

NEWS

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USA

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ZONE 1: SOUTHWEST: ARIZONA, NEVADA, CALIFORNIA. Coordinator: R. L. Langston. Contributors: G. T. Austin (GA), R. C. Busby (RB), K. Davenport (KD), J. F. Emmel (JE), C. D. Ferris (CDF), G. A. Gorelick (GG), C. Hageman (CH), R. V. Kelson (RK), S. Mattoon (SM), J. R. Mori (JM), D. Parkinson (DP), A. M. Shapiro (AS), O. Shields (OS), R. E. Stanford (RS), W. L. Swisher (WS), R. E. Wells (RW), and B. D. Williams, III (BW). COUNTY, STATE (in caps.) = new county, state records. HIGH, LOW = elevation records.

ARIZONA: Five new COUNTY records for butterflies, with NORTH & WEST range extensions. Only one migration reported for Arizona in 1980. Among the moths, all reported by CDF, no analysis was made as to new county records or range extensions.

MIGRATORY SPECIES: Libytheana bachmannii larvata common & fresh below Hualpai Mtn. Park, 3 Oct. (OS). Light NW migration Hualpai Mtn. & Kingman, 3 Oct., plus Kingman & Davis Dam, 4 Oct., all Mohave Co. (OS). Vanessa cardui present (not reported migrating), Ditch Camp. White Mts., Apache Co., 1 Aug. (CDF).

MOTHS: Sphingidae: Sphinx chersis & Smerinthus cerisyi, South Fork Cyn., Cave Ck., Cochise Co., 5-7 Aug. (CDF). Saturniidae: Coloradia luski (including strongly melanic phenotype), off Black Cyn. Lake Rd., Sitgreaves Nat. For., 7500', Navajo Co., 1 Aug. Arctiidae: Aemilia ambigua, Hemihyalea labecula, & Turuptiana permaculata, off Black Cyn. Rd., 1 Aug. Phaegoptera astur arizonensis, H. labecula, H. edwardsii, & Leucanopsis lurida, South Fork Cyn., Cochise Co., 5-7 Aug. Noctuidae: four species of Catocala: aholiba, ilia, pura, & violenta, plus Erebus odorata, S.F.C., 5-7 Aug. Lasiocampidae: Gloveria arizonensis, Dicoaster coronado, S.F.C., 5-7 Aug. Geometridae: Phaeoura mexicanaria & Sabulodes niveostriata, off Black Cyn. Lake Road, 7500', Navajo Co., 1 Aug. (all by CDF).

BUTTERFLIES: Atrytonopsis lunus, South Fork Cyn., Cave Creek, Cochise Co., 5-7 Aug. (CDF). Ochlodes snowi, Rustler Park & Onion Saddle, Chiricahua Mts., Cochise Co., 5-7 Aug. (CDF). Hesperia woodgatei ♀♀ common, below Hualpai Mtn. Park, Mohave Co., 3 Oct. (OS). Polites coras & Oarisma garita, Ditch Camp. White Mts., Apache Co., 1 Aug. (CDF). Polygonus leo arizonensis, U Log Rd. Cpgd., NAVAJO CO. & NORTH, 2 Sept. (GA via RS). Pieris napi mogollon, U Log Rd., NAVAJO CO. & WEST, 31 Aug., LATE (GA



1980 Season Summary



via RS). *Colias* (apparently *eurytheme* X *philodice*), Rustler Park & Onion Saddle, 5-7 Aug. (CDF). *C. eurytheme* & *C. alexandra*, Ditch Camp, 1 Aug. (CDF). As in 1979, *Phoebis sennae marcellina* was abundant in the Chiricahuas, 5-7 Aug. with the albino ♀ form predominating (CDF). *Apodemia mormo* (very large, very dark ♀), South Fork Cyn., Cochise Co., 6 Aug. (CDF). *Glaucopsyche lygdamus arizonensis*, Shultz Pass Rd., San Francisco Mts., Coconino Co., 26 Aug. (GA) (14 Sept. the latest date in the R. Ballowitz Arizona checklist). *Limnitis astyanax arizonensis*, below Haulpai Mtn. Park, MOHAVE COUNTY & WEST, 3 Oct. (OS). *Chaliceria (Lycaena) ferrisi*, *P. icarioides buchholzi*, *V. anabella*, *E. anicia magdalena*, *S. atlantis nausicaa* & *S. mormonia luski*, Ditch Camp, Apache Co., 1 Aug. (CDF). *Chlosyne nycteis drusius*, U Log Rd. Cpgd., White Mts., NAVAJO COUNTY, 31 Aug., LATE (GA via RS). *C. lacinia crocale*, Hwy. 91 at Beaver Dam Wash, MOHAVE COUNTY & NORTH, 22 Aug. (GA via RS). *Thessalia theona thekia*, desert spring near Portal, Cochise Co., 5-7 Aug. (CDF). *Cercyonis oetus charon*, Ditch Camp, Apache Co., 1 Aug. (CDF).

NEVADA: One new STATE and six new COUNTY records for butterflies, with NORTH, EAST & WEST range extensions. Actually, some 60 county records by GA from relatively unworked areas, but only the most notable reported here. No migrations or moths reported from Nevada.

BUTTERFLIES: *H. uncas hilltopping*, vicinity Charleston Reservoir, Elko Co., 4 July (OS). *P. scriptura*, Little Current Cr., WHITE PINE COUNTY & NORTH for Nevada, 17 July (GA). *P. oregonius*, Little Salmon River Valley, Hwy. 93, 3 mi. S. of Jackpot, ELKO COUNTY & STATE record, 6 Aug. (GA) (extreme EAST range extension--see distribution in Dorfmeil, 1980). *P. napi macdunnoughi*, Jack Cr., Independence Range, Elko Co., WEST, 4 July (GA). *Calephelis wrighti*, Grapevine Cyn., Newberry Mts., Clark Co., 3 Apr., EARLY--previous earliest was 21 July (GA). *S. sylvinus* now reported from STOREY COUNTY by Gloria Harjes--no further data, NEW since the Jan. 1980 Nevada checklist (via RS). *L. cupreus*, Clear Creek Cyn., 6500', DOUGLAS COUNTY, 28 May, EARLY & 26 June (GA)--previous records June thru late Aug., Elko & Washoe Counties. *Euphilotes battoides baueri*, Phinney Cyn., 5600', Grapevine Mts., Nye Co., 23 May (JE). *Philotiella speciosa*, Ft. Churchill Rd. 12 mi. S. Hwy. 80, LYON COUNTY, 2-3 May (GA). *G. piasus* (dark), Austin Summit, Churchill Co., 3 July & vic. Charleston Res., Elko Co., 4 July (OS). *P. pallida barnesi*, Cherry Creek Summit area, Quinn Canyon Range, NYE COUNTY & WEST, 16 June (GA). *E. colon nevadensis* & *S. mormonia artonis*, Jack Cr., Independence Range, Elko Co., 4 July--both WEST range extensions (GA).

CALIFORNIA: Eleven new COUNTY records for butterflies, with NORTH, EAST, SOUTH & WEST range extensions. Few contributions for moths in 1980, but many added by RLL to stimulate interest. No known range extensions.

MIGRATORY SPECIES: *Vanessa cardui* virtually absent all season in Central Valley, but a few adults in Sept.-Oct. (AS). No breeding in Valley, but an outbreak at 5000', in Nevada Co. in autumn (AS). Some adults in C. Costa Co., 16 Sept.-22 Oct., but no migratory tendencies noted. *Nymphalis californica* at moderate levels, migrated across Central Valley in both directions (AS). A huge spot outbreak on the S. slope of Mt. Shasta, defoliating thousands of *Ceanothus velutinus*, with "millions" of dead or dying larvae on 26 July--no adult mass exodus followed this catastrophe! (AS). Found in very low numbers throughout the season in Kern & Tulare Counties (KD). *Danaus plexippus* spring populations poor, with breeding in the Central Valley lowest ever noted by AS. Few larvae in Vaca Hills, Solano Co., 31 Aug. (RLL, DP) and some larvae in Scott Valley, Siskiyou Co., but autumn numbers of adults low in much of No. Calif. (AS). First observed nectaring 7 Jan. & last 29 Dec., C. Costa Co. (RLL). Sparse winter aggregation at Pajaro Dunes, S. Cruz Co., 1 Mar. (RLL). Spring & summer numbers low in Bay Area, with much fewer than usual autumn migrants--peaking early- to mid-Oct. (RLL).

MOTHS: Sphingidae: *Hemaris senta* & *Proserpinus clarkiae*, Butts Cyn., Napa Co., 26 Apr., plus worn *clarkiae*, Del Puerto Cyn., Stanislaus Co., 3 May (RLL). Saturniidae: *Saturnia mendocino*, many ♂♂ observed on serpentine in North Coast Ranges, mid-April, also at Lang Crossing, 4800', Nevada Co., on metamorphics, 3 May (AS) (larval host is manzanita (*Arctostaphylos*)--possibly favored by these outcroppings? (RLL)). *Hemileuca neumoegeni*, off Black Cyn. Rd., 4000', Providence Mts., S. Bdn. Co., 15 Sept. (BW). Arctiidae: *Kodiosoma fulva*, Turtle Rock nr. Lake Berryessa, Napa Co., 13 Apr. (AS). *Diacrisia vagans* ♀ very fresh, Sunset Beach, S. Cruz Co., 1 March, EARLY (RLL). *Arachnis picta*, off Black Cyn. Rd., 4000', Providence Mts., 27 Apr. (BW). Agastididae: *Alphea mariposa form lunata* common, Adobe Cr. & Del Puerto Cyn., Stanislaus Co., 3 May (RB, RLL). Noctuidae: *Annaphila lithosina*, D. P. Cyn., 3 May (RLL). *Heliosea joaquin* & *Meliclectria sueta*, San Antonio Vy., S. Clara Co., 3 May (RLL). *Tarachidia fumata*, Butts Cyn., Napa Co., 26 Apr. (RLL). Geometridae: *Xystrota rubromarginaria*, Alpine Dam, Marin Co., 27 Apr. *Eulype subhastata*, 5 mi. NE. Camptonville, 2800', Sierra Co., 21 June. *Euphyia herbicolata*, *Venusia duodecimlineata* with *V. obsolleta*, Gilroy Hot Springs Rd., S. Clara Co., 1 March. *Neoterpes ephelidaria*, Fort Baker, Marin Co., 29 March (all RLL). Pyralidae: *Gyros muiri*, Adobe Cr., Stanislaus Co., 3 May (RLL). Tortricidae: *Sparganothis senecioniana* larvae on *Sedum spathulifolium* (NEW HOST), Route 20N01, Eel River, 2500', Lake Co., 24 May--adults eclosed 22-24 June (RK). *Hepialus behrensi* W. Berkeley, Alameda Co., 4 Apr. (RLL).

BUTTERFLIES: *M. yuccae martini*, 1 mi. W. White Top Mtn., 6400', Cottonwood Mts., Inyo Co., 3 June (JE, OS) & larvae in *Yucca brevifolia*, Ninemile Cyn. Rd., 5500', Inyo Co., 8 Sept. (JE). *L. eufala*, Davis, Yolo Co., 6 May, EARLY--spring records rare (AS) & Berkeley Marina, Alameda Co., WEST & closest to coast for No. Calif., 28 June (RLL). *A. vialis*, Donner Pass, 7000', Placer Co., 7 Aug. (AS). *E. vestris*, Mt. Shasta City, 26 July & Scott Mtn. Summit, Hwy. 3, 27 July, both Siskiyou Co. (AS). *P. melane*, Victorville along Mojave R., S. Bdn. Co., 2 May--unusual in desert (KD) & just N. of Anchor Bay, MENDOCINO COUNTY & NORTH, 25 May (RK). *A. campestris*, Hunter Mtn. E. of Nelson Range, 6600', Inyo Co., 10 Sept. (JE) & 2nd record for Donner Pass, 4 Sept. (AS). *P. sonora*, Big Pines, 6850', San Gabriel Mts., LOS ANGELES COUNTY & SOUTH, 15 July (JE) & a fresh ♂, Donner Pass, 27 Sept., LATE (AS). *H. comma* (*oregonia/tildenii* intermediates), Hull Mtn. Rd., 4000'-5000', Lake Co., 5 July, 13 Sept. (RK). *H. lindseyi*, Hull Mtn. Rd., 4000'-4500', 4-5 July (RK). *H. columbia*, ridge N. of Butts Cyn. & Conn Dam, Napa Co., 26 Apr. (RB, RLL); hills & ridges nr. Owls Barn, Ventura Co., 23 May & 3 Oct., LATE (KD); Del Puerto Cyn., 22 mi. W. Patterson, STANISLAUS COUNTY, 21 Sept. (RK). *H. juba*, Hunter Mtn. E. of Nelson Range, 6600', Inyo Co., 10 Sept.--no previous Death Valley region records (JE). *P. libya*, 3 mi. W. of Buttonwillow, Kern Co., 12 Sept.--first fall records for the San Joaquin Valley ssp. (KD). *P. alpheus oricus*, Gilbert Pass, 6400', Inyo Co., 22 May (JE). *P. scriptura*, 7 mi. E. to 3 mi. W. of Buttonwillow, 2 Sept.-3 Oct. (KD)--confirms 1930's & 1957 records for Valley parts of Kern Co. *E. brizo lacustris*, Hull Mtn., 6873', Lake - Mendocino Counties, NORTH, 4 July, LATE (RK). *T. pylades*, Lang Crossing, 4800', HIGH, Nevada Co., 14 July (AS). *P. clodius baldur*, nr. Sherman Pass, 8000', Tulare Co., 8 Aug. (KD). *P. clodius sol* common, N. Yuba R., 8 mi. NE. Camptonville, 2300', LOW, Sierra Co., 21 June (RLL, DP)--assoc/w extensive stands of *Dicentra formosa*. A single ♀ *P. phoebis behrii*, E. end Donner Pass, 7 Aug.--1st record in Pass proper (AS). *B. philenor hirsuta* fresh ♂, Rancho Cordova, Sacto. Co., 26 Nov., LATE (AS). *P. polyxenes rudkini*, Bendire Cyn., 4500', Argus Mts., Inyo Co., 1 Apr. (JE, CH, SM) & Hunter Mtn., 6600', Inyo Co., 3 June (JE, OS). *P. rutulus*, Hemet, Riverside Co., 24 Jan., EARLY (JE). *P. beckerii* laid many eggs on *Lepidium virginicum*, Donner Pass, 7000', Placer Co., 19 July (AS) & numerous *beckerii* still fresh, Caliente, Kern Co., 3 Nov., LATE (KD). Fresh albino ♀ of *C. eurytheme ariadne*, Davis, Yolo Co., 1 Jan., EARLY (AS) & both sexes in moderate flight by 10 Feb., Pt. Richmond, C. Costa Co. (RLL). *C. behrii* just emerging, Tioga Pass, 9945', Mono Co., 21 Aug., very LATE (OS). Singletons of *Z. eurydice*, Willow Slough, Yolo Co., 19 Apr. & Rancho Cordova, Sacto. Co., 17 May--unusual on the Valley floor! (AS); common below Alpine Dam, Marin Co., 27 Apr. (RB, RLL). A single ♂ *E. nicippe*, Cuyler Harbor, San Miguel I., Sta. Barb. Co., 10 Aug. 78 (GG) (NOT *Z. eurydice* as in last ZONE 1 Summary--printers error, RLL). *N. iole*, 1 mi. W. White Top Mtn., 6400', Inyo Co., 3 June (JE, OS). *A. cethura morrisoni*, betw. Buttonwillow & McKittrick, 3, 7, 22 March, common (KD). 1980 data from 5 counties for *morrisoni*, all assoc/w *Thelypodium lasiophyllum*: Abundant 4 mi. N. McKittrick, Kern Co., 12 March (WS); singletons S. of Buttonwillow & E. of Lost Hills, 17 March, lus Barham Ranch, 20 March (WS has details); 4 mi. SW. Alpaugh, WEST for Tulare Co., 23 March (WS); 0.6 mi. W. Corcoran Hwy. (nr. Kern Co. line), KINGS COUNTY, 23 March (WS); Russell Ranch, 2 mi. NW. Cuyama, SAN LUIS OBISPO COUNTY, 9 Apr. (WS); subsequent S.L.O. Co. records incl. Carrizo Plain, 15 mi. SE. Soda Lake, 16 Apr. (JM, RW); 2 & 7 mi. S. Soda Lake, 18 Apr. (WS). Santa Barbara Co. records include: 4-5 mi. SE. Cuyama, 9, 11, 14 Apr. (WS) & 16-17 Apr. (JM, WS, RW); & Bell Rd. 3 mi. SW. Cuyama, 14, 16 Apr., WEST (WS). (Original Sta. Barb. Co. *morrisoni*: "Cuyama, Calif.", III-31-1955, R.P. Allen, deposited in U.S.N.M.) *A. cethura catalina*, firebreak on Cactus 2 Mtn., 900', 1 mi. SSE. Avalon, Santa Catalina I., L.A. Co., 12 Apr. (GG). *A. mormo* in numbers, assoc/w *Eriogonum nudum*, 1 mi. SW. Monticello Dam, Napa Co., 31 Aug. (RLL, DP); atypical large, dark pop. assoc/w *E. umbellatum*, Hull Mtn., 6800', MENDOCINO COUNTY, 13 Sept. (RK); still numerous, Lang Crossing, 6 Oct., LATE (AS). *A. mormo cythera*, Hunter Mtn. E. of Nelson Range, 6600', Inyo Co., EAST, 10 Sept. (JE). *H. grunus*,

E. end Donner Pass, 4 Sept. (AS). *H. grunus lorquini* abundant, fresh, Upper Stevens Cr. Park, S. Clara Co., 26 July, EARLY (RL, DP)--assoc/w *Lithocarpus densiflora*. *S. fuliginosum*, Hull Mtn. Rd., 5000', 4 July & nr. Kneecap, 5500', 5 July, both Lake Co. (RK)--LOW & few Coast Range records. *S. auretorum* swarming, Lang Crossing, 5-14 July--not noted here previous 5 years (AS). *S. sylvinus*, 1.3 mi. S. Soda Cr. Ranger Stn., 2000', LAKE COUNTY, 4 July (RK). *I. fotis*, Bendire Cyn., 3800', Argus Mts., 14 Apr. (JE) & 1 mi. W. of White Top Mtn., 6400', 3 June (JE, OS). *I. mossii* nr. *windi* larvae on *Sedum spathulifolium* & *S. stenopetalum*, 2 mi. W. Hopland Grade summit, 2000', 26, 31 May 79, eclosed 1 Apr.-5 May 80 (RK). *C. dumetorum*, Ninemile Cyn. Rd., 5500', INYO COUNTY, 7 May (JE). *C. comstocki*, Bruce Cyn., 3400', LOW, Argus Mts., 30 March (JE, CH, SM) (NOTE: In the 1979 Summary, it was *comstocki* by GG--*dumetorum* does NOT occur in the Argus Mts.). Also other pops. of *comstocki* in the Argus Mts., Coso Range, Nelson Range & Cottonwood Mts., all Inyo Co. (JE has details). *A. halesus corcorani*, Lang Crossing, ca. 4800', HIGH, Nevada Co., 14 July (AS) & Nortonville, C. Costa Co., 20 July (DP). *L. xanthoides* ♂, Gates Cyn., Solano Co., 19 June--very rare in Vaca Hills (AS). *H. isola alce*, 7 mi. E. Buttonwillow, KERN COUNTY, 2 Sept. (KD). At least 100 *P. emigdionis* observed in 15 mi.!, Paul's Place (street) nr. Weldon, Kern Co., 14 June, assoc/w *Atriplex* bushes along irrigation ditch (KD). *P. shasta*, vic. Carson Pass, 9500'-10,000', Alpine-Eldorado Counties, 1 Aug. & common, fresh, both sexes, 7 Oct. very LATE (AS). *P. neurona* abundant, Pacific Crest trail N. of Weldon, 14 June (KD) & Table Mtn., 7200', San Gabriel Mts., L.A. Co., 19 Aug. with *P. icarioides evius*, LATE (JE). *P. icarioides pheres*, Pt. Reyes dunes, 30 Apr. (RB). *Euphilotes battoides intermedia*, SW. above Frog Lake, 8000', 19 July & Castle Peak at 8500', 26 July, both Nevada Co., assoc/w *Eriogonum umbellatum* (RK). *E. enoptes* intermediate to *bayensis*, Hull Mtn. Rd., 5000', 4 July, assoc/w *E. nudum* & nr. Kneecap, 5500', 5 July, both Lake Co. (RK). Typical *bayensis*, Coleman Valley Rd., 4 mi. W. Occidental, Sonoma Co., 11 July (RL, DP). *E. enoptes mojave*, Black Rock Cyn., 6400', Coso Range, 1 June & nr. Goldbelt Spr., 5500', Cottonwood Mts., 3 June, LATE, both Inyo Co. (JE, OS). Sparse spring flight of *E. enoptes tildenii*, both sexes, Del Puerto Cyn., Stanislaus Co., 3 May, but no *Eriogonum* in bloom (RB, RLL). Fall-flying segregate of *E. enoptes* assoc/w *E. wrightii* subscapousum, Table Mtn., 7200', L.A. Co., 19 Aug. & sympatric with *E. rita elvirae*, Ninemile Cyn. Rd., 5500', Inyo Co., 8 Sept., both on *E. wrightii* (JE). *Philotiella speciosa*, 1 mi. W. of White Top Mtn., 6400', Inyo Co., 3 June (JE, OS). *G. lygdamus incognitus* abundant, Pt. Richmond, C. Costa Co., 10 March, EARLY (RLL). *G. lygdamus* nr. *columbia*, 8 mi. S. Low Gap, 3000', Lake Co., 24 May (RK). *N. milberti furcillata*, Swarthout Valley, 6400', San Gabriel Mts., LOS ANGELES COUNTY, 15 July (JE). *N. antiopa*, 1 mi. NW. Inyokern, Kern Co., 1 June--flying across open desert in creosote bush scrub (JE, OS) & a physiological foul-up: 4 egg masses laid in wild on weeping willow at Fairfield, Solano Co., 20 Oct., LATE, and larvae reared successfully (AS). Larvae of *C. palla* from Aster radulinus, Gates Cyn., Solano Co., 2 Apr. (AS). *P. campestris montana* sympatric with *P. orseis herliani* betw. Donner Lake & Summit Lake, 7000', Nevada Co., 19, 26 July (RK) & *orseis*, Deadfall Meadow, 6000', Siskiyou Co., 26 July (AS) (all LATE dates for this supposedly univoltine sp.--RLL). *T. leanira*, 8 mi. NE. Camptonville, 2300', 21 June--2nd Sierra Co. record (RLL, DP). *T. leanira alma*, Bendire Cyn., 3800', Argus Mts., 14 Apr. (JE) & Los Burro Mine, 5250', Cottonwood Mts., 3 June (JE, OS), both Inyo Co. *E. editha bayensis*, Adobe Cr. just N. of Del Puerto Cyn., Stanislaus Co., 3 May (RB). A single ♀ *S. coronis snyderi*, Soda Springs, Placer Co., 5 July, EARLY & 2nd record at Lang Crossing (WEST SLOPE), 16 Sept. (AS). *S. zerene conchylitatus*, 5 mi. NE. Camptonville, 2800', LOW, Sierra Co., 21 June (DP). *S. zerene myrtleae*, Coleman Valley Rd. half mi. E. of Hwy. 1, Sonoma Co., NORTH for typical, 11 July (RLL, DP). *S. zerene* sympatric with *hydaspe X viridicornis*, both very abundant, Freeman Cr. Grove, Tulare Co., 25 July (KD). A ♂ *S. callippe* ssp., Gates Cyn., Solano Co., 31 May--first *Speyeria* taken in the Vaca Hills, source pop. unknown (AS). *S. hydaspe purpurascens*, Hull Mtn. Rd., 4500-5000', 4-5 July & nr. Kneecap, 5500', 5 July, LAKE COUNTY, WEST & in Coast Range! (RK). *S. mormonia arge*, just emerging by 21 Aug., very LATE, Tioga Pass, 9945', Mono Co. (OS). *S. cybele leto*, Lang Crossing, Nevada Co., 4 Aug.--2nd record (AS). *Agraulis vanillae incarnata*, 10 mi. E. Modesto, Stanislaus Co., 12-13 Oct. (JM)--first and only specimens seen in area since 1957! However, becoming common again in Bay Area--adults in C. Costa Co. by 20 June & last coll. fresh in El Cerrito, 24 Dec., LATE (RLL). *D. gilippus strigosus*, Hemet, Riverside Co., 23 Dec., LATE (JE). *C. tullia ampelos* clearly resident, a bog meadow at Bassetts, Sierra Co. (WEST SLOPE), 19 July & 2nd record for Donner Pass, 7 Aug. (AS). *C. pegala boopis* sympatric with *C. sthenele silvestris*, 9 mi. S. Low Gap, 3000', Lake Co., 5 July (RK).

ZONE 2: PACIFIC NORTHWEST: OREGON, WASHINGTON, BRITISH COLUMBIA. Coordinator: Jon H. Shepard (JS). Contributors: John Hinchliff (JH); S.G. Jewett, Jr. (SJ); Fayette Krause (FK); R.L. Langston (RL); Dave McCorkle (DM); W.A. Neill (WN); John Pelham (JP); Ted Pike (TP); Sally Hughes-Pyle (SP); Robert Pyle (RP); Mark Smith (MS); Felix Sperling (FS); B.D. Williams (BW). General Conditions: Weather conditions average. The eruptions of Mt. St. Helens were expected to affect collecting conditions seriously. In reality it seems to have affected only certain areas directly in the pathway of the main ash fallout, i.e., the Yakima Valley, Ritzville, and Spokane. In those areas up to a foot of ash accumulated eliminating most local butterflies that were in flight at the time (JS for Spokane & Yakima). It is assumed but not provable that larvae were adversely affected. The most serious effect was on collectors, not butterflies. Hardly an outside collector ventured into the area for fear of a second major eruption. Even local collectors were hesitant to collect in Washington. Those that did spent time at several classic localities. This was good because we had a quick assessment of the damage from the volcanic eruption. MIGRATORY SPECIES: No one reported the presence of a migratory species except for *V. atalanta* in Sept. at Gray's River, Wahkiakum Co., Wash. (RP). Could this have been a result of the Mt. St. Helens eruptions?

OREGON: Harney Co., Trout Creek, 17 July (SJ) butterfly species scarce as opposed to abundant in 1979. Klamath Co., 2 mi. S.E. of Klamath Falls, 21-22 Aug. (BW), *H. hera* & *eglanterina* both common. Jackson Co., Mt. Ashland, 13 Aug. (RL) 17 species, conditions normal. Jefferson Co., Camp Sherman, 29 July (JH) species numbers normal. Linn Co., Tombstone Prairie, 29 July (JH) species numbers normal. Malheur Co., 15 mi. WNW. of McDermitt, 9 June (MS) *Hyalophora gloveri*? STATE record.

WASHINGTON: Chelan Co., Icicle Cr. SW. of Leavenworth, 11 Aug. (RL) & Stevens Pass, 4061', 11 Aug. (RL) 19 species recorded in these two areas which encompass the well-known Tumwater Canyon, no apparent damage from ash. Cowlitz Co., 1 mi. N. Woodland, 24 March (RP) *C. argiolus* & *N. antiopa*, both COUNTY records. N. of Kalama, T7NR1ES31, A. sara, COUNTY record. Nr. Mill Creek, T8NR4WS9, 10 Aug. (RP) *O. sylvanoides*, *V. cardui*, & *L. helioides* all three COUNTY records. Clallam Co., Obstruction Point, Hurricane Hill, & Blue Mtn., Olympic Natl. Park, 7-8 Aug. (JH) all species which could be expected were seen, thus no effects from the ash. Lincoln Co., Seaton Canyon, T28NR31ES15, 13 Aug. (FK), *C. sthenele* COUNTY record. Okanogan Co., Slate Park, 9 Aug. (WN), 11-12 Aug. (DM, JH, JP, RP), all the exceptional, arctic-alpine species were present in nr. normal numbers. Skamania Co., Lava Beds, 4 mi. WNW. of Willard, 7 Sept. (JH, RP, SP). *H. grunus herri*, STATE record. Stevens Co., Onion Cr., 1700', T39NR39E, 7 May (JH) *Pieris rapae*, *P. sisymbrii*, *Plebejus icarioides*, *C. polios*, *N. milberti*, *N. antiopa*, all the preceding are COUNTY records. Waikikum Co., nr. Roseburg, T10NR6WS26, 15 Apr. (RP) *C. argiolus* COUNTY record. Columbia White-tailed Deer Natl. Wildlife Ref. T9NR6WS17, 22 Apr. (RP) *P. satyrus*, COUNTY record. Barr Rd. X Worrel Rd., T10NR7W, 12 May (RP) *N. antiopa*, COUNTY record. Gray's River Valley, T10NR7-8W, 29 June (RP) *S. melinus* & *E. vestris*, both COUNTY records. Gray's River Valley, T10NR7-8W, 22 May (RP) *B. epithore*, COUNTY record. Yakima Co., Moxee Bog, 13 Aug. (DM) *Boloria selene* does not seem to be affected by the ash fallout.

BRITISH COLUMBIA: Queen Charlotte Islands, Drizzle Lake, 27-29 July (JS) *Lycaena mariposa* abundant. Queen Charlotte City, Skidegate, & Port Clements, 21-27 July (JS) 85 species of moths, the 1st recorded from the islands. Peace River District, Taylor, 3 July (FS) *Papilio oregonia* District record. Pink Mtn., no date given (TP), *Colias meadii* & *L. phlaeas*, both District records.

ZONE 3: ROCKY MOUNTAINS: ALBERTA, IDAHO, MONTANA, WYOMING, UTAH, COLORADO & NEW MEXICO. Coordinator: Ray E. Stanford. Contributors: Gary G. Anweiler (GGA); George T. Austin (GTA); Karólis Bagdonas & his Flying Circus (BFC, incl. William Bagdonas & other members of the Bagdonas family--Sterling Blanche, Cory Campbell, John Carlisle, Terry Clifford, Martie Crone, Robert & Betty & Dana Davis, Chuck Farber, Dave Geiss, Mark Harrington, Ira Heller, Brian Lowry, Tom McGann, Fred Melius, Alma Overstreet, Mike Rehg, Lois Skinner, Roberta Skinner, & Lisa Snyder); Dale L. Bellow (DLB), James P. Brock (JPB); George W. Busby (GWB); Charles V.

Coveil, Jr. & son Chuck (CVC); Nelson S. Curtis (NSC); Peter L. Eades (PLE); J. Donald Eff (JDE); Scott L. Ellis (SLE); David J. Ferguson (DJF); Clifford D. Ferris (CDF); Michael S. Fisher (MSF); Larry F. Gall (LFG); Clyde F. Gillette (CFG); Lowell N. Harris (LNH); Richard Holland (RH); Frank E. Holley (FEH); John Johnstone (JJ); Brian Kirkpatrick (BK); Richard L. Klopshinske (RLK); Steven J. Kohler (SJK); Norbert G. Kondla (NGK); John Lane (JL); Gary M. Marrone (GMM); Joanna McCaffrey (JM); Joseph I. Minow (JIM); Steven J. Mueller (SJM); Adam Peters (AP); Donald E. Phillipson (DEP); Floyd & June & Steve Preston (FJP); Robert A. Price (RAP); Robert M. & Sally Pyle (RMP); Nancy Rank (NR); James A. Scott (JAS); Oakley Shields (OS); Charles P. Slater (CPS); Ray E. & Katharine & Linda & Scott Stanford (RES); Terry W. Thormin (TWT); W. Herbert Wagner (WHW); Wayne H. Whaley (WHW-Utah only); Benjamin D. Williams (BDW); David M. Wright (DMW). I thank all these people for sending in their records, either directly or indirectly. Regional Notes: It was an odd season, with winter turning directly into summer in most portions, and the 18 May eruption of Mt. St. Helens in Washington dumping ash on much of Idaho & Montana with resulting poor collecting. Some effects of the eruption were felt in Wyoming and northeastern Colorado as well. The summer was very dry, with good collecting limited mainly to the mountains. Official "July 4th" counts were done in Colorado & Wyoming, the latter in conjunction with the Xerces Society meeting in Laramie. A total of 3 STATE RECORDS and about 665 COUNTY RECORDS were tallied for butterflies, and many more for moths. As stated previously, these records may not reflect earlier unpublished data, so are putative rather than definitive new records. Subspecific names are given only in instances where the specific name alone would be inadequate. Generic names are abbreviated, but followed by newer generic name in parentheses when considered unfamiliar. Capital letters are used to denote putative new STATE, COUNTY, EARLY, LATE, or range extension records.

ALBERTA: Contributors: JJ, NGK, (TWT). As in much of our region, winter turned into summer abruptly, resulting in an early, hot and dry spring with many new EARLY records (NGK). Summer collecting in the mountains was normal (JJ). No MOTH records were received.

BUTTERFLIES: *E. persius*, Prospect Mtn., early July (JJ). *P. centaureae*, same data (JJ). *A. oslari*, Lower Milk River, 7-9 June, 2nd Alberta record & first from SOUTHEAST portion (NGK, TWT). *P. draco*, Hailstone Butte (10 mi. N. of Plateau Mtn.), 12-17 July, determination confirmed by RES (JJ). *H. comma manitoba*, Prospect Mtn., early July; Hailstone Butte, 12-17 July, determinations confirmed by RES (both records-JJ). *P. napi*, Brick Lake, 30 Apr. (EARLY) (NGK). *E. creusa*, Prospect Mtn., early July (JJ). *E. olympia*, Wintering Hills nr. Drumheller, 18 May (100 mi. NW range extension & probable extreme NW limit of range) (NGK). *C. meadii elis*, many specimens incl. 2 gynandromorphs, Hailstone Butte, late July (JJ). *C. alexandra astraea*, Dinosaur Park, Calgary, 13 May (EARLY, perhaps for all of Zone III) (NGK); Prospect Mtn., early July (JJ). *C. nastes streckeri*, Hailstone Butte, 20 July (JJ). Fascinating complex of *Papilio* phenotypes hilltopping together, incl. *zelicaon*, *hudsonianus*, *dodi* & *nitra*, nr. Buck Lake, 29 May (NGK). (Note: much work is needed here; there may be more than one species, or a single one with multigenic polyphenism--RES.) *P. (Euphoeades) multicaudatus*, Lower Milk River, 7-9 June, SOUTHEAST for Alberta & EAST for Canada (JGK, TWT). *C. argiolus*, Edmonton, mid-Apr. (EARLY) (NGK). *L. phlaeas arethusa*, Hailstone Butte, 13 July (JJ). *E. discoidalis*, abundant (NGK). *O. uhleri varuna*, Hailstone Butte, 12-22 July (JJ). *O. alberta*, already worn, Dinosaur Park, 8 May (EARLY) (NGK). *C. acastus*, Dinosaur Park, 8 May (EARLY) (NGK).

IDAHO: Contributors: GTA, NSC. The majority of records are from NSC, the only contributing resident Idaho collector. Because Idaho records have been conspicuously absent from Season Summaries for several years, and because this is the first year that Idaho has "come home" to the Rocky Mountain region where it belongs, all records received are included from both 1979 & 1980. The Summary is therefore quite long, but the individual records are very brief, consisting of county alone with a few exceptions. Two butterfly STATE RECORDS and nearly 400 COUNTY RECORDS were received. The great volume of data presented attests both the extensive field work by NSC in a two-year period, and the obvious need for future study of Idaho butterflies (and moths).

MOTHS: No data received.

BUTTERFLIES: the 18 May eruption of Mt. St. Helens deposited ash over much of Idaho, with resulting poor collecting. NSC has written me with detailed information on several "difficult" taxa including *Everes*, *Mitoura*, *Colias*, *Satyrium*, *Hesperia* & *Coenonympha*; some of the problems involved are presented below. The following list of records is from NSC unless indicated otherwise. *E. clarus*, BANNOCK, CARIBOU, FRANKLIN, IDAHO, KOOTENAI, LEWIS. *T. pylades*, ADAMS, FRANKLIN. *P. communis*, ADAMS, BEAR LAKE, CARIBOU, CLARK, CLEARWATER, JEFFERSON, LEWIS. *P. catullus*, BANNOCK, ELMORE. *A. vialis*, ADAMS, CLEARWATER, ELMORE. *O. sylvanoides*, BEAR LAKE, CAMAS, FRANKLIN, ONEIDA, OWYHEE (GTA), TETON. *P. sabuleti*, CLARK. *P. draco*, BEAR LAKE, BLAINE. *P. themistocles*, FREMONT, 2nd STATE RECORD. *P. mystic*, CLEARWATER, LEMHI. *P. sonora utahensis*, FREMONT. *H. juba*, BOISE. *H. uncas*, FREMONT, OWYHEE. *H. comma*, ADA, BINGHAM, BOISE, CLARK, ONEIDA, TETON (mostly *harpalus* or *manitoba* phenotypes or blends; much study needed--RES). *H. nevada*, BEAR LAKE, ELMORE. *O. garita*, BENEWAH, BLAINE, BONNEVILLE, CLEARWATER. *P. pirus*, BEAR LAKE, 2nd STATE RECORD. *C. palaemon mandan*, ADAMS, BEAR LAKE, BENEWAH, CLEARWATER, FREMONT, KOOTENAI. *N. menapia*, BENEWAH, LEMHI, VALLEY. *P. (Artogeia) rapae*, ADA, BEAR LAKE, BENEWAH, CANYON, CLEARWATER, ONEIDA. *P. (A.) napi*, ADAMS, BENEWAH, CLEARWATER, TETON. *P. (Pontia) beckerii*, ADAMS, BANNOCK. *P. (P.) occidentalis*, CAMAS, CANYON, FREMONT, IDAHO, KOOTENAI, ONEIDA. *P. (P.) protodice*, ADAMS, LATAH, VALLEY. *P. (P.) sisymbrii*, ADAMS, BONNEVILLE, IDAHO. *A. sara*, ADAMS, TETON, TWIN FALLS. *E. ausonides*, ADAMS, BEAR LAKE, BONNEVILLE, CAMAS, ONEIDA, TETON, TWIN FALLS. *E. hyantis*, ADAMS, BOISE, BUTTE, IDAHO. *C. eurytheme*, ADAMS, CARIBOU, CUSTER. *C. philodice epiphyle*, ADAMS, BLAINE, BONNEVILLE, CANYON, FREMONT. *C. alexandra*, ADA, ADAMS, CLARK, FRANKLIN, IDAHO, NEZ PERCE (Note: NSC did not indicate subspecies by county, but remarked that there are all-yellow populations both north & south of the usual yellow-orange mixed *astraea* of central Idaho). *C. interior*, CLEARWATER, NEZ PERCE, VALLEY. *C. pelidne*, CLEARWATER. *C. gigantea*, LEMHI. *P. phoebus*, ADA, BEAR LAKE, BONNEVILLE *CLEARWATER, ELMORE, *LATAH, NEZ PERCE, TETON, VALLEY (Note: subspecies not indicated by NSC; counties preceded by * are listed in Ferris' paper J Res Lepid 15:18, 1976 as intermediate between *montanulus* & *smintheus*). *P. clodius*, ADAMS, ONEIDA, TETON. *P. zelicaon*, ADAMS, BONNEVILLE, GEM (Note: all normal yellow form; black form "nitra" not yet recorded from Idaho). *P. indra*, CANYON, LEMHI; Nez Perce 26 July (LATE). *P. (Euphoeades) rutulus*, CLARK, LEWIS, ONEIDA, TETON, TWIN FALLS. *P. (E.) eurymedon*, ADAMS, BEAR LAKE, BONNEVILLE, CLEARWATER, LEWIS, ONEIDA, TETON. *P. (E.) multicaudatus*, ADAMS, BEAR LAKE, CLARK, FREMONT, ONEIDA, TWIN FALLS. *A. mormo*, NEZ PERCE. *L. argyrognomon*, BEAR LAKE, BONNEVILLE, FRANKLIN, IDAHO, TETON. *L. melissa*, BONNEVILLE. *L. saepiolus*, BENEWAH, BONNEVILLE, CASSIA, CLEARWATER, ELMORE, LEWIS. *P. icarioides*, LEWIS, ONEIDA, TETON, TWIN FALLS. *P. acmon*, BONNEVILLE, FRANKLIN, IDAHO, TETON. *P. shasta*, BEAR LAKE (old record cited by Emmel & Shields, J Res Lepid 17:136, 1978). *A. glandon*, BONNEVILLE. *G. lygdamus*, BANNOCK, BLAINE, BOISE, BONNEVILLE, CLARK, CLEARWATER, TETON; Nez Perce, fresh ♂ 3 Aug. (LATE). *G. piasus*, ADAMS. *E. battoides*, LATAH. *E. amyntula*, ADAMS, BEAR LAKE, CLEARWATER, FRANKLIN, LEMHI (Note: NSC writes that isolated segregates in IDAHO, KOOTENAI & LATAH counties, surrounded by typical *amyntula*, may be relict populations of *E. comyntas*. The genitalia and biology of these insects need to be studied, but the presence of *comyntas* in central Idaho would not be unreasonable, given its occurrence westward along the Pacific coast and in the deserts along the Arizona-New Mexico border. If confirmed, *comyntas* is an Idaho STATE RECORD and most interesting range extension--RES). *C. argiolus*, CLEARWATER, FREMONT, LEMHI. *T. arota schellbachi*, E. of St. Charles, 20 July 79, BEAR LAKE Co. & IDAHO STATE RECORD (NSC). *L. cupreus*, BOISE, BONNEVILLE, TETON. *L. (Gaeiodes) editha*, FRANKLIN. *L. (Chalceria) rubidus*, BEAR LAKE. *L. (C.) heteronea*, FRANKLIN. *L. (Hyllolycaena) hyllus (=thoe)*, CLARK, 2nd STATE RECORD. *L. (Epidemia) nivalis*, BONNEVILLE, NEZ PERCE, TETON. *S. (Callispyche) behrii*, BEAR LAKE, BONNEVILLE, FRANKLIN, OWYHEE, (GTA), TETON. *S. fuliginosum*, BEAR LAKE, BONNEVILLE, OWYHEE (GTA), TETON. *S. seapium*, BEAR LAKE, FRANKLIN. *S. sylvinus* COMPLEX, NSC is studying this group of species in Idaho, and suspects that what many collectors referred to "*S. acadica coolinensis*" and which are considered to be *sylvinus* in the forthcoming book *Butterflies of the Rocky Mountain States* may in fact represent an undescribed species or ecotype of *S. californica* assoc/w/ *Ceanothus* in Idaho. Meanwhile, the following "hard" records are offered: *S. sylvinus*, BEAR LAKE, BONNEVILLE, TETON. *S. californica*, ADA, CLARK, ELMORE, FREMONT, VALLEY. *S. acadica* seems to be limited in Idaho to the extreme north, where the subspecies *coolinensis* may or may not be identical to typical *acadica*; a great deal of work is needed on the *sylvinus* COMPLEX there! *I. mossii schryveri*, IDAHO. *I. augustinus iroides*, ADAMS, CLARK, CLEARWATER, IDAHO. *I. eryphon*, ADAMS, CLARK, FREMONT. *M. spinetorum*, NEZ PERCE. *M. nelsoni* COMPLEX, NSC is trying for the moment to separate northern Idaho material into Johnson's new taxa, referred to as "entities" to beg some time to work on their biology and taxonomy. As of now the breakdown is as follows: *M. rosneri*, BOUNDARY. *M. barryi*, CLEARWATER, IDAHO, LATAH.

M. byrnei, Latah, Benewah, Shoshone. (Note: I still consider these to be subspecies of *M. nelsoni*, with only the nymotypic subspecies limited to *Calicedrus* as larval host--RES). *C. affinis*, BUTTE. *C. sheridanii*, BUTTE, FRANKLIN, NEZ PERCE. *C. haydeni*, BONNEVILLE, TETON. *C. tullia* COMPLEX, BENEWAH (*ampelos*), TETON (*ochracea*); NSC wrote at length on the distribution and biology of the various *tullia* forms, subspecies and intermediates in Idaho. *C. oetus*, CLEARWATER, FRANKLIN, TWIN FALLS. *C. pegasia*, CARIBOU. *E. epipsodea*, ADAMS, FRANKLIN, KOOTENAI, NEZ PERCE, TETON. *O. chryxus*, BEAR LAKE, KOOTENAI, SHOSHONE. *D. plexippus*, ADA, BEAR LAKE, BINGHAM, BLAINE, BONNEVILLE, CUSTER, FRANKLIN, FREMONT, IDAHO, LEWIS, ONEIDA, OWYHEE, TETON, VALLEY, WASHINGTON. *B. (Clossiana) selene*, ADAMS, BEAR LAKE, CLARK, CLEARWATER, LEMHI, LEWIS. *B. (C.) epithore*, BENEWAH. *S. coronis*, ELMORE, LATAH, LEMHI, ONEIDA. *S. zerene*, BENEWAH. *S. callippe*, ADAMS, TWIN FALLS. *S. egleis*, FREMONT, LATAH. *S. hydaspe*, BENEWAH. *S. mormonia*, ELMORE. *S. cybele leto*, BENEWAH, BONNEVILLE, FREMONT. *P. tharos* COMPLEX, ADAMS, CUSTER, FREMONT, TETON (Note: there is increasing evidence that montane univoltine "tharos" is an undescribed species--RES). *P. campestris*, ADAMS, CLEARWATER, VALLEY. *P. pallida*, BLAINE, BOISE, LEMHI. *P. mylitta*, BENEWAH, CLARK, ELMORE, ONEIDA, TETON. *C. (Charidryas) palla*, BLAINE, BONNEVILLE, LEMHI, TETON, VALLEY. *E. (Hypodryas) gillettii*, SHOSHONE, VALLEY. *E. (Occidryas) chalcidona* COMPLEX, BENEWAH, BOUNDARY, LEMHI, LEWIS, TWIN FALLS. *E. (O.) anicia* COMPLEX, BOISE, FRANKLIN, FREMONT, NEZ PERCE. *E. (O.) editha*, BOISE, LEMHI, NEZ PERCE. *N. antiopa*, ADAMS, BANNOCK, BEAR LAKE, BONNEVILLE, CANYON, CLEARWATER, FREMONT, TETON, VALLEY. *N. californica*, ADAMS, CLEARWATER, FRANKLIN. *N. vau-album*, BENEWAH, BOISE, IDAHO. *N. (Aglais) milberti*, CAMAS, CLEARWATER, LEWIS, NEZ PERCE, ONEIDA, TETON, TWIN FALLS. *P. satyrus*, ADAMS, BLAINE, ELMORE, FRANKLIN. *P. faunus*, ADAMS, CLEARWATER, ELMORE, FREMONT, IDAHO. *P. zephyrus*, ADA, ADAMS, IDAHO. *P. oreas*, IDAHO (Note: records from Boise & Bear Lake counties are in need of verification; dark *zephyrus* & *satyrus* phenotypes are easily mistaken for *oreas*--RES). *V. atalanta*, CLARK, CLEARWATER, IDAHO, TWIN FALLS. *V. annabella*, ADAMS, BANNOCK, BEAR LAKE, BONNEVILLE, CASSIA, FREMONT, IDAHO, TETON. *V. cardui*, ADAMS, BEAR LAKE, BONNEVILLE CANYON, CASSIA, CLARK, CLEARWATER, FRANKLIN, IDAHO, NEZ PERCE, ONEIDA, TETON (Note: attesting the explosion of butterfly observation in Idaho, 5 years ago there were NO reported data for this omnipresent species from the entire State!--RES). *V. virginensis*, ELMORE, SHOSHONE. *L. weidemeyeri*, BONNEVILLE, CAMAS, TWIN FALLS. *L. lorquini*, BENEWAH.

MONTANA: Contributors: (GGA), NSC, (FEH), SJK, NGK, (AP), FJP, RMP, JAS, (WHW); those in parentheses received from SJK via CDF, some with supporting verification or commentary by SJK. Spring collecting was excellent until the heavy ash fallout from Mt. St. Helens followed by a month of nearly continuous rain; summer was better, but some species were virtually absent, probably because of the ash (SJK). In addition to the errors in last year's Montana Summary corrected in the Jan/Feb 1981 issue of the *News* there are two others, involving several species. The "Pyrgus ruralis" from Deer Lodge and Powell counties and the "Pyrgus communis" from Granite Co. (all SJK) have been examined by CDF and are all *P. scriptura*, a major range extension and great surprise. *P. ruralis* is still unrecorded from Deer Lodge and Powell counties, and *P. communis* from Granite Co., so should be expunged from the maps. The second error involves RMP's records from Pine Butte Swamp TNC Preserve, which is west of the town of Choteau in TETON County, not Chouteau County as reported previously. This results in 4 deletions and 21 new TETON County records; all 4 deletions and the more interesting additions are included below. With these corrections included, there are 131 new butterfly COUNTY RECORDS & a STATE RECORD (*Erebia discoidalis*). No MOTH data were received.

BUTTERFLIES: *E. clarus*, BLAINE, TOOLE (NGK). *E. afranius*, RAVALLI (SJK), TETON (FJP, 16 July, det RES), TOOLE (SJK, 14 May & 29 July, suggesting bivoltinism even that far north). *P. ruralis*, Gallatin, 15 July LATE. *P. scriptura*, DEER LODGE, GRANITE, POWELL (SJK, 1979 STATE RECORDS). *O. sylvanoides*, TETON (RMP). *P. draco*, TOOLE (NGK). *P. sonora* utahensis, Seeley Lake 9-25 July, MISSOULA (SJK--westward range extension in Montana, not sympatric with *P. mystic*). *H. uncas*, DANIELS (GGA). *H. comma* nr *harpalus*, TETON (RMP, det RES). *H. nevada*, GRANITE (SJK), TOOLE (NGK). *P. (Artoeja) napi*, TOOLE (NGK). *P. (Pontia) occidentalis*, DANIELS (GGA--NORTHEAST, would like Arthur Shapiro to verify determination--RES). *C. alexandra* & *C. eurytheme*, DANIELS (GGA), TETON (RMP); delete CHOUTEAU (RMP). *C. interior*, GLACIER (AP). *P. phoebus*, BLAINE (EAST), TOLLE (NGK). *P. bairdii oregonius*, RAVALLI (SJK). *P. machaon dodi*, BLAINE (NGK). *P. zelicaon* dark ♀ nitra, FLATHEAD (AP). *P. (Euphooeades) glaucus canadensis*, 9-mile Prairie nr. Greenough, MISSOULA (WEST, flying with *rutilus*, SJK); TOOLE (NGK). *P. (E.) eurymedon*, TOOLE (NGK). *P. (E.) multicaudatus*, TETON (RMP), TOOLE (NGK), delete CHOUTEAU (RMP). *L. argyrognomon*, PARK, SWEETGRASS (JAS--genitalic det.). *P. acmon*, GLACIER (AP). *P. shasta*, 3 mi. E. of Bannock Pass, BEAVERHEAD, 13 July (NSC, WEST for Montana). *G. lygdamus* & *G. piasus*, Sweetgrass Hills, TOOLE, 14 May (SJK). *L. (Gaeoides) xanthoides dione*, LALE (WEST, WHW). *L. (Hyllolycaena) hylilus (=thoe)*, GRANITE, MISSOULA (Seeley Lake, July, SJK). *L. (Epidemia) dorcas florus*, TETON (RMP). *L. (E.) helloides*, DANIELS (GGA), GLACIER (AP, det. confirmed by SJK), TETON (RMP). (Note: SJK has taken material from Fort Nelson, BC, which is in his opinion typical *dorcas*; this is an amazing range extension and brings into question again the controversy about what species Rocky Mountain *dorcas*/*helloides* really involve--RES). *H. titus*, GALLATIN (WHW), TOOLE (NGK). *I. polios obscurus* & *I. augustinus iroides*, nr. E. Glacier, 12 May & S. Fork Milk River N. of Kiowa, 14 May, GLACIER (SJK). *M. nelsoni* COMPLEX, probably *byrnei*, Bass Cr., nr. Florence, 21 July, very worn, RAVALLI (SJK). *C. sheridanii*, POWELL (SJK--new for *tullia* as a whole). *C. t. inornata*, DANIELS (GGA--subspecies inferred; county record for any *tullia* ssp). *E. epipsodea*, TOOLE (NGK). *E. discoidalis macdunnoughi*, S. Fork Milk River, N. of Kiowa, GLACIER & STATE RECORD (SJK) (NEW for U.S.A. Rocky Mountain region, but predicted--RES). *O. alberta*, Sweetgrass Hills, 14 May, TOOLE (SJK). *B. (Clossiana) beliona* nr. *jenistai*, 5 mi. N. Browning, 13 May, GLACIER (SJK--perhaps EARLY). *B. (C.) titania*, GLACIER (WHW), LAKE (WHW), TOOLE (NGK). *S. edwardsii*, *coronis*, *zerene*, *callippe*, *egleis*, *mormonia*, *cybele*, *aphrodite*, TOOLE (NGK). *S. zerene*, *atlantis*, *cybele*, *aphrodite*, TETON (RMP). (Note: I follow dos Passos & Grey rather than Howe for species; subspecies were not submitted to me.) *P. tharos* COMPLEX (there are almost certainly at least two species in this group in our region, including records for "batesii"; much work is needed and is begun by NGK, CDF & JAS among others--RES), DANIELS (GGA), TETON (RMP), TOOLE (NGK). *C. (Charidryas) palla*, TOOLE (NGK). *E. (Hypodryas) gillettii*, FLATHEAD (AP). *E. (Occidryas) anicia*, TOOLE (NGK). *E. (O.) editha* nr *hutchinsi*, Sweetgrass Hills, 14 May, TOOLE (SJK). *N. (Aglais) milberti*, DANIELS (GGA), TOOLE (NGK). *P. satyrus*, *zephyrus*, *faunus* & *progne*, TOOLE (NGK). *P. oreas silenus*, Milk River N. of Kiowa, 15 May, GLACIER (SJK). *L. arthemis* & *L. weidemeyeri*, TOOLE (NGK--no comment about sympatricity; I suspect that they might hybridize to some extent--RES). *L. lorquini*, TETON (RMP).

WYOMING: Contributors: BFC, NSC, PLE, CDF, MSF, LFG, JL, FJP, RMP, JAS, RES, BDW. Spring collecting was terrible, and summer not much better (CDF), but BFC obtained much new information from the Tetons and Wind River Mtns., and the Xerces Society "July 4th butterfly count" on 20 July resulted in over 1700 individuals of 58 species seen on a beautiful sunny day in the Snowy Range. Thanks again to BFC & CDF for hosting the meeting and leading the field trip. At least one moth STATE record was obtained, as well as nearly 100 COUNTY records; 32 butterfly COUNTY records were recorded.

MOTHS: Saturniidae: *H. gloveri*: Dubois, 12 June, FREMONT (BFC). *H. h. hera*, Pole Mtn., Albany Co., 17 July (CDF); rare compared with 1979 in Teton Co. (BFC). *C. p. pandora*, Albany Co., 13 July (CDF--perhaps new record). Spingidae: *P. myops*, Albany Co., 4 July (CDF). *S. cerisyi*, FREMONT (BFC). *H. lineata*, FREMONT, TETON (BFC). Arctiidae: *A. virguncula*, Oxbow Bend, GTNP, 9 July, TETON (BFC). *A. picta*, 14 mi. W. Chugwater, 17 July, PLATTE (BDW). *A. nevadensis*, Horse Cr. Cpgrd., 12 Aug., FREMONT (BFC). *A. williamsi*, Burrough Cr. Rd., 7 July, FREMONT (BFC). *H. parthenos*, GTNP, 29 June, TETON and possible STATE record (BFC). *H. maculata*, FREMONT, 9 July (BFC). *D. vagans*, Burrough Cr. Rd., 17 June, FREMONT (BFC). *P. plantaginis*, TETON (BFC). *P. lapponica yarrowi*, Colter Canyon, 5 July, TETON & 2nd Wyoming record (BFC). *T. permaculata*, FREMONT, 9 July (BFC). Notodontidae: *H. occidentalis*, FREMONT, 13 July (BFC). Lasiocampidae: *P. americana*, FREMONT, 16-17 June (BFC). Noctuidae: *C. briseis*, GTNP, 16 Aug., TETON (BFC). *A. cordigera*, Pole Mtn., Albany Co., 6 June (CDF). *R. immaculatis*, Albany Co. (CDF). *Ophideres materna*, one fresh specimen of this tropical species was taken by E.R. Spackman on 18 Sept. on the U. of Wyo. campus; obviously an introduced specimen, it is a STATE RECORD & probably first from the entire region. Many other species of Noctuidae & Geometridae were taken; interested persons should write to Karolis Bagdonas or CDF for records (as before, most of CDF's specimens are sent to the LACM, AMNH or Florida Dept. of Arthropods in Gainesville, so these institutions should be contacted).

BUTTERFLIES: *T. mexicana nevada*, Snowy Range, Albany Co., 20 July (LATE--RES). *E. afranius*, Snowy Range, 22 June, ALBANY (CDF); GTNP, TETON (BFC--major range extension, determination in need of confirmation--RES). *P. sonora utahensis*, Snowy Range, 20 July (RES). *P. napi*, SUBLETTE (JAS). *P. beckerii*, CDF's backyard, July, ALBANY (CDF). *E. olympia*, Pole Mtn., 22 May, ALBANY

(CDF); 5 mi. S. Torrington, 26 Apr., GOSHEN (BFC). *C. m. meadii*, 188 specimens seen, Snowy Range, 20 July, entire Xerces count party. *C. gigantea harroweri*, Fisherman's Landing, GTNP, 10 July, TETON (BFC, det. CDF). *P. phoebus sayii*, most common species observed in Snowy Range, 20 July count, over 300 specimens seen. *P. i. indra*, Meeteetse, 20 May, PARK (U. Wyo. Ent. collection, fide (CDF)). *P. (Euphoeades) multicaudatus*, Casper, 25 Aug., NATRONA (BFC--many common species were found for the 1st time in this county by BFC this year; apparently no one had looked before!--RES). *P. shasta* nr *pitkinensis* (det. RES), Snowy Range, 20 July, Albany Co. (RMP). *L. (Epidemia) helioides*, SWEETWATER (JAS). *S. californica*, LINCOLN (NSC). *S. sylvinus* (Great Basin phenotype), Labonte Canyon nr. Douglas, ALBANY (MSF). *I. augustinus iroides*, GTNP, 18 June, TETON (BFC--major range extension). *C. sheridanii*, 25 mi. SE Meeteetse, 20 May, HOT SPRINGS (U. Wyo. Ent. collection, det. CDF). *S. melinus*, Colter Canyon, GTNP, TETON, 3 July (BFC--this species always rare in W. Wyoming--RES). *O. melissa*, talus slopes in GTNP, late June through July, TETON (BFC). *B. (Clossiana) eunomia laddii*, Snowy Range, 42 seen by entire group, 20 July. *S. zerene sinope*, 17 specimens recorded, Snowy Range, Albany Co., 20 July. *S. hydaspe sakuntala*, 1 specimen taken on east slope of Snowy Range, 20 July, Albany Co. (RES). *P. tharos* (prairie phenotype), Casper, NATRONA Co., 15 Sept., worn (BFC). *E. (Occidryas) editha alebarki*, Thermopolis, 20 May, HOT SPRINGS (CDF); Snowy Range, Albany Co., 20 July (worn specimens, observed by several of Xerces group). *C. palla calydon*, ♂ specimens observed in Snowy Range, 20 July, Albany Co. *C. p. flavula*, melanic aberrant ♀, Sierra Madre Mtns., Carbon Co., 7 July (CDF). *V. annabella*, Casper, 10 Nov., NATRONA, LATE (BFC). *L. weidemeyeri*, Casper, 25 Aug., NATRONA (BFC).

UTAH: Contributors: JPB, BFC, CFG, SJM, JAS, OS, RES, WHW. The only general comments were from BFC, whose collecting was limited to Crouse Canyon, Daggett County; they found moths severely down in numbers from 1979 but butterflies were about normal. No records were received from any Utah resident collectors directly, but CFG sent abundant reference materials, and under his leadership the Utah Lepidopterists' Society has started a newsletter, "Utahensis". The WHW records (all from the Old Woman Plateau in Sevier County, a promising new locality) are abstracted from an article in this publication. From all sources, 2 putative COUNTY records were received for moths and 18 for butterflies.

MOTHS: Saturniidae: *C. doris*: DAGGETT (BFC, 15 June). *H. nuttalli* and *H. eglanterina annulata*: Sevier (WHW, fair numbers, 18-26 July). Notodontidae: *S. unicornis*: DAGGETT (BFC, 15 June). Arctiidae: *E. oregonensis*, *T. permaculata* (both 15 June, BFC) and greatly reduced numbers of *A. picta* (8 Aug., BFC, all Daggett Co.).

BUTTERFLIES: *E. clarus*, DAGGETT (BFC, 16 June). *T. mexicana nevada*, DAGGETT (BFC, 16 June). *P. taxiles*, KANE (JAS). *H. uncas lasus*, NE of Wellington, Carbon Co., 11 July (OS, ssp inferred by RES). *N. menapia*, SEVIER (WHW, 8 Aug., mostly worn). *A. pima*, delete larval record by JPB reported in last year's Summary (as "prima"); the pupae were determined by John Emmel to be *E. hyantis* instead. But JPB thinks that *pima* will indeed be found in Kane County, because CFG apparently took the species near the mouth of Zion Canyon, only a few miles away in Washington County where it has been known for several years. *P. sisybrii*, 2 mi. N. of Big Rock Candy Mtn. resort, SEVIER (JPB, 14 Apr.). *C. alexandra*, Flats N. of Henry Mtns., Wayne Co. & N. of Panguitch, Garfield Co. (OS, 18 July). *P. phoebus*, SEVIER (WHW, very common, 18 July) (Note: this appears to be a major SW range extension, and I will be interested to learn what subspecies this turns out to be--RES). *P. rudkini*, dark ♀ *clarki*, Black Ridge, 13 mi. S. of Moab, 18 May, SAN JUAN, (JPB, det. RES--about 90% confident; could possibly be a *zelicaon/bairdii* hybrid). *P. bairdii* (dark form by inference), SEVIER (WHW, 25 July). *P. indra* *indra*, Daggett Co., 16-17 June (BFC, subspecies det. verified by CDF). *P. indra* intermediate betw. *minorikaibabensis*, The Cockscomb, 38 mi. E. of Kanab, Kane Co., 16-17 May & 14 June (JPB). *G. pius*, BCNP, elev. 9100' (?ALT RECORD), 12 July, KANE (SJM). *E. spaldingi*, BCNP (SJM). *E. battoides* nr *ellisii*, Shivwits, Washington Co., 28 Sept. (OS). *S. sylvinus* (tentative determination, but almost certainly correct), nr. BCNP entrance, 9 Aug. 1978, GARFIELD (SJM). *C. sheridanii neoperplexa*, elev. 7900', BCNP, 6 June 1980, GARFIELD (SJM, det. RES by detailed written description of material). *C. sthenele/meadii* intergrades (plotted tentatively as *meadii*), just N. of Glendale, Kane Co., (JAS). *O. chryxus*, 52 mi. N. Kamas, Summit Co., 9 July (OS). *S. nokomis* nr *apacheana*, Pine Valley Mtns., Washington Co., 29 Sept., worn ♂♂ only (OS). *S. edwardsii*, DAGGETT (BFC, 8 Aug., det. verified by CDF). *S. atlantis nikias*, Abajo Mtns., San Juan Co., 17 July (OS). *S. aphrodite ethne*, Daggett Co., 8 Aug. (BFC).

COLORADO: Contributors: BFC, DLB, GWB, CVC, PLE, JDE, SLE, DJF, CDF, MSF, LNH, BK, RLK, JIM, DEP, RAP, NR, JAS, CPS, RES, BDW, DMW (total 22; perhaps new record?). Excellent spring butterfly collecting followed a good winter snowpack, with winter turning almost directly into summer with very little rain in May & June. This drought resulted in poorer summer collecting except in the mountains, with much cold, rain & even snow making it the worst moth year in recent history (BFC). Most spring & early summer butterflies flew in better than average numbers in the foothills and mountains W. of Denver northward into Larimer Co. A west slope trip by PLE & RES in early-May produced several good records, incl. (at last!) a nice series of the odd *Callophrys* hitherto called "comstocki" but now being described as distinct. A return trip in August, accompanied by DLB & DJF, provided evidence for univoltinism and the probable larval host, *Eriogonum corymbosum*, as well as other good records. It was not a particularly good year for weedy or exotic species, although *Leptotes marina* was unusually common. Migrations were not noted. Thousands of records were received; specific detailed data are not given for most entries below, to allow inclusion of most significant records in the space allowed. There was at least one moth STATE RECORD (*Agrius cingulatus*), 9 moth COUNTY RECORDS & 73 butterfly COUNTY RECORDS; very few EARLY records or major range extensions.

MOTHS: Saturniidae: *H. eglanterina annulata*, 26-28 July, Avery L., RIO BLANCO (BDW). *H. nevadensis*, larvae taken on *Populus sargentii*, May, SE of Greeley WELD (BFC). *H. nuttalli uniformis*, 16 July, nr. Craig, MOFFATT (BFC). *H. gloveri*, 4 June, Paonia, Delta Co. (RLK--hand pairing with a *crocipia* produced infertile ova); 11 June, Larimer Co. (BFC); 7 & 12 June, Bear Cr., FREMONT (BFC). Spingidae: *A. cingulatus*, 29 Aug., nr. Stove Prairie, LARIMER & STATE RECORD (BFC). *E. wiesti*, bad news from BFC about this endangered species: grasshopper spraying may have extinguished their Weld Co. colony in July 1980 (1981 will tell). *M. quinque maculata*, 22 Aug., Bonny Reservoir, YUMA (BFC). *P. excaecatus*, 20 June, (?Paonia's Paonias!), Delta Co. (RLK). Arctiidae: BFC reported 15 species & BDW 3 (17 combined). *A. cervenoides*, 26 Aug., Weston Pass, Park Co. (BFC). *A. nevadensis*, late May to early June, SE of Greeley, WELD (BFC). *A. parthenice*, 7 Aug., nr. Craig on Yampa River, MOFFATT (BFC). *A. caja wiscottii*, 23 July, nr. Meeker, RIO BLANCO (BDW). *P. plantaginis*, 21 July, Rabbit Ears Pass, ROUTT (BDW). Catocala: BFC reported 12 species, 10 of which (264 specimens!) were recorded in a virtual Catocala explosion 7-9 Aug. on the Yampa River nr. Craig, Moffatt Co. One of these, *C. verrilliana*, is new for MOFFATT. *C. amatrinx*, 22 Aug., Bonny Reservoir, YUMA (BFC). *C. groteiana*, 20 Aug., Cuchara Cpgd., HUERFANO (CDF--probable county record; several dozen moths taken in light trap despite frost!). *C. meskei*, *C. aholibah* & *C. desdemona*, 16 Aug., Unaweep Can., Mesa Co. (RLK--some of these could be county records). Other Noctuidae and miscellaneous: *E. odora*, this giant tropical noctuid was recorded twice, 5 July in Fort Collins (BFC) & 6 Sept. in Paonia (RLK). RLK reported also from Paonia *H. drupiferarum*, *A. cordigera* & *H. albicoma*, and from Unaweep Can., Mesa Co., *H. labecula*. CDF reported (among others): *L. grotei*, 9 July, Larimer Co.; *P. plantaginis*, *Syngrapha* (several species) & *A. melanopa*, 23-27 July at base of Uncompahgre Park, Hinsdale Co. Some of these are probably new records.

BUTTERFLIES: The sixth consecutive annual Gilpin Co. "July 4th butterfly count", with 14 collectors in the field, produced a new North American record of 102 species in one day (two overlapping 7 1/2-mile radius circles) as well as many interesting or new records. From this and all other submitted data, about 200 are considered interesting enough to put into this Summary, but I have applied a large axe and am reporting 75. *E. clarus*, 16-17 June, Brown's Park, MOFFATT & 1st NW Colo. record (BFC). *E. burzessi*, 1 June, Spring Canyon Dam, LARIMER (BFC--amazing record because no native oak in 50 miles; needs confirmation--RES); Bear Mtn. (8629'), Jefferson Co., possible HIGH ALT record (JAS). *E. telemachus*, 30 June, N. fork Clear Creek, GILPIN (JAS--another stray from oaks, at least 10 mi. away, determination ok--RES). *E. martialis*, 27 Apr. (EARLY), Golden Gate Cyn., Jefferson Co. (RES). *P. (Hesperopsis) libya lena*, 17 July, Parachute Creek, assoc/w *Atriplex confertifolia* & *Elymus salinus*, GARFIELD (SLE); 7-8 July, Delta Co. (RLK). *A. arogos iowa*, 2-13 July, locally common in foothills of Jefferson, Boulder & Larimer Co.'s (PLE, CDF, RAP, JAS, RES). *O. snowi*, 23 July, Erickson Spgs. Cpgd., GUNNISON & 1st Colo. W. slope record (BFC); 13 July, Coal Creek Canyon, Jefferson Co. (DLB, PLE). *P. sonora utahensis*, 9 July, Lower Rist Canyon, Larimer Co. (CDF); 13 July, nr. Tolland, Gilpin Co. (MSF); 7 Aug., Yampa River nr. Craig, MOFFATT (BFC). *H. comma* ssp., 31 Aug., foot of Mt. Antero, Chaffee Co. (RES with F M Brown; I agree with JAS that this phenotype, with *harpalus*-like bold markings against ochracea-like VHW and extending from the Arkansas River canyon S. into New Mexico, is probably a good subspecies). *H. ottoe*, 13 July, mouth of Coal

Creek Canyon, Jefferson Co. (RES); common, Boulder & Jefferson Co.'s. (JAS). *H. leonardus* (pawnee) montana, 24 Aug., nr. Deckers, Jefferson Co. (RES with W.W. McGuire); 30 Aug., same locality (RES with W.M. & F.M. Brown). For two days FMB and I crisscrossed the region southward from Deckers toward Salida; he is now convinced that montana is indeed probably restricted to the Platte River valley from about Cheesman Lake to Buffalo Creek, and that the true Type Locality is probably there. *M. coloradensis browni*, 2-3 May, Dolores River Canyon, Montrose Co. & Fruita Canyon, Mesa Co. (RES with PLE). *A. sara inghami*, 2 May, Dolores River Canyon, Montrose Co. (RES with PLE). *A. sara julia*, 24 June, Hewesville, Gilpin Co. (CPS, range extension); 2 July, East Portal, Gilpin Co. (MSF). *C. scudderii ruckesi*, 23-27 July, base of Uncompahgre Peak, Hinsdale Co. (CDF--also took *C. alexandra* & *C. tullia ochracea*, both HINSDALE Co. records). *E. mexicana*, 8 June, Camp Tahosa BSA (9200'), Boulder Co. (BK, a 10-year-old Cub Scout took this specimen with proud Cubmaster RES looking on; it is EARLY for such an altitude and the EARLIEST record since F.M. Brown's capture of 31 May 1931!). *P. phoebus hermodur* larvae were reared to adults in Denver by JAS, and the adults were still good, dark, small hermodur, suggesting genetic distinctness from *P. p. sayii*. *P. p. pseudorotgeri*, 23-27 July, base of Uncompahgre Peak, Hinsdale Co. (CDF); 25-27 July, same vicinity (RLK). *P. polyxenes asterius*, 17 Aug., barnyard 7 mi. N. of Dolores, MONTEZUMA (DLB, RES--sight record; didn't look like *bairdii* to me, but this record is in need of confirmation). *P. p. pseudoamericus*, 13 July, Mt. Zion, Jefferson Co. (DLB; this striking aberrant, hybrid or genetic form was taken in company with *P. bairdii*, det. verified by JDE, JAS & RES, typical *asterius*, *zelicaon*, black ♀ *nitra* & *indra*). *P. indra indra*, fairly common this year; Bear Mtn. (8620') may be a HIGH ALT record (JAS). *P. i. minori*, 3 May (EARLY), Black Ridge, Mesa Co. (PLE with RES). *A. nais*, 21 June-17 July, very common, Jefferson & Boulder Co.'s. (PLE, JAS). *E. enoptes ancilla*, 28 May, SE of Greeley, WELD (BFC). *E. battoides centralis/ellisi*, 16 Aug., Dolores River Canyon, assoc/w *Eriogonum corymbosum*, MONTROSE (RES). *L. marina*, 8 June onward, many in Denver-Boulder area (DLB, PLE, MSF, JAS, RES); Cuchara Cpgd., 20 Aug., HUERFANO (CDF). *C. argiolus cinerea*, May, Pawnee Buttes (DJF) & 28 May, SE of Greeley (BFC), WELD & EAST for *cinerea*, (DJF has LOGAN Co. material which has not been determined to ssp). *C. b. behrii*, 15 July, Redstone, PITKIN (R.C. Busby, fide GWB). *S. fuliginosum*, 7 July, Blue River Cpgd., Summit Co. (RES); 15 July, 15 mi. N. of Debeque, GARFIELD (SLE). *S. saepium*, 3 July (EARLY), Jefferson Co. (JAS). *S. calanus godarti* incl. several ♀ *heathii*, 12-26 July, Rabbit Ears Pass, Routt Co. (PLE, JDE). *C. apama homoperplexa*, found to eat *Ceanothus fendleri* & *Eriogonum umbellatum* both in the field and laboratory (JAS). *C. affinis*, 7-29 June, Grand Co. (PLE) & Pitkin Co. (RES). *C. sheridanii*, 16 Apr. thru early May, very common in foothills W. of Denver & Boulder (PLE, JAS, RES); 7 June, Beaver Creek, GRAND (PLE); 4 July, Lake Irwin (10,300') HIGH ALT., Gunnison Co. (RLK). *C. sheridanii*, NEW SSP, 2 May, Paradox Canyon, Dolores River, Montrose Co. (PLE, RES--see introduction). *I. augustinus iroides*, 7 June, Beaver Creek, GRAND (PLE). *C. sthenole masoni*, 8 July, S. of Paonia, Delta Co. (RLK). *C. meadii alamosa*, 18-20 Aug., nr. Hooper, Alamosa Co., very common (DLB, PLE, DJF, CDF, RES). *C. pertepida dorothea*, several records incl. 13 July, Coal Creek Canyon, Jefferson Co. (PLE). *E. theano demmia*, 25-27 July, Uncompahgre Peak, Hinsdale Co. (RLK). *E. magdalena*, 5 July, Little Bear Pk., 13,000', ALAMOSA (JIM); 13 July, Rogers Pass, Gilpin Co. (DEP); 14 July (1979), base of Uncompahgre Peak, HINSDALE (JIM). *E. callias*, 13 July, Rogers Pass, Gilpin Co. (DEP). *N. r. ridingsii*, 20 July, N. of Julesburg Resrv., LOGAN & NE in Colo. (DJF). *O. jutta*, 29 June, Tabernash (PLE) & early July, Beaver Creek (WEST), Grand Co. (JDF). 22 July (1978), E. of Buffalo Pass 9500', JACKSON (DJF); 10 July, Blue River Cpgd., SUMMIT (GWB). *O. uhleri*, 11 Aug., 7 mi. NE of Rand, JACKSON (BFC). *O. u. reinthali*, 11 July, N. Clear Creek Falls, 10,000', Hinsdale Co. (RLK). *O. taygete*, 25-27 July, Uncompahgre Peak, Hinsdale Co. (RLK); unstated locality, SAN JUAN (JAS). *A. vanillae*, 23 July, Camp Id-Ra-Ha-Je, 1 worn specimen, CUNNISON & 1st Colo. west slope record (BFC). *B. (Clossiana) acrocneina*, 23-27 July, base of Uncompahgre Peak, Hinsdale Co. (CDF et al.); unspecified dates and places in San Juan Mtns. (JAS). *B. (C.) selene*, no specific data, described as similar to *sabulocollis* but smaller, LAS ANIMAS (JAS). *S. nokomis "nigrocaerulea"*, Animas River N. of Durango, La Plata Co., various Aug. dates (DLB, PLE, JDE, DJF, RLK, RES--this is a FRAGILE, ENDANGERED population and MUST not be overcollected; ♀♀, 1 per collector for ova only!--RES). Visits by several collectors to the Unaweep Canyon colony (mesa Co.) in 1979 & 1980 have resulted in no *nokomis* sightings, so this La Plata Co. colony may be the LAST ONE in Colorado. *S. zerene*, 27 July, Maroon Bells, PITKIN (BFC); 28 July, Hall Valley, Park Co. (BFC). *S. callippe meadii*, 28 July, Hall Valley, PARK (BFC). *S. c. cybelle*, 25 Aug. (1979), Hwy. 34 betw. Sterling & Atwood, LOGAN (DJF). *S. aphrodite ethne*, 11 July, 7 mi. SE of Rand, JACKSON (BFC); Animas River N. of Durango, 17 Aug., LA PLATA (DJF, det. confirmed RES). *C. nycetis drusus*, larvae on *Rudbeckia laciniata*, Cucharas Cpgd., HUERFANO (JAS). *C. damoetas*, larvae reared in Denver retained usual adult phenotype (JAS). *C. acastus*, 20-30 May, population explosion S. of Paonia, Delta Co. (RLK). *C. palla flavula/calydon* intermediates, *E. (Ocidryas) editha* nr. *alebarki* & *E. (O.) eurytion/bernadetta* intermediates all flying together, 15 June, Beaver Creek, Grand Co. (PLE). *T. leanira fulvia*, 3 May, Fruita Canyon, Mesa Co. (EARLY) (PLE, RES). *N. californica*, more seen than in any year in memory, 27 Apr., Jefferson Co., 12 seen (PLE, RES); 29 Apr., beautiful downtown Trinidad, LAS ANIMAS (PLE, RES); many larvae on *Ceanothus fendleri*, Jefferson Co. (JAS); 15 July, Rabbit Ears Pass, ROUTT & 1st Colo. W. slope record (R.C. Busby, fide GWB). *L. weidemeyeri*, 3 June, SE of Greeley, WELD (BFC). *A. celtis*, 9 July, lower Rist Canyon, Larimer Co., phenotypes betw. *c. celtis* & *c. montis* (CDF).

NEW MEXICO: Contributors: CDF, RH, JM, JAS. Butterfly species diversity and density were generally down relative to 1979; summer rains were late and temperature generally below average. Moth collecting was fairly good at UV light but poor at bait (CDF). There were no butterfly STATE records and only 13 COUNTY records; many of the moth data may be new, but there is an insufficient base to assess these at present. Nearly all moth data received are included in the following account, and most butterfly data.

MOTHS: All records are from CDF. 29-30 July, Calavaras CG, Jemez Mtns., Sandoval Co., many species incl. *C. groteiana* at UV light, *A. biloba*, *A. californica*, *L. grotei*, *G. vermiculata*, *T. permaculata*, *A. williamsi*. 30 July, Tunnel Springs, Sandia Mtns., Sandoval Co., *C. amatricis* & *C. aholibah* roosting on treetrunks. 9 & 14 Aug., Gallinas Canyon, 6700', Grant Co., *C. euphemia*, *D. coronada*, *H. labecula*, *S. cerisyi*. 10 & 13 Aug., Cherry Creek Canyon, 6700', Pinos Altos Mtns., Grant Co., many species incl. *C. euphemia*, *C. pura*, *E. nubilis*, *D. coronada*, *L. lurida*, *H. labecula*, *C. pandora davisii*, *S. cerisyi*, *A. bimaculata*. 11 Aug., Willow Creek CG, 7900', Catron Co., *C. groteiana*, *C. pandora davisii*.

BUTTERFLIES: In addition to the localities already listed, CDF collected many butterfly species at Clear Creek CG, Jemez Mtns., Rio Arriba Co. on 29 July; New Canyon, Manzano Mtns., Torraine Co., 31 July; Burro Mtns., Grant Co., 8 Aug.; Meyers Canyon, 6300', Grant Co., 17 Aug. RH reported from the Capitan Mtns., Lincoln Co., with an impressive list of 53 species, plus a few predictions and some notes on earlier Otero Co. data. JM provided the 1st computer-printout Season Summary I've ever received, listing 70 species (60 with data) in both checklist & chronologic order from Lincoln, Dona Ana & Otero Co.'s. *E. clarus huachuca*, 26 May, Curtis Cyn., Sacramento Mtns., OTERO (JM). *T. mexicana dobra*, 15 June, Capitan Gap & Ridge, Lincoln Co. (RH, JM). *C. caicus moschus*, 9 & 14 Aug., Gallinas Cyn., 6700', Grant Co. (CDF). *E. meridianus*, 20 June, Pine Lodge, 6000', Capitan Mtns., LINCOLN (RH). *E. horatius*, 12-13 July, N. Capitan Mtns. (RH, JM). Note: *meridianus* & *horatius*, superficially nearly identical but with subtle genitalic differences, are nearly totally allopatric; their coexistence anywhere provides a super opportunity to study their relationship and respective bionomics--RES. *E. afranius*, 14 June, Padilla Pt., 9600', 6 mi. E. of Capitan Gap (RH). *A. simius*, 27 July, Raton Cyn., S. Capitan Mtns. (RH). *A. cassus*, common and widespread, July & Aug., 7500'-10,000' ?HIGH ALT. (RH), & N. Capitan Mtns., 12-13 July LINCOLN (RH, JM). *A. aenus* ssp., 15 June, Capitan Gap & Ridge; 26-27 July, S. Capitan Mtns., (JM, RH). *A. eos*, Capitan Mtns. (RH). *A. nereus*, ditto *C. caicus* (CDF--new loc. for *nereus*). *A. python*, ditto *T. mexicana*. *H. uncas*, 26-27 July, S. Capitan Mtns., (JM, RH). *H. pahaska*, ditto *A. aenus*, specifically Peppin Cyn., 7000', where RH took a striking aberration ♀ with unmarked VHW mimicking *O. yuma*. *H. viridis*, ditto *H. uncas*. *O. edwardsii*, ditto *P. polingii*, ditto *E. horatius*. *A. sara inghami*, 30 March, Dog Cyn., Sacramento Mtns., Otero Co. (JM); 20 Apr., 3 Rivers CG, Sierra Blanca, Lincoln Co. (JM). *P. rutulus*, ditto *T. mexicana*. *P. icarioides* ssp., 14 June, Capitan Ridge, 8600-9500' (RH). *G. lygdamus* ssp ditto *icarioides*; ditto *T. mexicana*. *C. argiolus cinerea*, ditto *T. mexicana*, LINCOLN (RH, JM). *L. (Epidemia) helioides*, COLFAX (JAS). *H. crysalus*, 19-20 July, Capitan Gap (JM). *M. leda*, 12-13 July, S. Sacramento Mtns., Otero Co. (JM). *E. polingii*, 20 June, Pine Lodge (sight record), 6000', 3 mi. N. of Tinnie 5400' (capture), LINCOLN (RH). *M. r. rubricata*, ditto *H. uncas* but only (JM) reporting it. *C. pertepida dorothea*, ditto *H. uncas*. *C. pegala* (ssp not specified), Animas River, N. of Aztec, SAN JUAN (JAS). *S. nokomis*

nitocris, none seen (too early) when CDF visited a classic spot for nitocris, Willow Creek, Gila NF, 7900', Catron Co. on 11 Aug., but following severe flooding, the moist meadows and bogs have been replaced by a well-defined stream channel surrounded by dry pastureland. Whether the colony still exists awaits a visit in late Aug. or early Sept. S. atlantis ssp (darker than dorotea; ?distinct), mid-June thru July, 7500' N. slopes to 10,000', Capitan Mtns. (RH); 15 July, Sunspot, Sacramento Mtns., Otero Co. (JM). P. picta, 26 May, Curtis Cyn., Sacramento Mtns., Otero Co. (JM); Capitan Mtns. (RH). T. theona (ssp not specified), 27 May, San Andreas Cyn., Sacramento Mtns., Otero Co. (JM). D. dymas, 1 Sept., W. Organ Mtns., Dona Ana Co. (JM). P. zephyrus, 20 Apr., 3 Rivers CG (JM); 21 June, Copeland Cyn., 8000' (ditto 13 July) (RH); 19-20 July, Capitan Gap (JM), LINCOLN. A. bredowii eulalia, ditto T. mexicana; especially N. slopes 6000-8500', June, July & probably Aug. (RH). A. celtis montis, 17 May, Texas Cyn., E. Organ Mtns., Dona Ana Co. (JM).

ZONE 4: SASKATCHEWAN, MANITOBA, N. & S. DAKOTA, NEBRASKA, KANSAS, OKLAHOMA, TEXAS. Coordinator: H.A. Freeman. Contributors: Ken Davenport, H.A. Freeman, Richard Holland, Michael L. Israel, John Jordison, G. William Lacey, James Smith, Steve Spomer, & Benjamin D. Williams III. Coverage very spotty this year. General Conditions: Despite extremely dry conditions in several areas, especially in the Dallas area, collecting was average or above in most locations.

NEBRASKA: G. William Lacey & John Jordison reported for Douglas, Sarpy, & Richardson Counties that the season was excellent after an extremely dry spring. Papilio polyxenes asterias & Vanessa cardui were very scarce, but virtually all other "expected" species occurred in satisfactory numbers. The following exceptional species of butterflies were taken in Douglas County (in and around Omaha) unless otherwise noted. Euchloe olympia, 3 May, abundant for a short time; Pieris protodice, 28 July, uncommon; Colias cessionia, 24 July-late Sept., abundant, form rosa, 15 Sept.; Phoebis sennae eubule, 24 July-mid-Sept., ♀♀ observed ovipositing on Partridge Pea (Cassia fasciculata) in Sept. The species occurred in great numbers in mid-Aug.; Phoebis agarithe, 22 Sept., a fresh specimen taken on Marigold in W. Omaha. This is possibly a new STATE record; Speyeria idalia, 16 July, mid-June to mid-Sept.; Precis coenia, 22 July, uncommon; Polygonia progne, 16 July; Anaea andria, 3 May, Sarpy Co.; Feniseca tarquinius, 18 Sept.; Lycaena phlaeas americana, 12 July; Lycaena xanthoides dione, 7 July; Graphium marcellus, 4 July, Richardson Co.; Leptotes marina, 12 Oct.; Satyrium edwardsii, 18 June; Achalaris lyciades, 18 July, Richardson Co.; Thorybes bathyllus, 12 July, taken in assoc/w Crown Vetch (Coronilla varia); Hylephila phyleus, 15 Sept.

The following species of MOTHS were collected in Douglas County: T. lugubris, 9 June; E. nivosaria, 23 June; C. osculata, 3 July; C. cara, July-Aug.; C. cerogama, 17 July; C. lucinda, July-Aug.; E. amaturlaria, 12 July; X. crocataria, 18 July; P. pyramidoides (larvae abundant May-June on Hackberry, adults), 4 July; D. myron, 6 Aug., at sugared tree; E. nubilis, 17 July; A. plebejus, Aug-Sept.; P. pandora, 19 Aug.; P. achemon, 21 Aug.; P. modesta, 28 Aug.; E. acrea, 4 Sept.; Erinnyis domingonis, 7 Aug. under streetlight, possibly a new STATE record. Steve Spomer reported the following: Achalaris lyciades, 26 May, caught by his wife, Grayson, in Richardson Co.; Leptotes marina, 28 Sept., Mead, Saunders Co., new COUNTY record; Feniseca tarquinius, 26 May, Richardson Co.; Plebejus m. melissa, 27 July, Branched Oak Lake, Lancaster Co., new COUNTY record; 28 Sept., Mead, Saunders Co., feeding on alfalfa, new COUNTY record; Papilio crespontes, 3 June, Two Rivers State Rec. Area, Douglas Co., new COUNTY record; Papilio glaucus, 24 May, ♂, rutulus-like form unfw submarginal spots form a continuous band but has glaucus coloration; Apantesis parthenice & vittata, 22 Aug., Gallagher Canyon State Rec. Area, Dawson Co., at blacklight.

OKLAHOMA: Ken Davenport reported the following butterflies collected in the Norman-Noble area of Cleveland County from 2-9 July: Danaus gilippus strigosus; Phoebis sennae eubule; Asterocampa celtis (reported last year as A. alicia); Asterocampa clyton; Limnitis astyanax; Polygonia comma; Euptychia hermes sosybia; Euptychia gemma; Cercyonis pegala texana; Libytheana bachmanii; Papilio crespontes; Celastrina argiolus pseudargiolus; Mitoura gryneus; Calycopis cecrops; Harknlenus titus mopsus; Cogia outis, 8 July, possibly a STATE record; Erinnyis horatius; Ancyloxypha numitor (9 mi. E. of Noble); Poanes zabulon; & Amblyscirtes belli.

TEXAS: H.A. Freeman reports from the Dallas area that with the unusually hot and dry summer the normal species of butterflies found there were out in good numbers. Two species that are rather rare in Dallas were observed and collected on several occasions: Euphyes dion was found flying near the lakes on the Keeton Park Golf Course during Aug. & Sept., and Phoebis agarithe was observed several times during Sept. & on 25 Sept., a fresh ♂ was collected on the grounds of Hillcrest High School by Tracy Brown, a Hillcrest student. This specimen was the first one collected there during the past 27 years that I have been assoc/w that school. Benjamin D. Williams III reported the following information concerning moths: A. galbina galbina, 3, 4 Oct., adults, ova, & cocoons (many containing viable pupae), were common on Javalina bus 3 mi. E. Ft. Davis, off Hwy 118; H. chinatiensis, 5, 6 Oct., flying in good numbers 7 mi. W. Marathon, off Hwy. 90 & the fresh adults could be picked from their resting places before flight time; A. titan, 7 Oct., a ♂ specimen was found resting on the ground (8:00 AM) 16 mi. N. Uvalde, off Hwy. 55; E. oenotrus, 8 Oct., a ♀ specimen was collected at U.V. light, Pedernales State Park, 14 mi. W. Johnson City, E. vitis, 12 Oct., a ♂ specimen was collected at U.V. light, McKinney Falls State Park, 7 mi. SE. Austin. Richard Holland reported the following information on two very unusual records of butterflies for Texas both of which are apparently new STATE records: Euchloe hyantis lotta, 6 Apr., 5200', Tom Mays Pk., El Paso Co., 7 Apr., 5000', McKelligan Can., El Paso Co., 29 Mar., 5200', Tom Mays Pk., El Paso Co. (leg. Greg Forbes); Anthocharis pima, 29 Mar., 5200', Tom Mays Pk., El Paso Co. (leg. Greg Forbes). Michael L. Israel reported the following concerning butterflies collected in the Big Bend region of the state: Apodemia palmeri & Copaodes aurantiaca were taken at Hot Springs, B.B.N.P. on 31 Mar., Asterocampa leila, 1 ♂, Hemiargus isola, a ♀, Calliphrys henrici turneri, & Pholisora alpeus, 1 Apr., Dog Canyon, Big Bend Natl. Park. James Smith reported the following: Anteos clorinde, 3 Oct., Shy Pond, Lake Jackson, Brazoria Co.; Phoebis sennae eubule, 3 Oct., same location; Phoebis agarithe, 3 Oct., same location.

ZONE 5: EASTERN-MIDWEST: MISSOURI to MINNESOTA to MICHIGAN. Coordinator: M.C. Nielsen. Contributors: G. Balogh (GB); J. Bess (JB); F. Bower (FB); R. Bracher (RB); P. Brand (PB); J. Calhoun (JC); P. Conway (PC); C. Coveil (CC); J. Downey (JD), D. Eiler (DE); L. Ferge (LF); L. Gibson (LG); R. Henderson (RH=Ky), D. Hess (DH); G. Holbach (GH); R. Huber (RH=Mn); K. Knight (KK), T. Kral (TK); R. Leary (RL); I. Leeuw (IL); L. Martin (LM); W. Miller (WM); M. Minno (MM); M. Nielsen (MN); P. Opler (PO); J. Parkinson (JP); D. Schlicht (DS); E. Shull (ES); R. Webster (RW); J. Wiker (JW). Other collectors cited: L. Crabo (LC); J. Jokkela (JJ); C. Lundeen (CL); J. Maxwell (JM); E. Metzler (EM); R. Oehlenschlaeger (RO); Y. Sedman (YS). General Comments: A mild winter and a hot, dry summer in part of the Zone depressed many species, resulting in a poorer season than last year. The season was retarded in many sections by several days, and earlier than usual cold weather in the fall further hampered collecting activities. While the total number of butterfly species for the Zone remained high, most collectors reported fewer species and numbers in their localities. Many of the Speyeria, especially idalia, Polygonia, Lethe & Cercyonis were seen in good numbers, while the Papilio & Catocala species were definitely down in most areas. Nymphalis v-a j-album continues to show up in more southern locations in the northern states, and Leptotes marina surprised many by appearing in four widely separated prairie areas. Moths, incl. the 'micros', continue to have an increasing following with many collectors! The use of bait traps has intrigued many as they discover this method for producing greater numbers of Nymphalidae, Satyridae & Noctuidae, especially Catocala. Some southern species strayed into more northern areas, but no unusual migrations were reported. An asterisk (*) indicates a new county record and/or range extension.

MISSOURI: Three reports were filed covering 15 counties. Balogh reported that the summer drought hurt most of the season; local collectors complaining the summer broods of Papilios were especially down. Balogh found more Catocala by "beating trees" than using UV; especially numerous were C. innubens, palaeogama, micronympha & amica.

CHOICE BUTTERFLIES: L. eufala, 15 Oct., St. Louis Co. (GB); A. belli, 20 July, St. Louis Co. & 7 Sept., Franklin Co. (GB); E. dion. dukesi, 24-30 Aug., St. Charles Co. (common but past peak of 2nd brood--GB); P. byssus, 12 July, Shannon* Co. (DH);

H. leonardus, 31 Aug.-12 Sept., Franklin, Jefferson, St. Francois Co.s (GB); N. l'herminier, 17 Aug.-6 Sept., Jefferson, St. Francois Co.s (GB); E. martialis, 12-27 July, Shannon, St. Francois Co.s (GB, DH); S. hayhurstii, 11 July, Carter Co. (DH); P. protodice, 24 June, Pettis Co. (FB); C. muticum, 17-31 Aug., St. Francois Co. (2nd brood--GB); C. gryneus, 11 July, St. Genevieve Co. (DH) & 29 June-20 July, Jefferson, Lincoln, St. Louis Co.s (many nectaring on Houstonia nigricans--GB); S. caryaevorus, 20 July, St. Louis Co. (1 worn ♀--GB); H. hyllus, 30 Aug., St. Charles Co. (GB); L. xanthiodes dione, 24 June, Pettis Co. (common--FB); P. progne, 13 July, Texas Co. (DH); C. nycteis, 8-24 June, Franklin, Pettis Co.s (nectaring on purple cone and milkweed--FB, GB); E. phaeton ozarkae, 7-8 June, Carter, Franklin, Howell* Co.s (DH); S. cybele idalia, 24 June, Pettis Co. (FB); L. creole, portlandia missarkae, 23 Aug., Mississippi Co. (GB).

CHOICE MOTHS: (GB) S. gloriosa, 12 Sept., Jefferson Co.; C. piatrix, 26 July, St. Louis Co.; C. nebulosa, 12 July, St. Louis Co. (1 at bait); C. subnata, 12-20 July, St. Louis Co. (beating & bait); C. marmorata, 24 Aug., Mingo Wildlife Area (1 beating); C. junctura, 27 July, St. Francois Co. (under limestone ledges along creek); C. vidua, 23 Aug.-6 Sept., Mississippi, St. Louis Co.s; E. giganteana (Olethreutidae), 31 Aug., Jefferson Co.

KENTUCKY: Gibson found the season good but poorer than in previous years. Though concentrating on 'micros', he found populations of Spingids, Saturnids & the larger noctuids, especially Catocala, down; butterflies appeared normal but some of the larger nymphalids and commoner hesperids were noticeably low. Henderson found butterfly collecting fair to good in some localities, and moth collecting went from good to moderate as the season progressed. Covell, while unable to collect much during the season, continued to add new species to the state faunal list--now at 1,978 species. Covell noted a "crash" in E. tiliaria in Louisville, where it has been abundant in Nov. the past 2 seasons. He and others added a significant number of new state records, by continuing to collect in new areas. Zebold turned in a list of 46 species of lepidoptera collected at Vest, Knott County.

CHOICE BUTTERFLIES: (CC) E. dion, 13 Sept., Graves, Fulton* Co.s; P. ocola, 13 Sept., Fulton* Co. (3rd state record); P. vehl, 13 Sept., Graves Fulton* Co.s; C. cesonia, 13-14 Sept., Graves, Fulton Co.s; P. senae, 13 Sept., Fulton Co.; H. hyllus, 13 Sept., Graves Co.; A. andria, Fulton Co. (1 ♀); L. archippus X arthemis astyanax, Fulton Co. (2nd state record); C. nycteis, Graves Co. (worn); L. anhedon, creola, appalachia, portlandia missarkae, Fulton Co. (significance of anhedon & p. missarkae being sympatric).

CHOICE MOTHS: (Zebold, Knott Co.): C. hageni, 4 July; L. coniferarum, 4 July; P. astylus, 30 July; D. versicolor, 1 Aug.; X. tersa, 31 July.

STATE RECORDS: C. cephalica (Arctiidae), 9 Aug., Harlan Co. (LG); S. clandestina (Noctuidae) (RH); O. exhausta, 10 July, Boone Co. (LG); L. concinnimacula, 3 May, Meade Co. (LG); P. smithi, 13 Sept., Graves Co. (bait trap--RH); S. antidiscaria (Geometridae), 13 Sept., Fulton Co. (good series--CC); C. aretaria (RH); P. schwarzi (Phaloniidae), 12 July, Harlan Co. (LG); P. taberculana, 22 Aug., Owsley Co. (LG); S. aureorella (Oecophoridae), 29 Mar., Carroll Co. (LG); T. constrictella (Gelechiidae), 13 Aug., Boone Co. (LG); C. pseudofondella, 7 June, Meade Co. (LG); T. alacella, 12 July, Harlan Co. (LG); Z. haimbachi (Argyresthiidae), 14 June, Owsley Co. (LG); P. wenzeli (Tortricidae), 10 May, Owsley Co. (LG); E. derelicta, 8 Aug., Harlan Co. (LG); P. tomonana, 5 Sept., Boone Co. (LG); S. cinerodorsana, 22 Aug., Owsley Co. (LG); P. crescentana, 25 June, Boone Co. (LG); P. naracura, 7 June, Meade Co. (CC, LG); D. bittana, 31 May, Boone Co. (LG); C. toreuta, 14 June, Owsley Co. (LG); M. pergratialis (Pyralidae), 9 Aug., Harlan Co. (LG); S. fumoferalis, 10 May, Owsley Co. (LG); F. helianthales, 24 May, Barren Co. (LG); P. obscuralis, 14 June, Owsley Co. (LG); T. reductella, 15 May, Oldham Co. (CC).

WEST VIRGINIA: Bower reporting from Taylor and Pendleton Counties on 2-3 May, found B. philenor down and P. glaucus, troilus & G. marcellus up in numbers, and A. midea & B. bellona common. Other species collected included: C. philodice, a "striking dwarf ♂", "P. napi X virginiana interbreeds", E. olympia, G. lydamus couperi & E. icelus & martialis. On 4 May, N. of Tygart Lake, Taylor Co., two P. epimenis were taken. Opler collected S. calanus & P. tharos (type B) on 25 June, 4 mi. NE of Sugar Grove, Pendleton Co. (P. tharos type A also occurs here); and on 9 Aug., 10 mi. N. of Spruce Knob Lake, Randolph Co., he took H. leonardus (fresh), P. m-album (nectaring on common milkweed) & S. atlantis.

OHIO: Martin, reporting from Wellington, found numbers, in general, were down for all species, compared to the two previous good years. The season started 10 days to 2 weeks late, and by mid-Aug. was still retarded by several days. The latter half of July had temperatures well above normal with humid conditions; August rainfall was excessive. Sept. & Oct. were below normal in temperatures and precipitation, with an early end to the season. Martin and Currett found collecting in Portage & Geauga Counties very good for skippers and hairstreaks, especially during July. In central Ohio, Calhoun saw a cool spring with a wet summer, but most emergences were on time. A. luna was up in numbers in Delaware Co., while C. cardui decreased drastically compared to last year. P. cressphontes was seen only twice & G. marcellus was also down in Delaware & Franklin Counties.

CHOICE BUTTERFLIES: E. dukesi, 11-26 July, Huron, Lorain, Paulding Co.s (LM, RW); P. viator, 26 July, Huron Co. (LM); P. mystic, H. sassacus, 14 June, Portage Co. (JC); H. leonardus, 1 Sept., Athens Co. (JC); E. haptisiae, 24 Aug., Delaware Co. (JC); A. cellus, 15 June, Athens Co. (JC); P. virginiana, 4 May, Lorain* Co. (W. range ext.--LM); E. lisa, 1 Sept., Athens, Vinton Co.s (JC); A. midea, 19-20 Apr., Vinton Co. (hilltopping in Zaleski S.F.--JC); C. borealis, 4-11 July, Paulding Co. (RW); S. acadica, 13-25 July, Lucas Co. (PB); S. caryaevorus, 23 June, Lorain* Co. (Findley S.P.--LM); P. m-album, 1 May (1 ♂ road-kill, Zaleski S.F.--JC); H. hyllus, 13 Sept., Erie Co. (Kelleys Is.--JC); C. ebenina, 2 May, Vinton Co. (moist roads, Zaleski S.F.--JC); L. bachmanii, 29 July-13 Aug., Delaware, Franklin Co.s (JC); E. phaeton, C. harrisii liggetti, 14 June, Portage Co. (JC); S. idalia, 23 June-Aug., Delaware, Vinton Co.s (JC); L. eurydice, appalachia leeuwi, 13 July, Lucas Co. (PB); L. anhedon, May-Aug., Delaware, Franklin, Vinton Co.s, 1 ♂ at light, 3 July (JC).

CHOICE MOTHS: D. inscriptum, Apr.-May, Vinton Co. (abundant--JC); H. thysbe, 3 May, Vinton Co. (1 at apple blooms--JC); H. maia, 8-19 Oct., Lucas, Vinton Co.s (PB, EM); P. epimenis, 19 Apr.-3 May, Vinton Co. (common on moist soils--JC); C. insolabilis, Judith, serena, residua, 30 July, Paulding Co. (beating hickories--MN, RW); E. pudens, May (abundant at lights--JC); G. obfirmaria, E. albivittata, 2 May, Athens Co. (JC).

FOODPLANT RECORD: F. tarquinus, 5 Oct., Lucas Co., nearly full-grown larva feeding on woolly aphids, on leaf of wild cucumber, Echinocystis lobata (Irwin Prairie--MN).

INDIANA: Bracher again reported butterflies scarce in the South Bend Area; only a few P. glaucus were seen. He found large numbers of hibernating N. antiopa everywhere in the spring. Shull, collecting from 19 March to 15 Nov. in widely scattered locations recorded 94 species of butterflies (best ever) and 306 species of moths (40 fewer than in 1979). Mid-summer weather was unusually dry, and a late fall was mild. Hess reported a mild early winter followed by a cold February-April and warm May in southern counties. He found Celastrina scarce in Apr.-May.

CHOICE BUTTERFLIES: L. eufala, 16 June, Vigo Co. (ES); A. hegon, 31 May-17 June, Crawford*, Parke Co.s (DE, DH, ES); E. bimacula, 25 July, Wabash Co. (ES); E. dion, 14-26 July, La Grange Co. (DE, ES); P. zabulon, 31 May, Crawford Co. (DH); P. origines, 8-30 July, Brown, Posey, Spencer Co.s (DE, ES); H. sassacus, 11-12 June, Lake, Newton (2nd Co. record) Co.s (DE); N. l'herminier, 30 July, Spencer Co. (DE); E. persius, 21 May, Wabash Co. (Salamonie R.S.F.--ES); S. mazans hayhurstii, 26-30 July, Gibson, Ohio*, Spencer, Sullivan Co.s (DE, MM, ES); A. cellus, 31 May, Crawford* Co. (DH); B. philenor, 3-31 May, Crawford, Switzerland Co.s (DH, ES); P. protodice, 12 June-29 July, Newton, Posey Co.s (DE, ES); P. napi oleracea, 26 July, La Grange Co. (2nd colony in state--DE); A. midea, 3-5 May, Crawford, Jefferson Co.s (DH); S. edwardsii, 14 July, La Grange Co. (ES); S. caryaevorus, 17-18 June, Parke, Vermillion Co.s (DE); L. dorcas, 14-26 July, La Grange, Steuben Co.s (DE, ES); L. helloides, 11 June-14 July, Lake, Steuben Co.s (DE, ES); L. melissa samuelis, 4-13 July, Lake Co. (GB, IL, ES); L. bachmanii, 19 July-18 Sept., Dearborn, Kosciusko, Vanderburgh Co.s (DE, ES); A. andria, 5-31 May, Crawford* Co. (DH); C. gorgone carlota, 13 Aug., Benton, Newton* Co.s (DH, MM); B. bellona, 3-4 May, 13-19 Aug., Boone*, Clinton, Jefferson*, Monroe, Ohio, Owens, Vanderburgh* Co.s (DE, DH, ES); L. anhedon, 31 May-4 June, Crawford, Union Co.s (DH, ES); L. appalachia leeuwi, 26 July, La Grange Co. (ES);

E. mitchellii, 11 July, La Grange Co. (Cedar Lk bog-Casebere); *C. pegala alope*, 19 July, Union Co. (ES); *C. p. olympus*, 14 July-13 Aug., La Grange, Newton* Co.s (DH, ES); *C. pegala* ssp., 20 July, Switzerland* Co. (ES).

CHOICE MOTHS: *S. drupiferarum*, 10 July, Wabash* Co. (DE); *S. franckii*, 7 July, Brown Co. (ES); *C. catalpae*, 13 July, Kosciusko Co. (DE); *D. versicolor*, 13 July, Kosciusko Co. (DE); *D. inscriptum*, 25 Apr.-3 May, Fayette, Monroe Co.s (DE, DH); *S. bicolor*, *C. regalis*, 7-9 July, Brown Co. (ES); *P. latex*, 4-5 June, Union Co. (ES); *S. obtusa*, 30 Aug., Union* Co. (det. by F. Rindge--ES); *C. nebulosa*, *marmorata*, *micronympha*, 7-9 July, Brown Co. (State Pk--ES); *D. angusi*, *I. lignicolor*, *E. caniplaga*, 13 July, Kosciusko Co. (DE); *H. cycladata*, 4-5 June, Union Co. (ES); *A. pampinaria*, 8 July, Brown* Co. (det. F. Rindge--ES); *E. delphinii* (Limacodidae), 7-9 July, Brown Co. (ES); *E. straminealis* (Pyralidae), 4-5 June, Union Co. (ES).

STATE RECORDS: (ES) *M. monetifera*, 11 June, Lake Co. (diurnal, Hoosier Prairie Preserve); *Z. unilineata*, 3 May, Fayette Co. (det. E. Quinter--DE); *L. crispata*, 9 July, Brown Co. S. P. (at UV).

ILLINOIS: Five reports were received; Hess detailed activities in west-central counties. He reported a mild first half of winter followed by colder late winter and a mid-April snowstorm. Severe flash flooding, hail and strong winds on 1-2 June had an adverse impact on many emerging species. Hot weather extended from late June to 10 Aug., followed by heavy rains and wind in Aug. & Sept. Despite adverse weather, Hess collected from 20 Mar.-6 Dec., recording 85 butterfly species; his best collecting was on 6-7 Sept., with 51 butterfly species recorded! Certain species were not seen at all, while *Speyeria*, especially *idalia*, & *C. pegala olympus*, were notably up in numbers. *B. bellona* continued to spread in Hancock and McDonough Counties and *A. celtis* remained in high numbers. Conway, reporting in NE areas, found species appearing late because of adverse weather and, in general, did not have a good season as in previous years. Balogh and Leeuw spent more time collecting in tall-grass prairies and reported on many new and interesting species, especially the *Schinia*.

CHOICE BUTTERFLIES: *A. aesculapius*, 1 Sept., Jackson* Co. (1 worn N. of Pamona--GB); *A. vialis*, 13-16 Sept., Mason, McDonough Co.s (late dates--DH, YS); *E. bimacula*, 2 July, Will* Co. (PC); *P. hobomok f. pocahontas*, 4-5 June, Hancock Co. (YS); *P. byssus*, 3 June-9 Aug., Greene*, Hancock, McDonough, Monroe, Scott* Co.s (GB, DH); *P. mystic*, 22 June, McHenry* Co. (IL); *P. origines*, 2 July-16 Sept., Mason, Schuyler*, Scott*, Will Co.s (GB, PC, DH, YS); *H. ottoe*, 19 June-27 July, Mason, Scott, Winnebago Co.s (GB, DH, IL); *H. leonardus-pawnee* complex, 25 Aug.-8 Sept., Hancock, McDonough, Schuyler* Co.s (DH); *E. baptisiae*, May-13 Oct., McDonough, Schuyler*, Winnebago Co.s (DH, IL, YS); *E. horatius*, 6 Sept., Greene*, Scott* Co.s (DH); *E. martialis*, 3 June, Monroe Co. (GB); *S. mazans hayhurstii*, 11 May-21 June, Hancock, McDonough, Scott* Co.s (DH, YS); *A. lyciades*, 7 Sept., Mason* Co. (late date--DH); *P. protodice*, 2 July, Will Co. (PC); *C. cesonia*, 3 June-18 Oct., Brown, Carroll*, Greene, Hancock, Lake, Mason, McDonough, Menard, Monroe, Pike, Scott* Co.s (GB, DH, IL, YS, JW); *E. nicippe*, 5 July-21 Oct., Greene*, Menard*, Scott Co.s (DH, JW); *S. liparops strigosa*, 30 June-11 July, McDonough, Menard* Co.s (DH, JW); *S. caryaevorus*, 7 July, McDonough Co. (DH); *C. henrici*, 4 May, Menard* Co. (JW); *F. tarquinius*, 31 May, Menard Co. (JW); *L. xanthoides dione*, 18 June-5 July, Hancock, Henderson, Scott*, Winnebago Co.s (DH, IL, YS); *L. helloides*, 27 Sept., McDonough* Co. (DH); *L. marina*, 9 Aug., Lake* Co. (IL); *H. isola*, 16 Aug., Menard* Co. (JW); *A. andria*, 27 May-5 July, Hancock, Scott* Co.s (DH, YS); *N. milberti*, 6 Dec., Schuyler* Co. (late date--Pederson); *B. bellona*, 4 May-20 Oct., Cass, McDonough, Hancock Co.s (early & late dates--DH, YS); *S. idalia*, 11 June-16 Sept., Cass, Fulton*, Grundy, Hancock*, Mason, Menard*, Will, Winnebago Co.s (PC, DH, IL, YS, JW); *L. appalachia leeuwi*, 16 July, Lake Co. (IL); *L. eurydice fumosa*, 2 July, Will* Co. (PC).

CHOICE MOTHS: *D. inscriptum*, 10 May, Hancock* Co. (YS); *S. fulvicollis*, 25 Sept., McDonough Co. (abundant--DH); *E. scribonia*, 11 June, Hancock* Co. (YS); *S. lucens*, 30 June-16 July, Cook, Lake, McHenry, Winnebago Co.s (IL); *S. gloriosa*, 31 July 4 Aug., McHenry, Winnebago Co.s (IL); *S. jaguarina*, 3 June-10 July, Mason, Monroe Co.s (Reavis Hill & Fults Hill Prairies--GB, IL); *S. trifascia*, 17 Aug., Cook Co. (IL); *C. whitneyi*, 6-9 July, Winnebago Co. (IL); *S. coloraria*, 3 June, Monroe Co. (GB); *C. anthracipennis* (Sesiidae), 6 July-9 Aug., Cook, Lake, McHenry, Winnebago Co.s (IL); *A. fraxini*, 14 July, Winnebago Co. (IL); *S. exitosa*, 3 Aug., McHenry Co. (IL).

STATE RECORD: *A. arogos*, 4-10 July, Mason Co. (1st authentic record since 1880--GB) (first--IL).

FOODPLANT RECORDS: *P. senae eubule*, 6 Sept., Greene Co., oviposition on flower bracts of *Cassia marilandica*, larvae in various instars (DH); *P. coenia*, 1 Sept., Scott Co., larvae reared on narrow-leaf plantain, *Plantago* sp. (DH); *P. interrogationis*, 5 Sept., McDonough Co., larvae on Chinese elm (DH); *A. io*, 16 Sept., Mason Co., larvae on *Amorpha canescens*, Reavis Hill Prairie (DH); *S. gloriosa*, Sept., McHenry Co., larvae in seed heads of *Liatrus cylindracea* (IL); *S. lucens*, Aug., Lake Co., larvae on flower heads of *A. canescens* (Ill. Beach S.P.--IL).

PREDATOR RECORD: *C. philodice*, 21 Aug., McDonough Co., caught by ♀ Ambush Bug, Phymatidae, in copulation on Ironweed flower (DH).

IOWA: Downey summarized the butterflies collected during the "Loess Hills Skipper Foray", 28 June-4 July. A total of 76 species of butterflies were recorded by 20 participants from 14 western counties. Collections included 27 Hesperiid species, representing 69 new county records, or more than doubling all previous known records of western Iowa skippers! More significant than the new distributional data, the "Foray" was an effort to assist the state and other agencies in setting aside remnants of tall-grass prairie habitats--now extremely limited in area.

CHOICE BUTTERFLIES (Foray): *A. vialis*, *E. dion*, *bimacula*, *P. massasoit*, *viator*, *A. arogos*, *P. origines*, *H. ottoe*, *dacotae*, *O. powesheik*, *P. communis*, *E. martialis*, *horatius*, *E. nicippe*, *C. gryneus*, *L. xanthoides dione*, *H. isola*, *L. melissa* ssp., *C. gorgone carlota*, *S. idalia*, *E. claudia*. On 5 July, Opler found *P. viator* & *L. eurydice fumosa* common in sedgy marsh, and singles of *E. dion* & *P. massasoit*. Schlicht collected one *L. marina* (det. J. Downey) on 20 Sept., in Decorah, Winneshiek Co. Several *S. lucens* were collected resting on flower of lead plant, *A. canescens*, on 28 June, Caylor Prairie, Dickinson Co. (MN).

MINNESOTA: Huber and 10 other collectors enjoyed a fine year, collecting a total of 125 species of butterflies and adding approximately 128 new county records. Crabo and Lundeen recorded 94 butterfly species and Huber hit 99 species!

CHOICE BUTTERFLIES: *L. eufala*, 23 Aug., Lincoln* Co. (Lk. Benton Prairie--RH); *A. hianna*, 6-16 June, Becker*, Clay, Sherburne Co.s (GB, JJ); *A. arogos*, 5-19 July, Lac Qui Parle*, Traverse*, Winona* (SE-most) Co.s (CL); *P. verna*, 19 July, Redwood* Co. (W-most-CL); *H. comma assiniboia*, *pawnee*, 22 Aug., Clay Co. (IL); *H. ottoe*, 12 July, Winona* Co. (CL, RH); *H. dacotae*, 5 July, Big Stone* Co. (CL, JM); *H. leonardus-pawnee* complex, 21 Aug., Sherburne Co. (IL); *T. lineola*, 2 Aug., Cook* Co. (2nd Co. record--RH); *O. powesheik*, 5 July, Big Stone*, Chippewa* Co.s (CL, JM); *C. henrici*, 4 May, Washington* Co. (RO); *F. tarquinius*, 3 May, Houston* Co. (SE-most-CL, JM); *H. hyllus*, 9 June, Clay Co. (GB); *L. helloides*, 6-9 June, Clay, Sherburne Co.s (GB); *L. melissa melissa*, 6-10 June, 22 Aug., Clay, Pope Co.s (GB, IL); *L. marina*, 19 Aug., Wabasha* Co. (Kellogg Sand Prairie, 2nd Co. record--JM); *E. amyntula*, 21 May, Wadena* Co. (RO); *G. lygdamus* ssp., 8 June, Pope Co. (GB); *S. idalia*, 22 Aug., Clay Co. (IL); *L. appalachia leeuwi*, 12-21 July, Houston*, Wadena* Co.s (LC, RO); *C. inornata* ssp., 6-10 June, Clay, Pope, Sherburne Co.s (GB); *O. uhleri varuna*, 9 June, Clay Co. (2 worn on prairie--GB).

FOODPLANT RECORD: *L. m. melissa*, 9-10 June, Clay Co., ovipositing on *Astragalus caryocarpus* (GB).

WISCONSIN: Six collectors responded from widely scattered localities and gave the state the best coverage in the zone. Ferge, collecting from 16 March-6 Nov., found emergence of spring species about normal in southern counties, but advanced over a week in northern areas; *E. discoidalis* & *B. freija* were freshly emerged 10 days earlier than last year! Collecting was good through mid-July, but declined through the remainder of the season, possibly due to cool, rainy weather. Ferge reported *N. vau-album* showing up in increasing numbers in southern Wisconsin. Kral, reporting from Juneau County, recorded 81 butterfly species; he found spring emergences about normal with most spring species out by early May. *P. glaucus canadensis* was especially abundant, as was *C. interior* and the 1st brood of several Nymphalidae. Yet, the later broods of *Polygonia* & *Nymphalis* were scarce and didn't show until late Sept. *Speyeria* numbers were up considerably from last year. Leary, reporting for the first time, found *P. coenia*, *C. cardui* & *N. antiopa* practically absent in the Oshkosh area. Ferge, Kral and Parkinson all had good results using bait traps for moths, especially *Catocala*.

CHOICE BUTTERFLIES: *A. hegon*, 31 May, Florence* Co. (JP); *A. vialis*, 23 May, Burnett Co. (JP); *A. hianna*, 27 May-11 June, Adams, Burnett, Juneau, Wood Co.s (GB, TK); *E. bimacula*, 25 June-6 July, Florence, Forest*, Juneau Co.s (TK, JP); *E. conspicua*, 27 July, Portage Co. (RL); *E. dion*, 6 July, Forest* Co. (JP); *P. massasoit*, 5-13 July, Green, Lake, Portage Co.s (RL); *P. hobomok* ? *pocahontas*, 10 June, Sheboygan Co. (GH); *P. origines*, 27-28 June, Green, Waukesha Co.s (JP); *H. metea*, 12-29 May, Adams, Burnett, Douglas, Juneau Co.s (GB, LF, TK, JP); *H. comma laurentina*, 22 July-14 Aug., Florence, Forest, Langlade, Marinette Co.s (RL, MN, JP); *H. ottoe*, 28 June-3 Aug., Grant, Green Co.s (LF, IL, JP); *H. leonardus*, 22-27 Aug., Green, Marinette Co.s (IL, JP); *T. lineola*, 20-30 June, Dane, Sheboygan, Waukesha Co.s (LF, GH, JP); *O. poweshiek*, 28 June, Waukesha Co. (LF, JP); *C. palaemon mesapano*, 26 May-10 June, Forest, Juneau, Langlade, Sheboygan Co.s (GH, TK, RL); *E. lucilius*, 11 July-1 Sept., Winnebago Co. (IL, RL); *E. martialis*, 15 May-11 June, Burnette, Juneau Co.s (GB, TK); *E. persius*, 11-29 May, Adams, Burnette, Juneau, Monroe, Polk, Wood Co.s (GB, LF, TK); *T. bathyllus*, 28 June, Waukesha Co. (LF); *P. polyxenes asterias*, 23 June, Florence* Co. (JP); *P. crespontes*, 3 Aug., Grant Co. (LF); *P. virginensis*, 16-18 May, Florence*, Lincoln* Co.s (LF, JP); *C. cesonia*, 28 June, Green Co. (LF, JP); *S. caryaeovorus*, 28 June-5 July, Green Co. (LF, RL, JP); *S. liparops strigosa*, 14 July, Portage Co. (RL); *C. irus*, 4-29 May, Adams, Juneau* Co.s (GB, LF, TK); *C. henrici*, 1-23 May, Burnett, Juneau* Co.s (LF, TK, JP); *C. polios*, 11-28 May, Adams, Burnett, Juneau Co.s (GB); *L. epixanthe michiganensis*, 28 June-13 July, Forest, Juneau* Co. (TK, JP); *L. helloides*, 16 July, Washington Co. (RL); *L. xanthoides dione*, 27 June, Grant Co. (LF, JP); *L. argyrognomon nabokovi*, 2-13 July, Florence, Marinette Co.s (LF, MN, JP); *L. melissa samuelis*, 27 May-19 July, Adams, Burnett, Menomonee, Shawano, Wood Co.s (GB, JP); *P. saepiolus*, 21 June, Bayfield Co. (JP); *E. amyntula*, 23-28 May, Burnett, Douglas, Washburn* Co.s (GB, LF, JP); *G. lygdamus couperi*, 21 May-12 June, Bayfield*, Burnett, Douglas, Marinette, Shawano, Washburn*, Rock* Co.s (GB, LF, RL, JP); *N. j-album*, 10 Oct., Winnebago Co. (1 fresh at floodlight--RL); *P. satyrus neomarsyas*, 11-22 July, Florence, Oneida Co.s (LF, JP); *C. gorgone carlota*, 23 May-11 June, 13 July-3 Aug., Adams, Burnett, Grant, Polk, Portage, Sauk, Wood Co.s (GB, LF, RL, JP); *P. batesii*, 11 June, Burnett Co. (GB); *B. frigga* ssp., 25-30 May, Langlade, Vilas Co.s (GB, LF, JP); *B. freija* ssp., 16-26 May, Oneida, Vilas Co.s (GB, LF, JP); *B. eunomia dawsoni*, 30 May-11 June, Langlade, Vilas* Co.s (LF, JP); *S. idalia*, 29 June-19 July, Sauk Co. (LF, JP); *L. appalachia teeuwi*, 23 June-17 July, Florence*, Marinette* Co.s (JP); *O. chryxus strigulosa*, 16-26 May, Florence, Douglas, Marinette, Vilas Co.s (GB, LF, JP); *O. jutta ascerta*, 24-26 May, Douglas, Vilas Co.s (GB, LF, JP); *E. discoidalis*, 16-25 May, Iron, Oneida Co.s (LF, JP).

CHOICE MOTHS: *D. hylaesus*, 8 Aug., Juneau Co. (TK); *S. drupiferarum*, 12 June-23 July, Adams, Burnett, Douglas, Florence* Co.s (LF, JP); *C. juglandis*, 23 May-12 June, Adams, Burnett, Oneida Co.s (more common than usual--LF); *S. abbottii*, 23 June, Florence* Co. (JP); *D. inscriptum*, 9 May, Dane Co. (LF); *A. nessus*, 31 May, Florence* Co. (JP); *H. columbia*, 14 June, Iron* Co. (2 locations), Oneida Co. (attracted to *cecropia* (?--IF); *H. maia*, 27 Sept., Burnett*, Douglas Co.s (LF, JP); *A. virginensis*, 6 June, Oneida Co. (LF); *S. prima*, 23 May-13 June, Burnett, Douglas, Oneida Co.s (LF); *H. parthenos*, 13 June-10 July, Douglas, Oneida Co.s (LF); *A. caja americana*, 23 July, Oneida Co. (LF); *A. quadrata*, 13 June, Douglas Co. (LF); *A. oblata*, 4-11 July, Iron, Marinette Co.s (at UV--LF); *H. monochromatea*, 6 June, Oneida Co. (LF); *A. cordigera*, 16 May, Oneida Co. (on leatherleaf & bog rosemary flowers--LF); *O. garmani*, 18 Apr., Dane Co. (LF); *B. borealis*, 18 Apr.-3 May, Juneau, Marinette, Oneida Co.s (LF, TK); *H. infixa*, 4 July, Marinette Co. (LF); *F. comstocki*, 2-16 May, Marinette, Oneida Co.s (LF); *L. semiusta*, 1 Apr., Dane Co. (at bait--LF); *L. thaxteri*, 2-16 May, Marinette, Oneida Co.s (LF); *J. rufago*, 3 Nov., Juneau Co. (common at bait--LF); *H. borealis*, 18 May, Oneida Co. (on bog rosemary flowers--LF); *S. arcigera*, septentrionalis, 28 Aug., Green Co. (IL); *S. epigea*, 11 July-9 Aug., Iron, Oneida Co.s (at fireweed flowers & UV--LF); *S. cryptica*, 11 July, Iron Co. (at UV--LF); *S. rectangula*, 12 July-9 Aug., Oneida Co. (on *Rubus* sp. & fireweed flowers--LF); *S. microgamma*, 31 May, Oneida Co. (on labrador tea flowers--LF); *C. serena*, micronympha, 1 Aug., Dane Co. (at UV--LF); *C. semirelictata*, 7-10 Aug., Florence Co. (JP); *C. similis*, 29 June-18 July, Dane, Florence, Wood Co.s (at UV & bait trap--LF, TK, JP); *C. whitneyi*, 14-25 July, Juneau Co. (TK); *C. spadix*, 9 May, Dane Co. (LF); *G. lintneri*, 18 Apr.-3 May, Dane, Florence, Marinette, Oneida Co.s (LF); *C. melsheimeri*, 20 June, Sheboygan Co. (GH); *S. quadriguttatus* (Hepialidae), *argenteo-maculatus*, 12-18 July, Oneida Co. (LF).

FOODPLANT RECORD: *L. argyrognomon nabokovi*, 4 July, Florence Co., ovipositing on dwarf bilberry (LF, MN, JP); *L. melissa samuelis*, 13 June, Wood Co., ovipositing on *Lupinus perennis* (GB).

PREDATOR RECORD: *A. virgo* ab. *citrinaria*, 14 June, Sheboygan Co., found in a 16 in. brook trout, *Salvelinus fontinalis* (GH).

MICHIGAN: Fewer collectors reported, reflecting a poorer season than last year. In general, the winter was extremely mild with below average snowfall in most areas. Spring was about a week late in most sections, and the summer months were better than normal. Morenci, Lenawee County, recorded over 12" of rain during July & Aug., making it the wettest summer in a decade! Nielsen recorded 77 species of butterflies & 27 species of *Catocala*--down from previous seasons. Zebold reported taking 8 species of butterflies & 8 species of *Catocala* in his suburban backyard bait trap in Oakland County. Miller enjoyed phenomenal success with Nymphalidae and *Catocala* using bait traps in Kalamazoo County; during 9-13 July, he trapped 62 *C. illecta*, an extremely scarce species in Michigan!

CHOICE BUTTERFLIES: *A. vialis*, 24 May-10 June, 6-10 Aug., Allegan, Barry, Kalamazoo*, Van Buren Co.s (JB, WM, MN); *A. hianna*, 14 June, Newaygo Co. (MN, RW); *E. bimacula*, 24 June, Shiawassee* Co. (RW); *H. metea*, 18 May-3 June, Allegan, Kalamazoo* Co.s (GB, WM, MN); *H. ottoe*, 6-12 July, Allegan, Montcalm Co.s (JB, IL, RW); *C. palaemon mesapano*, 29 May, Iron Co. (MN); *E. martialis*, 4 June, Kalamazoo* Co. (MN); *P. glaucus melanic* ?, 9 Aug., Kent* Co. (KK); *P. virginensis*, 15-16 May, Osceola* Co. (JB); *P. napi oleracea*, 14 May-7 Aug., Jackson, St. Joseph Co.s (JB, IL); *C. interior*, 7 Aug., Emmet Co. (MM); *C. muticum*, 19 July, Shiawassee Co. (MN); *S. liparops strigosa*, 4-12 July, Dickinson, Montcalm, Newaygo Co.s (MN, JP, RW); *S. edwardsii*, 5-12 July, Dickinson*, Montcalm, Newaygo Co.s (MN, JP, RW); *C. irus*, 24 May-3 June, Allegan Co. (GB, MN); *L. dorcas*, 12 July-7 Aug., Emmet, Jackson*, Montcalm, Shiawassee Co.s (JB, MM, MN); *L. epixanthe michiganensis*, 8 July, Allegan Co. (IL); *L. argyrognomon nabokovi*, 2 July, Dickinson Co. (JP); *L. melissa samuelis*, 24 May-12 July, Allegan, Kalamazoo*, Montcalm Co.s (GB, JB, IL, WM, MN); *P. saepiolus*, 4 July, Dickinson Co. (MN); *A. celtis*, 7 Aug., Oakland* Co. (RZ); *P. progne*, 11 May-14 Aug., Isabella*, Jackson*, Oakland Co.s (JB, RZ); *P. batesii*, 14 June, Montcalm Co. (MN, RW); *B. frigga* ssp., 28-29 May, Baraga*, Iron, Schoolcraft Co.s (MN); *B. freija* ssp., 26 May, Dickinson* Co. (JP); *E. mitchellii*, 12-14 July, Jackson, St. Joseph Co.s (JB, IL); *O. chryxus strigulosa*, 26-29 May, Baraga, Dickinson, Iron Co.s (MN, JP).

CHOICE MOTHS: *S. drupiferarum*, 3-21 June, Dickinson*, Van Buren Co.s (GB, JP); *H. gracilis*, *A. nessus*, 28 May, Schoolcraft* Co. (MN); *H. lucina* (?), 19 Sept., Roscommon Co. (MN); *E. scribonia*, 7 July, Berrien Co. (IL); *P. Tacoma*, *L. thaxteri*, 30 May, Otsego Co. (MN); *P. ochroptena*, 6-29 Aug., Lenawee Co. (MN); *C. cora*, 28 May, Cheboygan Co. (MN); *C. chlorostigma*, 1 Aug., Antrim* Co. (EM); *M. orbifera*, 30 Aug., Lenawee* Co. (MN); *B. pepita*, 30 July, Lenawee Co. (MN, RW); *C. briseis*, 13 Aug., Ingham Co. (bait trap--MN); *C. coelebs*, *semirelictata*, 8 Aug., Roscommon* Co. (RW); *C. nebulosa*, 30 July, Lenawee Co. (MN); *E. odora*, 6 Nov., Jackson* Co. (JB); *S. exitosa* (Sesiidae), 15 July-26 Aug., Berrien Co. (IL).

FOODPLANT RECORD: *P. astuta*, 26 July, St. Joseph Co., larvae boring into roots of *Collinsonia canadensis* (MN).

PREDATOR RECORD: *P. coras*, 26 July, Berrien Co., taken by Ambush Bug, Phymatidae, on flower of *Eupatorium* sp. (MN).

ZONE 6: SOUTH: ARKANSAS, LOUISIANA, TENNESSEE, MISSISSIPPI, ALABAMA, FLORIDA, GEORGIA, N. & S. CAROLINA, VIRGINIA. Also a report from the island of BERMUDA. Coordinator: H.D. Baggett (HDB). Contributors: W.L. Adair (WLA); Fred Bower (FB); R.W. Boscoe (RWB); Jo Brewer (JB); V.A. Brou (VAB); John Calhoun (JC); R.W. Cavanaugh (RWC); J.M. Coffman (JMC); Terhune S. Dickel (TSD); Linwood C. Dow (LCD); F.D. Fee (FDF); C.D. Ferris (CDF); I.L. Finkelstein (ILF); R.R. Gattelle (RRG); R.C. Godefroi (RCG); Parker & Donna Henry (P&DH); D.F. Hess (DFH); J.A. Hyatt (JAH); M.L. Israel (MLI); C.P. Kimball (CPK); L.C. Koehn (LCK); Bryant Mather (BM); J.R. Maudsley (JRM); P.A. Opler (PAO); J.R. Slotten (JRS); D.S. Smith (DSS); R.E. Stanford (RES); C.N. Watson (CNW); W.D. Winter (WDW); D.M. Wright (DMW). New STATE, COUNTY records in caps; range extensions (NORTH, SOUTH) in caps.

ARKANSAS: P&DH provided a list from Heber Springs, Cleburne Co., all for July.

BUTTERFLIES: Nymphalidae: *Anaea andria*, *P. comma*, *A. celtis*, *E. claudia*; Pieridae: *E. nicippe*, *N. iole*, *C. cesonia*; Lycaenidae: *Callophrys gryneus*, *H. titus*, *P. m-album*, *F. ontario*; Satyridae: *C. gemma*; Hesperidae: *A. lyciades*.

MOTHS: Citheroniidae: Citheronia regalis, E. imperialis; Spingidae: E. achemon, S. abbotti, M. rustica.

LOUISIANA: According to MLI, LA experienced heavy rains in May, followed by a record heat wave in July, drought in August, and one of the cooler Octobers on record.

BUTTERFLIES: Papilionidae: P. palamedes, 27 June, Baton Rouge; Pieridae: A. midea, 2 Apr., Acadia; Danaidae: D. gilippus, 11 Oct., Hackberry; Nymphalidae: P. comma, 8 Apr., Acadia; N. antiopa, 9 May, Baton Rouge; P. texana seminole, 3 Nov., Baton Rouge; Satyridae: C. pegala, 31 July, West Lake; Hesperidae: S. hayhurstii, 6 June, Kleinpeter.

MOTHS: Saturniidae: H. maia in mating flights, 1 Dec. (late), Baton Rouge (MLI); Spingidae: H. thysbe, 15 Apr., Washinton Parish (MLI), P. modesta, 9 May, Forman, D. hylaeus, 17 Sept., Baton Rouge. VAB reported record numbers of Spingids from Edgard, the best being C. hageni, 10 Aug., S. franckii, 10 & 16 Aug., S. kalmiae, 10 Aug., D. versicolor, 18 Aug. Noctuidae: Psychomorpha epimenis, 22 March, Weyanoke (MLI).

TENNESSEE: BUTTERFLIES: Papilionidae: P. cressphontes, common July-Aug., Center Hill Lake, Dekalb Co. (CNW); Pieridae: P. virginensis & E. olympia, 19 Apr., Bays Mt., Sullivan Co. (CNW), C. cesonia, 14 Aug., Center Hill Lake (CNW), P. sennae, 15 Nov., Johnson City, Washington Co. (CNW); Satyridae: Lethe creola, 7 June, Hawkins Co. (JAH); L. appalachia, 1 June, Sevier Co. (JAH); Lycaenidae: C. ebenina, 20 Apr., Indian Creek, Sullivan Co. (CNW), S. liparops strigosum, 7 June, Hawkins Co. (JAH) & 18 June, Kingsport, Sullivan Co. (CNW), C. cecrops, common July-Aug., Center Hill Lake (CNW), E. laeta, 3 May, Hawkins Co. (JAH); Hesperidae: A. cellus, 1 June, Hawkins Co. (CNW), W. egemeret, 18 June, Kingsport (CNW), A. aesculapius, 14 June, Hawkins Co. (JAH), A. hianna & P. hobomok, 24 May, Lee Co. (JAH).

MOTHS: Noctuidae: JRS reported the following Catocala: C. robinsoni, C. angusi, C. vidua, C. resecta & C. cara, 25 Aug., Chattanooga, Hamilton Co., C. nebulosa, C. subnata, 25 Aug., Nashville, Davidson Co.

MISSISSIPPI: BM reported the following as a new STATE record: Spingidae: Erinnyis obscura, 8 Sept., Vicksburg, Warren Co.

ALABAMA: No report.

FLORIDA: HDB gave the following conditions: NE FL lepidoptera were hurt by a late freeze on 1 March, followed by heavy rain in during Apr., extremely dry conditions persisting thereafter for much of the season.

BUTTERFLIES: Papilionidae: No reports received in 1980 for P. aristodemus ponceanus or P. androgeus. The status of P. andraemon bonhoti should be closely reviewed in terms of being a resident species. All other Papilionidae were reported commonly. Danaidae: D. plexippus ovip. on Sarcostemma clausa, 17 March, E. Naples, Collier Co. (DMW), D. eresimus tethys, ovip. on Sarcostemma clausa, Nov., Florida City, Dade Co. (TSD, WLA). The latter is the first U.S. host plant confirmation. Nymphalidae: P. texana seminole, 21 June, Gulf Hammock, Levy Co. (RES), A. flora, 14-17 June, Bradenton, Manatee Co. (CDF), L. archippus floridensis, ovip. on Salix caroliniana, 25 March, Big Cypress Preserve, Collier Co. (DMW), Marpesia petreus, 4 Apr., Lee Co. (JC), P. comma, 1 July, Gainesville, Alachua Co. (JRS), N. antiopa, May (HDB) & June (record of D. Schweitzer), Jacksonville, Duval COUNTY. Pieridae: E. dina helios, reared ex-ovo on Alvaradoa amorphiodes, ♀ taken 18 May, Homestead, Dade Co. (FDF), Kricogonia lysides, 18 Oct. (late), N. Key Largo, Monroe Co. (record of B. tribunella from WLA), Phoebis statira floridensis, reared ex-ovo on Dahlbergia ecastophyllum, Sept., Terra Ceia, Manatee Co. (WLA), C. pegala abbotti, common, July, Jacksonville, Duval Co. (HDB), Lethe appalachia, June-July, Crystal River, Citrus COUNTY (LCD). Lycaenidae: P. m-album, common, 12 May, Green Cove Springs, Clay Co. (RWB)--reared ex-ovo on Quercus virginiana; Fixenia favonius, common, 12 May, Gr. Cove Sprs. (RWB) & 28 May, Eureka, Marion Co. (FB), S. I. liparops, 28 May, Eureka, Marion COUNTY (FB), C. gryneus sweadneri, 18 Mar., Bayport, Hernando Co. (FDF), Electrostrymon angelia, 13-17 Nov., Goulds, Dade Co. (FDF) & Coconut Grove, Dade Co. during April (DSS). Hesperidae: E. brizo brizo, Rt. 12 near Mule Creek, Liberty Co., (STATE), 18 Mar. (FDF), E. zarucco, larvae on Glottidium vesicarium, Flagler Co., 23 June (RES), P. aaroni howardi, Cowpen Lake Rd., Putnam COUNTY (RCG), 31 July & Rt. 41 Levee, Monroe Co., 14 Mar. (DSS), Phocides pigmalion okeechobee, common on Vinca blossoms, 3 Apr., Sanibel, Lee Co. (JC), E. berryi, 14 Mar., Rt. 41 Levee, Monroe Co. (DSS), E. zestos, ovip. on Galactia spicaformis, Nov., Big Pine Key, Monroe Co. (TSD, WLA), P. zabulon, 21 June, Gulf Hammock, Levy Co. (JRS), A. lyciades, San Felasco Hammock, Alachua Co. (JRS), 1 July.

MOTHS: Citheroniidae: C. sepulchralis, 26 May, St. Johns Co. (FB); Spingidae: P. caicus, Nov., Collier-Seminole St. Pk., Collier COUNTY (WLA), S. abbotti, 23 June, Shell Bluff Landing, Flagler COUNTY (HDB), E. obscura, larvae on Morrenia odorata, 22 Oct., Tampa, Hills Co. (WLA), P. strigilis, reared ex-ovo on Schinus terebinthifolia (WLA), also 14 June, Bradenton, Manatee Co. (CDF) & 3 Apr., Lee Co. (JC). Arctiidae: Haploa colona, 31 May, Gainesville, Alachua Co. (JRS). Geometridae: Melanchroia cephis, 16 Mar., Sanibel Is., Lee Co. (JC), Nematocampa bruneolineata, May, Alachua & Columbia Cos. (CPK); Noctuidae: Physala albipunctilla, several Apr.-June, Homestead, Dade Co. (TSD) (first US records, STATE), Pyralidae: Maruca testulalis, 1 Mar., Key Largo, Monroe Co. (TSD) (first record outside of quarantine interceptions), Pyralidae lineodes integra, 27 Sept., Ocoee, Orange Co. (LCD), Munroessa nebulosalis, 12 June, Ocoee (LCD), Eustixia pupula, 30 Mar. & 3 Apr., Ocoee (LCD).

GEORGIA: BUTTERFLIES: Nymphalidae: N. antiopa (sight record), 15 Mar., Ossabaw Isl., Chatham Co. (WDW), P. faunus smythi, Cooper Cr. St. Rec. Area, Fannin Co., 5 July (RRG); Pieridae: P. virginensis, Cohutta Wilderness Area, 10 May (ILF); Lycaenidae: E. laeta, 5 July, Cooper Cr. St. Rec. Area (RRG), C. augustinus, 17 Apr., Cooper Cr. St. Rec. Area, Union Co. (ILF), Calliphrys hesseli (2nd GA record), 5 Apr., Cedar Creek, off Hwy. 96, Taylor Co. (ILF). JB reported finding one each of A. halesus & P. m-album dead on trails on Ossabaw Isl., 4 Mar., presumed to be killed by frost from the late freeze. Megathymidae: M. yuccae, em. 26 Apr. from larvae found on Ossabaw Isl. (WDW); Hesperidae: Euphyes bimacula, rest stop near Inaha, Turner Co., 27 Aug. (HDB record of J. Watts, COUNTY & SOUTH).

MOTHS: Citheroniidae: C. sepulchralis, Aug., Athens, Clarke Co. (JRM); Spingidae: Deidamia inscriptum, 12-14 Mar., Ossabaw Isl. (WDW), Sphinx kalmiae, larva on Ash, Cooper Cr. St. Rec. Area, 23 Aug. (HDB record of S. Roman), S. jamaciensis, 5 July, Jct. I-85 & SR 129, Jackson Co. (RRG); Noctuidae: Catocala marmorata, 22 Aug., Dawson Co. (HDB record of S. Roman), C. nebulosa, Aug., Athens, Clarke Co. (JRM), Hypena humuli, 7 Mar., Hyponosis macula, 10 Mar., Racheplusia ou, 11 Mar. (all WDW); Lasiocampidae: Tolype notialis, 12 Mar.; Geometridae: Lycia ypsilon, 9-14 Mar., Semiothisa orillata, 9 Mar.; Pyralidae: Udea rubigalis, Crocidomera rubidella, 9-10 Mar., all Ossabaw Isl. records of WDW.

SOUTH CAROLINA: BUTTERFLIES: Danaidae: D. gilippus berenice, 19-20 May, Edisto Beach, Colleton Co. (JAH); Nymphalidae: Asterocampa alicia, 15 May, Ridgeway, Fairfield Co. (FB); Satyridae: Lethe creola, 19 May, Ridgeway (FB), L. portlandia, 30 May, Ridgeway (FB); Lycaenidae: E. tarquinius, 30 May, Ridgeway (FB) (COUNTY), P. m-album, 19-20 Sept., Edisto Beach (JAH), B. pseudoea (same data as prec.), S. kingi, confined ?? ovip. on Symplocos tinctoria, Mt. Pleasant, Charleston Co. (RWB); Hesperidae: A. cellus, A. lyciades, & P. zabulon, 30 May, Ridgeway (FB).

NORTH CAROLINA: BUTTERFLIES: Papilionidae: P. cressphontes, Frisco, Cape Hatteras, Dare Co. (RWC); Nymphalidae: P. phaon, 15 June, Beaufort, Carteret Co. & 1 Sept., Ocracoke Isl, Hyde Co. (RWC), Hypolimnus missippus, 9 Nov. 1975 (published here because of the unusual nature), Rt. 17, New Bern, Craven COUNTY, STATE (RWC); Satyridae: Lethe appalachia, 25 Aug., Wm. B. Umstead St. Pk., Wake COUNTY (RWC); Lycaenidae: C. hesseli, Pages Lake, Aberdeen, Moore COUNTY, 2 Aug. (RWC); Hesperidae: Poanes viator, Wilmington, New Hanover COUNTY, 15 July (CNW). P. yehi, E. bimacula, 31 Aug., Dismal Swamp, Camden COUNTY (PAO).

VIRGINIA: LCK reported an early spring with normal rainfall, but the summer and fall seasons were dry. Collecting was good in spite of the dry conditions.

BUTTERFLIES: Papilionidae: P. cressphontes, 26 July, Poverty Hollow (hereafter PH), Montgomery Co. (FB); Nymphalidae: S. idalia, 13 July (worn), PH (FB) & 4 July, Giles Co. (LCK), P. progne & P. faunus, 6 July, PH (FB), P. gracilis, 19-24 Aug.,

Augusta Co., STATE (LCK), *E. phaeton*, Rose Hill, Fairfax Co. (PAO), *P. batesii*, 18 June, Highland COUNTY (LCK). Satyridae: *L. creola*, 26 July, Norfolk Co. (LCK) & Dismal Swamp, Suffolk Co. (PAO), *C. gemma*, 1 May, Augusta Co. (LCK), *N. areolata*, 26 July, Norfolk Co. (LCK). Pieridae: *P. virginianensis*, 19 Apr., Augusta COUNTY & 20 May, Highland COUNTY (LCK), *Colias interior*, 14 June, Highland Co. (LCK). Riodinidae: *C. borealis*, 6 July, Craig Co. (FB) & 12 July, Augusta COUNTY (LCK). Lycaenidae: *A. halesus*, common at flowers of *Clethra*, Dismal Swamp, Suffolk Co. on 31 Aug. (PAO), *P. m-album*, Rose Hill, Fairfax Co. (PAO) & 10 May, Scott Co. (CNW), *C. ebenina*, larvae on *Aruncus*, 25 May, Scott Co. (CNW), *G. lygdamus nit.*, 10 May, Scott Co. & 2 May, Nelson Co. (LCK), *S. caryaeovorus*, 12 July, Highland COUNTY (LCK), *Lycaena hyllus*, 17 July, Highland COUNTY (LCK), *C. hesseli*, 9 May, Norfolk Co. (LCK), *E. laeta*, 19 Apr., Augusta COUNTY & 1 June, Highland COUNTY (LCK). Megathymidae: *M. yuccae*, em. ex pupae 14 Mar., Norfolk, Augusta Cos. (LCK). Hesperidae: *Amblyscirtes carolina*, 9 May & 9 Aug., Norfolk Co. (LCK), *A. hegon*, 10 May, Scott Co. (CNW), *E. dukesi*, Dismal Swamp, Norfolk Co., 14 May & 24 Aug. (LCK), *E. conspicua*, 9 Aug., Norfolk Co. (LCK), *P. aaroni*, 9 Aug., Norfolk Co. & 25 July, West Point, New Kent Co. (PAO), *P. yehi*, 9 Aug., Norfolk Co. (LCK), *P. viator*, 23-24 Aug., Chickahominy Riv., Lanex, New Kent Co. & West Point, 25 July (PAO), *Ler. accius*, Chick. Riv., Lanex, 23 Aug. (PAO), *P. panoquin*, 25 July, West Point (PAO), *T. lineola*, Rose Hill, Fairfax Co. (1st record in area, PAO), *A. arogos*, 4 July, Montgomery Co. (LCK), *H. attalus*, 6 June, Highland COUNTY (LCK), *A. hianna* & *P. hobomok*, 24 May, Lee Co. (CNW), *A. cellus*, 25 May, Scott Co. (CNW).
MOTHS: Spingidae: FB collected along Rt. 460 billboards at night and found the following: several *S. franckii*, *S. kalmiae*, & *M. jasminearum*, all on 14 July, Giles Co. Noctuidae: *Catocala dulciola*, probable STATE, 5 July, Timberville, Rockingham Co. (JMC), *C. epione* & *C. connubialis*, 15 July, Giles Co. (FB).

BERMUDA: For lack of any better spot, this will be included in the Zone 6 report. DFH made observations during a visit between 24-28 Nov. for the following:

BUTTERFLIES: Danaidae: *D. plexippus*, 25 Nov., Hamilton, Devonshire Parish & near the perfume factory in Hamilton Parish. Visitors to the island should check to verify if these represent *megalippe* or are *D. plexippus* from mainland populations during winter months. *P. sennae* was the most common species seen (Crawl Hill, Blackwatch Pass, Hamilton, Somerset, Crawl Hill, & Hamilton. *Pieris rapae*, common on 25 Nov., especially in Paget Parish. *A. vanillae*, 24 Nov., Hamilton, & 25 Nov., near the perfume factory, Hamilton Parish. According to David Wingate, Esq., Ministry of Agriculture, there are no endemic lepidoptera known to occur on Bermuda, though there are records for 26 species of butterflies and several Spingids. Visitors to the area should seek to record any species encountered, in spite of their status on the U.S. mainland. (But see also page 30.)

ZONE 7: NORTHEAST: QUEBEC (to 50th parallel), MARITIMES, NEW ENGLAND, NEW YORK, NEW JERSEY, PENNSYLVANIA, DELAWARE, MARYLAND, and D.C. Coordinator: Dave Winter (DW). Contributors: A. E. Brower (AEB), Charles Burkhardt (CB), Fred Bower (FB), Robert Busby (RB), Richard W. Boscoe (RWB), Bill Boscoe (WB), Anthony Cheevers (AC), George Ehle (GE), Frank Fee (FF), John Fales (JF), Richard Gray (RG), William Grooms (WG), Jeff Ingraham (JI), Philip Kean (PK), Ross Layberry (RL), Gerald McWilliams (GM), Glen S. Morrell (GSM), Paul Opler (PO), Edward Prescott (EP), John Prescott (JP), Calvin Schildknecht (CS), A. W. Thomas (AT), David M. Wright (DMW), Thomas Williams (TW). COUNTY or STATE records are in capitals.

Summer weather conditions can be loosely summarized as hot and dry east of the Appalachians and hot and wet to the west.

QUEBEC (all RL): locations referenced as follows: Gatineau Co. (gc): Cantley (cy), Deschenes (ds), Gatineau Park (gp), Limbour (lm), Low (lw), Luskville Falls (lf); Hull Co. (hc); Papineau Co.: Lac la Blanche (lb), Mayo (my), St. Sixte (ss); Pontiac Co.: East Alderfield (ea), Quyon (qy). *Oeneis chryxus* abundant (lf) 24 May, *L. appalachia* in wooded marsh edge (hc) 30 July, with *L. eurydice* in open marsh and *L. anthedon* in adjacent dry woods. *Polygonia satyrus* (lw) 16 May. *F. tarquinius* (ss) 31 July; *H. titus* (gp) 9 July; *S. calanus/boreale*, 32 larvae from butternut at 5 sites (gc), June, yielded 19 adults, not separable by larval or genitalic characters; *C. augustinus*, *henrici*, one each (lf) 24 May; *C. nippon*, a few 16 May (lw), 24 May (lf); *E. laeta* recorded (lw) 16 May to 6 June, and (gp) 25-29 May; 5 ♀♀ confined in nets on beech and beaked hazelnut laid no eggs in 17 butterfly-days; one laid two in an empty vial after three days on beech; larvae emerged at 3 & 6 days, grayish yellow. covered with long pale hairs; refused to eat or remain on fresh young beech or beaked hazelnut; lost during photography session! *G. lygdamus* larvae 9 July (gp) on *Vicia cracca*, *Melilotis alba*, and alfalfa, all in one patch. *E. bimacula* 6 July (gy,ea), and 17 July (gp); *P. viator* 6 July (gy), 24-25 July (ds,gc); *P. origines* (gy,ea); *A. samoset* 6 June (lw); *E. lucilius*, 2 ova, 1 larva 7 Sept. (lm) on *Aquilegia canadensis*; *E. clarus*, 10 larvae in Sept. (gc) on hog peanut (*Amphicarpa bracteata*), all pupated; *I. bathyllus* (???) 4 Sept. (lm) 6 larvae on *A. bracteata*; 2 larvae are at CNC, 2 have pupated; new QUEBEC broodplant record if they prove to be *bathyllus*.

NEW BRUNSWICK (AT): *O. jutta* in unusual numbers mid-June to early July in bogs near Frederickton. *Lycaena hyllus*, 5 Aug., Tantra-mar Marshes, Sackville, WESTMORELAND Co., NEW BRUNSWICK record.

MAINE: AEB again reported diminished numbers of the usually expected nymphalids and skippers, with only *P. polyxenes* being noted to be increased. *Coenonympha inornata* taken in June in Kennebunk, YORK Co. by W. B. Clark is new for southern Maine and represents further advance from the recent New Hampshire expansion. *T. lineola*, with past sight records from northern Aroostook Co. was swarming, and collected at St. Agatha by a ranger. GSM noted over 300 cocoons of *C. promethea* at Greene and Leeds, Androscoggin Co., and had almost complete emergence from those sampled, very low parasitism.

NEW HAMPSHIRE (all RG, Enfield, Grafton Co.): *C. inornata* numerous in both broods. MOTHS: *Acosus centerensis*, 10 July; *Amathes xanthographa*, 8 Aug., NEW HAMPSHIRE record; *Enargia mephisto*, mid-July; *E. infumata*, early Aug.; *Oligia brighami* 4 Aug.; *Arzama obliqua* 31 May; *Sutyna profunda* 21 Sept., GRAFTON Co. rec.

VERMONT (all JI, Bakersfield, Franklin Co., 17-23 Aug.): *C. inornata*, abundant second brood; *B. selene* & *bellona*, hundreds flying together; *L. arthemis*, one, with white band incompletely developed; *C. pseudargiolus* with underside dark; *F. tarquinius*, very common, ♂♂ attracted to cow dung; *P. napi* common in alder thickets.

MASSACHUSETTS: *C. inornata* was taken in Medford, Middlesex Co., just north of Boston 28 June (RB). DW, after 8 years of checking a *Chamaecyparis* swamp in Westwood, Norfolk Co., finally located *M. hesseli*, in company with a few *gryneus*, 24-31 May; a second brood was not identified. AC took *S. cynthia* in Boston early June. DW received word of a possible sympatric site for *Hemileuca maia* & *lucina* in Norfolk Co., to be checked out in 1981. RB recorded *Catocala sordida*, *gracilis*, *similis*, *andromeda*, *amica*, and *micronympha*, as well as 2 *S. falacer*, all at incandescent light at Ipswich, Essex Co., 31 July.

NEW YORK: CB found *A. clyton* at Hook Mtn., Rockland Co., 7 July. FB, 8 Sept., noted very large numbers of *L. phlaeas americana* nectaring on clover at Lockport, Niagara Co., and took an aberrant *C. philodice* ♀ at the same site; *P. protodice* was common early Sept. at Jamaica Bay, Queens Co. (JI). *Panoquina ocola* was taken 6 Sept., 1800 hrs., on Staten Island (CB); *P. viator* was taken 12 July on Staten Island by JI, who found *H. thysbe* there 6 Sept., captured by a stink bug. FB took *C. relicta* & *amatix* in Lockport 1 Sept. at light.

NEW JERSEY: At Clinton Reservoir, Passaic Co., *L. anthedon* & *appalachia* were present 9-12 July, along with many fresh *N. vaualbum* (CB). PO confirmed the persistence of the colony of *C. borealis*, nectaring on *Asclepias tuberosa*, in Springdale, Sussex Co. 12 July. He saw *M. hesseli* 10 May in Lebanon State Forest, Burlington Co., and also observed *C. augustinus* ovipositing on *Ledum groenlandicum* flowers. RWB reared *C. augustinus* to pupae on *Vaccinium vacillans* (Lakehurst, Ocean Co., 22 April); *S. calanus* taken there late June oviposited in captivity on *Quercus prinoides*; *S. liparops* oviposited when confined with *Vaccinium corymbosum*, with which they were associated. Many *E. ontario* at Lakehurst 25 June (CB). TW took worn *C. cecrops* 31 Aug. in Cape May Co. He found *A. midea* common at Chatsworth, Burlington Co., 23 April; CB found *midea* present at Lakehurst 7 May, and DMW found it common at Batsto, Burlington Co., same date, nectaring at the larger mustards but ovipositing on the tiny mouse-ear cress *Sisymbrium thaliana* (determined by Annie Carter); *P. protodice* abundant at Lakehurst, 5 July (CB). RWB took *Hesperia attalus* June 30 at Lakehurst.

H. metea was present there 7 May and at Oak Ridge, Passaic Co., 17 May (CB). TW found *P. aaroni* common at *Pluchea purpurascens* near Tuckerton, Ocean Co., 13 Aug., along with a few *P. panoquin*. PO found *E. juvenalis* "incredibly abundant" in Burlington Co., 10 May; DMW observed it feeding at fox scat, in company with *Thyris lugubris*.

MOTHS: TW recorded *Zanclognatha martha* 8 July, Wharton State Forest, Burlington Co., and 3 *Lithophane querquera* there 7 Oct.; *Epiglaea apiata*, *Chaetagnatha sericea*, & *C. tremula* were also taken same date. CB took fresh *C. amyntor* 4 July in Wrightstown, Burlington Co.

PENNSYLVANIA, northwest: *N. vau-album* in Erie Co. in April (GM,EP), and in Erie & CRAWFORD Cos. mid-July (JP); *N. milberti* was above average in Erie Co., late April (EP); other nymphalids were about normal except for a scarcity of *Vanessa* & *Limnitis* (EP). JP & EP noted abundant *L. hyllus* ovipositing on *Rumex obtusifolius* in Crawford Co. 29 June, and GM noted a few in early Aug., Sigel Marsh, Erie Co. EP took *C. nippon* in Erie Co. 3 May, for first time since 1965. Hairstreaks *falacer*, *liparops*, and *titus* were common in Erie Co. in July. GM found *P. massasoit* at Cory, a new site in Erie Co., 4 May, JP found a ? in Cook Forest State Park, Clarion Co., 25 May, and EP found the species above average and increasing range in Crawford, Elk, Erie, McKean, & Warren Co. EP & JP found *P. glaucus* very common, *troilus* scarce; GM took *B. philenor* 14 Sept. at Presque Isle. *Pyrgus communis* was above average in Erie Co. late June (EP,JP); JP noted the following skippers in some or all of the 4 northwest counties in sequence, late May through mid-July: *E. juvenalis*, *A. samoset*, *H. sassacus*, *P. hobomok* & *pochontas*, *T. lineola*, *E. clarus*, *E. brizo*, *E. icelus*, *A. vialis*, *P. coras*, *P. verna*, *W. otho egeremet*, *A. logan*, and *N. l'herminier*.

Central & east: at Mesion, Montgomery Co., in 8 weeks from 20 May DMW recorded, at a white oak sap flow, 222 *N. antiopa*, 137 *P. interrogatilis*, 110 *A. nessus*, 83 *V. atalanta*, 65 *E. cymela*, 31 *P. comma*, 17 *A. clyton*, 7 *L. astyanax*, 1 *C. pegala*, and 1 *F. tarquinius*. The latter species and *E. cymela* were also observed feeding at honeydew secretions of woolly aphid colonies. TW noted *E. cymela* nectaring at staghorn sumach blossoms. FF recorded a fresh ♂ *L. eurydice* 13 Aug. (late) at Leroy, Bradford Co. *E. claudia* was numerous from mid-Aug. in Lancaster Co. (GE), in Gettysburg, Adams Co., Sept.-Oct. (CS), and Chester Co. in Sept. (RWB). CS saw *S. idalia* in July at Gettysburg and found *B. bellona* abundant May-Sept.; one *L. arthemis astyanax* there 26 May, with partial white banding, and PO found both forms of this species at Ricketts Glen, Sullivan Co., 11 July. At Fairmount Park in Philadelphia *E. tarquinius* were seen about an elm devoid of aphids 25 May & 5 June (TW). WB took *L. hyllus* at Quakerstown (no date), GE near Lancaster 27 July, and CS observed it in Gettysburg in Sept.; *L. epixanthe* at Leroy 4-11 July (FF). GE failed to find *P. m-album* for first time in 8 years. In Flourtown, Montgomery Co., RWB obtained oviposition by *S. calanus* on *Juglans cinerea*, *S. caryaevorus* on *Carya*, and *E. ontario* on *Quercus alba*. *A. midea* was numerous 1 April near Lancaster (GE) and *E. nicippe* Aug. 10 to Oct. 20; FF took *E. lisa* at Scotia Barrens, Centre Co., 9 Oct. CS found *G. marcellus* 1 May in Gettysburg, with *P. cresphontes* flying there July-Sept. FF took *A. campestris* at State College 26 Sept. for a CENTRE Co. record; GE took *P. ocola* in Lancaster 10 & 18 Sept.; at Nottingham, Chester Co., RWB took *H. metea* 5 May, *A. hianna* and *E. martialis* 27 May; the latter insect oviposited when confined with *Ceanothus americanus*, mature larvae now hibernating; TW took *P. communis* 20 Aug. at Tinicum Marshes, Philadelphia (Permit required!).

MOTHS: WB again has extensive season-long data on nocturnal moth-collecting in Quakertown, Bucks Co., available to interested persons. He found *C. undulosa*, *M. sexta*, & *M. quinquemaculata* increased in numbers, *A. cingulatus* markedly so, and *S. abbottii* and *M. jaminearum* reduced. *A. polyphemus* & *C. angulifera* were increased, as were *A. virgo* & *arge*; *Catocala amatrix*, *amica*, *ilia*, *piatrix*, *serena*, and *ultronia*, and *E. nubilis* were above average, with most other species diminished. TW found a freshly emerged *A. luna* 2 Aug. in Fairmount Park, Philadelphia, and took *H. opella* there late May (early) and *Dyspteris abortivaria* 3 June; *L. bethunei* 4 Oct., and *Sericaglaea signata* 18 Oct.

MARYLAND: *E. claudia* was reported common 1 July thru 7 Oct. (JF&WG) on both sides of the Bay, and listed for Frederick Co., 12 Sept., Dorchester Co. 20 Sept., and WICOMICO Co. 20 Sept. by PK. *S. idalia* was seen 26 June in Harford Co. and 13 July in Washington Co. (WG&PK); new colony of *E. phaeton* 14 June, Carroll Co. (PK); *P. comma* outburst 17 July in Garrett Co. (PK); *P. cardui* rounded out the season for JF in Calvert Co. 5-9 Nov. He recorded *L. bachmannii* 1 Aug. thru 23 Sept.. PK & WG found *C. borealis* 13-16 July in Allegany Co. *F. tarquinius* flew 22 April in Carroll Co. (JF&WG) and 8 May and 23-25 June in Anne Arundel Co. (PK); *C. henrici* Washington Co. 2 May and Allegany Co. 3 May (PK); 2nd brood *M. gryneus* Calvert Co. 13 July (JF); *E. ontario* Allegany Co. 15 June (PK&WG); *S. caryaevorus* same locale (WG); *P. m-album* Allegany Co. 1 July (PK) and Dorchester Co. 12 Aug. to 22 Sept. (JF&WG); *A. halesus* Dorchester Co. 27 June (PK), also 1 July to 7 Oct and Talbot Co. 16 Sept. (JF&WG); *L. hyllus* Montgomery Co. 23 May (JF&WG), Dorchester Co. 1 July to 7 Oct. (PK,JF,WG), and WICOMICO Co. 9 Oct. (PK); *G. lygdamus* Washington Co. 3 May (PK) and Allegany Co. 7 May (JF&WG). There same date *P. virginicensis* (WG) and Washington Co. 2 May (PK); *E. olympia* at new site Allegany Co. 3 May (PK); *E. nicippe* Dorchester Co. 10 Aug. (PK), 5 Aug. to 9 Oct. (JF&WG), and Montgomery Co. 1 Aug.; *C. cesonia* Dorchester Co. 2 & 24 Sept.; *P. sennae eubule*, Calvert Co. 3 & 7 Sept., Montgomery Co. 1 Aug. (JF&WG). *B. philenor* 3 May Allegany Co. and 13 July Washington Co.; *G. marcellus* 3 May Allegany Co.; *P. cresphontes* 31 May Montgomery Co. (all PK), and Montgomery Co. 28 May, 3 & 23 June, and 26 Aug. (JF&WG); *P. palamedes* Dorchester Co. 2 Sept. (JF&WG). *H. metea* Montgomery Co. 9 April (JF&WG); *Amblyscirtes vialis* Washington Co. 2 May (PK); *Atrytone conspicua* Harford Co. 26 June, Garrett Co. 17 July (PK); *A. delaware* and *P. aaroni* Montgomery Co. 16 July (JF&WG); Dorchester yielded *P. massasoit chermocki* 27 June (PK) and 1 July (JF&WG), and *E. dion* 30 July to 19 Aug., *P. bulenta* 27 June, and *E. palatka* 5 Aug. (MARYLAND: JF&WG), *P. panoquin* 5 Sept.; *H. phyleus* uncommon Calvert Co. 7-30 Aug.; *P. ocola* Montgomery Co. 8 Sept. (all JF&WG). *A. lyciades* Allegany Co. 18 June, *U. proteus* Dorchester Co. 2-5 Sept. (JF&WG).

MIGRATIONS: First spring monarch in Calvert Co. was 5 May. Fall migration extended 7 Sept. to 26 Oct., heaviest 19-28 Sept., with peak 3/min. 26 Sept.; flight included *V. atalanta*, *P. comma*, *E. claudia*, and *C. eurytheme* (JF).

URBAN COLLECTING: see separate article by Jeff Ingraham in this issue of the NEWS.

ZONE 8: THE FAR NORTH: ALASKA, NORTHERN CANADA, GREENLAND, NORTHEAST SIBERIA. Coordinator: Kenelm W. Philip. Contributors: G. G. Anweiler, C. S. Guppy, R. Holland, E. M. Peters, K. Philip and collectors for the Alaska Lepidoptera Survey. Previously unreported localities or species are emphasized; collecting is by ALS volunteers unless noted. Note regarding Alaska Lepidoptera Survey: Under the auspices of the National Academy of Sciences/Soviet Academy of Sciences exchange program, K. Philip (and a field assistant: A. C. Jones) spent late June and most of July collecting taiga and alpine tundra biotopes at the Aborigin Station of the Institute of Biological Problems of the North (Magadan, USSR). The station is in the upper Kolyma valley, 250 km north of Magadan, on the east slope of the highest mountain range in the Magadanskaya Oblast' (extreme NE Siberia). The weather was good (in contrast to conditions in 1978, when it proved impossible to collect in alpine tundra at the Aborigin Station), and all available habitats from 1500 feet (taiga) to 5500 feet (alpine tundra and scree) were collected for 5 weeks (2½ weeks of actual collecting time, divided approximately evenly among three major habitats: taiga, rocky ridgetops at treeline, and alpine tundra). Butterfly numbers were appreciably down from 1978, despite much better weather--1400 specimens were obtained (see below for species). About 250 additional specimens (mostly from 1979) were donated by Dr. D. Berman (upper Kolyma valley, Indigirka River), Dr. E. Makarchenko (Wrangel Island), and Dr. E. Matis (Atargan, Yamsk, and Stokovaya). Fifteen ALS volunteers were active, ranging from the northern Yukon to NE Siberia--total input is 2900 specimens.

GREENLAND: Narssaq (near Godthaab, SW Greenland), 1-7 August: Holland reports: *Colias hecla*, *Boloria chariclea*, and a sight record of an *Oeneis*. This last (if confirmed) would be the first Greenland record for any satyrid, and would have extremely interesting zoogeographical implications.

NORTHWEST TERRITORIES: Inuvik, 21-24 June. Peters reports: additional species (see 1972, 1973 Annual Summaries): *Oeneis jutta*, *Erebia discoidalis*.

YUKON TERRITORY: British Mountains, 69° 26'N, 140° 45'W, 23-29 June: additional species (see 1979 Annual Summary): Agriades aquilo, Boloria polaris. British Mountains, 69° 30'N, 140° 47'W, 10 June-10 July: Parnassius eversmanni, Papilio machaon, Pieris occidentalis, P. napi, Colias hecla, C. boothii?, C. palaeno, C. nastes?, Euchloe creusa, Lycaeides argyrognomon, Nymphalis antiopa, Boloria napaea, B. polaris, B. distincta, B. chariclea, B. eunomia, Coenonympha kodiak, Erebia rossii, E. disa, E. fasciata, E. youngi. Minto, 18 June: Peters reports: Euchloe creusa, Oeneis bore. Nines Creek (vicinity of Destruction Bay, Kluanne Lake), 18 June: Anweiler reports: additional species (see 1976 Annual Summary): Oeneis polixenes, Erebia fasciata. Note that what was called E. fasciata in the 1976 Annual Summary from Nines Creek was probably E. mackinleyensis.

ALASKA: Weather: Interior Alaska had an early spring, and good collecting weather in June, followed by a very rainy July. The North Slope had very poor weather all summer. Confirmation of state record: Peters obtained a specimen of Speyeria atlantis (det. L. P. Grey) at Eagle. There is one specimen of S. atlantis at the USNM, labelled "Ramparts, Alaska" with no date or collector--I know of no other Alaskan records. Range extension: Guppy obtained Nymphalis antiopa at 48 mile Kougak Road, Seward Peninsula. This is the second record for N. antiopa from the tundra regions of the Seward Peninsula (the first being one specimen from Nome in the CNC).

Brooks Range: Arrigetch Creek (Arrigetch Peaks, Endicott Mts.), 9 June-2 August: Pyrgus centaureae, Erynnis persius, Pieris occidentalis, P. napi, Colias hecla, C. philodice, C. palaeno, C. nastes, Agriades aquilo, Everes amyntula, Glaucopsyche lygdamus, Lycaeides argyrognomon, Nymphalis antiopa, Polygonia gracilis, Boloria napaea, B. polaris, B. improba, B. freija, B. chariclea, Oeneis bore, O. polixenes, Erebia disa, E. fasciata, E. youngi. Moths: Apantesis quenselii, Pararctia lapponica, Acsala anomala, Brephos infans.

Seward Peninsula (all records from Guppy; where "additional species" appears, see 1976, 1979 Annual Summaries): Penny River, 0-4 miles north of Teller Road, 22 July: Parnassius eversmanni, Colias hecla, C. palaeno, Boloria napaea, B. chariclea, Coenonympha kodiak. Mile 18 Teller Road, 30 June, 3, 22 July (additional species): Parnassius eversmanni, Oeneis polixenes, Erebia rossii. Mile 28 Teller Road, 10 July, 1 August (additional species): Erebia youngi. Mile 26-29 Kougak Road, 7-19 July: Parnassius eversmanni, Colias palaeno, Boloria napaea, B. improba, B. chariclea, Coenonympha kodiak, Oeneis bore, O. melissa, O. polixenes, Erebia rossii, E. disa, E. youngi, E. sp. Mile 40 Kougak Road, 29-30 June: Colias hecla, C. palaeno, Boloria napaea, B. chariclea, B. eunomia, Coenonympha kodiak. Mile 48-50 Kougak Road, 17, 28 July (additional species): Nymphalis antiopa. Note that Colias nastes was again very abundant at mile 50.

Interior Alaska: Eagle, 3-4 July: Peters reports: additional species (see 1971, 1978 Annual Summaries): Agriades aquilo, Plebejus saepiolus, Lycaeides argyrognomon, Boloria eunomia, Speyeria atlantis. Murphy Dome, 20 miles NW of Fairbanks, 23 May-9 June: Erynnis persius, Pieris occidentalis, P. napi, Colias boothii (common), Incisalia augustinus, Polygonia faunus, P. gracilis, Boloria freija, Erebia fasciata, E. discoidalis. With no detailed report on this tundra site since the 1970 Annual Summary, I thought it would be of interest to list the catch at these early dates--higher tundra localities (as Eagle Summit) are not productive until later in the season. The 1970 listing of Colias hecla for Murphy Dome was an error--assignment to C. boothii seems the best current decision on the taxon. Alder Creek, near Ester, 15, 21 July: Lycaena phlaeas arethusa. The colony found by Dave Bauer in 1979 is thus not involved in the alternate-year cycle that some Interior Alaska butterflies exhibit. Farewell vicinity (6-11 miles SW of village), S fork Kuskokwim River (N foothills Alaska Range), 18 July-6 August: Papilio machaon, Pieris napi, Colias hecla, C. philodice, C. gigantea, C. palaeno, Lycaeides argyrognomon, Agriades aquilo, Vacciniina optilete, Celastrina argiolus, Boloria napaea, Coenonympha kodiak, Erebia youngi.

Southcentral Alaska: Hatcher Pass (Talkeetna Mts.), 19 July: no additional species (see 1976, 1979 Annual Summaries) but Erebia theano was again captured--a quite local species in Alaska. Sitkalidak Island (off SE coast Kodiak Island), 20 June: Pieris napi.

MAGADANSKAYA OBLAST': Weather: the interior had a late spring with heavy runoff. June and early July were excellent (and uncomfortably warm at Aborigen); late July was cooler and rainier. Province record: Scolitantides orion from Atargan (40 km E of Magadan), early June 1979. Range extensions: so little has been published on the Magadanskaya Oblast' that almost any record is to some degree a range extension, but the following deserve special notice: Euchloe creusa from Aborigen, Boloria distincta from Aborigen and Stokovaya (115 km W of Aborigen), Oeneis sculda from Aborigen, and Erebia edda from Aborigen.

Upper Kolyma valley: 'Aborigen' field station, SE end of range Bolshoy Annachag (see map in 1978 Annual Summary), 20 June-27 July. A list for this site was given in the 1978 Annual Summary, essentially restricted to taiga species. The list below covers habitats from 1500 to 5500 feet elevation, and each species is followed by one to three numbers, as follows: 1 = taiga, 1500-2000 feet; 2 = rocky ridgetops at treeline, 2500-3000 feet; 3 = alpine tundra, 3700-5500 feet. A number alone indicates the species was of average abundance in that habitat; an 'r' indicates rarity, a 'c' indicates relative abundance. These letters are not based on accurate population measures, but rather on the number of specimens caught (0-4 = r; more than 50 = c)--the true abundances will show a larger variation in most cases, since rare species tend to be overcollected and very common ones undercollected. Butterflies: Hesperia comma (1r,2r,3r), Carterocephalus silvicola (1r), Pyrgus centaureae (1,3r), Parnassius phoebus (2,3r), P. tenedius (1), Papilio machaon (2r), Synchlora callidice (1r,2r,3r), Pieris napi (1), Colias melinos (1), C. hyperborea (1), C. palaeno (1,3r), C. nastes (2r,3c), Euchloe creusa (1r), Euchloe "orientalis" (1c), Vacciniina optilete (1c), Glaucopsyche lygdamus (1r), Nymphalis antiopa (1r), Polygonia c-album (1r), Aglais urticae (1r,2r), Melitaea menetriesi? (1), Boloria napaea (3r), B. freija (1c,2r,3), B. distincta (2r), B. dulkeiti (2r,3), B. eunomia (1,3r), B. angarensis (1r,3), Triphysa phryne (1r), Coenonympha kodiak (1), Oeneis bore (2,3r), O. jutta (1,3r), O. melissa (2,3), O. polixenes (2r,3), O. sculda (1), Erebia rossii (1,3), E. disa (1c,2,3r), E. embla (1,2,3), E. edda (2r), E. discoidalis (1,3r), E. kozhantshikovi (1,3r), E. anyuika (3), E. dabanensis (1,2c,3c), E. fletcheri (1r,2r,3r). In addition to a general decline in taiga butterfly abundance compared to 1978, the following species were markedly less common: C. melinos, G. lygdamus, P. c-album, O. jutta, E. kozhantshikovi; or not seen at all: Leptidia morsei, Callophrys rubi, Everes argiades, Boloria euphrosyne. The absence of C. rubi may have been because the season was more advanced than in 1978, since this is a very early species--but the others appear to reflect real variations in abundance. Moths: Arctiidae: Arctia caja, Dodia albertae. Geometridae: Scopula sentinaria, Spargania luctuata, Rheumaptera hastata, Aspilates taylorae, A. orciferarius, Anagoga pulveraria. Pyralidae: Crambus alienellus. Pterophoridae: Platyptilia sp. Stokovaya (11 km SE Kulu, 115 km W Aborigen), 25-28 July 1979: Parnassius eversmanni, Colias palaeno, Vacciniina optilete, Boloria napaea, B. distincta, B. eunomia, Coenonympha kodiak, Oeneis jutta, Erebia theano, E. dabanensis, E. kozhantshikovi. South Coast (Sea of Okhotsk coast, E of Magadan): Atargan (40 km E Magadan), 6-14 June, 9 September 1979: Carterocephalus silvicola, C. palaemon, Parnassius phoebus, Papilio machaon, Pieris napi, Euchloe "orientalis", Scolitantides orion, Aglais urticae, Boloria freija, Oeneis jutta, Erebia disa, E. embla, E. edda, E. discoidalis. Yamsk (190 km E Magadan), 2-25 July, 16 August 1979: Carterocephalus silvicola, C. palaemon, Pieris napi, Boloria pales, B. freija, Argynnis aglaja, Oeneis jutta, O. magna, Erebia disa, E. embla, E. ligea. Wrangel Island: 8-30 July 1979: additional species (see 1978 Annual Summary): Boloria frigga, Oeneis polixenes, Erebia rossii. Note: the use of quotes in Euchloe "orientalis" above is because Dr. E. M. Antonova (Zoological Museum, University of Moscow) is convinced the name orientalis is not applicable to the Magadanskaya Oblast' populations.

YAKUTIA: Indigirka River near Omyakon, late July-3 August 1979: Hesperia comma, Parnassius phoebus, Colias viluensis, Colias nastes jacutica (perhaps not a race of nastes?), Melitaea near didyma, Boloria freija, Triphysa phryne, Oeneis jutta, Erebia edda.

ZONE 9: NORTHERN NEOTROPICS: Contributors: George W. Busby III, Robert C. Busby, Frank Hedges, David Pinder, James R. Jacques & Family (Jason & Jennifer), Alvin F. Ludtke. Coordinator: Eduardo Cecilio Welling M.

PUERTO RICO: Ludtke sent an excellent detailed report on 16 species of Rhopalocera & 6 species of moths, with data on localities,

dates, habit, elevation, how collected, coordinates (latitude & longitude), etc., too lengthy to include here. Persons interested in data on any of the following should write to the coordinator or to Sr. Ludtke: Atlantea tulita (abundant but local), Asterocampa lydia, Prepona amphitoë, Anaea galanthis, Historia odius, Hemiarigus bornoi (common), Nesiostrymon celida, Chlorostrymon maesites, Allosmaitia fidenia, Eurema nicippe & leuce, Phoebis philea, Appias drusilla & punctifera, Papilio aristodemus & androgeus, Callionima parce, Pachylioides resumens, Catocala sp., & three species of Nepticula (none of which are gossypii).

MEXICO: San Luis Potosí: G.W. Busby sent a report which included his own collecting and that of R.C. Busby, Hedges and Pinder, all condensed into a single list. Localities samples were Tamasopo, Tamazunchale, Xilitla, & El Salto, from 10-19 Oct., finding 373 species of butterflies of which 337 were identified, Robert K. Robbins having helped on the Theclinae and Michael A. Rickard on the Hesperidae. Their group of Houston Texas collectors found for the first time in several years collecting the following (some of these may be extensions of range and first reports from any collecting in the area): Eueides lineata, Anaea oenomais & orthesia, Adelpha serpa, Mesosemia fassli, Lepricornis melancholia, Calycopis bactra, Atlides polybe, "Thecla" mavors, orgia, celmus, empusa, philinna, oppia, clarina, semones, Parides photinus, Papilio androgeus & thymbraeus, Pereute charops, Opsiphanes tamarindi, Phocides pygmalion, Neoxeniades molion, Tisias leseur, Thespieus macareus, Niconiades caeso, & Metron chysogastra. Other species worth mentioning from the area are Heliconius hortense, Hamadryas glauconome & guatemalena, Anaea electra & fabius, Adelpha melantha, Epiphele adrasta, Diaethra astaia, anna, & asteria, Prepona meander, Siderone nemesis, Chlosyne definita, Phyciodes ptolya & obscurata, Lymnas cephise, Argyrogramma sulfurea, Mesene margarretta, "Thecla" janias, Strymon bebrycia, Panhiades bitias, Rekoa meton, Parrhasius polibetes, Atlides polybe & neora, Euenus regalis, Theritis parthenia, Thereus cambes, Zizula cyna, Tithorea tarricina duenna, Eryphanis aescalus, Opsiphanes boisduvali, Urbanus doryssus, dorantes, proteus, pronta, teelus, procne & viterboana, Astraptes gilberti, Achalarus jalapus, Zera scybis, Mylon lassia & pulcherius, Aethilla lavochrea, Anastrus sempiternus, Onenses hyalophora, Helias phalaenoides, Nisoniades ephora, Polycctor enops, Pellicia dimidiata, Pyrgus philetas, Vinius tryhana, Virga clenchi, Atrytone maysii, Vacerra egla, & Moeris hyagnis, among others.

OAXACA: Reports from collectors indicate butterflies at a low level, partly due to the rains that did not normalize until late July, two months later than usual.

YUCATAN: Welling noted that butterflies were at very low levels everywhere, probably due to extreme hot, dry conditions until late July, however, after rains began erratically after that, collecting fell flat on its face as there was almost nothing out.

QUINTANA ROO: Welling noted that in the northern part of the state, collecting was fair even during the extreme dry period preceding the rains, which did not come until late-July as in Yucatán; however, from Aug. onward populations fell quickly and very little was to be found. Sphingidae, as in Yucatán, were almost nonexistent, making three years in a row that this family has been at an exaggerated low. Saturniidae rather scarce, as they have been for several years. It should be noted that these poor conditions in the northern part of the Yucatán peninsula, contrast readily with the collecting during the three preceding years which were from fair to very good.

GUATEMALA: Jacques and his family collected in March near Lago Atitlán in Sololá department, finding Heliconius charitonius & Danaus eresimus. In Izabal department, in the same month, they found Dryas julia, Heliconius sapho, Phoebis philea, Graphium belesis, Parides arcas, Morpho peleides, & Anartia jatrophae of Río Dulce, & Opsiphanes cassina at Río Hondo in Zacapa department. At La Florida, near Jocotán, Chiquimula department, they found Eueides cleobaea, Heliconius ismenius & hecate, Mechanitis lycidice, Actinote antea, Caligo memnon, Papilio thoas, Victorina steneles, Didonis aganisa. In June, at Ciudad Vieja, Sacatepequez department, they found Dryadula phaetusa, Smyrna karwinski, Euptoieta hegesia, Ascia monuste, Pheobis agarithe, Parides photinus, Dircenna klugi. At Tikal, department of El Petén, they found Eurytides philolaus, agesilaus, epidaus & protesilaus, Graphium belesis, Marpesia chiron, Heliconius petiveranus, & Morpho peleides. At Patzún, Chimaltenango department, Papilio multicaudatus.

ZONE 10: SOUTH AMERICA. Boyce Drummond, Coordinator, reports that absolutely no material was received from any contributor, despite the Ecuador trip. (Wait until next year?)

ZONE 11: ONTARIO: Coordinator: Quimby Hess. Contributors: Greg Beer, Sidney M. Daniels, W.J.D. Eberlie, W. Edmonds, Nick Escott, Don M. Fraser, Nicholas Godfrey, Barry Harrison, Richard W. Knapp, J.D. Lafontaine, Ross Layberry, David B. McCorquodale, Jim Mountjoy, Jack E. Pilkington, John Prideaux, D.R. Reynolds, Don Sutherland, Paul D. Syme, R. Tanner, R.R. Tasker, Greg Thorn, N.A. Tremblay, J.P. Walas, Keith Warren, D.M. Wood, Alan Wormington. General: The 1980 season marked a number of studies which increased our knowledge. These studies included the following: westward extension of Coenonympha inornata in southern Ontario; the status of Plebejus melissa samuelis and its foodplant in Ontario; Callophrys irus in Ontario; Pieris virginensis in and adjacent to Halton county; the occurrence of Pieris virginensis in Frontenac county; status of the West Virginia White in Manitoulin Island; Cercyonis pegala in Ontario; the Monarch butterfly and its foodplants, especially with reference to northern Ontario; and Sedge skippers in the Ottawa area.

BUTTERFLIES: Many species were below average in numbers of adults. These included: D. plexippus, L. arthemis, L. astyanax, L. archippus, C. nycteis, Polygonia sp., V. atalanta, V. cardui, V. virginensis, N. milberti, N. antiopa, C. philodice, C. eurytheme, P. rapae & P. polyxenes. Range Extensions: New localities were reported in 1980 for the following species: C. pegala, B. titania, P. virginensis, C. inornata, P. machaon, & P. centaureae freija.

MOths: H. columbia & H. cecropia adults were scarce. C. promethea came to light at Chalk River, Nipissing District. A. luna was reported in Essex county after nil reports for several years. Range Extensions: Most interesting report is C. promethea at Chalk River, although this species has been reported in the Ottawa area in the past. (For further details please refer to Toronto Entomologists' Association Occas. Public. # 12-81 available from A.J. Hanks, 34 Seaton Drive, Aurora, Ontario L4G 2K1.)

ZONE 12: PACIFIC ISLANDS (HAWAII): Interim Coordinator: R.L. Langston. Contributor: J.C.E. Riotte. The insect fauna of these islands has its closest affinities with the islands of the South Pacific, Australia, New Guinea, etc. Therefore, Hawaii is removed from Zone 1 and North America in general.

MIGRATORY SPECIES: Danaus plexippus breeds all year on the Hawaiian Islands with little, if any, migratory tendencies. In a project by the Univ. of Hawaii, Honolulu, it was found that the albino form occurs in a 10-20% ratio.

MOths: Sphingidae: Psilogamma menephron since Jan. 1980 has been repeatedly taken as larvae on Jasminum multiflorum, Honolulu (Manoa Dist.) & on Oliya europaea, Honolulu (Kalihi Dist.). A newcomer from Guam, it was first taken in Nov. 1977 at Salt Lake, Oahu as larvae on Olea africana. Noctuidae, Cucullinae: The very rare "green" noctuid from Kauai by Montgomery (Univ. Hawaii), was finally described in 1980 as Aumakua omaomao (new genus & species). In the interim taken in 1976, East Maui and 1978, Molokai. Geometridae: A new genus erected for 5 native species--Kaulina (Genotype: ioxantha) with only the ♀ known until 1975. Montgomery took as new K. montgomeryi on East Maui, 1973-76 & on Molokai, 1978; K. alakaii, Kauai 1979; K. molokaiensis, Molokai, 1979; & K. parva, East Maui, 1979.

BUTTERFLIES: Hylephila phyleus reported in Sept. 1980 on Molokai and earlier in 1980 on Maui. First recorded 8 Sept. 1970 at Salt Lake, Oahu; Oct. 1974, Hawaii; 1979, Kauai; but not yet known on Lanai. Brephidium exilis is now considered established on Oahu. Abundant in Nov. 1980 at Barbers Point, ca. 10 mi. W. of its original discovery at Hickam AFB in June 1978. Agraulis vanillae for the first time in June 1980 on the big island of Hawaii. It has now spread to all islands. First collected 14 Jan. 1977 on Oahu (Honolulu, Manoa Dist.).

Notices



LEP. SOC. ANNUAL MEETING UPDATE.....

The following is a brief review of procedures to be followed for participation in the 1981 Annual Meeting of the Lepidopterists' Society in Cocoyoc, Mexico, 30 July to 2 August 1981:

(1) Presentation of Papers: contact Lee D. Miller, by 1 May, at Allyn Museum of Entomology, 3701 Bay Shore Road, Sarasota, FL 33580, USA.

(2) Travel and Lodging: if you plan to fly, Cardillo Travel can arrange favorable rates and all connections. Call Debbie or Karen (toll-free within California) 800-262-1218; (toll-free within rest of US) 800-421-2912; (outside US, toll call) 213-649-6160.

(3) Pre-registration: if you arrange travel through Cardillo, pre-registration is automatic, and they will keep you posted on all developments. If you make your own travel arrangements, pre-register by writing Julian Donahue, Natural History Museum, 900 Exposition Blvd., Los Angeles, CA 90007, or Sr. Alberto Diaz Frances, Berlin 105, Mexico 21, D.F., MEXICO.

(4) Collecting Permits are essential if you plan to collect, and are to be obtained by contacting Julian Donahue without delay.

(5) Post-meeting Trips are planned, one for about a week in the best collecting areas in Morelos, travelling by bus and using commercial accommodations; one slightly longer, a rigorous camping trip (own gear) in the jungles of Chiapas. Register for either by contacting Julian Donahue.

Make your plans now. Early reservations can mean lower rates on air fares.

PACIFIC SLOPE MEETING.....

The 28th Annual Meeting of the Pacific Slope Section of the Lepidopterists' Society will be held 6-7 June 1981 at the San Diego Natural History Museum, San Diego, California. The theme of the meeting will be biogeography and ecology of the southwestern US and northwestern Mexico, including Baja California and adjacent islands.

Papers are solicited on any aspect of lepidopterology. Submission deadline is/was 1 April 1981 (date of receipt of this notice precluded timely insertion in the last issue! — Ed.).

For pre-registration and other information contact John W. Brown, Entomology Department, San Diego Natural History Museum, P.O.Box 1390, San Diego, CA 92112.

XERCES SOCIETY ANNUAL MEETING.....

The 1981 Annual Meeting of the Xerces Society will be held Saturday & Sunday, 6-7 June, at the Savannah Science Museum, Savannah, Georgia. Following the two-day scientific program there will be a four-day trip to near-by Ossabaw Island, where participants will have opportunity for field activities, study of island ecology, and pertinent discussions. (Capacity of the island facilities limits the number of participants in this trip to 24; because of safety considerations, children under 16 cannot be accommodated on the island.)

Papers are solicited for the program, on any subject pertinent to the conservation of terrestrial arthropods.

Please submit titles, prior to 1 May, to Jo Brewer, 257 Common Street, Dedham, MA 02026 (who is also handling pre-registration).

DOCUMENTATION OF LEPIDOPTERAN IMMATURES: A PLEA.....

The National Insect Collection is developed and maintained by the Smithsonian Institution and the U. S. Department of Agriculture. One of the principal functions of this collection is to serve as a resource for those who must make authoritative identification of insects and mites throughout the world. The collection is estimated to have about 24.5 million specimens, and it grows by about 0.5 million specimens per year. As is true of any collection, it has strengths and weaknesses.

One area in which the collection is particularly weak is immature Lepidoptera. Although we suspect that the holding may be the largest in the world, it contains only about twenty percent of the species present in the United States and only some of the more important species from the rest of the world. Also, coverage of the groups is very uneven: the holding of larval Sesiidae constitutes 55% of the species, whereas the pyralid family Scopariinae is not represented. Often only single specimens or very old larvae in poor condition are present. Very few species have associated pupae and representatives of all larvae instars.

Because of limited literature on immatures, the named collection is the primary resource for making determinations.

As part of a continuing effort to improve the state of the larval collection as a research and identification tool, we request that lepidopterists who rear specimens share part of the series with the National Insect Collection. Because larval characters vary in many ways, specimens of most species are needed from many geographic areas. The optimum is a series of 5-10 specimens of each stage, including the pupal stage. These should be preserved in 70% ethyl or isopropyl alcohol after they have been killed by dropping them into water that has been brought to a boil. Full locality and host data should accompany the specimens in each vial. Adults can be pinned and labelled so they can be associated with the reared larvae.

Specimens should be sent to Donald M. Weisman, Systematic Entomology Laboratory, USDA; c/o U. S. National Museum, NHB 127; Washington DC 20560. Their receipt will be promptly acknowledged.

(Ronald W. Hodges & Donald M. Weisman, Syst. Ent. Lab., IIBIII, AR, SEA, U.S. Dept. of Agriculture)

ALASKA: THE HAUL ROAD — STATUS REPORT.....

The Haul Road (Livengood to Prudhoe Bay, Alaska) has been a political hot potato for some years now. It was constructed by the state to be used for the building of the oil pipeline, and originally there was talk about opening it to the public after the pipeline work was completed. However, two groups in Alaska are adamant in their refusal to allow public access: conservationists, and the inhabitants of the North Slope Borough. In addition, the Highway Department is reluctant to take over the responsibility of maintaining the road for public use unless they receive a great deal more funding earmarked for that purpose.

On the other hand, many people in Alaska feel that the road, built with their taxes, should be part of the state highway system and available for their use. The State Legislature has been at loggerheads over the issue ever since the pipeline construction ended, and meanwhile the road has remained closed to public access north of the Yukon River. Now there has been a new development — a state judge has signed an order opening the road to the public as far as Dietrich Camp (about 42 miles south of Atigun Pass). Governor Hammond has indicated he does not intend to contest this action, but the Highway Department

still reserves the right to restrict access to the road unless certain minimal facilities (gas, repair, and food) are available at a few key locations. The opening date would be 1 June, provided the Highway Department is satisfied with the facilities. The present vehicle check-point at the Yukon River would be moved to Dietrich Camp, and no public traffic would be permitted past that point. The Brooks Range and the North Slope will still be off limits.

I suggest that anyone hoping to make a trip up the Haul Road this summer call or write the Alaska Department of Transportation, 2301 Peger Road, Fairbanks, AK 99701 (907-452-1911) for up-to-date information. (Ken Philip)

CLARIFICATION OF DEALER LICENSING REGULATION.....

Subsequent to circulation and publication of the information on licensing of dealers in lepidoptera (NEWS Jan/Feb p. 3), it was learned that on 31 December the Fish and Wildlife Service amended Part 14, clarifying the applicability of the regulation: only those businesses grossing in excess of \$25,000 per year are affected by the law.

MEMBERSHIP APPLICATION FORM.....

You may have noted a membership application form inside the back cover of the recently issued Membership List. The Copyright recorded on the front cover of the list does not apply to that page — tear it out, copy it, mimeograph it, xerox it with gay abandon — press it into the hands of all your non-member friends and acquaintances of lepidopteran bent — invest in a gift membership for a promising neophyte, or for a foreign collector who cannot export funds.

Spread the word! A growing membership is the backbone of a healthy Society.

A NEW REGIONAL SOCIETY.....

Subspeciation goes on apace, with the differentiation of the New Jersey Lepidopterists Society on 24 January, 1981.

Details as to membership (\$4.00), meetings, and publications are available from Molly Monica, 11 Putnam Ave., Berkeley Heights, NJ 07922 (201-464-0374).

BERMUDA BUTTERFLY LIST CORRECTED.....

Jim Scott informs us that the list of Bermuda butterflies noted in NEWS 1979, No. 5, p. 6, requires amendment by the addition of D. gilippus and N. antiopa, and by deletion of Prepona antimache amphitoë (and deletion also of Lethe portlandia, which was included by L. Ogilvie in "The Insects of Bermuda", 1928). This brings the list to a total of fourteen species of butterflies.

RESULTS OF THE ANNUAL ELECTION OF OFFICERS.....

514 members (34% of the membership) cast ballots in the 1981 election, with results to make Mr. Gallup beam with pride. Apart from 17 votes for 14 write-ins, all votes were cast for the posted slate. Officers of the Society are as follows:

Through the 1981 Annual Meeting

President: Carlos R. Beutelspacher B.
 First Vice President: Ray E. Stanford
 Vice Presidents: Keith S. Brown, Jr.
 Olavi Sotavalta
 Secretary: Julian P. Donahue
 Treasurer: Ron Leuschner

After the 1981 Annual Meeting

President: Lincoln P. Brower
 First Vice President: Maria Etcheverry
 Vice Presidents: Gerardo Lamas Muller
 R. H. Carcasson
 Secretary: Julian P. Donahue
 Treasurer: Ron Leuschner

Executive Council (term expiring after annual meeting)

1981 C. D. Ferris	1983 R. L. Langston
J. Y. Miller	R. M. Pyle
M. C. Nielsen	A. M. Shapiro
1982 M. Deane Bowers	1984 K. S. Brown
E. R. Hodges	T. C. Emmel
W. D. Winter	R. Silberglied



Research Notices

- ❖ WANTED: collection records with data and current storage locations for any insects collected in the close vicinity of Bryce Canyon National Park in Utah. All lepidoptera are of particular value. Needed for a paper on insect ecology at Bryce Canyon National Park. Steven J. Mueller, 13010 Northland Dr., Cedar Springs, MI 49319 (Sept.-April), or Bryce Canyon National Park, Bryce Canyon, UT 84717 (May-August).
- ❖ WANTED: all available data and current locations of specimens of butterflies and skippers taken in Manitoba, for compiling a checklist. Would like to correspond with anyone who ever collected here. Of special interest are the following species, most of which are rare or strays in Manitoba: P. bairdii, P. troilus, C. cesonia, E. mexicana, N. iole, E. olympia, C. eryphon, C. spinetorum, S. melinus, L. epixanthe, P. optilete, J. coenia, N. californica, E. phaeton, S. idalia, N. riningsii, A. delaware, Hesperia spp., P. catullus. Paul Klassen, Box 212, Elm Creek, Manitoba, CANADA R0G 0N0.
- ❖ WANTED: properly preserved (or live) early stages of Pieridae, esp. Neophasia, Pieris, Euchloe, Eurema, and Ascia, and in particular, chrysalids for venation study by Japanese colleague. And....
 WANTED: specimens of Nearctic Notodontidae and Lymantriidae, esp. Dasychira tephra (Hbn.) for scientific study by East German colleague. Glen A. Gorelick, Citrus College, 18824 E. Foothill Blvd., Azusa, CA 91702.
- WANTED: all possible collecting data on Pennsylvania butterflies. This will be used in addition to the late Harry Clench's Pa. butterfly data for a future publication. John Prescott, 369 East Gore Rd., Erie, PA 16509.
- ❖ Paul Opler & George Krizek are writing an illustrated book on natural history and distribution of the butterflies and skippers of the 31 eastern states. Information is requested on county-level occurrence of all species, mating behavior and oviposition, host plants, nectar plants, and life history. Contributors will be acknowledged. Send information to Paul Opler, 6400 May Blvd., Alexandria, VA 22310.
- ❖ WANTED: correspondence with anyone who has reared Thorybes bathyllus or T. pylades, especially with regard to host plant Amphicarpa bracteata (hog peanut). R. A. Layberry, 530 Byron Ave., Ottawa, Ont., CANADA K2A 0E3.

❖ WANTED: viable ova or pupae of *Papilio glaucus*, *C. promethea*, *C. angulifera*, *C. securifera*, and *Hyalophora* spp. Precise geographical locations and host plant information are necessary. Correspondence welcome. J.M. Scriber, Dept. Entomology, University of Wisconsin, Madison, WI 53706.

URBAN COLLECTING WITHIN NEW YORK CITY.....

(The following material was submitted by Jeff Ingraham, 55 8th Ave., Brooklyn, NY 11217, for the 1980 Season Summary. The Editor felt that his extensive coverage of the current status of urban lepidoptera deserved special notice. Here is yet another illustration of the effect of habitat preservation on the maintenance of a varied fauna.)

New York City, with its population of 9,000,000 people, is the largest city in the Western Hemisphere. Inwood Hill Park, located at the northernmost tip of Manhattan Island, is a beautiful piece of original flora, and is presumably the last remnant of natural habitat in Manhattan. Though small sections were farmed in the 18th and 19th centuries, most of the park remains unscathed, an island in an architectural jungle. Its survival rests on its inaccessibility for development and its sentimental historic value. The heavily wooded slopes rise fairly steeply to 230 feet above sea level, the highest natural land form on Manhattan and some of the rockiest terrain as well. Here one can observe how Manhattan looked in colonial times, for it was at an Indian village on Inwood's shores that Peter Minuit purchased the island in 1624 for 12 Guilders. Members of the Dutch India Trade Company settled at the other (south) end of "New Amsterdam" to avoid the "spuyten duyvils" (spitting devils), and for many years the northern sections were Indian territory and remained undeveloped. This upper peninsula still retains much of its greenery, and in Inwood Park are the oldest organisms on the island: tulip trees over 250 years old. One cut down in the 1930's was over 350 years old and was considered the last living link with the native peoples.

Because Inwood Hill Park was left intact it retains a rich butterfly fauna. Some of the abandoned clearings are covered with milkweed and other flowers and in late June were teeming with butterflies. The drought took its toll, and by August most plants were dried up and dead. Collecting dried up too, for the most part, but was still far superior to Central Park and the other "landscaped" parks. In 1980, with no collecting done before 20 June, the following species were logged.

D. plexippus, increasing from late June. *E. cymela*, June into mid-July. *C. alope*, seen only once in mid-July. *S. cybele*, 1 Aug. only. *C. nycteis*, a few late June to early July, worn. *P. tharos*, plentiful all summer. *P. interrogationis*, very common June & July. *P. comma*, very common in sunlit clearings, sometimes 5-6 ♂♂ chasing each other in circles. *V. atalanta*, common late June through July, ♂♂ territorial, attacking lepidopterists. *C. virginensis*, infrequent late June to early July. *L. archippus*, common near lowland willows, July. *N. antiopa*, very common at milkweed, June and July. *A. celtis*, very common late June & early July; ♂♂ will chase anything that flies into their airspace, even small birds; like *comma*, ♂♂ will chase each other in circles until they are up out of sight; sighting of only one adult in August suggests that the species is only partially double-brooded in Manhattan. *A. clyton*, infrequent, seen only on one old hickory tree near a hackberry thicket. The adults would walk about on the smooth bark and fly to the top of the tree when pursued, and sometime fed with *P. interrogationis* at leaking sap. Of two ♂♂ captured, one was the black form "proserpina", and the other, a normal form, had been captured by a predatory wasp that bit through the thorax. *L. bachmannii*, one sighting 9 Aug.

S. melinus, infrequent to Sept., very common thereafter. *H. titus*, infrequent early July. *S. falacer*, ab-

undant from late June to mid-July. (*S. caryaevorus*, specimens not yet verified.) *S. liparops*, infrequent. *L. phlaeas americana*, uncommon June & July. *E. comyntas*, abundant throughout summer. *C. pseudargiolus*, common late June, adults observed "racing" high up along edges of clearings; last seen 11 Sept.

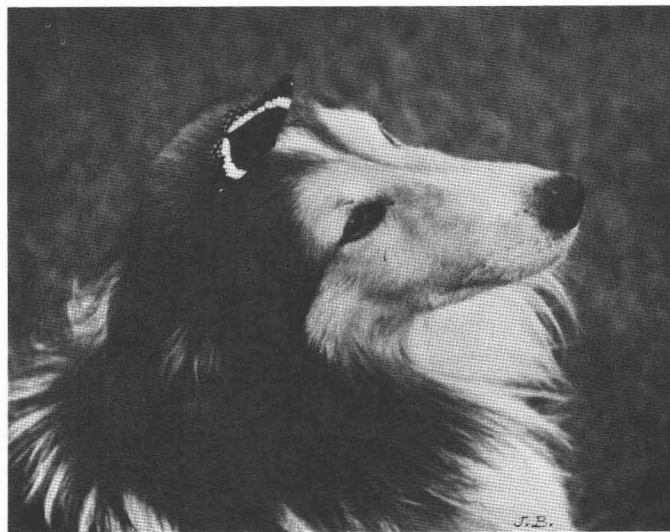
P. polyxenes, common early summer. *P. glaucus*, very common at flowers all summer; many black ♀♀ seen. *P. troilus*, common but seen only in July; pair in cop. had ♀ carrying ♂. *P. rapae*, abundant throughout season, as were *C. philodice* & *C. eurytheme*.

E. clarus, abundant to common entire summer. *A. lyciades*, common early summer. *I. pylades*, one only, late June. *P. catullus*, common all season. *I. lineola*, a few early summer. *A. numitor*, common all summer. *P. verna*, common on milkweed most of July. *P. coras*, early to mid-summer. *P. hobomok*, June. *P. zabolon*, June, first half of August. *A. logan*, rare, early July. *E. vestris metacomet*, common early July. *N. l'herminier*, early July.

Moths taken in daytime (nocturnal collecting is apparently not prudent): *A. nessus*, common June, July. *H. thysbe*, one early Aug. *Ct. virginica*, common late June. *S. fulvicollis*, abundant June & July. *A. octomaculata*, a few still in late June. *C. ilia*, one roosting, early July. *C. ultronia* & *amica*, common in July. *Schinia* sp., Sept.

At the corner of West Broadway and Worth streets 206 cocoons of *S. cynthia* were sighted 26 December. From cocoons collected the previous winter reared offspring emerged in late August as a second brood.

Prospect Park, in Brooklyn, is a 526 acre tract which was largely replanted in a planned fashion over 100 years ago. Recent curtailed maintenance has resulted in considerable areas "going wild", but only 22 species of butterflies were taken here throughout the season. The only species not taken at Inwood were *L. astyanax* and *E. juvenalis*, taken June & May, respectively.

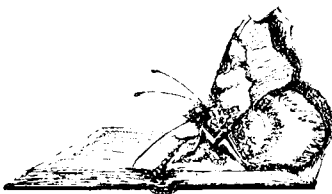


While this breed was originally developed for herding sheep, it is possible that it may have certain hitherto unrealized potentialities.

With the next issue, the NEWS should get back to normal. A glut of addresses, ads, notices, and Season Summary has used most of the available space the last three rounds. We shall now try to get back some balance, with more articles, Ripples, etc.

If you have bugs to be illustrated, I can deal with color transparencies, glossy b/w prints (but not color prints), or I will photograph the bugs for you. All specimens and slides will be returned. Ed.

Books



A message from Sarasota in mid-March indicates that the Catalogue-Checklist of the Butterflies of North America is progressing slowly, with no definite eclosion-date currently ascertainable. Proofing a work of that sort is a grueling process. The quality and utility of the finished work should make the wait worthwhile.

British Tortricoid Moths: Tortricidae: Olethreutinae, by J. D. Bradley, W. G. Tremewan, and Arthur Smith. Preface vii & 332, monochrome pl. 1-21, color pl. 22-43, index to genera, species, & forms. The Ray Society, London 1979. Price L40.

This is volume 153 of the Ray Society series and the second volume by the authors dealing with the British tortricoid moths. Following the short introduction there is a list of economically important species giving their common names and foodplants. Following this is a checklist of the three tribes, Olethreutini, Eucosmini, and Grapholitini.

The text consists of a detailed treatment of each species beginning with the correct name, a series of publications dealing with the species, followed by a description of each species, discussion of variation, comments, biology including food plants, and distribution. Oddly, there is no reference to the original description.

Plates 1-21 consist of the superbly executed drawings depicting the food plants and the damage done by the larvae of the various species of moths. Following the general text there is a complete list of the food plants with an indication of the moth species that are attached.

The beautifully and accurately drawn figures by Brian Hargreaves on the plates 22-43 greatly enhance the value of this very fine volume and will be appreciated by both professional and amateur. The bibliography and index complete the volume.

Although this and the first volume deal specifically with the British fauna, they enjoy a wide range of usefulness throughout Europe and Asia and certainly the Americas. This reviewer is very well acquainted with the principals who brought together these excellent volumes and heartily recommends these books to anyone who is interested in the Microlepidoptera. (J. F. Gates Clarke)

Butterflies of the Afrotropical Region: Bernard D'Abbrera, F.R.E.S. xx + 593 pp. (569 with color plates), 2 maps, bibliography, and index. October 1980, E. W. Claxsey. £57.50 (\$140.87) plus postage and packing.

This second volume of Butterflies of the World covers the Afrotropical Region (Africa s. of the Sahara, s. Arabia, Madagascar, Mauritius, the Seychelles and Comoros groups, and the islands of the Gulf of Guinea) and is based on the Synonymic Catalogue of the Butterflies of the Ethiopian Region of R. H. Carcasson.

The foreword defines quite clearly what the book is and what it is not: it is an illustrated guide to the butterflies, excepting the Hesperiiidae; it is arranged systematically, with all taxa portrayed in color with σ , φ , and underside where possible; taxa not figured had been lost or were inaccessible to the author. Keys were omitted in favor of visual identification. Geographic range information is given to the extent available. Biologic, life history, and food-plant information was excluded, even when known, because of lack of time and funds, with the exception of some basic generalities at the family level.

The book may be looked upon as a spectacular and "portable" (10 lbs., 11 oz.) synoptic collection of butterflies of the region, sufficient for identification of

most material. The plates are generally of excellent technical quality, although some seem to have suffered somewhat in reproduction. A scattering of habitat and terrain shots adds interest, and the occasional photographs of live material are outstanding.

There are blunders in layout which should be avoided in future volumes: wingtips lost in centerfolds or off page edges; captions overlying hind-wings; illustrations in sequence with text on some pages, in reverse on others. These detract from the otherwise high quality of the work. And there are ambiguities of substance: e.g., Papilio echerioides captioned as P. nyiro ? f. echerioides on the plate, and P. echerioides nyiro "probably ? f. echerioides" in the text; Graphium leonidas brasidas is captioned as a subspecies, but referred to in the text as a "form".

Status of the illustrated "types" from the BMNH collection is defined in the prefatory material. In addition 24 new species and 12 new subspecies are described, largely Lycaenidae and Nymphalidae; descriptions are of external characters only, although in some instances the plates suggest that genitalia have been removed for examination. One wonders how effectively these new species, located in a book such as this, will be picked up in future indices.

Apart from identifications, the great value of this book lies in its potential for the future. As Forbes leaned on Holland, Packard, and Barnes & McDunnough for illustrations, so future authors writing on the biology of a particular region or group will be able to lean on D'Abbrera.

(W. D. Winter)

California Insects: Jerry A. Powell & Charles L. Hogue. 398 p., 16 color plates, many b/w illus. Univ. of Calif. Press, July 1980; \$15.95 hard cover, \$7.95 paperback; size 5½"x8½".

An excellent general text on insects. Every lepidopterist should have one to answer that question about "that funny little fly in the bathroom". There is a general discussion of structure, faunal zones, and taxonomy, followed by copious examples, illustrated for every order and most families. Each color plate shows eight species, photographed in a natural setting. (Ron Leuschner)

The World of the Tent-Makers: V. G. Dethier. 148 p., 16 b/w illus. Univ. of Mass. Press, August 1980, \$12.50 cloth, \$5.95 paper.

A well-written account of a year in the life of a tent caterpillar and its winged imago. Taxonomy it is not; see Stehr if that is your interest. The facts are there, blended with a narrative style that avoids getting too "cute". (Ron Leuschner)

The Genetics of Altruism: Scott A. Boorman & Paul R. Levitt. 459 p., Many charts & graphs. Academic Press July 1980. \$29.50.

Highly mathematical population genetics theory. Definitely not for the casual reader. I should not like to be a graduate student taking the course that uses this text. (Ron Leuschner)

Due soon, Butterflies of the Rocky Mountain States: Edited by C. D. Ferris & F. M. Brown, with J. D. Eff, M. S. Fisher, S. Ellis, L. D. Miller, R. E. Stanford, and J. A. Scott. Ca. 450 p., 352 photographs, b/w & color, 9 line drawings, 315 maps, appendices, glossary, bibliography, species checklist, indices. May 1981, Univ. of Oklahoma Press. \$35 cloth, \$15.95 paper (7x10", with the soft cover being durable flexible plastic).

Items submitted for inclusion in the following section are dealt with in the manner explained on page 9 of the 1981 NEWS (Jan/Feb issue). Please note that it was decided several years ago to exclude prices from the printed notices, except for the prices of lists and printed matter. "SASE" calls for a self-addressed, stamped envelope. Notices will be entered once, unless entry in two (maximum) successive issues is requested.

Buy Sell Exchange

- EXCHANGE: about \$6000 worth of US commemoratives, air-mails, and other issues, excellent condition, to trade for Ornithoptera, Troides, US Leps, Papilio, Parnassius and other pretty species. Quote Scott #s of desiderata, and what you offer. Dennis E. Walker, 1441 S. 18th Ave., Maywood, IL 60153, USA.
- WANTED: Catocala from Texas, Florida, western USA, Canada, and palearctic Region especially, or elsewhere. Will exchange Neotropical lepidoptera and other insects for these and entomological equipment and literature (D'Abbrera: Butterflies of the Neotropical Region Series, etc.), new or used. Eduardo C. Welling M, Apartado Postal 701, Merida, Yucatan, MEXICO.
- FOR SALE: 1300 butterflies of s. Florida, 2400 of n.e. USA, 250 Catocala of n.e. USA, 450 butterflies of e. & w. Ecuador, all papered, of good quality, and with data. Morris Spelman, 6505 Winfield Blvd., Margate, FL 33063.
- EXCHANGE ONLY: egg rings of Hemileuca maja for those of H. nevadensis or H. lucina. Dana Gring, 2126 Harvest Lane, Toledo, OH 43623.
- WANTED: Epiphora, Bauhiniae, Alcidis, Aurora, any Brahmaea species, and any African Saturniidae. Will buy or exchange. Bruce E. Ellis, 3817 Schiller Ave., Cleveland, OH 44109, USA.
- WANTED: correspondence with collectors in US or foreign countries for exchange of lepidoptera. All letters will be answered; please send list. Robert J. Warren, 2127 N. 11th, McAlester, OK 74501, USA.
- EXCHANGE ONLY: Speyeria diana ♂♂, will exchange for any of: Speyeria idalia, S. nokomis, any ssp., A. leila, Chlorostymon telsa, any Ministrymon, Eurystrymon polingi, Calephelis muticum, or any Megathymus and Agathymus. All letters answered. Leroy C. Koehn, Rt #3 Box 270H, Stanton, VA 24401.
- EXCHANGE: wide selection of butterflies from Virginia, N. Carolina, and Florida, for those of Canada, s.w. US, and the Caribbean Islands. All letters answered. Leroy C. Koehn, address above.
- WANTED: usable copies of the following: Butterflies of Trinidad & Tobago, M. Barcant; The Migration of Butterflies, C. B. Williams; Butterfly Hunting in Many Lands, G. B. Longstaff. State price and condition. Leroy C. Koehn, address above.
- SALE OR EXCHANGE: Rare Agrias. Prefer to exchange for other rare Agrias. Write for lists and availability. S. K. Dvorak, 4323 Oxford St., La Mesa, CA 92041.
- SALE OR EXCHANGE: wild collected (wc) and reared (r) cocoons of P. cynthia (wc), A. polyphemus (r), C. prometha (wc), & H. cecropia (wc,d). Will trade cynthia for wc cynthia from other areas to improve breeding. Bruce C. Pulsifer, 163 Main St., Gorham, ME 04038.
- SALE OR EXCHANGE: LA wild-collected, papered or spread, E. imperialis, C. regalis, A. luna, A. io, C. angulifera, A. polyphemus, A. stigma, and other species of Sat., Sphing., & Cith. in quantities of 1000 or more per species. Exchange only for world Sphingidae. V. A. Brou, Rt. 1, Box 74, Edgard, LA 70049.
- FOR SALE: 1 ♀ P. antimachus (sl. dam.), 2 ♀ P. zalmoxis (1 near perfect). Also, from Irian Jaya (and not protected) 1 pr. O. meridionalis. From N.G. 1 pr. O. alexandrae and 2 ♂ O. victoria resplendens (positive documentation furnished that specimens were captured 1963-64 prior to the Protection Act), 500 assorted S.A. nymphalids and 2 Agrias gynandromorphs. Serious inquiries only, SASE within the US. Dennis Gershkoff, 77 Ives St., Providence, RI 02906.
- WANTED: correspondence with collectors in Asia, Africa, South America, and Pacific or other remote areas to exchange Papilio and lycaenids. Interests include the very common to very rare, papered & live material. Dennis Gershkoff, address above.
- EXCHANGE ONLY: Morpho p. polyphemus, Parides photinus, Battus polydamus, and various other common Mexican butterflies, all papered, with full data. Would like various Papilio species, also with full data. Enrique Fuentes, Apartado Postal 41-818, Mexico 10 D.F., MEXICO.
- WANTED: Van Son, Butterflies of South Africa, vols. 1-3; Todd & Carriker, Birds of the Santa Monica Mtns. (Colombia). State price & condition. John W. Wall, 76 Brambach Rd., Scarsdale, NY 10583; 914-723-3105.
- WANTED: geographical races and seasonal forms of Hebomoia glaucippe from any area, esp. Japan; need good series. Buy or trade. Also require any species of P. machaon complex from America & Eurasia. Brian J. Taylor, 86, Furzebrook Rd., Wareham, Dorset, BH20 5AU, ENGLAND.
- FOR SALE: Ornithoptera & Indoaustralian Papilio at reasonable prices. Write for list to Brian J. Taylor, address above.
- WANTED, TO BUY: pupae of A. genutia, G. marcellus, C. angulifera, A. bisecta, C. bicolor, D. hylaeus, C. regalis. James Bess, 12247 Onondaga Rd., Onondaga, MI 49264.
- FOR SALE: because of ill health I must sell my Exotic Butterfly Collection (as a whole: will not break up). Roughly 1800 birdwings, Papilio, Troides, Morpho, Charaxes, Parnassius, Agrias, and Nymphalidae. Virgil Warcyynski, 1804 Fitzhugh St., Bay City, MI 48706, 517-892-6375.
- WANTED TO BUY OR TRADE: A. io ssp. papered or pupae, esp. neomexicana & lilith; large reared or wild collected H. columbia and A. luna cocoons; Rothschildia condor living or papered; Actias truneatapennis papered, A. meanas leto ♀♀ papered; any papered saturniid hybrid except Hyalophora; parasitized saturniid cocoons. Also need publication describing color variations in Antheraea yamamai. Steve Stone, 755 Parfet St., P.O. Box 25287, Denver, CO 80225.
- FOR SALE: wild collected cocoons of H. euryalis, & cecropia; beginning late May will have ova of A. luna, A. io, A. polyphemus, Hyalophora sp. & hybrids. SASE for list: Carita Hamblin Bates, P.O. Box 3133, Eldorado Springs, CO 80025.
- WANTED: Live pupae or ova of H. columbia, E. imperialis, C. regalis, A. io (Boulder strain), A. polyphemus olivacea. Carita Hamblin Bates, address above.
- FOR SALE: Lepidoptera from the Yukon, N.W.T., Canada. Limited quantity now available, or will accept collecting proposals for resident collector for 1981 season. Quimby F. Hess, 11 Esgore Drive, Toronto, Ontario, CANADA, M5M 3P9.
- FOR SALE OR EXCHANGE: lepidoptera from the Province of Ontario, some species in series, including Colias, Boloria, etc., from Hudson Bay south to the Great Lakes. Will sell, or exchange for Morphos, Papilio, etc. Quimby F. Hess, address above.
- FOR SALE OR EXCHANGE: live pupae and papered specimens of A. io, P. crespontes; also papered Syntomeida epilaïs. Jay Stees, 5717 Harding Blvd. NE, St. Petersburg, FL 33703.
- FOR SALE: H. cecropia cocoons. Art Good, 3330 Russell Ave., Parma, OH 44134.
- WANTED: copy of Allyn Museum Bulletin #14. Please state price. Dennis A. Currutt, 7533 Mulberry Rd., Chesterland, OH 44026.
- FOR SALE: The Naturalist on the River Amazons, Bates, 1880; Bull. of S. Calif. Acad. of Sci., Vol 34, May-Aug. 1935; Nature Magazine, Vol. 33., No. 10, 1940; Species of Euxoa of E. N. America, McDunnough, 1950;

Rev. of the Genus *Annaphila*, Rindge & Smith, 1952; List of N. Am. Lep. in the Los Angeles Co. Museum, Martin & Truxal, 1955; Biol. & Dynamics of *Lithocolletis blancardella* in Quebec, Pottinger & LeRoux, 1971; Larval Sketches of some Micros, McKay, 1972. M. C. Nielsen, 3415 Overlea Dr., Lansing, MI 48917, 517-321-2192.

FOR SALE: quality pencil butterfly prints @ \$10.00; also will do lepidopteran illustration in b/w or color pencil to your specifications. M. A. Johnson, Box M, Apt. 611, Kaaawa, HI 96730.

FOR SALE OR EXCHANGE: live pupae of *Pachysphynx modesta*, *Papilio troilus*, *G. marcellus*. All papered *G. marcellus telamonides* & *lecontei*. Interested in world papilionidae. John Tewell, R.R.2, Box 304AAA, Pittsburg, KS 66762.

WANTED: to buy worldwide papilionidae, esp. *P. arcturus*, *P. karna*, *P. kirschana*, and other "moss green" butterflies. Also, copy of D'Abrera, Butterflies of the Australian Region. State condition & price. John Tewell, address above.

EXCHANGE: Arctic *Erebia*, *Oeneis*, & *Boloria* of A1 quality for pupae of Saturniidae & *Papilio*, papered *P. thoas*, *indra*, *nitra*, *aristodemus*, *Colias scudderi*, *Behrii*, *Harfordii*, *Speyeria aphrodite*, *adiaste*, *egleis*, *diana*. H. P. Kimmich, 3372 Mahon Ave., North Vancouver, B.C., CANADA, V7N 3T6.

SALE OR EXCHANGE: (assume pupae; not stated) *H. cecropia*, *A. polyphemus*, *C. catalpae*, *P. troilus* (8 available). Kenneth R. Knight, 433 Brady N.W., Comstock Park, MI 49321. 616-784-6243.

WANTED: pupae of *Eupackardia calleta*, ♀♀ only, for tie-out experiments this summer in s.w. US & Mexico. Offer exotic exchange material, to include any of the following: *R. jorulla*, *Copaxa multifenestrata*, and a very

few *Automeris maeonia*. Must have any offering by 1 May latest. Richard L. Halbert, Mobile Village, Space 25, 2124 No. Florida Ave., Alamogordo, NM 88310.

MEMBERS' COMMERCIAL NOTICES.....

RAY ADAMS F.R.E.S can supply lepidoptera from the Dominican Republic including *Eumorphia labruscae*. Write c/o Box 14, Puerto Plata, REPUBLICA DOMINICA.

DAVID W. BOUTON, 435 Main St., Johnson City, NY 13790, USA Subscription to monthly up-dated list of butterflies & moths of the world: \$3/yr. USA, \$6/yr. overseas; includes equipment listings & Expeditions for Lepidopterists.

MRS. CHANG PI-TZU, P.O.Box 873, Taipei, Taiwan, R.O.C.: Formosan butterflies, moths, and beetles; cocoons and ova of Formosan moths.

NW BIOLOGICAL ENTERPRISES: accepting pre-season orders for Pacific NW butterflies and other insects. List from Stanley G. Jewett, Jr., 23351 SW Bosky Dell Lane, West Linn, OR 97068.

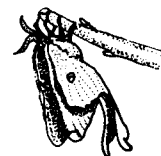
IANNI BUTTERFLY ENTERPRISES, P.O.Box 81171, Cleveland, OH 44181: selling worldwide lepidoptera and coleoptera for collections, A1 quality, with data; \$5 for price list, refunded with order.

INTERNATIONAL NATURE EXPEDITIONS, #217 435 Main St., Johnson City, NY 13790, USA (607-729-0878): for lepidopterists, to Peruvian Amazon 50 mi. downstream from Iquitos; guides; blacklighting; leave 18 June and 26 September 1981; other east and west hemisphere expeditions planned; send legal-size SASE for brochure and registration form.

ASAKAWA TRADING CO., P.O.Box 14, Komatsushima, Tokushima 773, JAPAN: selling Japanese butterflies, papered, and living pupae; buying *Morpho*, *Parides*, *Agrias*, etc., from Central and South America.



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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 the full dues for the current year (\$18.00 US), together with mailing address and a note on areas of interest in Lepidoptera; student membership (must be certified) \$12; sustaining membership \$25. 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 list will comprise the last issue of the NEWS in even-numbered years.

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Other information about the Society may be obtained from the SECRETARY, Julian P. Donahue, Natural History Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles, CA 90007, USA. Please notify him of any additions or changes of interest for publication in the membership list.

Manuscripts submitted for publication in the JOURNAL are to be sent to the JOURNAL EDITOR, Dr. Thomas D. Eichlin, JOURNAL of the Lepidopterists' Society, Insect Taxonomy Laboratory, 1220 N Street, Sacramento, CA 95814, USA. See the inside back cover of a recent issue of the JOURNAL for editorial policies.

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AVAILABLE PUBLICATIONS OF THE SOCIETY.....

CATALOGUE-CHECKLIST OF THE BUTTERFLIES OF NORTH AMERICA NORTH OF MEXICO (Memoir No. 2): includes references to original descriptions and locations of type specimens. Members and subscribers, \$10 cloth, \$5 paper; non-members \$17 cloth, \$8.50 paper, postpaid.

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