

Friends of the Entomology Research Museum



Newsletter

Editors: Connell Dunning and Robert Wepler



Meloid Serendipity

By Diana Pinto



When a one-and-one-half inch wingless black blister beetle appeared on our dining room floor one winter eleven years ago, it took my husband, UCR entomologist John Pinto, by surprise. That evening, we rescued this meloid from under the huge clumsy paws of Rio, our yellow Labrador, who pranced around us demanding dinner.

The specimen belonged to a family John knew well; he happens to be one of the world's two remaining experts on meloids. This one resembled *Meloe barbarus*, a beetle rarely found in southern California but more numerous to the north. Only a few specimens of *M. barbarus* have been collected in southern California. Differences between *M. barbarus* and the new arrival led John to believe this one was unique. With only one specimen, though, he put it away and forgot about it.

Fast forward to one winter evening eight years later. Feeding Rio just outside the back door, I nearly stepped on another meloid. I put it in a jar for John to examine when he came home. Shortly after, he searched the porch area and found an additional specimen. Apparently, the outdoor light attracted these nocturnal beetles just after dusk, on one of December's first rainy nights.

Although extensive searches over the years and use of a black light failed to locate more, the winter before last, guess what? Light from the back porch lured one more beetle. With four specimens now, all found within or just outside of our house, John wrote a species description. This new delicate black beetle he named *Meloe ajax* was the first new U.S. *Meloe* to be collected since the turn of the century. The U.C. Berkeley collection contains one other specimen, taken in Kern County in 1960. John misidentified it in 1968, confusing it with *M. barbarus*.

In the description recently published in *Coleopterists Bulletin* (Pinto, 1998), John reported the

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Upcoming FERM Meeting

A FERM meeting will be held on Saturday, November 20 at 7:30 pm in the Museum Classroom. Refreshments will be served and the guest speaker will be Norm Penny from the Department of Entomology at California Academy of Sciences. See you there!

What: FERM Meeting**When:** Saturday, November 20th, 7:30 pm**Where:** Museum Classroom, Entomology Research Museum, UC Riverside**Guest Speaker:** Norm Penny, California Academy of Sciences:**"Collection Management for the 21st Century - Examples from Neuroptera"**

A Sampling of South-Eastern Arizona



By Judith Pedler

We left on a Friday afternoon, at about 4 pm. Piling ourselves and two of Rob's dogs into his truck, we took off into the heat and turmoil of the I-10 East. General gear was minimal - a tent, a cooler, a small gas stove, two dogs - but the insect collecting stuff included a generator, gas cans, a huge box holding the two mercury vapour light set-ups, cyanide tubes, vials, 3000 glassine packets, white ground-sheets to reflect the Hg lights, several hundred feet of extension cord and a watermelon.

We saw the fantastic Saguaro cacti almost the moment that we crossed into Arizona, which impressed me greatly - are they planted there deliberately by the

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type location as "In and immediately adjacent to my home located in an undeveloped hilly area dominated by southern California chaparral..."

Nothing is known about this beetle's behavior, except it appears to be secretive as well as rare. Females of other *Meloe* beetles dig holes in the soil to lay their eggs. After hatching, the tiny first instar larvae dig out and climb on flowers. When wild bees visit the flowers, the larvae climb aboard and hitchhike to a bee nest in the ground. There they alight and feed on the bee's egg. Provisions the adult bee inserts into the nest for its young, plus the larvae of bees in adjacent cells, are next on the menu.

Larvae of other *Meloe* species remain underground most of the time. As adults, they emerge from the soil and maintain small and unevenly distributed populations, feeding and mating. They live only a short time and may not appear every year, making it difficult to determine if species are present at a given site. A positive finding could require years of searching and a great deal of luck. Finding none would not necessarily indicate their absence.

The adults of *M. ajax* (a name John chose after a character in the Odyssey known for silence) probably emerge from underground nests after the season's first rains. At that time the normally rock-hard ground softens, making it easier for the adult beetle to dig out. Also, the plants it feeds on will likely be present then.

The attraction to our house? Until more can be learned about this secretive visitor, John considers it merely serendipity. But we'll keep the light on just in case.

If Martha Stewart was an entomologist, part II

By Rick Vetter

What to do when you have all those little hungry insectivorous mouths to feed and you want to give them field caught insects?

A little helpful hint is to keep a wide-mouthed jar (ie., mason jar) in the freezer. When you sweepnet a raft of little winged critters that will contribute to the next highest trophic level, you just shake them into the jar. The cold glass cools their little butts down rather quickly into an immobile state and it makes it much easier to divvy them up into the containers holding predatory animals. It works great on *Drosophila* and *Fannia* flies and they bounce back to detectable ambulatory lurchables in just seconds after transfer.

Cruisin' for Chalcidoids - Part II

by Bryan Carey

(As we left Bryan Carey in the last issue of FERM, he and John Heraty were just concluding a whirlwind adventure in Big Bend National Park and were headed for the mighty Interstate 10. Part II of Bryan's submission begins in the magnificent hill country of central Texas...)



We made it to the hill country, as they call it in Texas, and it truly was beautiful. There were even mesas, and things got more green, and then there were oaks all over the place. I also noted that one of our dependable *Oreasema* host plants, the Desert Willow, seemed to enjoy the highway median niche, much like Oleander does in Southern California. But we could no longer stop, for we were on a crash course with destiny at Kerrville State Park. The ranger there was pleasant and helpful, and we were on our way with a map in hand. On the other hand, the weather was out of hand. They expected rain that day, and though it was still at least 80 degrees F, the "cold front" from Canada that I imagined was swooping down to Texas never materialized. We were able to sweep. And sweep. And sweep. And kick over fire ant mounds. Nothing. We split up for a couple hours. Still nothing. Eventually we were both back on the same trail area, still with nothing, and declared ourselves defeated at the Second Battle of Kerrville.

We now backtracked toward Houston, shaking our fists in frustration as we passed the entrance to Welder Wildlife Refuge. We tried Corpus Christi Lake State Park, which is not really that close to Corpus Christi. I caught a few dragonflies when Dr. Heraty wasn't looking, and continued sweeping for *Oreasema*. The stop proved worthwhile, for Dr. Heraty declared that here was an unusual species, in fact it was in a different species group than *Oreasema cockerelli*, which made it all the more worthwhile for the diversity of information it might be able to provide us. It seemed to be occupying the same type of rhannaceous plants that we had found at the Rio Grande State Park. The wasp had a nice metallic blue-green color, and a distinctively rounded thorax. Of course, only Dr. Heraty caught them. The pupal was not yet the master.

We went to Texas A & M, then headed to the field. On the way out to the Stubblefield Lake State Park we found his famed Shipley's donut shop. I had to admit that they tasted better than the other 13 or so (a baker's dozen) places we stopped at during our trip for the nearly mandatory donut and coffee. We arrived in a thick forest with lots of undergrowth. I was terrified at the



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thought of encountering Poison Ivy, because I was only familiar with our Poison Oak. Dr. Heraty invited me to pull every leaf we passed to test my sensitivity. The forest had a lot of water, and there were a couple boggy-looking areas. It was also quite humid, though only about 75 F in the shade. It made little difference.

Our target here was one wasp Dr. Heraty had had some success with in the past. He had found that the ant, a *Pheidole* species, liked to nest in rotting logs above the moist soil. An *Orasema* species near *costaricensis*, a member of the mostly tropic *O. costaricensis* species group, had been in the nest. So the host was known, but we needed information on the host plant and any information on the wasp larval behavior. Did the planidia attach to thrips? Did they attach to workers? Would we find anything? We swept along a trail, and noted that there were not too many familiar host plant genera, nor were there many plants in bloom. Suddenly, I saw a familiar, delicate,

spindly-shaped wasp in my net sample, and I aspirated it quickly and trotted down the path to confirm my discovery. We set about trying to isolate what plant species it might have come from. A non-flowering sapling that looked to me at first like an oak proved to be the right plant. I caught one more wasp, and then Dr. Heraty caught about 8 or 10. So now we knew the wasps were out.

We found one spot where there was a lot of activity by the wasps, and on closer inspection, we found new information. The females were selecting the topsides of the leaves of this plant to oviposit, and the oviposition marks on the leaf tops could be easily seen by us. Now we had to search for immature insects such as thrips that might have planidia attached to them, as we had found at Rio Grande State Park. There was nothing on the plants, not even flowers. We did find some ants, a few of which were tending aphids on another of these plants. We dug up rotting logs, and found an assortment of ants nesting there, but only one colony, found by Dr. Heraty, had a cluster of *Orasema* pupae and adults. It was still exciting for me, since I had rarely observed any clear examples of host records in my two-plus years working on this group. We set up ant baits, and decided to return that day on our way east and south to Houston to catch our flight the next morning. So now we headed back to College Station for a few more hours. We arrived in time for Dr. Heraty to talk with Dr. Vinson. He also showed Dr. Wharton the host plant, and Wharton said it was a species called *Ilex vomitoria*, in the holly family (Aquifoliaceae). This plant was used as a natural emetic by the local Indians. Then we did a round of thanks to the people we visited, and especially to Dr. Woolley for his hospitality.

We left College Station, and made it back to the for-

est after only one wrong turn in the approaching dusk. With aspirators, flashlights, and a generous application of mosquito repellent, we trudged into the greenery. No ants were currently on the peanut butter baits, and even about an hour past sunset, no sign. But eventually, after some prodding at the base of a couple of shrubs, we found colonies of the *Pheidole* ant. No other species were foraging. I wondered if our offensive rustling, stomping, and unlaundered field clothes had something to do with it. We collected what we could and departed, taking a highway that bisected the lake to produce a wonderful night view of lights and water and clouds in the distance as we searched for the nearby interstate that would deliver us to the Houston area.

We took up our last chance for a Motel 6, after forgetting our earlier observation about counter space in our exhaustion. We had a terrible task ahead of us to sort out what we needed to keep, and how to clean out our filthy car. After a good 45 minutes, the situation was much improved. The car even smelled a little better. Then we went in our room to sort out material and I put vial labels on the ones I'd forgotten. I kept working till about midnight, and still wasn't done. Dr. Heraty's patience was, so I just had to

rely on the 6 A.M. wake up call to get things finished and packed. The buzzer worked, and I finished off with enough time for us to scramble on the road. We had to skip breakfast, something I'd recommend other students not do to their advisors, and got lost trying to find a gas station near the freeway. I tried to play it cool, that we were okay for our flight, but Dr. Heraty was a nervous wreck, convinced that we'd miss our flight. Granted they closed the doors right behind us, but they hadn't bumped us off our flight. I hate waiting a long time in airports anyway.

After takeoff, things calmed down. I even almost managed to sleep about 20 minutes. We flew right over Interstate 10, and I recognized the Chiricahua Mountains, where I'd be heading to in another six weeks for summer research on two *Orasema* species groups. We landed on an unusually cold, 64 F day in late May at Ontario. Dr. Heraty mumbled something about Dave Hawks losing his job if he forgot to pick us up. Dave didn't greet us at the terminal, but I thought that maybe he'd be at the baggage. Most of our baggage came, except my big backpack. So I arranged for them to deliver it to my home, and then we walked outside. Dave was finally there, with a greeting as warm as the day.

I had learned a little bit more about my wasps and ants, and the plants they used. Furthermore, I learned about another part of America, and Texas doesn't seem so foreign to me now. Finally I had some sense of how the researchers and the research are sometimes so subtly intertwined, and this reaffirmed my eagerness to pursue the study of choice chalcidoids.



NEWS FROM THE MUSEUM

Fall 1999

by Serguei Triapitsyn & Doug Yanega



Three graduate students have been assigned by the Department to work in the museum for the fall quarter. Kristin Michel will be databasing incoming and returned specimens; James Barry will be helping sort and identify various insects; Laura Petro will be cataloguing literature for the museum's library.

The NSF-sponsored Aphytis project is moving along quite successfully. Marina Planoutene is about to complete remounting about 1,500 paratype specimens from Hoyer's medium into Canada balsam. Kaylan Le has been hired recently as a work-study student to help Jeremiah George database and label the remounted slides.

The museum is sponsoring the installation and maintenance of a malaise trap in a very exotic location in the taiga near Ussuriysk, in the Maritime Province of Russia. The material obtained should dramatically improve the representation of Palearctic taxa in our collection, now very poor. The catch of Ichneumonoid wasps was especially rich this summer.

Related to this, the museum made a major purchase in September: a new, fully automatic Tousimis Autosamdri 814B critical point dryer, which should greatly speed up processing of malaise trap material.

Finally, specimens deposited in the museum from recent FERM field trips to the Granite Mountains/Kelso Dunes area include at least three species apparently entirely new to science: one bee and two wasps. The amount of material is small (a grand total of 5 specimens), but hopefully some more can be found on future trips, and these species can then be described.

RECENT PUBLICATION BY FERM MEMBER:

(Please submit titles of your recently published taxonomy and natural history articles to FERM editors!!)

Prentice, T.R., J. C. Burger, W. R. Icenogle and R. A. Redak. 1999. Spiders from Diegan coastal sage scrub (Arachnida: Araneae). *Pan-Pacific Entomologist* 74:181-202



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A Victorian Account of "Bugging" in Southeastern Arizona

by Capt. Thaddeus M. W. Gates & Col. Phineas J. N. George, Esqs.

We awoke from a shallow slumber, hours before the cusp of dawn. Our collecting chariot (1999 Mini-van) awaited us with a full complement of entomological paraphernalia and gleamed in the sultry predawn night like a pearl upon a blue mantle. The engine squalled to life as we excitedly slipped the bonds of Southern California for the subtropical monsoons that awaited in SE Arizona. Our first destination, Harshaw Creek, we knew well as it carved the ancient flesh from the gnarled backbone of the Patagonia Mountains. We left our transport in good stead in the moist sand beneath a patriarchal sycamore and disembarked for a fine day of entomological endeavour. The understorey was lush and green with life as millions of invertebrate voices throbbled in unison in a raucous cacophony. Nearby foliage, thick with condensation, nodded heavily under the load.

Papilio and patches flitted to and fro as we combed the replete inflorescences of *Baccharis* with our sweep nets. But, lo, what upon yonder blossom oviposited? It was none other than *Oraesema tolteca* (Hymenoptera: Eucharitidae). Her gaster pumped rhythmically as she played out her finely choreographed ovipositional dance. Upon hatching, her brood would blindly attach themselves to

passers-by (hopefully ants) with the goal of arriving at a brood chamber for a fine repast of ant larvae. Upstream from the base camp, a shimmering green-orange streak raced past and my pulse quickened. At that instant, I knew that it could only be one inhabitant of this region. I swung my net with passionate fury and, as I had imagined, saw that I had before me a *Melitita* (Lepidoptera: Sesiidae) female. I had interrupted her quest for a host, one of many cucurbitaceous vines sprawled adventitiously upon the bank of the creek.

Upon the success of Jer, I redoubled my efforts and was rewarded with a fine, ebony specimen of *Heimbria opaca* (Hymenoptera: Eurytomidae). With its hardened carapace and wickedly pointed scutellar spine, it appeared well-equipped for battle with any worthy comer. As the daystar descended in the west, we reclined to recount the day's catch. Yet, no respite was granted as hordes of blood-thirsty culicids exsanguinated us like thieves in the night. With darkness nigh, we scrambled to assemble our miraculous 400 watt mercury vapor bulb and its power supply. Anticipation was high as we awaited the great insectan swarm. Shortly, clouds of insects threw themselves at our bulb and occluded our vision. Sweating like animals tied in the sun, we frantically kept a maddening pace with the ever-burgeoning cornucopia of entomological diversity. From

amid the frenzy, shining with an angelic aura, was a species that had haunted Jeremiah's dreams: *Schinia gaura*. It rested 'pon our sheet like a sliver of lemon-yellow sun suffused with vermilion grammae. Jer gasped in delight, inadvertently inhaling numerous cousins of said *Schinia* that swarmed about our wondrous orb. This specimen marked the beginning of a phenomenal series.

Our next destination was the vast, eroded expanse of Walker Canyon that winds like a restless serpent through the Atascosa Mountains. Jer espied numerous *Apodemia* (Lepidoptera: Riodinidae) as they danced about blooming *Baccharis salicifolia*. While he dispatched the oblivious insectans, I wandered amongst the anastomosing mats of *Boerhavia*, the nyctagenaceous host plant of that emerald jewel, *Proserpinus terlooii* (Lepidoptera: Sphingidae). Hark! Upon a defoliated stem rested a faded green 5th instar of the beast itself, its pleura flecked with intense spots of cobalt and onyx encircling its spiracles. We amassed more specimens until dusk, whereupon we darted south on old carriage route 19 to the local mercantile (Wal-Mart) in Nogales. There, we acquired grandiose tubs in which to place soil and cut food plant so that our larvae might construct their subterranean pupation chambers undisturbed.

The sun sank tiredly in the west, reflecting our own depleted energy stores. Soon the moon would take over as ruler of the night sky. We supped in a rolling mesquite grassland east of Nogales, a sleepy border town. We completed our repast in silence, pondering our ability to match the day's success with our impending nocturnal foray. Our quarry this night, the bulky *Megasoma punctulatus* (Coleoptera: Scarabaeidae) which is known hereabouts. We rolled slowly in our carriage, like a lynx stalking a hare, seeking the brooding beetles clinging to the aged mesquite trunks. There! A lone male seeking companionship, but doomed to grace a collection box. Although more specimens were obtained, the first is always the sweetest. The ever-vigilant local militia (border patrol) queried us upon multiple occasions. Their derisive interest in our enterprise confirmed their ignorance and soured our palates.

The waxing one-quarter luna bathed us in her unearthly glow as we cast about like restive ghouls in a crypt, seeking to prepare camp in Peña Blanca Canyon. Settled by a draft from our supply chest we slipped silently into the solitude of Somo's realm. Groggy, we staggered about like sailors on shore leave, shaking the seeds of sleep from our

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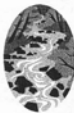


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eyes in the blinding morning sun. Stout, unfiltered coffee awakened our senses enough to see a brown cord entwined about a nearby shrub. Wait! Closer inspection revealed its true identity, a brown vine snake! A rare sight indeed!



To our northwest, a defiant butte clothed in verdant ocotillo beckoned. We made for the summit, passing flexible limberbushes and spiny catclaw. The apex yielded a gratifying view of the environs: jutting outcrops, sparsely-clothed tors and sinuous washes. On the eastern horizon, sullen leaden thunderheads announced their intentions with deafening thunderclaps and erratic lightning. Gustly zephyrs sped us downslope, too late to prevent sheets of coruscant raindrops from wetting us to the bone. Later, spit-roasted steak and coal-baked potatoes slaked our hunger and warmed our innards.



A leisurely westward jaunt on Ruby Road brought us to Sycamore Canyon in time for the noon meal. Our gear ensconced beneath a massive walnut, we entered the canyon with abandon. Sycamore Creek bubbled merrily past blooming mule fat from which we procured numerous scoliids, sphecids and lepidopterans. In places, the broad, slippery stream bed threatened to capsize us as we

gaped at towering rock spires and slick canyon walls. Earthen hues of sienna, ochre and salmon surrounded us. Years of scouring by raging sand and water had produced precarious defiles in which were found shimmering pools and furtive waterfalls hidden away like perfect pearls, reluctantly ceded by their caretaker. We were stymied, forward progress inhibited by a deep pool nestled between vertical walls. At that instant, a glorious male trogon flew overhead, its proud ruffled breast swollen in flight.

As we approached our turnout to our campsite in Box Canyon, we noticed the fiery red coach of our colleague, Kendall H. Osborne. He had responded with alacrity to our telegram concerning the bountiful *P. terlooii* larvae to be had in Walker Canyon. After brief, reciprocal salutations we stormed into the canyon. The mule fat blossoms provided numerous specimens of *Leucospis birkmanni* (Hymenoptera:

Leucospidae). Such was their contentment sipping floral nectar, that they were easily apprehended between thumb and forefinger. At midday, Jer informed Mike of a note-worthy *Gossypium thurberi* bush whose blooms were irresistible to swarms of chalcidoid hymenopterans. Agog with the news, Mike raced (Jer in tow) to that bush to see that, indeed, it was as Jer had foretold. Clouds of minute wasps swarmed to such an extent that it seemed our eyes were made to see through a fog. The diabolically horned *Asima zabriskii*, bull-dog *Perilampus* spp., elegant *Rileyia similaris*, unusual *Oraesoma simulatrix* and overbearing *Conura* spp. filled our net bags to overflowing. Jer heaved a sigh and half-smiled from his position on a nearby boulder as Mike maniacally aspirated hundreds of wasps in mere minutes. Notable from the lights that night were two specimens of the magnificent, colorfully festooned pericopid *Dartis howardi*.

The next morning, we bid adieu to Ken and Lee and drove eastward across undulating grasslands to Wilcox Playa, a massive salt/mud flat. Although evaporating puddles abounded, only two cicindelids were captured by Jer. The *Lycium* (Solanaceae) dominated floodplain southeast of the playa yielded over 50 *Sagenosoma elsa* (Lepidoptera: Sphingidae) larvae feeding on a non-deciduous wolfberry, *Lycium pallidum*. As the unrelenting sun beat down upon our devoted heads, each *Lycium* bush seemed to emerge from the surrounding scrub like an apparition from a dusty tomb. Many bare stems jutted irregularly from the alluvium like haphazard fenceposts set by a drunken farmer, having been defoliated completely. Only coronas of desiccated frass surrounding each pitiful shrub served as a mute testimonial to the fact that foliage had once been present.

On our triumphant final night, we purchased a room from a local Nogales innkeeper (Motel 6). Celebratory ales were imbued after we searched for *Megasoma* one final time. We arrived in good stead, merely exhausted, in Riverside the following evening.



PINE: PARTNERS IN NATURE EDUCATION



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Tourism Board? We arrived at the outskirts of Tucson at about 11 pm. At the entrance to the Santa Catalina state Park campgrounds, the light over the door to the ranger's station had attracted a marvelous range of beetles and moths. Hoping that this was indicative of the insect life for the rest of the trip, we dutifully paid up and crashed for the night. The next morning we drove through Tucson, hooking back up to the I-10, and soon we stopped at Colossal Cave, slightly to the southeast of the city.

Rob was after a particular Cerambycid (long-horned beetle) that lives in the vicinity of Colossal Cave, and after we were conducted on a bizarre tour of the caverns (where we saw some very excellent bats), we went hunting for *Dendrobium mandibularis*. Found on the broom *Baccharis* which grows in sandy washes, it's a dramatic 3-cm long, orange and black beastie with strange bulges on its long antennae. Successful in the hunt, we drove south to the Santa Rita Mountains.

Our campsite was in Box Canyon in the Coronado National Forest. The night collecting was awesome. Lots of glorious green-and-silver beetles, cleverly called *Plusiotis gloriosa*, came zooming in, and we collected seven to keep alive for fresh DNA for Dave Hawks' molecular systematics studies. They went into an empty ice-cream bucket with juniper sprigs and some damp lettuce - and with a bit of love and attention we managed to get six back to Dave in fine condition a week later. Lots of huge dark brown rhinoceros beetles (*Xyloryctes jamaicensis*), lots of black, fast-running beetles (*Calosoma*) that like to eat other insects, lots of giant silk moths (Saturniidae) flapping valiantly through the dark (including *Eacles imperialis* and *Hyalophora gloveri*), lots of tiger moths (Arctiidae) with orange bodies and partly transparent wings, and more of Rob's favourites, the long-horned Cerambycid beetles that bore into living or dead wood (depending on the species). The prize of the night, arriving with a buzz and a thud, was a male Ox Beetle, *Strategus aloeus*, armed with three ferocious-looking horns. A few bats, appreciating the influx of insects that the lights brought, swooped around in regular circles. The watermelon was a dead loss.

Driving towards Harshaw in the Patagonia Mts., we gasped at the lush, almost tropical greenery and the water-filled creeks as we searched for a place to camp that wasn't in the middle of the road. We ended up climbing into the land of pines and juniper and finding a side road marked "Hazardous to Public Safety". Well, with a challenge like that, the blood went up and the wheel hubs were locked into 4-WD and off we went. The map said it was a road leading to Guajalote Flat. Some time later we had reason to question the accuracy of the map, although the sign about the road being Hazardous appeared to have been ac-

curate. We certainly reached Guajalote Flat (there was a sign there, saying so), but our odometer claimed at least five miles of rugged jouncing, while the map had suggested perhaps one and a half. The day had been cool and cloudy, and just as we were setting up camp that evening, a thunderstorm broke with cold, heavy rain which lasted until about 10 p.m., continuing intermittently through the night. The insect collecting was poor, but we did see a coatimundi, which was pretty exciting for me (and the dogs).

The next day (after some navigational adventures) we zoomed east through Lochiel, across grassy plains (scattering flocks of Gambel's Quail as we went) to the next set of mountains - the Huachuclas. We camped at Copper Canyon, in yet another region of the Coronado National Forest. Lunchtime collecting around the campsite found a Cetonine scarab beetle, *Gymnetis cretacea*, attractively marked in black and creamy-white. That afternoon we hiked up to the ridge, and had a superb view of the Sierra Madre Occidental in Sonora, with more ominous thunderheads piling up towards us. We saw the rear ends of three javelinas, trotting into the undergrowth (the dogs were asleep). At dusk we ate dinner, put up the tent, set up the lights and reflecting sheets, washed the dishes, turned on the generator ... and the skies opened up and it pissed down

with rain for nearly four hours. We threw the dogs into the back of the truck and got out the raincoats. Some intrepid insects still came to the light early in the rainstorm - Arctiid and Saturniid moths, and both *Plusiotis beyeri* and *P. lecontei* - but after a while we just shut it down and crashed in the tent. Around midnight, the rain had stopped and Rob turned it all on again - there were more big moths and big beetles and monstrous katydids and all sorts of cool tropical-looking stuff mixed in with the more expected insects of temperate oak forests.

In the early morning we let the dogs out of the truck and grabbed some sleep. For a short time. They trod another Coatimundi and we tore out of the tent (wearing not-very-much and boots) to try and get hold of them before it did. Somewhat bemused by the mixture of adrenaline and lack of sleep, we dried our things out, packed them up, and drove off just as it started to rain again.

We drove over Montezuma Pass, through Sierra Vista, Bisbee and Douglas, towards the Guadalupe Mountains, in the very corner of Arizona where it meets both New Mexico and Sonora. After thirty something miles on a dirt road to nowhere we arrived at Guadalupe Canyon - within a

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mile or so of the Mexican Highway 2 (we could hear the buses and trucks as they changed down a gear to go up a hill). We'd obtained permission to camp past the entrance gate (which is kept locked), and it was like entering a small paradise. The desert vegetation was in a marvelous explosion, caused by the summer rains - even the Creosote Bush looked fresh and its yellow flowers brilliant, while great forests of green Ocotillo marched up the hillsides.

There were cardinals, tanagers, quail, the ever-present turkey vultures, and enough water in the creek that we'd been warned that it might not be passable. Bryan Carey found us at dusk, accompanied by two cheerful volunteers from the Southwestern Research Station, and we had a laughter-filled night - the beer was cold, the company was good, and the collecting was awesome. There were more *Plusiots gloriosa*, several Cerambycids and Dytiscids, *Xyloryctes jamaicensis*, many types of Sphinx moths, adult ant lions, and more *Calosoma* and *Hyles* than you could poke a stick at.

The next morning we ran into a couple of venerable butterfly collectors - Floyd and June Preston of Kansas. They had attended the recent Lepidopterists' Society meetings in Sierra Vista and were keenly filling out their collection of Skippers and Blues from Arizona. (Apparently Floyd had taken a butterfly net on their honeymoon, 50-something

years before.) Leaving them to the delights of Guadalupe Canyon, we drove off accompanied by the ubiquitous pretty yellow butterflies that I now knew were Cloudless Sulfurs (*Phoebis sennae*). It was a morning of the unexpected: driving back to the



Give FERM memberships as Christmas gifts to the special entomophiles in your life! There is no better way to show how much you care!

If every FERM member gave one membership as a gift, then we would have twice as many FERM members!(...we love math..)





Tips for Teachers

Butterflies in the garden and classroom

by Marcella Waggoner

This issue, our feature article is written by FERM member Elois Hawks who is also a U C San Diego Master Gardener. This article was first prepared for a Master Gardener's manual about school gardens. Thank you Elois for your wonderful contribution! I'm sure our Teachers will use this information in a variety of ways. Making a garden could be a cross-age project for several classes with older grades planning the physical aspects of the garden and all pitching in on planting day. You might ask the PTA to pitch in or you could approach a local nursery for donations to your project. If an entire garden is too ambitious, you might just plant a few butterfly attracting plants outside your own classroom. For older students, this would be a great opportunity to begin learning about field observations. Elois has provided some references and there are many additional sources of information on the following web sites too.

Butterfly Gardening: Creating Summer Magic in Your Garden. 1998. Xerces Society and Smithsonian Institution. Sierra Club Books.

Stokes Butterfly Book. 1991. Donald and Lillian Stokes and Ernest Williams. Little, Brown and Co.

Butterfly Gardening in Southern California. 1999. Natural History Museum of Los Angeles County.

<http://mgfx.com/butterfly/index.htm> This Butterfly Website boasts of having the most complete information on butterfly gardening, farming, ecology and education.

<http://www.npwrc.usgs.gov/resource/distr/lepid/bflyusa/bflyusa.htm> US Geological Survey has a site that includes a photographic identification guide to US and Mexican butterflies, county checklists and distribution maps.

<http://MonarchWatch.org/> The Monarch watch has information on this migrating butterfly, as well as educational materials and conservation information.

Wings in your Garden

An Introduction to Butterfly Gardening



What is a Butterfly?

by Elois Hawks

You guessed! It's just a caterpillar - - dressed! Butterflies will visit our gardens if they can find nectar-producing flowers there. By supplying their special environmental needs, we can hope to be rewarded with opportunities to observe the fascinating four stages of the butterfly's life cycle: egg, larva (caterpillar), pupa (chrysalis) and adult. This can provide exciting hands-on natural science experiences for kids in their own gardens.

Explore and Discover

- How do butterflies sip nectar?
- Can they taste? How?
- Look at the coiled tongue and scales on the wings with a magnifier.
- What happens if the scales are rubbed off?
- Can butterflies and caterpillars hear?
- Can a caterpillar bite you?
- Where do butterflies go at night or when it rains?
- Watch a butterfly emerge from its chrysalis.



The butterfly season in Southern California is normally February to November, but can be affected by weather conditions. Some species can be seen year-round. Most are active on sunny, windless days when the temperature is between 65 and 95 degrees Fahrenheit.

Tips for Teachers - Butterfly gardening

Prepare

Lunch for the Munchers

A butterfly garden can be created by using a small area planted with a few flowering plants that are known to attract a variety of species of butterflies which are common in your neighborhood. Make a list of the butterflies you see and the flowers they are visiting.



Favorite Flowers of Many Butterflies

Lantana shrubs	Yarrow
Buddleia davidii	Red Valerian
Milkweed (<i>Asclepias</i> species)	Sunflowers
Glossy Abelia	Lavender
Pentas	Sage (<i>Salvia</i> species)
Cape Plumbago	Wild Buckwheat (<i>Eriogonum</i> species)

The flower colors that seem to be preferred are yellow, orange, lavender and white. In addition to bees, wasps and other insects that feed on nectar and pollen, butterflies (and moths) are important pollinators.

Each year the numbers and variety of nectar plants in your garden can be increased. Try adding a few caterpillar food plants (host plants) such as dill or wild fennel for the anise swallowtail, mustard or cabbage for the cabbage butterfly, and passion vine for the gulf fritillary. While most adult butterflies feed on nectar from a variety of flowers, caterpillars have different requirements. Some species of caterpillars will munch happily on leaves of several different plants, some will accept only one family of plants, and others will feed on only one genus or species. Native plants are the choice of many species of butterflies.

Some Common Southern California Butterflies and their Host Plants:

Anise Swallowtail	Fennel, Dill, Parsley
Tiger Swallowtail	Willow, Sycamore
Giant Swallowtail	Citrus
Monarch	Milkweed
Gulf Fritillary	Passion Vine
Mourning Cloak	Willow, Elm
Painted Lady	Mallow, Hollyhock, Lupine
Buckeye	Plantain, Snapdragon
Sulphurs	Cassia
Cabbage Butterfly	Mustard family
Common Hairstreak	Mallow, Hibiscus
Skippers	Grasses



Nectar plants and host plants can be combined with vegetables and maintained in any arrangement that you desire. Very few butterfly caterpillars actually cause significant damage to plants in our gardens. One that can be a pest on vegetables in the cabbage family (cabbage, broccoli, cauliflower) is the little green larva of the cabbage butterfly. Solution: just pick them off and invite birds to lunch on them!

Caterpillars of many butterflies and some moths (e.g. woollybears) often leave host plants to hide or pupate in brush or woodpiles, and birds will feed on the insects and spiders living there. A "lazy gardener" approach allowing plants to develop seeds and permitting leaf litter, some weeds, and piles of brush, wood and rocks, is recommended for attracting both birds and butterflies and contributing to their survival. It is not necessary to keep your garden neat and tidy.

In the children's book, *Charlotte's Web* by E.B. White, Charlotte the spider says, "Life is always better when you're waiting for something to grow or something to hatch." As gardeners, while you're waiting for the plants to grow and the baby birds and caterpillars to hatch, sit quietly among the flowers, for "if a butterfly lands on you, good luck will be yours for a year", as the saying goes.

For many of us, butterflies, birds, and other animals that inhabit our gardens and yards represent one of our few remaining links with the natural world. Encourage, protect, and ENJOY them!