May 24 (DC).

VIRGINIA. BUTTERFLIES: (All records WTH in Richmond). *A. rapae*, Feb 6, EARLY; *C. philodice*, Feb 14, EARLY; *C. eurytheme*, Feb 14, EARLY and Dec 12, LATE.

MOTHS: SATURNIIDAE - *C. securifera*, SR-35, 0.5 mi S of Dinwiddie Co line, SUSSEX Co, STATE, NORTH, Feb 19 (pupa collected on *Magnolia virginiana*, Sweet Bay), confirmed on emergence (G&P). NOTODONTIDAE - *Schizura badia*, Washington Co, August 31, 1989 (DC). NOCTUIDAE - *Z. unilineata*, Washington Co, Apr 26; *C. flebilis*, Washington Co, Sept 5, 1989; *C. nebulosa*, Dickenson Co, Aug 29, 1989 (all DC).



ZONE 10 NORTHEAST: LABRADOR, NEWFOUNDLAND, MARITIMES, NEW ENGLAND, NEW YORK, PENNSYLVANIA, NEW JERSEY, MARYLAND, DELAWARE, DISTRICT OF COLUMBIA. Coordinator: Dave Winter (DW). Contributors: Bill Boscoe (BB); Charles Burkhart

(CB); Lance Durden (LD, via JF); John Fales (JF); Henry Hensel (HH); Jim Holmes (JH); Kurt Johnson (KJ); Warren Kiel (WK); François Lessard (FL, via Ross Layberry); Jerry McWilliams (JM); Harry Pavulaan (HP); Ed Peters (EP); Gordon Pratt (GP, via DMW); Cal Schildknecht (CS); David Shaw (DS); Richard Smith (RS); A. W. Thomas (AT); Martin Turgeon (MT); David L. Wagner (DLW, via DW); David M. Wright (DMW). Determinations: Dale Schweitzer (DFS). [Coordinator's comments appear in brackets.] Missing states/provinces: no contributions received.

MIGRATORY SPECIES: Vanessa atalanta was unusually common 19 May in Carroll Co, MD, and 6 July in Allegany Co, MD (RS); they were above usual numbers at Gettysburg, PA, from 23 April throughout the season, showing nectaring preference for sweet rocket, zinnias, and late single chrysanthemums (CS). J. coenia during the same time preferred red clover, mint, and boneset (CS). JH found atalanta in high numbers in Calvert Co, MD, peaking at the end of June but extending from 17 April until 29 October. On 14 October, on the New Jersey side of Delaware Bay, at 1500 hours, WB noted many thousands of Danaus plexippus coming in from the north and east and settling in salt marsh brush. While they continued to come in after 1530, they did no more local flying after that hour. JF gave his usual detailed account of plexippus, with the first Calvert Co, MD record on 27 April, a worn female (average over many years, 1 May), others on three days in May and two days in June; one on 15 June in Atlantic City, NJ; single females on six days in July. Numbers increased to 47 in Aug, 176 in Sept, and 289 in Oct; heaviest flight was 14-19 Oct, with peak rate 0.9/minute. Last sighting was 15 November. His season total of 533 was a four-fold increase over 1988, suggesting a significant comeback. "At 12:12 p.m. on October 17 a male monarch was tagged. At 3:10 p.m. it was found mating with a female on a marigold plant. They remained in coitu until midnight, when last observed that day (8 hours, 50 minutes). The next morning at 6:50 a.m. the pair were separated; they were sitting side by side." [Sexual diapause is apparently not absolute during migration.] Anticarsia gemmatilis had a widespread flight to the northeast in early October noted by DLW at Storrs, CT, 7 Oct; by DW at Dedham, MA, 9-10 Oct and at Montpelier, VT, 12-13 Oct; by MT in Restigouche Co, NB, 12 Oct; and by HH in Edmundston, NB, 14-15 Oct.

URBAN COLLECTING: KJ reported Calycopis cecrops, 25 July & Junonia coenia, 31 July, at puddles near the fountain at Citicorp Center, at 53rd St & Lexington Ave in downtown Manhattan, New York City. He speculated that they might have been brought in with plants placed in the many manicured gardens between the skyscrapers.

LABRADOR. BUTTERFLIES: C. argiolus lucia, 4 July, Labrador City (FL); Agriades franklinii was collected 16-30 July on tundra above Bean Lake, and Colias pelidne, Clossiana polaris, C. eunomia, and C. titania boisduvalii were flying at that site 2-23 July (HH). Boloria bellona (darker than more southern specimens), 4 July, in bogs at Km 12.5 and Km 21 between Wabush and Ross Bay Junction; C. polaris polaris, 7 July, Irony Mtn; C. freija freija (on a rocky hilltop) and Erebia disa (in a boggy black spruce forest), 4 July, fresh, Labrador City; Oeneis jutta ascerta, 6 July, and O. melissa melissa 7 July, in taiga at foot of Irony Mtn, Lab, nr Schefferville, PQ (all FL).

MOTHS: Scoliapterix libatryx, 2 July, Red Bay (EP); Syngrapha parilis, 7-16 July & Sympistis lapponica, 16 July plus S. funesta, 23 July and Polia richardsoni, 2 to 23 July, tundra above Bean Lake, 6 km S of Schefferville, PQ (HH); Papestra biren, 2 July, Red Bay (EP); Lasiestra leucocycla moeschleri, 23 July, the tundra above Bean Lake (HH); Lasionycta taiqata, 3 July 89, Red Bay (EP).

NEWFOUNDLAND. MOTHS: Lithacodia bellicula, Acronicta lepusculina, A. haesitata, Bellura gortynoides, Melanchra pulverulenta, all 25 June, Doyles (EP).

NEW BRUNSWICK. MOTHS: Prionoxystus robiniae, 28 June, Acadia Forest Exp Sta [AFES] (25 km E of Frederickton), Sunbury Co (AT). Hymenia perspectalis, 14 Oct, Belone Brook, Restigouche Co (MT). Spoladea recurvalis, 14 Oct, Edmundston (HH). Anisota virginienis, 25 June, 14 July, AFES (AT). Sphinx luscitiosa, Edmundston, 10 June (HH). Larvae of Preserpinus flavofasciatus, 24 May, on Epilobium angustifolium, heavily parasitized, York Co (MT). Apantesis williamsii, 14 June, AFES (AT). Zale undularis, 19 Jun, Edmundston (HH). Pseudoplusia includens, 16 Sep - 7 Oct, Edmundston (HH). Syngrapha alias and abstrusa, 27 June, AFES (AT). Larvae of S. alias, S. abstrusa, and S. rectangula found and reared on black spruce from the Edmundston area; S. ignea simulans reared on Vaccinium from ova of females captured in Schefferville, PQ (HH). Baileya doubledayi, 2-3 June, and Lithacodia concinnimacula, 8 June, St Basile, Madawaska Co (MT). Alypia langtoni, 18 June; Dypterygia rozmani, 25 June, 4 July; Magusa orbifera, 23-24 July; Homohadena infixia, 24 July, all AFES (AT). Anomogyna perquiritata, 9 August, Belone Brook (MT). Aplectoides condita, 13 & 16 June, St Basile, and 30 June, Belone Brook (MT).

VERMONT. Errata from 1989 Season Summary: the Catocala "obscura" and "marmorata" reported by JDH were incorrect, and have been determined by DFS to be residua and parta, respectively. Satyrium "caryaevorum" was S. calanus falacer, and Pieris "virginienis" was P. napi oleracea.

BUTTERFLIES: Pieris rapae and napi flying in the same area 24 June, at Rochester, Windsor Co (CB); Epidemia epixanthe, 29 July, Essex Co, bog (WK); B. arthemis, unbanded form "proserpina," 16 July, Wilmington, Windham Co (CS); Oeneis jutta, 8 June, Essex Co, bog (WK).

MOTHS: Olethreutes costimaculana, 8 June; Itame sulphurea, 29 July; Lacanobia rugosa, 8 June, in an Essex Co bog, not further defined (WK).

NEW HAMPSHIRE. WK noted adverse weather with monsoon-like rains in the northern part of the state from mid-June through the summer, resulting in constantly water-logged soil, and heavy mildew growth in depressed spots; concomitantly there were rapidly diminishing numbers of all lepidoptera right through the autumn, possibly from drowning or rot while in diapause in or near the ground.

BUTTERFLIES: There was a heavy spring brood of P. napi along the Diamond River in Wentworth Location, Coos Co, where there is prolific growth of toothwort along the sandbars (WK). H. titus, 27 July, Whitefield, Coos Co, (the several resident collectors over the past 3-4 decades had not previously seen it) (WK). G. lygdamus couperi, 13 June, a new colony in Whitefield, where it seems to prefer sloping fields with vetch present (JH). C. titania montinus, 17 July, in sunny openings in spruce forest, below Hermit Lake in Tuckerman Ravine, Coos Co, nectaring repeatedly on the white flowers of bunchberry; B. arthemis, unbanded form "proserpina," 20 July, Mt Kearsage, Carroll Co (CS).

MOTHS: Polix coloradella, 25 July, Jefferson, Coos Co (JH). Hedya separatana, 4 July (WK); Epiblema carolinana, 15 July et seq; Munroessa gyralis, 26 July; Tosale oviplagalis, 17 June, 15 & 28 July; Idaea dimidiata, 22 July, all Whitefield, Coos Co (WK). Eustroma semiatrata, 17 Aug, Mt Clay, Presidential Range (JH). Sphecodina abbottii, 2-3 June; Cerura scitiscrypta canadensis, 15 June; Lymantria dispar males seen in numbers at blacklight mid-July to mid-Aug, but no local feeding damage, resting females, or egg-masses were evident; Mycterophora inexplicata, 19 July, all Whitefield (WK). Catocala were notably scarce (JH, WK). Leuconycta lepidula, 17 July, Jefferson (JH); Apamea plutonia, 5 July, Whitefield (WK); Protagrotis niveivenosa, 26 July, Jefferson (JH). Agroperina helva, 3 Aug; Oligia fractilinea, 16 Aug; Macronoctua onusta, 29 Sept; Sideridis marvx, 13 June; Melanchra pulverulenta, 17 and 21 June; Rynchosia cupida, 19 July, all Whitefield (WK). Triphaena pronuba, 25 July, Whitefield, STATE, (WK). [This appears

to be the farthest inland extension of this recent immigrant from Europe.]

MAINE. **BUTTERFLIES:** Incisalia eryphon again present 26 May, Wilson's Mills, Oxford Co (JH). C. eunomia dawsoni, numerous 21 June, and Oeneis jutta, 22 June, late, Magalloway Plantation, Oxford Co (CB).

MOTHS: Hepialis hyperboreus, 1 Aug, Qrland, Hancock Co (EP). Catocala were far below usual numbers in Islesboro, Waldo Co (DW); see also NH and MA.

MASSACHUSETTS. **BUTTERFLIES:** P. glaucus was far more numerous and had a longer flight period than previously noted in Dedham, Norfolk Co (late May to late August); by contrast, P. troilus, usually very common, was scarcely seen, and no ova or larvae were found; in 1989 all ova and larvae found had produced trichogrammatids, ichneumons, or tachnids (DW).

MOTHS: Paonia astylus, 10 June; I. diminuendis, 17 July; Syngrapha rectangula, 22 Aug; all Shirley, Middlesex Co (EP). Catocala numbers were again generally very low, after signs of recovery the preceding 2 years, but three forms of C. connubialis were taken - "cordelia" on 19 July, "cordelia-pulverulenta" on 29 July, & the typical form on 30 July, Dedham, Norfolk Co, none previously seen here (DW). S. epigaea, 9 Aug; Archanara oblonga, 14 Aug; Sideridis maryx, 10 June; Engraphe subrosea opacifrons, 16 Aug; Heptaerotris phyllophora, 16 July; all Shirley (EP).

RHODE ISLAND. **BUTTERFLIES:** Parrhasius m-album, 14 May, Great Swamp, Washington Co (HP).

NEW YORK. **BUTTERFLIES:** Poanes viator, 26 July, Rochester, MONROE Co; Pterourus troilus, 29 July, Ontario, WAYNE Co, and 12 Aug in S. Bristol Twp, ONTARIO Co, with other records in Niagara and Orleans Cos, 16 Aug; Harkencelenus titus, 24 July, Middlebury Twp, WYOMING Co; Satyrium c. falacer, caryaevorum, liparops, and acadiaca were common in central and western NY (all DS). Coenonympha inornata, 16 Aug, Schenevus, OTSEGO Co (DS); 16 Aug, Hartland Twp, Niagara Co (DS); 18 Aug, Haines Falls, Greene Co, and in Ulster Co (DMW); 26 Aug at Ward Pound Ridge Reservation, Westchester Co (GP).

PENNSYLVANIA. **BUTTERFLIES:** A search for monarch larvae in the Gettysburg area 15 Aug to 15 Sept yielded 5 larvae on ± 400 plants of common milkweed, 8 larvae on ± 150 plants of swamp milkweed, 1 larva on 3 plants of butterfly weed, but 29 larvae on just 20 cultivated plants of the tropical A. curassavica. [One wonders whether this difference, which CS has seen in previous years, indicates a specific preference for the most toxic of the four milkweed species, or a preference for the continuous growth produced by curassavica even in late summer.]

MOTHS: Ascalapha odorata, 7 July, Erie, Erie Co (JM).

MARYLAND. **BUTTERFLIES:** JF marked 22 specimens of Eparqyreus clarus captured at Buddleia 22 Aug - 4 Oct, and had only 1 return (1 day after 5 specimens were marked); he inferred that the species is not sedentary. RS noted markedly reduced numbers of P. centaurea wyandot, Euchloe olympia, and Glaucopsyche lygdamus in Green Ridge State Forest, Allegany Co, in late April, and wonders about excessive use of dimilin for gypsy moth control. Urbanus proteus (no date), Montgomery Co (HP), plus JF observed the species on 3 days in Sept and 5 days in Oct in Calvert Co. Thorybes bathyllus, 18 Aug, Huntington, HOWARD Co (RS). P. c. wyandot was seen ovipositing on 28 April on dwarf cinquefoil (Potentilla canadensis), Flintstone, Allegany Co (RS). Thymelicus lineola, 12 June, Plum Point, CALVERT Co (JF). C. philodice opened the flying season for JF on 12 March, and C. eurytheme closed it on 23 December. Calycopis cecrops, 19 May, Finksburg, CARROLL Co (RS). Celastrina neglectamajor, 6 & 15 May, Daniels, HOWARD Co (RS); HP (via RS) reported finding ova of the species on immature floral structures of black cohosh (Cimicifuga racemosa), and the species was taken 8 May at Roundtop Hill, Washington Co (RS). N. vaualbum j-album feeding at fallen decaying dogwood berries 24 Nov at Plum Point, CALVERT Co, the first record for the inner coastal plain of Maryland (JF). H. sosybius, 11 Sept & 2 Oct, Flag Ponds Nature Park, Calvert Co, seen only twice in the preceding 30 years (JH).

MOTHS: Hemileuca maia, 25 Oct, Lusby, Calvert Co, the first local record for JF.

DELAWARE. **BUTTERFLIES:** Hylolycaena hyllus, 12 Sept, Frederica, Kent Co (RS).

MOTHS: Over 100 Hemileuca maia "ssp #4" seen in the hour before noon, 4 Nov, Nanticoke Wildlife Area, Sussex Co, temp 80° F (RS).

DISTRICT OF COLUMBIA. **BUTTERFLIES:** Urbanus proteus, 15 Sept, at the National Zoological Park, for a DISTRICT record (LD).



ZONE 11 HAWAII/PACIFIC ISLANDS. Coordinator: J. C. E. Riote. No additional contributors. The weather in 1990 in the Hawaiian Islands was very, very much on the wet side. We needed the rain, but the butterfly populations were very low. An interesting observation is that most specimens were below normal in size, especially the Pieris. The monarchs were normal in size, both the brown ones and the albinos, but the latter were fewer in number. Endemic species, such as Vanessa tameamea were very, very rare.

The only thing of much interest is the fact that our expeditions to the Big Island (Hawai'i) brought back a number of as yet undescribed geometridae belonging to the genus Scotorythra. The entire family of the Geometridae of Hawaii is at present being intensively overhauled.



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. Contributors: Keith S. Brown, Jr. (KB), Charles V. Covell, Jr. (CVC), Ronaldo B. Francini (RF, via KB), Ron Leuschner (RL), Rodney A. Mauro (RM, via KB). Keith Brown's annual report provides new information on places and projects reported in past Season Summaries. These include updates on long-term projects on the biology of Papilionidae and Acraeinae and a repeat trip in October to Acre, Brazil's westernmost state, to further evaluate endemism and diversity. The three remaining reports include two Holbrook Travel trips: one to the Galapagos Islands (led and reported by CVC) and one to Ecuador (led by Thomas Emmel and reported by RL). No report was received for the Holbrook trip to Rondonia in November, but a preliminary list of tentatively identified species (over 800 of the estimated 1,600) for this incredible site (see 1989 SS) was published (by T. C. Emmel & G. T. Austin) in the first issue of the new journal, Tropical Lepidoptera (Vol. 1, No. 1, May 1990).

ECUADOR. GALAPAGOS ISLANDS. CVC visited 9 islands in the Parque Nacional de Galapagos between 5-12 July.

BUTTERFLIES: Four species were seen. Urbanus dorantes was visiting blossoms of Black Mangrove on Rabida (Jervis), 7 July. Phoebus sennae was seen on Baltra, Bartolome, Santa Cruz, Floreana, and San Cristobal over several dates. Leptotes parhassioides was seen on Santa Cruz, 8 July, and around Cordia lutea bushes on San Cristobal on 11 July. Three Danaus gilippus were seen on Floreana at Pto. Cormorant on 9 July.

MOTHS: Only a few moths were seen on shore (none identified). The few moths attracted to lights aboard the ship Samoa included an unidentified species of Pterophoridae, several unicolorous dull Arctiidae, and a Heliothis sp. near virescens (if not that) (Noctuidae).

PICHINCHA. RL spent 5-11 May at Tinalandia with over 40 other lepidopterists on a Holbrook Travel trip.

BUTTERFLIES: Although it took RL a while to get the hang of tropical collecting, he ended up with 320 specimens, including one Morpho.

MOTHS: Armed only with a 15 watt black light, RL didn't draw beans, and redeemed himself only by scrounging micros at other people's mercury vapor lights, while they took the big stuff. All in all, he ended up with 1679 unidentified moths and one ID: Ametris nitocris (Geometridae), a Caribbean species that sneaks into S. Florida and thus can be found in the MONA checklist.

PERU. LORETO. RL spent 9-21 September at two Explorama Lodges, 40 & 80 km E of Iquitos, accompanied by Brian Harris of the LACM. Although it was the dry season, there were a few nights with rain and one day that dropped to 12°C because of an Antarctic storm that blew up along the Andes. The lodges were comfortable, with electricity, good food, and located near sizable preserves of forest with well-marked trails. Despite unexpectedly running into two other lepidopterists there (Parker Henry and Dave Parkinson), RL reports that there were enough leps for all.

BUTTERFLIES: Of the 760 specimens taken, RL estimates he got about 200 species, of which 40 are Riodininae.

MOTHS: Lots of big stuff taken here that RL didn't see in Tinalandia. Of the 2250 specimens collected, included were Rothschildia and Automeris, dozens of species of Ceratocampinae (Eacles, Citheronia, Anisota, etc), giant Notodontidae, and scads of Geometridae and Pyralidae, with new species showing up every night until the last.

BRAZIL. All records by KB, except where indicated. A very warm and wet fall and winter kept populations flying strongly through July-September in many parts of the country, but a dry spring caused many of these to crash; by year's end, most species were more scarce than usual. In November, Luis Otero published (with the sponsorship of the Chase Manhattan Bank) a coffee-table book on Brazilian butterflies (check with your local Chase Manhattan branch on how to get a copy of the English version). The book features striking photographs of live adults in their real habitat (no flash), including flight, courtship, and other behavior, and of life history stages: eggs, larvae, pupae, and emerging adults. Luis Claudio Marigo, one of Brazil's best nature photographers, took the pictures, representing 74 species and including many threatened with extinction.

PAPILIONIDAE: Long term mark-recapture work on Papilionidae (see SS 1988:36-37 and 1989:33) was closed out with a total of 13,031 individuals of 45 species (of the 130 in the neotropics) marked, 2817 of which (22%) were recaptured at least once. Essentially all species showed Type III survivorship curves in the adult, with a half-life of one week or less. More detailed analysis is underway, but preliminary conclusions are that (1) population structures are quite open, with recaptures 3-10 km away, including on the same day; (2) adult population sizes are often between 20 and 300 at peak, with long intervals with no adults around; and (3) community-wide synchronous pulses of populations occur when rains, or warm humid spells, terminate pupal diapause (essentially universal in this group). Work with juveniles, also nearly complete (see SS 1989:37), shows at least 4 well-separated genera of Graphiini, one new and the other three each with Old World relatives, and one (Protographium) with at least four readily recognizable subdivisions. The juveniles also suggest three well-separated lines in Papilionini, all cosmopolitan: Papilio s.s. (possibly derived from within the next one), Chilasa (2+ subgenera)/Heraclides (4 subgenera), and Pterourus (at least 3 subgenera in New World, probably 4 in Old, where other equally old names may apply). Foodplant use in this family is far more variable and unpredictable than previous information has indicated, and standardized chemical fractionation of plants (work in collaboration with Clécio Klitzke) fed upon by local papilionid species has helped to explain some foodplant diversity by identifying both volatile oils and other non-volatile chemicals. Papilionine hybridization experiments have been continued: 60 resulted in spermatophore transfer, and of these only 40 gave eggs laid, only 14 gave larvae hatching from eggs, and only two gave adults (with glaucus x scamander in Mark Scriber's laboratory). (For more details of these papilionine studies see the forthcoming symposium volume being edited by Scriber and R. Lederhouse and the Tyler American swallowtails book).

ACRAEINAE: RF continued intensive work on the Actinote, especially on the least known species (see SS 1988:36). Broader data were obtained on diverse members of the alalia complex, which may have 5 species; one was tentatively correlated with A. terpsinoe, possibly the subspecies crassinia, discovered in eastern São Paulo. A manuscript species of the late Heinz Ebert was rediscovered in the Itatiaia area, flying earlier at lower elevations than expected. A. quadra was also rediscovered in several sites. Older names were found for a number of well-known species and subspecies, as well as correlations with other South American forms; a complete catalog was prepared by KB, Carla Maria Penz (now studying in Austin), and Gerardo Lamas, to be published soon with descriptions of new species and combinations, and juveniles.

MIGRATIONS. RM reported a massive migration of Ascia monuste, very white (N Bolivian Chaco subspecies), in Corumba, Mato Grosso do Sul, Brazil, from NW to SE, starting 29 DEC 1989, consisting of many millions of butterflies, passing continuously up to 500 meters above the ground but also extensively visiting roadside flowers (especially Melochia: Sterculiaceae), and lasting through 2 JAN 1990, then repeating with lesser intensity after 10 FEB 1990, accompanied by about 1% (each) of Libytheana carinenta and Eunica macris, flying lower down.

SÃO PAULO. The fall skipper census in Campinas was made on April 2 (a little early) giving 108 species (Pyrrhopyginae 1, Pyrginae 60, Hesperinae 47; 48 species with only one individual recorded), well below 1989 (census on April 7) or even 1988 (April 11); the total list was also way down (220), with no Brassolinae, fewer Nymphalidae in general (10 less than 1988, 30 less than 1989), more Theclinae, and as new additions the skippers Typhedanus crameri and undulatus, Codottractus aminias, and Phocides charon. Many flowers appeared early or irregularly, possibly resulting from a severe hot dry spell in January that followed heavy rain (equal to the usual month's total) that fell in two days (JANUARY 1-2). To complete a list for the Serra do Japi (see SS 1989:33), 50 km S of Campinas, for a chapter in a fully illustrated book on this region (to appear in 1991), over 30 full days were spent exploring the entire 100 km² including all accessible hilltops (only 3 gave real species concentrations) and lower areas (750-800 meters). At the May/June interface, a most extraordinary Mikania hastato-cordata bloom produced nearly 100 theclines, including 60 new for this region and one new for Brazil. The following list, by group, includes data gathered for the IUCN on total species in the Atlantic region and Brazil. Each group name is followed by the number of species recorded in Japi, (number expected), number recorded in the Atlantic region, (number endemic to this region), total number for Brazil, (unusual species found in Japi), and number for which larval hosts are known in Japi [all these were prepared with the extensive help of Bob Robbins, Curt Callaghan, and Olaf Mielke]. Pyrrhopyginae, 5, (10), 49, (28), 70, (Oxynetra roscius, perched

vertically on the lee side of a rock in a roaring torrent, drinking directly from it), 2; Pyrginae-I, 50, (70), 143, (31), 194, (Typheadanus crameri, T. stylites, Ridens fulima, Dyscophellus ramusis, Sarmientoia almeidai), 21; Pyrginae-II, 69, (90), 208, (74), 256, (Marela tamyris tamyroides, Telemiades vespasius, Pellicia theon), 21; Hesperinae, 111, (150), 484, (293), 566, (Pheraeus argygnis, Thargella evansi, Phanes rezia, Cobalopsis vorgia, C. catocala, Enosis misera, Arita mubevensis, Lamponia elegatula, Alera metallica, Chalcone santarus, Euphyes kavei, E. sirene, Vacerra caniola, Lerema lineosa, one new), 15; TOTAL HESPERIIDAE, 235, (320), 884, (426), 1086. Papilionidae, 19, (26), 43, (18), 68, (-), all 19; Pieridae, 34, (36), 49, (19), 59, (-), 14; Theclinae, 103, (130+), 306, (151), 424, ("Thecla" catrea, chaluma & conchylium, Arcas ducalis, Atlides polybe, Theritas drucei, Arawacus thadita & tarania, 5 Rekoas, Thereus cithonius, Magnastigma casmilla, Ocaria cinerea, Cyanophrys berthia common, Parrhasius selika, 3 Brangas and 5 green Erora, and (incredibly) the Andean "Thecla" theia), 14; Riodininae, 44, (60), 350, (155), 720, (poor, but including Mesosemia acuta, Xenandra heliodes, Symmachia arion, 8 Emesis and a new Calydna), 13; Polyommatainae, 4, (5), 5, (2), 5, (-), 2; Libytheidae, 1; Danaeinae, 4, (5), 5, (0), 6, (Lycoraea cleobaea near pales in mostly L. c. halia), 4; Ithomiinae, 28, (30), 54, (22), 128, (Tithorea harmonia caissara integrating with pseudethra, Melinaea ludovica paraiya, Oleria aquata, Hyalenna pascua, 5 Episcada), 27; Morphinae, 4, (7), 9, (7), 21, (-), 4; Brassolinae, 13, (17), 36, (17), 49, (Narope cyllastrus, Dasyophthalma creusa & rusina, Caligo arisbe), 12; Satyrinae, 27, (35), 132, (68), 194, (Pierella nereis, Paryphthimoides vestigiata, Euptychia (?) ernestina, Zischkaia fumata), 21; Charaxinae, 15, (20), 34, (9), 52, (Prepona pylene, Consul fabius), 14; Acraeinae, 12, (14), 21, (19), 22, (Actinote mamita, canutia, sp nov nr alalia, discrepans, genitrix), 12; Heliconiini, 13, (14), 20, (2), 44, (Eueides pavana migrating in with Philaethria wernickei and Heliconius sara apseudes from coast in late summer), 13; Other Nymphalinae, 74, (80), 175, (36), 251, (13 Adelpha, 7 Dynamine, Cybdelis phaesyle, Catonephele sabrina, Doxocopa zunilda), 65; TOTAL NYMPHALIDAE, 190, (222), 486, (180), 767; TOTAL PAPILIONOIDEA, 395, (480), 1240, (525), 2044; TOTAL BUTTERFLIES, 630, (800), 2124, (951), 3130, with 294 of the 630 in Japi having their foodplants known there.

RIO DE JANEIRO. In Barra de São João (see SS 1988:37), the season for Eurytides lysithous harrisianus was strong, whereas its model Parides ascanius was very scarce, but most of the mimics still imitated it (seen in two days only - 41 platydesma, 12 sebastianus/rurik types, 3 harrisianus recombinants); population estimated as 65 on 21 SEP, 160 on 3 OCT; for Papilio thoas on these days, estimates were 32 (males only) and 169. No ascanius or harrisianus have been seen in the Reserva Poco das Antas after the big fire this year, making more worrisome the continued erosion (by woodcutting) and newly observed commercial collecting in the Barra do São João site. [WARNING: Do not buy endangered Brazilian species like these two except from licensed breeders such as Herbert Miers or Jorge Kesselring.] Pierella nereis appeared very early this year (4 OCT) in Poco das Antas and the Rio Dourado sites. Much exploration in Boca do Mato and other likely sites still gave no sighting of Eurytides iphitas, though all other species in the genus were common.

ESPIRITO SANTO. Several likely places for Eurytides iphitas, including those where it was found early in the century, were explored without seeing any, but the spring was extremely dry and few Papilionidae were flying in October. In Burarama, one Pteronymia dentei was found; it is probably a northern subspecies of P. carlia. The Linhares Papilio himeros colony (see SS 1989:33) was normal, still fragile in October, with its foodplant heavily infested with P. astyalus and P. anchisiades; many kite swallowtails were about, and a larva of Eurytides protodamas was found on the E. lysithous foodplant (Annona acutiflora) there.

ACRE. Another visit in October, (see SS 1989:34) to extractive reserves (including those already established in JAN-MAR 1990 with the help of the butterfly surveys reported last year, and the ones proposed for 1991) gave much new information on endemism, diversity, unusual species, and even new Brazil records. In general, sites in eastern Acre (Purús and Rio Acre basins) show high endemic values, little corrected, for Inambari, and medium diversity except in places like São Luis do Remanso (others may be found farther west), whereas western Acre (Jurúa drainage) shows far higher diversity but a mixture of Inambari/Ucayali endemism with values near 0. Only the far western border (Serra do Divisor) shows moderate values for Ucayali, with little mixture. On the Rio Jurúa, only Danaus plexippus megalippe is found (common), whereas D. p. erippus is the only subspecies in eastern Acre (Purús drainage); the former comes in from the Peruvian Andes, the latter from northern Bolivia (also as far as Tambopata in Peru). Ituna ilione was found (a heavy gravid female) in extreme northeastern Acre, far from its usual mountain or temperate haunts, but foodplants (Ficus) are abundant and older records were known. A very rapidly moving prepupa of Protographium agesilaus was found on the ground, bright orange as in most New World Graphiini. In this spot, north of Rio Branco clouds of Marpesia (8 species) were also seen as they were all over the state in October, plus Caligo marsus (just like those in Manaus), Morpho perseus and cisseis, Brassolis sophorae, many Narope and Aponarope species feeding on dog and human dung (yucky to pinch), a new subspecies of Hypothyris fluonia, a female of Athyrtis mechanitis, and a pair of the recently described Inambari subspecies (tambopota Lamas) of Heliconius demeter. Actinote pellenea subhyalina was out in clouds along the seasonal beaches of the Rio Jurúa. One hour up the Rio Jurúa-Mirim was found a small flock of males of Eueides eanes flying in the shade of a large tree, in mid-afternoon; farther SW on the Riozinho Cruzeiro do Vale was E. tales tabernula Lamas flying high in the sun in the later morning. Morpho adonis (not M. absaloni, a possible vicariant, not yet seen) was in both spots. Parides sesostris was observed puddling persistently on a small stream (end of hot dry season!), a rare event. Caerois chorinaeus laid eggs on a very small, pinnate-leaved palm. Heliconius xanthocles lapis was found in the Jurúa-Mirim, and in the bambooless alluvial forest of the middle Cruzeiro do Vale were found Asterope markii, a new brown & orange Euptychia (s. str.) species, Dygoris dircenna, and 64 species of Riodininae in one day. The local rubber-tapper recognized a figure of Heliconius hermathena as flying in the nearby campina vegetation, but this was not confirmed in October (although the habitat is perfect, the nearest known colony is 2000 km away!). The São Luis de Remanso reserve, now part of the Extractive Reserve of Chico Mendes, reminded one of Rondonia, with very rich soils, rolling topography, small streams and teeming ithomiines, but endemism was almost pure Inambari --- though Heliconius ethilla jaruensis and Hypothyris d. daphnis were in common with Rondonia. Four species of Splendeuptychia, 2 probably new, inhabited the smallish bamboo thickets; Heliconius demeter was found (Inambari subspecies as above), along with Libytheana carinenta of extremely variable color. The Porangaba rubber estate (also in the same Chico Mendes Reserve, but much farther SW near the Peruvian border) was much like the Cachoeira Reserve reported last year; Parides pizarro kuhlmanni (forewing of pizarro, hindwing of steinbachi, genitalia and all other characters the same as both, which are obviously conspecific) was found quite common and many eggs and larvae were obtained; unfortunately none would accept Campinas Aristolochia, but the second instars were already very beautifully peppered with yellow (steinbachi larvae are ringed on each segment with yellow). Also found were beautiful spotted larvae (white/yellow/orange/blue in transverse dot-lines) of Eurytides pausanias on a small Annona tree (egg and pupa also typical of the mimetic group, close to protodamas). A female of E. xynias gave no eggs; she resembled the male. Early stages of Rhodussa pamina, much like those of Napeogenes, were found on a species of Lycianthes (Solanaceae) and reared to adults.



From The Editor's Desk

June Preston



My Ninth Season Summary is finally behind me and my husband and I will soon be on our first collecting trip of the year, heading for southern climes during the University Spring Break. I found a good deal of useful information in the Summary during my many proof readings that will be a valuable asset in planning future collecting trips. I do want to extend my heartfelt thanks to all of you who took the time and energy to send your collecting reports to the Zone Coordinators in time for this issue. If your reports were late, the Zone Coordinators will usually save them until the next Summary. Also, many thanks to the Zone Coordinators themselves for all of their work. Hopefully, the missing Report, ZONE 12, THE NORTHERN NEOTROPICS will arrive in time to be printed in one of the next two issues. From those Zone Reports received, it is interesting to note that only the Northwest Territories, Nova Scotia and Prince Edward Island in Canada are lacking reports and only Connecticut and New Jersey in the U.S. are missing (although New Jersey is mentioned in the Migratory Species report). Also missing is Bermuda. Doesn't anyone collect there? Once again the Rocky Mtn States Zone 4 report is the longest after several years of being second to the Midwest States Zone 8 report. The total length of the Summary, however, hasn't varied very much in the past few years, when all 13 Zones are considered, since when a specific zone report gets longer another one seems to get shorter to compensate.

MISCELLANY

BUTTERFLIES IN THE NEWS

An Associated Press Release from Corvallis, Oregon reports that Society Member Paul Hammond has rediscovered Fenders' Blue butterfly in the Willamette Valley. *Icaricia icarioides fenderi* was believed to have become extinct over 50 years ago. It is reported to have last been seen in 1937 near the small town of Wren, west of Corvallis. A petition is currently being prepared to ask the U.S. Fish and Wildlife Service to declare this small blue butterfly a threatened species. It feeds only on an unusual variety of lupine, which in part accounts for its rarity.

Notices

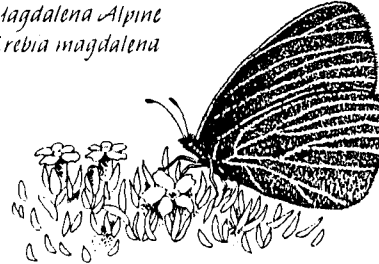


BUTTERFLY WORKSHOPS FOR SUMMER 1991

Colorado will be the location for two workshops on the ecology and behavior of butterflies again this summer. The first, from June 29-July 5, is *Biology of Butterflies*, the annual Lepidoptera Week Field Course taught by Boyce A. Drummond and Thomas C. Emmel near Florissant, Colorado. This year's workshop will feature lectures on butterfly diversity and evolution, ecology and behavior, reproductive biology, chemical ecology of adult and larval foodplants, and mimicry and protective coloration; and instruction in field and lab techniques, close-up photography (both field and study), and drawing; and strategies for publishing photographs, drawings, and writings about butterflies in both the scientific and popular markets. Field trips to all life zones in Colorado will expose participants to the great diversity of Colorado's butterfly fauna, with peak representation in early July of the Montane and Alpine communities. Also to be visited during the week are Cripple

Creek Historic District, Florissant Fossil Beds National Monument, Royal Gorge on the Arkansas River, and several 13,000' peaks in the Mosquito Range. The workshop, sponsored by Pikes Peak Research Station, will be held at the luxurious Nature Place Conference Center (8600'), located 35 miles west of Colorado Springs on 6,000 acres of private land (owned by Colorado Outdoor Education Center) that has been designated by the U.S. Park Service as a National Environmental Study Area. Because of the comfortable living conditions, outstanding food, and superb recreational facilities at The Nature Place, the *Biology of Butterflies* workshop can be a vacation treat for the entire family. The cost of this workshop is only \$610 per adult and \$465 per child (5-15) for the week, including lodging, all meals, transportation, and instruction.

Magdalena Alpine
Erebia magdalena



The second workshop is *Life in High Places: Survival Strategies of Butterflies and Plants in Alpine Environments*, to be held July 18-21, 1991, and taught by Boyce A. Drummond and Audrey D. Benedict. Sponsored by Cloud Ridge Naturalists, this weekend workshop (Thursday evening through Sunday morning) will be taught in the spectacular San Juan Mountains of Southwest Colorado. Days will be spent in the alpine meadows, screes, and willow bogs of the San Juans, with evening lectures in the historic mining town of Ouray. The workshop will compare and contrast the array of morphological, physiological, and behavioral adaptations that butterflies and plants have evolved that permit their survival in the cold temperatures, short growing season, and strong winds associated with alpine environments. Audrey Benedict is the Director of Cloud Ridge Naturalists and the author of the recently published *A Naturalists' Guide to the Southern Rocky Mountains* (Sierra Club Books). The cost of the workshop is only \$350 per person, which includes all instruction and instructional materials, 3 night's lodging at the Box Canyon Lodge & Hot Springs in Ouray, 2 days fully-outfitted 4 WD transportation, and one dinner.

For more information and a descriptive brochure about either or both workshops, please contact: Boyce A. Drummond, Natural Perspectives, P.O. Box 9061, Woodland Park, CO 80866 USA. Or phone (719) 687-6596.

ENTOMOLOGY FIELD SEMINAR ON THE MAINE COAST IN SUMMER, 1991

Advanced field seminars in entomology are being offered for the fourth year at Eagle Hill Wildlife Research Station, located just "downeast" of Bar Harbor and Schoodic Point on the Maine coast. The seminars of interest to entomologists this year include

Forest Entomology: The Northeastern Forests — Richard Dearborn — June 2-8. Emphasis: careful field evaluations of insects prevalent in northeastern forests of mostly spruce, fir, pine, maple and birch; identifications in lab will cover all life history stages. Richard Dearborn is senior entomologist of the Maine Forest Service; exceptional field entomologist; specialist on life history stages of most species groups, especially beetles.

Spiders — Dr Daniel I. Jennings — July 7-13. Emphasis: field observations and collection of spiders and subsequent laboratory identification; ecological methods for field sampling, preparation of specimens; discussions of web designs and web types. Dr Daniel T. Jennings — many years with the USDA Forest Service as research entomologist; numerous publications on spider ecology, spider feeding behavior; currently working on book on spiders of Maine.

There are other field seminars in botany, marine biology, geology and one in natural history illustration. The seminars are given by some of the country's leading authorities on natural history. Scholarships for the station's very intensive one-week seminars are available.

For more information, please write to Eagle Hill Wildlife Research Station, Steuben, Maine 04680 or call (207) 546-2821 or (718) 622-0452.

ROYAL BRITISH COLUMBIA MUSEUM ANNOUNCEMENT

During 1991 and 1992 the museum will be packing and moving their anthropological, biological and historical collections to allow for the removal of asbestos from the collections building. During this time some of the artifacts and specimens will be inaccessible. The museum will meet all of their existing commitments regarding loans and research access and will endeavor to meet any additional requests. The exhibits building will remain open to the public. If you need to borrow material for research in the near future, please contact Grant W. Hughes, Assistant Director Collections Program, immediately. Phone (604) 387-5706. For further details contact Tom Palfrey, Promotions Coordinator. Phone (604) 387-2134. Or write to the above c/o Royal British Columbia Museum, 675 Belleville Street, Victoria, B.C. V8V 1X4, Canada.

ELECTION OF OFFICERS, 1991

The 514 ballots received by the 15 January 1991 deadline have been counted, with the following results. The names of the successful candidates are in **boldface** type.

PRESIDENT	
Jim P. Brock	1
Lincoln P. Brower	1
Julian P. Donahue	1
J. Donald Lafontaine	1
Floyd Preston	470

VICE PRESIDENTS (3)	
Phillip R. Ackery	348
Fay Karpuleon	1
Ebbe S. Nielsen	396
Robert K. Robbins	410
Atuhiro Sibatani	264

EXECUTIVE COUNCIL MEMBERS-AT-LARGE (3)	
Charles V. Covell, Jr.	446
Frank Elia	1
Linda S. Fink	268
Donald R. Harvey	267
Scott E. Miller	311
David B. Ritland	151

KARL JORDAN MEDAL REPRESENTATIVE FOR 1991	
Julian P. Donahue	447

KARL JORDAN MEDAL REPRESENTATIVE FOR 1992	
Jerry A. Powell	436

HONORARY LIFE MEMBERS
(Affirmative vote of 80% of mail ballots cast is required to elect.)

Hon. Miriam Rothschild	445	(87%)
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Vote to amend Constitution, Article XIII (2/3 vote to carry):

Yes	456	(89%)
No	23	
Abstain	35	

One ballot was invalid with regard to Vice Presidents and six ballots with regard to Members-at-Large, because the member in each instance voted four names for only three available positions.

Respectfully submitted,
William D. Winter, Secretary

OFFICERS OF THE SOCIETY ARE NOW AS FOLLOWS:

Through 4 August 1991:

President
Immediate Past President
Vice Presidents (3)

Ron Leuschner
Jackqueline Y. Miller
Floyd W. Preston
Christer Wiklund
Richard I. Vane-Wright

After 4 August 1991:

President
Immediate Past President
Vice Presidents (3)

Floyd W. Preston
Ron Leuschner
Philip R. Ackery
Ebbe S. Nielsen
Robert K. Robbins

Full Calendar Year

Secretary
Assistant Secretary
Treasurer
Assistant Treasurer
Publications Coordinator

William D. Winter, Jr.
Julian P. Donahue
Fay H. Karpuleon
James P. Tuttle
Ron Leuschner

EXECUTIVE COUNCIL MEMBERS-AT-LARGE

(terms expire at annual meeting in year indicated)

1991

John W. Brown
Mogens C. Nielsen
Dale H. Habeck

1993

Karolis Bagdonas
Steven J. Cary
Stephanie McKown

1992

Richard A. Arnold
Susan S. Borkin
David L. Wagner

1994

Charles V. Covell, Jr.
Linda S. Fink
Scott E. Miller

EDITORIAL COMMITTEE

JOURNAL Editor
NEWS Editor
MEMOIRS Editor
MEMBERS AT LARGE

Boyce Drummond*
June D. Preston*
William Miller
Paul A. Opler (chair)
Frederick W. Stehr

KARL JORDAN MEDAL REPRESENTATIVE

1991

Julian P. Donahue

1992

Jerry A. Powell

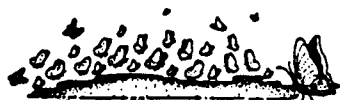
*retiring at end of 1991

NEEDED! A VOLUNTEER FOR A FASCINATING AND REWARDING TASK

Get to know your Society and active Lepidopterists through correspondence and personal contact. Be in on the decision making processes of the Society as a participant on The Executive Board. Help your Society prosper and grow. The Society is searching for a new editor of the NEWS of the Lepidopterists' Society. The task involves editing articles and a small amount of original writing plus preparation of photo-ready copy for the printer. If you have a flair for editing and would like to help the Society reach out to amateurs and professionals alike, please contact Paul Opler, Editorial Committee Chairman, Office of Information Transfer, US Fish and Wildlife Service, 1025 Pennock Place, Suite 212, Fort Collins, Colorado 80524 or June Preston, NEWS Editor, 832 Sunset Dr, Lawrence, Kansas 66044. Further details and the job description are available from both above named individuals.

THE XERCES SOCIETY'S 1991 FOURTH OF JULY BUTTERFLY COUNT

The 17th Annual Xerces Society Fourth of July Butterfly Count will be held this summer. Participants select a count area with a 15-mile diameter and conduct a one-day census of all butterflies sighted within the circle. The published results provide important information about the geographical distribution and population size of the species counted. Comparison of the results over the years enables monitoring of the changes in butterfly populations and the study of the effects of weather and habitat change on the different species throughout the continent. In some years the butterfly count shows dramatic changes in butterfly populations, while other years indicate little fluctuation in butterfly numbers. Either way, butterfly counters are always curious about what next year's results will be! No matter how much or how little butterfly watching you've done, the results of butterfly counting can be surprising and fascinating. For more information on how to conduct a count, contact either: Dr. Paul A. Opler, National Count Co-editor, 5100 Greenview Court, Fort Collins, CO 80525 or Mrs. Ann B. Swengel, National Count Co-editor, 909 Birch Street, Baraboo, WI 53913.



Forthcoming Meetings

LEPIDOPTERISTS' SOCIETY 42ND ANNUAL MEETING

Sonoran Arthropod Studies, Inc and the University of Arizona's Department of Entomology will host the 42nd Annual Meeting of the Society at the Quality Inn University in Tucson, Arizona from Thursday, August 1 thru Sunday, August 4, 1991. The preregistration form and more detailed information appear on page 11 of NEWS #1, 1991. There will be no general mailing of registration forms or call for papers. The deadline for papers is May 1st. If you are interested in attending the meeting, please fill out and return the preregistration form IMMEDIATELY. Your registration packet can then be mailed to you. For more information contact Steve Prchal, Sonoran Arthropod Studies, Inc, P.O. Box 5624, Tucson, Arizona 85703, USA, or phone (602) 883-3945.

ASSOCIATION FOR TROPICAL LEPIDOPTERA ANNUAL MEETING WITH SOUTHERN LEPIDOPTERISTS' SOCIETY

The first annual meeting of the Association for Tropical Lepidoptera will be held in Gainesville, Florida, April 5-7, 1991, together with the 1991 spring meeting of the Southern Lepidopterists' Society. The Florida State Collection of Arthropods (FSCA) will be acting as host for the meeting. All meeting sessions will be held at the Doyle Center Auditorium. Both the FSCA and the new Department of Entomology, University of Florida, building nearby will be available for visiting on Friday, April 5. Further details will be sent to all Association members as soon as the program and speakers have been finalized. Tentative plans include a Friday evening welcome session, Saturday morning and afternoon sessions divided between the Association and the Southern Lepidopterists' Society, a Saturday evening banquet, and Sunday sessions or collecting trips. Gainesville offers a number of interesting collecting sites nearby and others within a 1 hour drive. A list of recommended hotels will be sent prior to the meeting to those indicating intent to come to the meeting on their 1991 Association membership dues renewal form. Three state parks with camping facilities and cabins are within 45 minutes of Gainesville as well. We look forward to seeing you in Gainesville! For more information contact J. B. Heppner,

Executive Director, Association for Tropical Lepidoptera, c/o Center for Systematic Entomology, P.O. Box 1269, Gainesville, Florida 32602, USA.

XERCES SOCIETY 18TH ANNUAL MEETING

The 18th Annual Meeting of the Xerces Society will be held June 18-22, 1991 in conjunction with the annual meeting of the Society for Conservation Biology at the University of Wisconsin, Madison, Wisconsin. Registration cost is US \$60/person and US \$30/student if received at the Xerces Society office by May 1, 1991; \$20/person additional after May 1, 1991; does not include transportation, meals or lodging. Registration deadline is May 28, 1991. The deadline for abstracts for oral or poster presentations for consideration must reach Xerces Society offices by May 20, 1991. The preliminary agenda includes a business meeting, presentation of papers/posters, joint fish boil and social, symposium and banquet. For more information write: Xerces Society, 10 SW Ash Street, Portland, OR 97204.

New Members



- ASHBY, THOMAS L., Jr.: 667 Halifax Drive, Mobile, AL 36609-5945.
ASTON, CHRISTOPHER E. (Dr.): 561 South Negley Avenue, #12, Pittsburgh, PA 15232.
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BECKER, JAMES W.: P.O. Box 13005, 3618 Citation Drive, Hamilton, OH 45013-0005.
BENUS, JOHN: Director, Venezuela Tourism Association, P.O. Box 2101, Sausalito, CA 94966-2101.
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RAKOSY, LASZLO: Societatea Lepidopterologica Romana, Str. Republicii 48, RO-3400 Cluj, ROMANIA.

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SHAFFER, JACK R.: 7335 West 74 Terrace, Overland Park, KS 66204.

SPRINGER, JAMES P.: 1089 Sylvan Lane, Mountainside, NJ 07092.

TINDALE, NORMAL B. (Dr.): 2314 Harvard St., Palo Alto, CA 94306-1352 [inadvertently omitted from 1990 Directory; interests: Hepialidae, Castniidae, fossil Lepidoptera].

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ZIRLIN, HARRY: 39-60 54th Street, #10-E, Woodside, NY 11377-4237.

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MARQUIS, WAYNE L.: 7752 Newman Ave., #4, Huntington Beach, CA 92647-6830.

NEAL, THOMAS M.: 1705 NW 23rd Street, Gainesville, FL 32605.

NEILL, WILLIAM A.: 3141 Royce Way, Lake Oswego, OR 97034.

ORR, A. G. (Dr.): c/o Biology Department, Universiti Brunei Darussalam, Bandar Seri Begawan, BRUNEI.

PEASE, ROGER W., Jr. (Dr.): 100 Whittier Street, Springfield, MA 01108.

PERKINS, EDWIN M. (Dr.): 711 West 27th Street, #311, Los Angeles, CA 90007-3263.

PHELPS, ROBERT W.: Department of Biology, San Diego Mesa College, 7250 Mesa College Drive, San Diego, CA 92111.

PIZZUTI, KATHARINE: 11194 Chico Ave., Pomona, CA 91766-3921.

PORTER, ADAM H. (Dr.): Zoologisches Museum, Universitat Zurich, Winterthurerstrasse 190, CH-8057 Zurich, SWITZERLAND.

PURDUM, DAVID A.: 3472 Yellow Mountain Road, SE, Roanoke, VA 24014.

RAMOS, STUART J. (Dr.): La Resecadora #409, Mayaguez, PR 00708-7542.

RICKARD, MIKE A.: 4618 Holly, Bellaire, TX 77401.

SAVIGNANO, DOLORES: 37 Hovey Street, Watertown, MA 02172.

SHAW, DAVID P.: 138 Greystone Lane, #9, Rochester, NY 14618-4922.

SHIRAIWA, KOJIRO: 1884 Alder Street, #22, Eugene, OR 97401.

SZYSZKIEWICZ, MARK: P.O. Box 1196, Warren, MA 01083-1196.

TERAGUCHI, SONJA (Dr.): 2517 Norfolk Road, Cleveland Heights, OH 44106.

Address Changes



ALAN, KEITH: 5570 Windsor Court, Buena Park, CA 90621.

BAGDONAS, KAROLIS C. (Dr.): Rural Route 01, Box 457, Crabbs Prairie, Huntsville, TX 77340.

BRAKER, NANCY: The Nature Conservancy, 333 West Mifflin Street, #107, Madison, NY 53703-2557.

BROWN, JOHN W. (Dr.): 10 East Sierra Way, Chula Vista, CA 92011-1512.

BRUYEA, GUY P.: new ZIP Code reported incorrectly in last NEWS: it should read "92507-6060."

THURMAN, AL: 10623 Irene Avenue, SW, Tacoma, WA 98499.
 VASQUEZ, BONNIE M.: 12522 San Pablo Ave., #C, Richmond, CA 94805-1400.
 WATKINSON, IAN A. (Dr.): 38532 North Oakcrest Lane, Wadsworth, IL 60083.
 WEBSTER, REGINALD P.: Compartment A-1, Site 19, RR-5, Fredericton, New Brunswick E3B 4X6, CANADA.
 WELLER, SUSAN J. (Dr.): Department of Entomology, 4022 Life Sciences Building, Louisiana State University, Baton Rouge, LA 70803.
 WOODS, DANIEL: 95 Schubert Court, Irvine, CA 92715.
 YOUNG, CHRIS A.: P.O. Box 603, Angola, IN 46703-0603.
 YOUNG, MICHAEL E.: 7303 East 5th Avenue Parkway, Denver, CO 80220-6435.

CORRECTIONS AND MINOR CHANGES TO THE 1990 MEMBERSHIP DIRECTORY

BEURIE, JOHN: add address: 3240 North Highway 89, Prescott, AZ 86301-8447.
 BRINKMAN, BARTON B.: change street address to: 10720 Rosalie Drive
 BROWN, KEITH S., Jr.: change postal code to "13.081"
 BULLOCK, MARGARET: correct street number is "4513"
 JENKINS, DALE W.: change ZIP Code to "34239"
 MALECKI, JAMES B.: correct spelling of last name
 REISS, HANS W.: change ZIP Code to "92079-1362"
 SCHULZ, PAUL: last name incorrectly spelled "Schulze"
 SHANNON, RAYMOND THOMAS: correct street number is "1/24"
 VENABLES, B. ADRIENNE B.: change ZIP Code to "20742"
 WOLFE, KIRBY: change ZIP Code to "92029-5101"
 WOODWARD, BOB: correct street name is "Sherburne"

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 1991 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 Ornithoptera 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.

WANTED: Price lists from dealers and breeders of worldwide lepidoptera. All price ranges. Papered specimens or living pupae. I am very interested in Indo-Australian Papilionidae. Please send price lists to Michael G. Lockwood, 215 Hialeah Ave., Houma, Louisiana 70363, USA.

FOR SALE: Large overwintering pupae of *C. regalis*. Send SASE to Catherine Hartman, 25903 CR24W, Elkhart, Indiana 46517, USA.

WANTED: Overwintering pupae of *Papilio eurymedon*, *P. rutulus*, and/or *P. cressphontes*. Please contact Tony Pittaway, 2 Meadow Close, Moulstord, Oxfordshire OX10 9JL, United Kingdom.

FOR SALE: Light traps for use with 12 volt batteries or 120 volt AC, or both. Portable and light weight with 8, 15 or 22 watt bulbs. Beetle screen and rain drain. Excellent design and construction. For more information and pricing, contact: Leroy C. Koehn, 2946 N.W. 91st Ave., Coral Springs, FL 33065. Telephone (305) 344-3873.

FOR SALE: Cocoons and pupae of *A. selene*, *A. atlas*, *C. regalis*, *C. promethea* and *H. cecropia*. Quantities may be limited. Orders filled in order received. Send SASE to Mark Schmidt, 8780 Red Lion—Five Points Rd., Springboro, Ohio 45066.

FOR SALE: Ova of *A. selene*, *A. polyphemus*, *C. regalis*, *C. promethea*, *H. cecropia*, and possibly *A. atlas*, *A. pernyi*, *B. orizaba*, and *S. cynthia*. Send SASE to Mark D. Schmidt, 8780 Red Lion—Five Points Rd., Springboro, OH 45066.

WANTED: Wild-collected *C. promethea* cocoons and pupa of *C. regalis* for 1991. Contact: Roger Zebold, 675 Sprague Road, Wilmington, OH 45177. Or phone (513) 382-6056.

FOR SALE: *The Butterflies of North America*, by William H. Howe; *Butterflies of the Australian Region*, by Bernard D'Abbrera; *Birdwing Butterflies of the World*, B. D'Abbrera; *The Genus Agrias*, by Paul E. Barselou; *Encyclopedia of the Butterfly World*, Paul Smart; send self-addressed envelope with your offer. ALSO WANTED: Butterflies and Moths of New Foundland and Labrador. Henry Hensel, 145 Bellevue Str., Edmundston N.B. E3V 2E2, Canada.

FOR SALE: New Lepidoptera publication, *Cartography of Rhopalocera of the Afrotropical Zone* (Africa & Arabia), Vol. 1, *Papilionidae*. 6 p + 86 maps & bibliography (ca. 150 fig). US \$40.00. Privately published, 1990. ALSO FOR SALE: Xerox copies of rare European Lepidopteran literature. US \$45.00 per paper (1-20 pages). Allow 5-10 weeks for airmail delivery. Send precise bibliographic references with your prepayment. For either item, contact Dr. G. Mathot, Pied Noir 7, B-5000 Namur, Belgium.

EXCHANGE Political Buttons: I would like to exchange butterflies from various regions in return for American and Canadian political buttons.....Presidents—Prime Ministers—Governors and others. If interested please contact: George Sutton, 211 Rich Street, Goderich, Ontario N7A 1X4, CANADA.

FOR SALE: Pupae of *H. euryalus*, *H. burnsi*, *electra*, *eglanterina* (ssp), *Artoeia* (*Pieris*) *napi*, *Daritis howardi*, and others. Send SASE to Frank Sala, 3493 Greenfield Pl., Carmel, CA 93923.

FOR SALE OR EXCHANGE: Pupa of *Automeris lo* and *Anisota stigma*. ALSO FOR EXCHANGE: Very large assortment of European butterflies. Interest: Butterflies of North America. Also many species of Eastern NA butterflies for trade. Mecky Furr, 7925 Cross Pike, Germantown, Tennessee 38138.

FOR SALE: Butterfly bait traps in two versions. For information write to William G. Ward, 1474 Melbourne Dr. SE, Girard, Ohio 44420-1332 USA. Or phone (216) 539-5374.

FOR SALE OR EXCHANGE: Ova of *Catocala mira*, *obscura*, *cerogama*, *cara*, *relecta*, *relicta* and *vidua*. Send SASE to Jim Mouw, 245 Sarah Ave, Iowa Falls, Iowa 50126.

FOR SALE: Ova of *H. gloveri*, *Platypropia virginialis*, *Smerinthus cerisyi*. Also have wood cabinet style display cases for sale. SASE for price list, please. Russ Halvorsen, 1707 W. Coffman, Casper, Wyoming 82604.

FOR SALE: D'Abbrera's *Butterflies of the Australian Region*, 1971 (out of print first edition). Good condition, best offer. Oakley Shields, 6506 Jerseydale Road, Mariposa, California 95338.

FOR SALE: *JOURNAL of the Lepidopterists' Society*, Vol. 36-41 complete, in numbers as issued. \$35.00 postpaid USA. Russell Rahn, 3205 W. Rochelle Road, Irving, Texas 75062.

FOR SALE: Butterflies from California, Mexico, Arizona and Israel. Free list available. Robert Wuttken, 9506 National Blvd., Palms, California 90034-2820, USA.

ATTENTION, THOSE INTERESTED IN REARING, PHOTOGRAPHY OF LIVING STAGES OF LEPIDOPTERA, LIFE CYCLES, CRYPISIS & MIMICRY, HABITAT DOCUMENTATION, PHENOLOGY, OR ADULT/LARVAL BEHAVIOR: A new book is now FOR SALE entitled *PORTRAITS OF SOUTH AUSTRALIAN GEOMETRID MOTHS* (see Covell's recent review in NEWS #5, 1989, pp. 72-73). M. S. Moulds, founder of the *Australian Entomological Magazine*, recently had the following to say about this book: "... I have no doubt that this is the most significant single work ever to appear on Australian moths. It must become one of the classics of Australian entomological literature." The limited 1st edition (500 copies) is already more than half sold; second edition unlikely. Send a 9" x 4" SASE if in the USA and I will forward a 5-page summary detailing the contents of this book. If not in the USA, just write. Noel McFarland, P.O. Box 1404, Sierra Vista, AZ 85636.

FOR SALE OR EXCHANGE: Ova of Catocala whitneyi, amestris, abbreviatella, concupbens, cara, amatrix, neogama, piatrix, residua, obscura, paleogama and ultronia. Data for females and hostplant information provided on request. Will sell but prefer to exchange for ova of western or southern Catocala, or ova of western Hemileuca. John W. Peacock, 20 Quarry, Village Road, Cheshire, Connecticut 06410, USA.

FOR SALE: 1991 ova of the following species — Hyalophora cecropia, Hyalophora hybrids, Antheraea polyphemus, Actias luna, Eacles imperialis, Callosamia promethea, C. angulifera and others! ALSO FOR SALE: Well constructed rearing sleeves for lepidoptera larvae. Send SASE to Jeff Frey, 364 Oaklyn Road, Lebanon, Pennsylvania 17042.

AVAILABLE FROM THE AUTHOR: A Field Guide to the Moths of Eastern North America (Peterson Field Guide No. 30, 1984), second printing, with most errors corrected and 10 overly dark plates improved. Casebound, \$19; paperback, \$14, postpaid (surface mail). Charles V. Covell Jr., Dept. of Biology, Univ. of Louisville, Louisville, KY 40292 USA.

FOR SALE: Two sets of Journal of the Lepidopterists' Society. One set is complete, Volumes 1-44, all original, excellent condition, for \$660.00 plus shipping (a 25% discount from publisher's price). Second set has some missing issues, I will negotiate about price for this set. EXCHANGE WANTED: I have on hand RHOP., and Spingidae from expeditions to South America and Africa; and U.S. RHOP., MACRO., and MICRO., which I wish to dispose of by exchanging for material of Odonata. Correspondence welcomed. Carl Cook, 469 Crailhope Rd., Center, KY 42214.

FOR SALE: Pupae and ova of H. cecropia and A. polyphemus. Sleeve reared. Pupae available until mid-May and ova until mid-June. Send a SASE to Russell Humphrey, 224 South Huron St, Cheboygan, Michigan 49721.

WANTED: A. polyphemus and S. cynthia cocoons now or ova in the spring. I have a few wild collected H. cecropia cocoons to trade, or will buy. I am going to Malaysia in 1991 on a buying trip for locally produced goods. I'd appreciate hearing from anyone familiar with travel in Malaysia or with Malaysian lepidoptera. James Romer, 7991 E. Hampden Circle, Denver, Colorado 80237-1405 USA.

FOR SALE: A large collection of tropical butterflies, moths and beetles. A select collection, all set in glass topped drawers. Cabinets are 5' high, drawers are 18" x 18" x 3". 12 cabinets total, most in mahogany. Contact Elmer Griepentrog, Elsie Rt, Box 740, Seaside, Oregon 97138. Phone (503) 755-2259.

WANTED TO PURCHASE: Cocoons and/or series of papered specimens of H. gloveri gloveri, gloveri reducta, gloveri nokomis, Automeris cecrops pamina, A. cecrops aurosea, A. randa, A. iris, A. io neomexicana, A. zephyria, Callosamia securifera (both broods), C. angulifera (both broods), Eupackardia calleta, Hyalophora euryalis, H. columbia, Agapema galbina, A. homogena, Antheraea polyphemus oculate, A. polyphemus ochracea, Rothschildia cincta, B. forbesi, B. orizaba, Saturnia mendocino, S. walterorum, Sphingicampa albolineata and other US saturniidae. Also many sphingidae, especially the genus Sphinx. Write or call collect (10:00 a.m. to 3:00 p.m. EST) and identify yourself as a Lep Soc member. Ira Nadborne, 1793 Riverside Dr, #2 I, New York, New York 10034. Phone (212) 942-5721.

FOR EXCHANGE: Arctic butterflies, C. distincta, E. mckinleyensis, etc. for other nearctic Oeneis and Boloria. Also some eastern Canadian Noctuidae for western alpine species. Please send SASE for list. Edward M. Peters, P.O. Box 1043, Shirley, Massachusetts 01464, USA.

MEMBERS' COMMERCIAL NOTICES.....

WORLDWIDE LEPIDOPTERA SUPPLIES, Len Hart, 51 Benton Road, South Shields, Tyne & Wear, NE34 9UB, England. FOR SALE large selection of Butterflies, Moths & Beetles from worldwide sources. At very competitive prices. Exchanges also welcome. When writing please state your interests as several separate lists available. Send \$5.00 cash for one year's subscription.

EDUARDO C. WELLING M., Apartado Postal 701, Mérida, Yucatán, Mexico. Will exchange insects for the following publications: Cecile Hulse Matschat (J. A. Richards Inc., Random House, N.Y., 1942 by Artists and Writers Guild, Inc.), American Butterflies and Moths; Lillian D. Fazzini, Butterflies of North America; Kenneth J. Hayward, Catálogo Sinonímico de los Ropalóceros Argentinos, 1950; H. L. Lewis, Butterflies of the World, 1973; Alexander Heyne & Dr. Otto Taschenberg, Die Exotischen Käfer in Wort und Bild, Esslingen und München 1908; E. W. Rockburne & J. D. Lafontaine, The Cutworm Moths of Ontario and Quebec; Bernhard Klausnitzer, Beetles, 1983 English edition; Fernando do Zayas, Revisión de la Familia Cerambycidae, Laltabama, Cuba; Mohres-Reitter, Coleopteros. La Vida Enigmatica de los Escarabajos, Ediciones Daimon, Manuel Tamayo, Madrid-Barcelona-Mexico-Buenos Aires, 1966, by Chr. Belsler Verlag, Stuttgart (either Spanish or English edition); D'Abbrera, Sphingidae mundi, new or used. Will accept any of these used if in good, clean condition. ALSO WANTED: Spade tipped forceps 5 5/8 inches long from Germany, that have the following data on them — SHOWGARD-SOLINGEN-GERMANY-909. Will purchase or exchange for these. Any information on a source would be greatly appreciated.

STEPHEN LING, CALIFORNIA IMPORT & EXPORT CO., 414 Cloverleaf Drive, Suite B, Baldwin Park, California 91706, USA. Telephone (818) 330-7112; Fax (818) 330-7594. Importer of preserved, crystalized and plastic-embedded butterflies, scorpions, beetles and rare insects made into key chains, paperweights, pen holders and even clocks. Others mounted in glass topped wooden frames. Respond only if you are a serious retailer doing resale and can start an account with \$200 minimum, or a wholesaler who would like to distribute our products to your retail outlets. Excellent quality and unique items for collectible gift shops, insect collectors, stationery stores and taxidermists.

FLORA & FAUNA BOOKS: P.O. Box 15718, Gainesville, FL 32604. Curtis, BUTTERFLIES OF IDAHO is due May 1991 at \$34.95 (464 pp, 8x11; color pl) (NOTE: publisher delay after May is not our responsibility since May is their current official release date); DeVries, BUTTERFLIES OF COSTA RICA, \$22.50 paper; Shull, BUTTERFLIES OF INDIANA, \$25.00; Chang, ILLUSTRATED MOTHS OF TAIWAN, Pt. 1 (\$19.50), Pt. 2 (\$25.00) (in Chinese with Latin names; color plates); Chang, BUTTERFLIES OF TAIWAN, Pt. 1 (\$17.95), Pt. 2 (\$25.00) (Chinese with Latin names & English summary; color plates); Wang, SILKMOTHS OF TAIWAN, \$7.95 (Chinese with Latin names; color plates). All new books are discounted: take your total order and subtract 5%, then add \$2 shipping/ handling for first book and 75¢ for each added book (Foreign orders add \$1.50 more each book).

TRANSWORLD BUTTERFLY COMPANY, Apartado 6951, 100L San Jose, COSTA RICA, Central America. Serving Lepidopterists worldwide since 1976. OUR LATEST ILLUSTRATED 12-PAGE WORLDWIDE LEPIDOPTERA CATALOG includes Lepidoptera specimens from South America, Africa, Europe, and the Far East regions. Beginners to experienced collectors will find species of interest. Examples include Morpho rhetenor male/female, Morpho insularis male/female, Morpho titei male/female, Morpho godarti male/female, Prepona buckleyana, Papilio warscewiczii, Papilio cacicus, Graphium stresemanni, Papilio antimachus, etc. Books and Entomological pins. WE OPERATE PERSONALIZED ENTOMOLOGICAL, NATURALIST, BIRDER TOUR PROGRAMS. Latest catalog \$1 or one year's monthly lists via airmail \$6.

INSECTS PARADISE THAILAND, Mrs Sabine Steinke, P.O. Box 1, Muak Lek Post Office, Saraburi 18180, Thailand. FOR SALE: Many kinds of butterflies, moths, beetles and other insects from Thailand and Burma are available. For collections or scientific study and in bigger quantities for scientific research. For collections, very nice, colorful beetles and also rare butterflies and beetles in stock. Please request a free list!



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DEADLINES: Material for the Jan/Feb issue should reach the NEWS EDITOR by Dec 1 of the previous year, and that for the Mar/Apr Issue by Feb 15, for the May/June issue by Apr 1 and for the July/Aug issue by May 1, the Sept/Oct issue by Aug 15 and the Nov/Dec issue by Oct 15. Reports for the SEASON SUMMARY must reach the ZONE COORDINATORS listed on the front cover no later than the 5th of January. NEWS EDITOR is June Preston, 832 Sunset Dr, Lawrence, Kansas 66044-2373, USA. Phone (913) 843-6212. RIPPLES EDITOR is Jo Brewer, 257 Common St, Dedham, Massachusetts 02026-4020, USA.
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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, Fay H. Karpuleon, 1521 Blanchard, Mishawaka, Indiana 46544, USA, phone (219) 258-4893, 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.

Changes of address (permanent ones only), Additions or Changes in Telephone Numbers or Areas of Interest and Information about Mailing List Rental: Contact the ASSISTANT SECRETARY, Julian P. Donahue, Natural History Museum of Los Angeles County, 900 Exposition Blvd, Los Angeles, California 90007-4057, USA.

Information on Membership and other aspects of the Society must be obtained from the SECRETARY, Dr. William D. Winter, Jr., 257 Common Street, Dedham, Massachusetts 02026-4020, USA. Home phone (617) 326-2634.

Requests for Missed Issues (i.e. those not delivered although dues have been paid on time) should be sent to the TREASURER, Fay H. Karpuleon, address above, or the PUBLICATIONS COORDINATOR, Ron Leuschner, address below. Defective issues will also be replaced by the TREASURER. Do not request these of the NEWS editor.

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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AVAILABLE PUBLICATIONS OF THE SOCIETY..... Order from the PUBLICATIONS COORDINATOR, Ron Leuschner, 1900 John St., Manhattan Beach, CA 90266-2608 USA.

CATALOGUE/CHECKLIST OF THE BUTTERFLIES OF AMERICA NORTH OF MEXICO (Memoir #2), Lee D. Miller and F. Martin Brown: includes references to original descriptions and location of type specimens. Members and subscribers, \$12 cloth, \$7 paper; non-members, \$19 cloth, \$10.50 paper, postpaid.

SUPPLEMENT TO THE CATALOGUE/CHECKLIST OF THE BUTTERFLIES OF AMERICA NORTH OF MEXICO (Memoir #3), Clifford D. Ferris, editor. General notes, plus corrections and additions to the original Memoir #2. Members and subscribers: \$6.00 postpaid; \$7.50 first class in USA or \$9.00 airmail abroad. Non-members: \$10.00 postpaid; \$11.50 first class in USA or air post to Canada.

COMMEMORATIVE VOLUME, 1947-1972: a 25-year review of the Society's organization, personnel, and activities; biographical sketches; JOURNAL 25-year cumulative index by author, subject, and taxon; clothbound. Members and subscribers, \$8; non-members, \$12, postpaid.

1990 MEMBERSHIP DIRECTORY (current to October 1990. Biennial directory of members and their addresses, with geographic and interest indices. Not available for commercial use. (NEWS #6 for 1990). \$5.00 postpaid.

BACK ISSUES of the JOURNAL and of the NEWS of the Lepidopterists' Society. For a list of the available issues and their cost, postpaid, send a SASE to the SECRETARY or to the PUBLICATIONS COORDINATOR.