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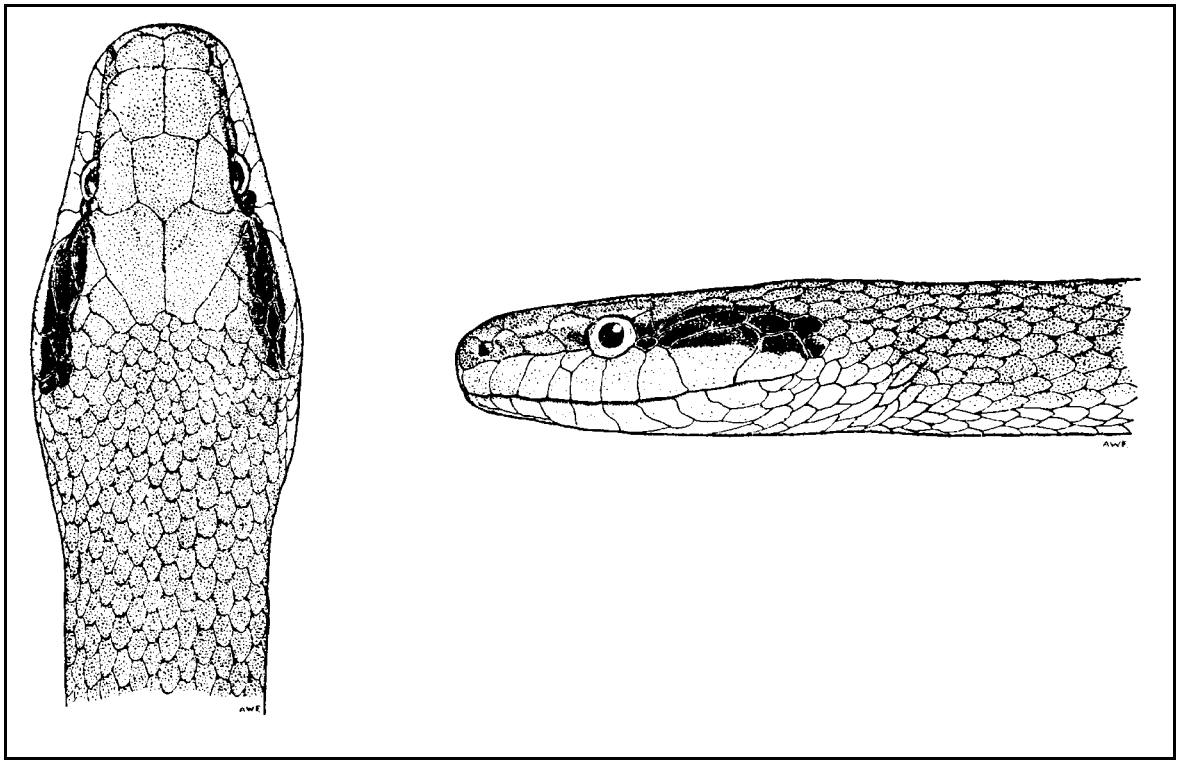

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Cover: Striped-tailed ratsnake, *Elaphe taeniura*. Drawing by Miss Alma W. Froderstrom from *The Reptiles of China: Turtles, Crocodilians, Snakes, Lizards* by Clifford H. Pope, 1935.

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Searching for Herps in Mexico in the 1930s — IV

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Part Six — 1938–1940 with Rozella

The narrative of my last major collecting effort in Mexico, 1938–1940, which was shared with my wife Rozella, is here presented in three sections: (1) Introduction; (2) My version; and (3) Rozella's version.

Section One — 1938–1940, Introduction

Through the influence of my doctoral professor Edward H. Taylor, and his friendship with Alexander Wetmore, Director of the U.S. National Museum, I was awarded a two-year Walter Rathbone Bacon Traveling Scholarship administered by the Smithsonian Institution, beginning September 1, 1938. With that slight security in hand, and with an eye toward companionship as I traveled in Mexico, I persuaded my only girl friend from predoctoral days, Rozella Blood, to marry me and share a two-year honeymoon in Mexico. Against her better judgment she agreed, and this account of that honeymoon was written not long after our return.

I had met her as a graduate student at the University of Kansas, where she was studying toward a Ph.D. degree at the University of Kansas Medical School, working on the anatomy and function of the brain of rattlesnakes. At that time medical students spent their first two years on the Lawrence campus, and Rozella spent a couple of years there as a teaching assistant in gross anatomy and embryology after obtaining her Master's degree at the University of Wichita. I fell head over heels in love with her, but we later split for unknown reasons, and went our separate ways. Ultimately, after a year or so, she quit the Ph.D. track and started teaching high school biology in Altoona, Kansas, and I went on to an NSF postdoctoral fellowship at the University of Michigan, followed by a year as a research assistant to Howard Gloyd at the Chicago Academy of Sciences, and then several months on WPA as an assistant to Karl P. Schmidt at the Field Museum of Natural History.

We still corresponded occasionally, but those were hard times and jobs were scarce. Thus when the Smithsonian Fellowship fell into my lap it seemed about as good a time to propose as I was likely to encounter, even though we would not be able to settle down for at least two years (as it turned out, it was three years). We were married in Chicago in a very simple ceremony, with only Howard K. Gloyd and K. P. Schmidt as witnesses, August 26, 1938, shortly after I received the Bacon Scholarship.

My first duty was to put the finishing touches on the survey of Mexican and Central American members of the genus *Sceloporus* that had been the focus of my attention while at the University of Michigan and subsequently. Schmidt accepted it for publication in the Zoological Series of Field Museum of Natural History in large part through the enticement of a gift by Taylor to the museum of a large sampling of *Sceloporus* from his private collection. Without that inducement it might never have been published, for I was not in a position to pursue the matter for at least two years after the manuscript was dumped in Karl's lap.

Rozella and I left immediately afterwards for Washington, where we stayed for a month or so getting all the arrangements made for a lengthy stay in Mexico. We were delayed considerably by great difficulty proving that I was born in the United States, having no birth certificate. It required a visit to Norwalk, Ohio, where the family last lived before breaking up.

As on previous trips, I expected to study the distribution, habits and habitat of the amphibians and reptiles of Mexico. It was our special desire on this trip, however, to learn what we might of the correlation of the distribution of these animals with the highly complicated physiography of the country. We had previously decided on a number of areas of particular interest for such an investigation. Some we eventually visited during the course of the next two years, but there remained an endless amount of exploration that was never accomplished, and even yet remains to be done, despite extensive habitat degradation that has undoubtedly exterminated many unknown or very poorly known species and will continue to do so unless population growth is curbed.

Before we left the U.S., we estimated crudely that about 600 species of amphibians and reptiles inhabit Mexico. We anticipated that we would be lucky to get a little over half that number in our two years, for Mexico is large, the abundance of its animal life greatly dependent on the seasons, and collecting at best is unpredictable. We also guessed that we could not, by any stretch of the imagination, hope to spend even a total of a year and a half in actual collecting. If we were very fortunate, we might average twenty-five specimens a day at most, for we could not hope to find good collecting everywhere at all times of the year. Accordingly, to place our goal at a mark we would have to struggle to reach, we decided to aim for 350 species, and 15,000 specimens. Much to our surprise, we underestimated by about a third in each category — and the how and why is a long story.

Our chief means of travel was our car, a 1936 Dodge half-ton panel commercial delivery truck, which we equipped with high wheels after two weeks of dangerous driving over deeply-rutted, rocky trails in northern Chihuahua. Several years after we returned in 1940 we still had the car, which had survived two years of hard delivery work in Chicago before I bought it second-hand, and on top of that two years of the roughest sort of treatment in Mexico, on the worst roads imaginable, under conditions that surely would have proven severe for any car.

That was our chief means of travel after leaving Chicago, and for several years after returning from Mexico. In Mexico, car travel was supplemented with a great deal of travel by train to places we could not reach by car, and to some extent by oceangoing vessels, by river steamers, and by mule. And, of

course, by our own feet, which carried us many hundreds of miles.

Most of the specimens we secured by our own efforts. For collecting during the day, we invariably carried some sort of a .22 caliber firearm. We started with a single-shot, smoothbore pistol for Rozella, and a single-shot, well-worn rifle for me. The pistol was stolen in Mexico City, however (by a garage attendant), and the rifle was stolen early one morning when marauders broke into the car where it was parked on top of a hill overlooking Acapulco, Guerrero. The loss of the rifle was not so serious, however, for the barrel had been rather sharply bent by prying loose boulders free, and would no longer shoot straight. As Rozella commiserated, it was good only for shooting around corners.

After these incidents we were forced to use the two .22 revolvers we fortunately had with us. These we had carefully reserved for occasional use, only for bullets, because the fine dust shot we ordinarily used in our collecting guns quickly fouls the riflings so bullets cannot be aimed accurately with them. At first the revolvers were very unsatisfactory, because their excellent riflings scattered the shot very irregularly. After a few days of intensive use, however, they became satisfactorily serviceable, although they were never as effective as the rifle in its prime.

For collecting at night we depended not so much upon our firearms, although we carried them (Rozella usually also carried a .32 automatic that was difficult to conceal on her svelte frame and snug clothes), as upon gasoline lanterns. With them we would walk about in places where we thought amphibians or reptiles might be found active, catching them by hand.

For most of two years Rozella and I were essentially on our own in Mexico, supported solely by the $2,000 annual subsidy from the Traveling Scholarship. Nowadays that would be far from sufficient to cover all living expenses for two traveling as we did, for a year. Even then it sufficed only because of the free lodging and food generously provided by three hosts who suffered our prolonged presence: Mr. and Mrs. Dyfrig McH. Forbes of Potrero Viejo, Veracruz; Dr. and Mrs. Linton P. Satterthwaite, at their temporary archaeological camp at Piedras Negras, Guatemala; and Dr. and Mrs. Eizi Matuda of Finca La Esperanza, Chiapas. To all of them we are eternally indebted.

On the same salary from the same scholarship we spent a third year, 1940–1941, in Washington, D.C., studying the some 20,500 specimens in the U.S. National Museum that we had collected between October 5, 1838, and August 24, 1940. About three months of that period was spent in the United States, mostly at the University of Kansas, studying parts of the material collected. Therefore we were actually in Mexico something less than twenty months.

Our peregrinations in Mexico, chiefly by car, led us to twenty-one of the thirty-one states (as now known) of the country, and Distrito Federal. Since roads did not then exist to the Yucatán Peninsula, and we could not afford the expense that would have been incurred had we tried to collect without our truck or by shipping it there, we did not collect in either Yucatán or Quintana Roo. Likewise we did not visit the northern Pacific slopes states (Sonora, Sinaloa, Nayarit, Colima), or the central states of Zacatecas and Aguascalientes. The peninsula of Baja California, with two states (B. C. Norte, B. C. Sur), had been so well collected by others that we had no intent at any time of sampling its herpetofauna. Our less well known collecting sites were summarized in a gazetteer published in 1950 with the checklist of Mexican reptiles exclusive of the snakes. In the same checklist a brief itinerary was included, and is repeated here as follows, inasmuch as it may be useful in following the rest of Part Six.

We entered Mexico on October 5, 1939, at Ciudad Juárez, Chihuahua, and followed the Chihuahua–El Paso highway southward to Vado (October 9). We then turned back to Villa Ahumada and followed a poor trail through Carrizal and Rancho Nuevo to Progreso (October 10). We camped beside the Río Santa María about a mile southwest of Progreso for five days, interrupted only by one hurried round trip to Casas Grandes for the benefit of a snake-bitten cowboy.

At this camp we were aided greatly by ten or fifteen cowboys who brought in material as fast as it could be preserved. Our specimen containers full, we determined to go to the border to ship specimens and likewise to obtain higher wheels for the car (a half-ton panel truck), with which we had encountered numerous difficulties because of deep ruts and high centers. We left the Progreso camp on October 15, passing through Casas Grandes and Ascensión, and reached Las Palomas the same day. After two days in Columbus and Deming, New Mexico, we retraced our steps (October 20) from Las Palomas to Casas Grandes. As the weather had become cool, we continued southward along the road through San Buenaventura and Carmen to the main El Paso–Chihuahua highway, thence southward to Ciudad Chihuahua.

We left there on October 27 for Torreón, arriving October 29. We collected in that vicinity October 30 and 31, and on November 1 started for Ciudad Durango. We could get no farther than Pedriceña, however, and, after exploring with little success a side road to Nazas, returned to Torreón on November 4. We continued to San Pedro the next day, and collected in the vicinity of that town until November 10. After a side trip to Parras off the Torreón–Saltillo highway, we made an attempt to find Jaral, Coahuila, a locality made famous by Heller and Barber. That turned out to be an abandoned ranch near Hipólito, and, as no likely habitat for the montane species supposedly taken there appeared to be nearer than twenty miles or so, we continued on to Saltillo (November 14). We collected in the vicinity of Saltillo, Arteaga and Mt. Zapalinamé until November 17, when we left for Monterrey.

On November 18 we arrived at Hacienda La Clementina (near Forlón), Tamaulipas, and we remained there until November 28, when we drove to Laredo to ship another lot of specimens. We returned to La Clementina on December 3 and left December 5 for Mexico City. We stayed at Huichihuayán for several days, leaving December 9. Our route, with brief stops at or near various towns, then led through Mexico City to Tehuacán, Puebla, thence through Orizaba to Potrero Viejo, Veracruz, where we arrived December 11.

Potrero Viejo remained our headquarters for over a month. We made numerous short trips during that time; especially noteworthy were those to Palma Sola (on the Veracruz–Orizaba highway, then very rudimentary), to Tezonapa, Veracruz, and Cosolapa, Oaxaca, and to Cuautlapan, Orizaba, Córdoba, Acultzingo and other localities along the Córdoba–Tehuacán road. We left Potrero Viejo on January 16, 1939, and after a brief stop in Mexico City made headquarters in Cuernavaca, Morelos, for nearly two weeks, with side trips to Puente de Ixtla (Morelos), Cacahuamilpa (Guerrero) and Zempoala (Morelos and Mexico).

Leaving Cuernavaca February 2, we continued toward Acapulco, reaching there February 5. We collected in the vicinity of Acapulco, with side trips to Coyuca, until February 11. Our route, with frequent stops, then led northward again to Mexico City, where we arrived on March 1.

After two days in search of axolotls and other ambystomatids in the vicinity of Mexico City (with side trips to Texcoco, Zumpango, and Chimalhuacán), we started (March 4) on the road to Guadalajara. Our first deviation from that route was on March 9 and 10, to Pátzcuaro. On March 11 we reached Uruapan on another side trip and continued southward to Apatzingán, returning to Uruapan on March 19. An attempt was made to find *Crotalus polystictus* in the marshes at the eastern end of Lake Chapala, but without success, since most of the marshes had been drained and were now under cultivation. We reached Guadalajara on March 24, and returned to Potrero Viejo on March 26. On March 30 we left Potrero Viejo en route to Laredo with another shipment of specimens, arriving at Laredo on April 3, 1939.

After nearly a month in the United States we left Laredo on April 29, 1939, and arrived in Potrero Viejo on May 2. From there we went to Veracruz by train and secured passage for Alvaro Obregón, arriving on May 13. A river boat was then taken, via Ciudad del Carmen, to Tenosique, Tabasco, the head of navigation on the Río Usumacinta. Our final destination, Piedras Negras, Guatemala, was reached on May 21 after two days by mule. We collected in the immediate vicinity of Piedras Negras until June 23, when we left for Tenosique.

From Tenosique (June 30) we continued downstream to Emiliano Zapata and there procured mules for a two-day trip to San Juanito, a ranch a half-mile from the village of Palenque. There we remained, with a side trip only to the ruins of Palenque several miles distant in the hills, until August 6, when we left for Alvaro Obregón and, immediately thereafter, Potrero Viejo, where we arrived on August 14.

There we were joined by E. H. Taylor, and with him left on August 18 for Mexico City, where we arrived, via the usual route through Tehuacán and Puebla, on August 22, after numerous brief stops en route. After a few days spent in the environs of Mexico City searching for ambystomatids, on August 29 we took the Acapulco road and followed it with only one deviation to Tixtla, Guerrero, arriving in Acapulco on September 3.

We returned to Mexico City by the same route, arriving on September 6. Again we collected in the immediate environs of Mexico City, chiefly investigating montane faunas. On September 10 we left for Guadalajara but turned back near Sahuayo. We then, on September 16, started northward on the Pachuca road to El Chico National Park in Hidalgo. After one day there we returned, September 18, to Mexico City, where Taylor left us.

We then returned, September 19, to Potrero Viejo. After a few local trips we again returned to the Guadalajara road, leaving September 29. We took the side road to the Nevado de Toluca (October 2), and then retraced our steps to Mexico City, arriving October 3. After a few days spent on local trips, we turned northward to Laredo with another load of specimens, arriving at Laredo October 17. Our only side trip en route was to Galeana, Nuevo León, via the road from Linares, Tamaulipas (October 13, 14).

After nearly two months in the United States, we again crossed the border at Laredo on December 10, 1939, and headed directly for Potrero Viejo, Veracruz, arriving December 15. After a few local trips near Potrero Viejo, we left (December 27) for Tehuantepec by rail. We arrived December 30 and remained until January 28, 1940. A number of side trips were taken, by truck to Cerro Arenal, by rail to Matias Romero, Oaxaca, by rail to Salina Cruz, and by rail to Tonalá, Chiapas. Illness necessitated return to Potrero Viejo and ultimately to Mexico City. We remained there until March 15, when we returned to Potrero Viejo. On March 17 we started a side trip, lasting until March 24, leading by highway through Tehuacán and Tecamachalco, thence northeastward on the Jalapa road to Teziutlán (Puebla) from El Limón Totalco, and eastward to Puente Nacional.

Shortly thereafter we left again for Tehuantepec by rail, arriving April 1. We stayed only one day and traveled by rail to Acapetahua, whence we went by bus to Escuintla. From there pack animals transported our equipment to La Esperanza, a finca five miles northeast of Escuintla. We arrived there on April 4 and remained until June 5, 1940. Various short side trips were taken to nearby fincas.

On June 5 we returned to Tehuantepec and, after one day, to Potrero Viejo, arriving June 9. About one month later, on July 6, we crossed the border at Laredo with no deviations from the direct route from Potrero Viejo to the border (via Mexico City).

We returned immediately to Mexico City and remained there until August 7, except for a trip by rail to Ciudad Guanajuato, on July 19–21. On August 8 we again drove to Potrero Viejo. Within a few days we made a brief and final foray along the highway from Acultzingo to Tehuacán, before packing all equipment that had been stored at Potrero Viejo. We left our headquarters there for the final time on August 8, and with but a brief stop in Mexico City traveled slowly northward along the Pan American highway, with a heavy load, crossing the border at Laredo on August 24.

Section Two, 1938-1940—My Account

We entered Mexico from El Paso, Texas, and our first specimen was collected in Chihuahua, the largest state of the

Republic. Our first major objective was the Río Santa María, which we expected to cross somewhere between Villa Ahumada and Casas Grandes. We did not recognize it when we reached the place, for it was nothing but a small, steep-banked creek in which we proceeded to become mired. A passing cowboy mounted on a powerful horse gave us a pull, and with that help we managed to cross the stream after a few unsuccessful attempts. We set up our tent on the other bank, a short distance from the road, around a bend in the stream. Here we spent five days, securing some of the best material of the whole trip.

We were about five miles from a small settlement by the name of Progreso. The region was mostly cattle range, and practically all of the inhabitants made their living in the cattle business. Everyone rode, and looked uncomfortable on the ground. Our camp was visited early the first day by curious cowboys, who were courteous enough but plied us with all manner of questions. We were initially wary of them, so we were constantly alert to any indications that they might turn bandit. They carried no weapons, however, and we soon laid aside our protective firearms and became perfectly at ease with the men, who turned out to be very honorable and fun-loving.

When the cowboys learned that we wanted snakes and turtles, one of them, in company with others, came into camp with a rattlesnake tied about its neck with a lariat, and offered it to me. When I really purchased the snake, the news that we actually did buy them spread like wildfire, and soon about fifteen men were constantly bringing in snakes, and eventually lizards and turtles also. As a result Rozella and I soon found our time completely occupied preserving the animals brought in, and as a result did very little collecting ourselves in this locality after a couple of days.

Our collection thus grew by leaps and bounds. In five days it numbered 450 specimens, of some thirty species. One we thought at the time was a first record for Mexico—a diminutive black-headed snake, *Tantilla n. nigriceps*. Several other species were known from Mexico by only one or two specimens.

While we were here, our only observation of snakebite on the whole trip occurred. Early one morning one of the cowboys appeared in camp with a badly mauled rattlesnake, and asked if it were venomous. When I assured him it was, he added that his brother had been bitten by this snake's mate. Did we have medicine? We had none, for we depended on our luck, skill, and a sterilized scalpel, but we outlined for him the usual suction method of treatment, and told him to come back if his brother became worse.

At about two o'clock that afternoon Fernando returned with his father and two extra horses, saying that his brother was worse. Hastily we gathered sterile cotton, disinfectant and scalpel. Unfortunately we did not even have a suction bulb. We traveled at a walk, as we were unaccustomed to riding horses, but it was easy to see that Fernando was anxious to be away at a gallop. A half-hour's ride brought us to his home, where Antonio lay gasping on a cot. A large, fierce-looking, brawny man, he looked terribly helpless as he stared up and made an effort to rise and greet us. We shuddered with horror at his enormously swollen, blue arm, which had three tightly drawn string tourniquets tied about it, one above the elbow, two below. The two lower ones were so tight that the swollen flesh completely concealed them. We saw immediately that this was a serious case requiring the skill—and responsibility—of a medical professional. We removed the two lower tourniquets, cut a few gashes near the bite, and returned immediately to our camp with Fernando. Since there was no other car available, we had volunteered to take Antonio in ours to the nearest doctor in Casas Grandes. We hurriedly threw everything out of the back end of the car, and put in a quilt and several blankets for the sick man to lie upon. There was enough space for him to lie stretched out. We left our tent just as it was with Fernando to guard it, and went back for Antonio.

His parents had in the meantime laid out their best linen and insisted that we eat something, although we were as eager to get Antonio to a doctor as anyone else. We ate as hurriedly as we could, and then took off as fast as we could for Casas Grandes, across the river with running starts that jolted Antonio unmercifully but unavoidably if we were to make it, past our camp and on for some twenty miles. Our car still had low (sixteen-inch) wheels, hence with little more than six inches of clearance. The road was just a trail of two tracks, with projecting rocks, deep ruts and high centers that required utmost care to avoid getting hung up or otherwise stalling. The urgency combined with concomitant hazards made the drive almost as exhausting as it would have been to have walked the distance.

After arriving we spent about an hour finding the town doctor, because he was making a social call and a fiesta was in progress with everyone out celebrating. We finally ran him down, and he met us at his office. Antonio had taken the trip reasonably well although the jolting and twisting must have been very painful. He had borne the pain stoically, with only an occasional groan.

In the doctor's office both Rozella and I were horrified as the doctor picked up a scalpel from his desk, removed the upper tourniquet, and proceeded to cut longitudinal slashes all over Antonio's arm as blood and lymph flowed freely from it. I later asked Antonio whether the slashing was not terribly painful, but he said it was not; on the contrary, it relieved the pressure and reduced the pain. However, it was more of a shock to Rozella than expected, not only because of the copious flow of blood but, more shockingly, because of the completely unsanitary conditions, with no antiseptics whatever. Much to my surprise she collapsed in my arms, and I carried her into the next room and laid her on the floor to recover, returning to watch the treatment.

The doctor poured a solution of potassium permanganate on the area about the bite and incisions, stanched the flow of blood from the wounds, patched them hurriedly, and sent Antonio off with the request to return in the morning. There seemed to be no commiseration, no sympathy whatever on the part of the doctor, who probably wanted to return to the festivities outside.

So we all stayed the night in the town's only hotel, and the next morning took Antonio to the address the doctor gave us.

That turned out to be a crude hospital with spartan facilities. There we left Antonio, with grave misgivings, for he was now looking and feeling very ill. His shoulder was now swollen, and the side of his chest also showed some swelling.

We returned through Casas Grandes a few days later, on the way to the border at Columbus, New Mexico, to make our first shipment of specimens to the National Museum. Antonio was improving, although very weak, especially since he had broken one of the wounds while he slept one night, and had lost much blood before he awakened. We saw him about a week later when we returned from the trip to the border, and he was then much improved. Several weeks later we heard our last news from him in a letter in which he said, "My finger that was bitten makes me very sad, for it is now gone and is no longer of any use to me." We were sad, too, but were so very glad that this colorful, honest, likeable person was not added to the toll of snakebite casualties that the loss of a mere finger did not seem so great.

After we had taken Antonio to the doctor, and returned to our camp, we found Fernando still guarding our tent. Everything was exactly as we had left it. Even some small change on a table was just as it had fallen when we placed it there the day before. Thenceforth we never felt any suspicion of our cowboy friends of the Río Santa María.

We left this collector's paradise after a five days' stay—much too soon, but our containers were full (we had obtained a lot of turtles, among other specimens, that Dr. Stejneger had especially wanted us to get there), our supply of preservative was low, and a trip to the border was an obvious necessity. Moreover a visit to the near-border town of Deming, New Mexico, might yield a set of high wheels, of which we were in dire need. It was very dangerous to continue travel over those desolate roads with such low clearance, for eventually we were almost certain to punch a hole in the gasoline tank, or break the differential, or do some other serious injury to the car on high rocks or high centers.

We were fortunately able to secure the high wheels in Deming, and after a one-day stay returned to Mexico through Columbus, New Mexico, on October 25.

Already it was becoming cold, and we accordingly headed south to catch up with warmer weather and good collecting. They were a long way away. We traveled five days over one of the most difficult and hazardous roads in Mexico, from Casas Grandes through Chihuahua City to Torreón, Coahuila. We camped right by the road every night, and along the whole route from Chihuahua to within a few miles of Torreón, we saw only one car—a truck stuck for repairs.

We shot occasional quail and rabbits with our .22 pistols and shot shells, and on these occasions feasted like kings. In the field there is nothing in the world better than your own game properly fried by the right person.

Some days en route we made only twenty-five miles, traveling all of the time. We tried traveling at night, but our lights could be very deceiving. After I nearly hung the car on a high-centered section of the road, we gave up night travel completely.

Our one greatest hazard in that area was the crossing of a creek about a hundred feet wide. Invariably, before attempting a creek crossing, I waded out and tested every portion. The water of this creek was murky, and nothing could be seen of the bottom. I waded out carefully, and found that the bottom was hard, but slippery, clay. A ridge, but little wider than the car, extended across the bed of the stream, and that was our "road." Over the ridge the water was generally about a foot deep, but on either side of the ridge was a very soft, mud bottom covered by about two and a half feet of water. To make matters worse, a rut about a foot deep traversed the ridge at right angles at about the middle of the ridge—presumably a drainage channel when the water was lower. It made the crossing especially difficult, because speed would be essential to avoid stalling in it, but speed would increase the danger of slipping off the slippery ridge on either side into the deep water and would also increase the danger of flooding the motor by the splashing water. We needed to be lucky to stay on the ridge, for it was narrow and invisible, and to not break any springs as we bounced across the rut. Rozella was not fully aware of all these hazards, and did not remember later the crossing, but to me it constituted one of our luckiest experiences. Had we gone off the ridge we probably would have turned over in the mud and water, and help would have been many miles away in that desolate region.

At Torreón we took a branch road leading to Durango. It was even worse than the roads we had endured in Chihuahua. We managed to work our way as far as Pedriceña, but a few miles beyond we were forced to turn back.

A few miles east of Torreón was a small town by the name of San Pedro. Five and a half miles south, and a half-mile east, was a low range of hills called *La Cuchilla* [The Blade]. On the opposite, south side of the road was a much larger, higher range of mountains stretching far to the east. In 1934 David Dunkle and I found a beautiful new form of spiny rock lizard (*Sceloporus ornatus caeruleus*) on that hill, and we had been unable to find it elsewhere, even on the range just south of the road.

Rozella and I returned to La Cuchilla, and collected a large series of the same subspecies. We searched for it on other hills nearby, but all we learned was that its closest relative (*S. o. ornatus*), widely distributed farther east, occurred as close as an essentially similar hill only fifteen miles farther east. The new subspecies seemed to be an example of extremely limited distribution, perhaps confined to La Cuchilla.

A small cave in La Cuchilla was an especially enchanting discovery, because it consisted of two rather large rooms, one of which was lined spectacularly with mica, whereas the other was quite dull. We found no herps in it.

Howling, cold winds drove us on from La Cuchilla, where we had spent three days, toward Saltillo. We intended to leave after spending a night there, but our springs broke just as we were leaving. An English-speaking guide attached himself to us, guided us to a garage, and then attempted to work up some business for himself guiding us to various tourist attractions. We were not interested, revealing that our objective was to

collect herps, not sightseeing. He was not so easily thwarted, however; he insisted that he knew a place where there were lizards we had never seen before, which were very common. We were skeptical, but that kind of offer could not be refused.

Once our springs were repaired, adding several extra leaves for both strength and extra clearance, our guide directed us up a steep road on a nearby mountain where, some five thousand feet above the sprawling city below, we saw a black *Sceloporus* the likes of which I had never indeed seen before, in spite of just having completed a monograph of the genus. It was pure, jet black above, except for a few orange marks on head and neck, and a yellowish area at the base of the tail and on the rear part of the hind legs. The underside was also almost pure black, with brilliant orange and yellow areas. It was our first definitely unknown taxon of the trip—a subspecies Rozella insisted later be named *Sceloporus jarrovi oberon*. We took over 150 specimens of it of all sizes, so the taxon is now well represented in various museums of the country.

Saltillo was one of our favorite collecting localities, partly because of its picturesque setting, and partly because of the "magic mountain" of the black *Sceloporus*. We returned to collect there once later, and on another desert hill north of the city were fortunate enough to secure the third known specimen (the first from Mexico) of a beautiful, rare king snake, *Lampropeltis alterna*. Rozella found it, by patiently and thoroughly looking in all crevices among boulders. Usually it is not very productive to spend time searching cracks in rocks; I could find more specimens by turning small slabs or slipping up on lizards from afar. Although I had been fortunate enough on this occasion to discover a false gecko (*Coleonyx brevis*) under a loose slab, Rozella's technique had far outstripped mine on this occasion. The snake was deep in a crevice between two large boulders that could not possibly be budged or dug loose. We were forced to shoot the snake to prevent it from working its way deeper into the crevice, but even so we spent the better part of two hours, until dusk, working it free. We could not leave without it.

Rozella frequently carried the laurels for finding snakes: our first rattlesnake in Chihuahua, resting coiled in the shade of a bush; our only representative of *Dryadophis melanolomus slevini*, a racer hidden in a crack in a rock near Acapulco; our only *Diadophis dugesi* near Quiroga, Michoacán, under a stone in a field both Taylor and I had (we thought) thoroughly explored; our only two specimens of the southeastern lined patch-nosed snake, *Salvadora grahamiae lineata*; and many other rarities.

It was by then too late to try to do any further work in the north, or on any part of the plateau of Mexico. That excludes the major part of the country. We thought it might still be warm enough for reasonable collecting at Hacienda La Clementina, Tamaulipas, an important headquarters for David Dunkle and me in 1934. Here we remained for about two weeks, hoping that a break in the cool weather would restore moderately good collecting. The weather did not change, however, remaining too cool for almost everything except aquatic turtles, which we secured in large numbers in our turtle traps (one of which was stolen). However, our containers were again full, so we made our second trip to the border to ship specimens. That time we took a faster route, to Laredo, only a day's drive from La Clementina.

Veracruz

On November 23, 1938, when we again entered Mexico, we were on our way south far enough, we hoped, to escape the cold that had plagued us in the north. The route southward perforce led through Mexico City, where it was bitterly cold. We hurried on to semi-arid Tehuacán, where I had experienced hot weather on earlier trips, but the cold had settled there too. At our wit's end to find a place warm enough even for us to be comfortable, we turned eastward to Veracruz, descending to the lowlands below Orizaba.

My professor at the University of Kansas, Dr. Edward H. Taylor, had told me of some American friends he had met at Potrero Viejo, below Córdoba. He had spoken of very good collecting, comfortable beds, a genial host and hostess. Tired of our own cots and hard hotel beds, we turned our steps toward the home of Mr. and Mrs. Dyfrig McH. Forbes at Potrero Viejo. Upon the decision to visit them was to rest much of the later success of our collecting efforts; much of our enjoyment of our trip; and the enrichment of our sphere of acquaintance by the addition of one of the most colorful couples in that part of the world.

For a month and a half our headquarters were at Potrero Viejo, although we collected over a radius of about 100 miles from that locus. By far our best results were obtained in that area, which yielded some 7,000 specimens of about 175 species, several of them new.

One of the most interesting of our collecting procedures in that region was hunting in large, epiphytic bromeliads, which we would tear down from high in trees and dismantle leaf by leaf. Their shape is much like that of the century plant, except that the axils of the leaves are so designed that water is held in them, in live plants.

There was a very dry coastal area about halfway between the city of Veracruz and Potrero that we used to visit occasionally for collecting in bromeliads. Trees there were concentrated in scattered, small woods and along the banks of rivers and streams. In the woods the vines, bushes and branches of the small trees made travel difficult, but in those mazes of dry thorns and broken twigs we frequently found large clumps of the peculiar, vase-shaped variety of bromeliad that harbored the animals we wanted.

Live, green bromeliads, which always contained water, were excellent hiding quarters for frogs and salamanders, which in this manner passed the long dry season. The dead, brown, dry bromeliads seldom contained frogs or salamanders, but in those we found many snakes, such as night snakes (*Leptodeira*, two species), slender night snakes (*Imantodes*), pink-mouthed, belligerent green snakes (*Leptophis*), and various others.

One of the most common frogs was one we rather dreaded finding—a large, rough-skinned tree frog (*Phrynohyas venu-*

losa) which secretes a sticky, white poison from the glands on the skin. This poison has a powerful effect on the mucous membranes of the nasal passages, producing violent sneezing and other symptoms of a severe cold, lasting three or four hours. After the first dozen or so we seldom caught these frogs; their poisonous secretions saved them from us as they did from their other enemies.

About seventy-five miles west of Potrero, at the very edge of the plateau, the highway made a steep, zigzag ascent of a 2,500-foot slope to gain the top of the plateau. This amazing ascent, said to follow approximately the route hewn by Cortez' followers, was one of the most spectacular and hair-raising in the country, and a trial for any car at that time. Many could not make the grade. The whole two-mile route could be seen from the crest, and gave the impression of being directly below. Looking to the east down the valley, bordered on each side by large, smooth-sided mountains, one could see nearly to Orizaba, some thirty-five miles away and nearly 4,000 feet lower.

This eerie mountainside, which made us feel like digging in with all nails to prevent sliding down, produced some of our best material. Much of it was found under stones, but several very interesting species, one new, were found in the relatively small bromeliads that abound on the small trees of the mountaintop. Among these was a beautiful, light green alligator lizard with light orange eyes. We occasionally found specimens of this species (*Abronia graminea*) stretched out on the leaves of the trees on sunny days. Three species of frogs were found erratically in the bromeliads. At first we found only the sharp-snouted tree frog (*Hyla arborescandens*), but later we began to find a few specimens of a large, beautifully marked new species (*Hyla forbesi*), and still later a third species (*Hyla euphorbiacea*), a small, green tree frog with yellow-orange thighs, began to appear. Sometimes we would find only one of these species, at other times only another; we never found them in equal abundance.

A small town about halfway between Orizaba and Córdoba, Cuautlapan, was the source of a large portion of our specimens from that area. This widely-scattered town nestles in a steep-sided valley with its sole exit, at that time, toward Córdoba. Naturalists have occasionally remarked about "niches" in which animal life seems to run amuck in great numbers of individuals and exceptional diversity, many species reaching their optimum there. The valley of Cuautlapan was without doubt the nearest approach to that sort of nirvana we encountered. Although relatively low in elevation (although well above the coastal plain), salamanders were unbelievably common there, of at least six species. Several new species of frogs, snakes and salamanders have been described from there.

Among the rewarding rarities was the bizarre *Xenosaurus grandis*—a small beaded lizard with red eyes that lurked in rock crevices in dense vegetation. A curious, yellow tree frog, *Hyla dendroscarta*, that seems to spend its entire life in bromeliads—eggs, tadpoles and adults—was another of our prizes. We also found the large, stout-bodied frog, *Eleutherodactylus fleischmanni*, that likes only the roaring, tumbling waters of cascades on steep slopes. At the opposite extreme, one of the tiniest frogs (*Eleutherodactylus pygmaeus*) in the world, as well as one of the tiniest salamanders, *Thorius pennatulus*, were common. A strikingly beautifully patterned tree frog, *Anotheca coronata*, with a spectacular crown of thorns, was one of our special delights. And there were many others.

Most of our discoveries in Cuautlapan were the result of the aid of a very helpful family living there, the Ceróns, whose knowledge of the terrain and the variety of animals living there seemed endless. Carlos and Manuel continued to collect for us throughout much of our stay in Mexico, as we would repeatedly pass through Cuautlapan to find what new creatures they had found for us.

Our own peak of collecting in Veracruz came nearly a year and a half later. We were on our way through Potrero to Chiapas, and I was persuaded to make a short trip with Dyfrig and a couple of his employees northward to Jalapa and a short distance toward Veracruz. We left late one Wednesday afternoon, and it was a long four days until we returned to Potrero. In those four days we traveled some 500 miles, and collected assiduously in two different localities (with numerous short stops in addition). We collected on high, semiarid deserts, seined pools, turned stones in pine forests, tore down bromeliads on the coastal plain, hunted frogs at night in open pastures and in rocky rivulets dashing down mountain sides, and sweltered in the sun on hot, barren lava beds. But the hard work was worth it. We returned with a little more than a thousand specimens, of over fifty species, many very rare.

Among our prizes was a small, spatulate-toed frog singing in a tree, the first time that the voice of the very rare species (*Eleutherodactylus spatulatus*), previously known only from specimens we had collected at Cuautlapan, had been heard. We rediscovered a smooth-scaled skink-like lizard that had not been taken since the 1880s (*Celestus enneagrammus*), an unusual form of the very slender, long-tailed alligator lizard (*Gerrhonotus liocephalus*) in a bromeliad on the coastal plain, rare burrowing snakes (*Geophis*), diminutive rattlesnakes (*Sistrurus ravus*, *Crotalus triseriatus*), a remarkable new species of ground snake (*Rhadinaea*), and many other curious and interesting animals.

Our most interesting and memorable experience of the trip hinged on our good fortune in stopping to camp at dusk one rainy evening at a certain open pasture, marked "*Pan de Olla*," on the hillsides a few miles west of Xalapa. Here was where we found the treefrog mentioned above, singing in a tree. This was the first frog I found, and after this successful venture I began to trace down the feeble chirping, sometimes twittering calls of small terrestrial frogs (*Eleutherodactylus*). Their little chirps could be heard on all sides every few seconds, but it was very difficult to trace any one of them, for the frogs apparently were moving frequently. Moreover they blended beautifully with the background, and usually only by looking directly at them could they be seen. It was tedious work in the rain, creeping carefully toward the place from which some voice issued, stopping to let the frog regain its composure and call again, repeating this procedure until the frog was found or definitely could not be located. It was a slow task, and at the end of an hour and a half I had succeeded in collecting only twelve frogs. However, I was well pleased,

for I had failed to find only a couple. I was rather proud of my skill, which I suspected that none of the others could match.

I was never more crestfallen than when I caught up with Dyfrig, who was slowly walking along a grassy hillside not far away. He had about ninety! It turned out that the frogs were so abundant that just by walking along, startling them into jumping, one could find far more than by trying to run down their calls. We continued to collect together and in another hour and a half picked up another 150 frogs or so.

The large series we obtained was surprising diverse in morphology. At that time, and later, we thought there were at least seven different species represented. The large series was invaluable in determining the status of the various morphotypes. For although we could say that these frogs were common, all of the morphotypes were moderately to exceedingly rare in collections. As is so often the case, a species is regarded as rare only until some collector finds them common at the right place at the right time. In this case the time was propitious possibly because of the rain's occurrence in the middle of the dry season, when the frogs may have been anxious to soak their bodies in plenty of water. The frogs did not appear to be breeding, for none were found laying eggs or clasping, and no eggs were found.

Morelos and Guerrero

February of 1939 found us in Cuernavaca, Rozella confined to bed in order to rid herself of twenty or thirty small but serious skin infections from tick bites. Although I had no infections, we were surprised that Rozella really had so few, for we carried hundreds of bites. In the dry season ticks were extremely plentiful on the Atlantic slopes (they seemed to be largely absent on the Pacific slopes). We could go nowhere without encountering hundreds of them and their tiny young (*pinolillos*). Sometimes my trousers would be black with the things, so small as to be just barely visible. It took hours to pick them off the body with tweezers, one by one. Frequently they managed to burrow into the skin before we could pull them out. When we did get them, the spots where they burrowed would itch persistently. Naturally we scratched them, just occasionally when we used all of our self-control. The scratched bites were the ones that became infected on Rozella.

Her trouble with infected tick bites haunted us for months. No sooner would they clear up than they would start up again, despite the best that any doctors we consulted could do. On one of our visits to Potrero, when she was battling a renewed onset of infections, the veterinarian there assured her that he could clean them up permanently by use of an antibiotic that was available for their stock but had not then been approved for human use. Rozella was so desperate for relief that she agreed to let him try it, even though he had only huge hypodermic needles such as are used on stock animals. She endured a single injection, and the result was as Gabino promised; she never had any further trouble with infected tick bites.

But after Rozella recovered from the infection in Cuernavaca, we were back on the road, headed south for Acapulco. The entire Acapulco road, from Mexico City, is one of the most interesting collecting routes in Mexico. It passes through no less than four major zoological provinces, crossing several deep river valleys and their separating mountain ranges, each with a very distinctive fauna.

One of the most beautiful camps of our whole trip was at Agua del Obispo, in the pine forests of a low range of mountains south of Chilpancingo (or Ciudad Bravos). During the rainy season this locality yielded many very interesting, distinctive species on earlier trips, some long known from no other spot, but as we arrived in the height of the dry season, most of the unusual forms were ensconced and not to be seen.

We did secure a few species common elsewhere, but which during the wet season are rarely seen. Among those were several small, blue-throated tree lizards (*Urosaurus*) which we had not found before at this locality. We had expected to find a somewhat similar, also tree-living species with a red throat fan (*Anolis megapholidotus*) that we had taken in summers of previous years, but they were not to be found. As I sat in the shade of the tent awning one afternoon, preserving various herps, a local resident paid us a visit. Realizing how observant many Indians are, particularly in the field of natural history, I commented on the fact that we could not find the red-throated species. "No, of course not," he replied. "It is that these with the blue throat become red-throated after the rains start." At least he corroborated our impression that these two species are not commonly seen in the same season.

On a later trip through the same region in the rainy season, we did find the anole, as well as numerous other curious species, including a species of tiny blind snake (*Rhamphotyphlops braminus*) that was accidentally introduced from the East Indies in the days of Spanish domination. This snake is a notorious stowaway, however, for it has even found its way into the otherwise snakeless Hawaiian Islands. They are usually transported unwittingly in the earth about plant roots, but can hide in worm-holes of precious wood or in garden produce.

One of our prizes there was a red-eyed tree frog, unusual in having the skin on the sides of the abdomen conspicuously thickened. The frog (*Hyla erythromma*) looked like it was wearing a tight bolero jacket.

In 1935 another collector from the United States, Walter Mosauer, had traveled this route, and had collected near Tierra Colorada a curious gecko, very different from any other in Mexico, that he named *Phyllodactylus delcampi*. Both Taylor and I had previously collected in that area, and after Mosauer's description appeared we tried again to find the species, but without success.

Rozella and I crossed Mosauer's trail at a number of places, however, and eventually learned two pertinent facts: he generally stayed in towns, apparently doing little or no camping; and he engaged the services of the local boys whenever possible. Invariably Taylor and I had camped outside of town, and shunned the services of local boys because we thought they would be more of a hindrance than a help. The most likely means of rediscovering Mosauer's gecko should

have been apparent, but we only thought of it when Rozella and I were in Acapulco. So on our return northward we stopped in Tierra Colorada, and engaged an extra room in the home of a private family, because we feared the local hotel would not provide the freedom we desired.

Came evening, and I started out with my lantern, watching the walls of houses closely for the scuttling, light, ghost-like forms of the agile geckos. In a few minutes about twenty youngsters were trailing at my heels, and soon preceding me so far that by the time I reached any given point the boys had either captured or scared away whatever may have been there. We nevertheless quite successfully found good series of two species of gecko (*Phyllodactylus*), but both were the common, widely distributed kinds found over much of the coastal part of the state. After an hour or two we had looked on practically every house wall in town, as well as along the rock cliffs of a river near town, but none of the rare gecko had been seen.

Foiled again, and despairing of finding the rare species, I turned back toward home, but the kids clamored to go to what they called the Mili, where they claimed vociferously that there were lots of geckos. Of course, we had been getting lots of geckos, so I was not impressed, but they were so enthusiastic that I agreed to go with them to the Mili. Back through town we went, and across a low hill to a ravine not more than a few hundred yards from the houses of the town. The path we followed led to the town spring at the bottom of the ravine. I was astounded at the weird appearance of the ravine as we scrambled toward its head. Huge, smooth-faced, rounded boulders were heaped in gigantic piles resting on the sides of the little valley, and were very difficult to maneuver around. We had to move slowly for a slip on the smooth surfaces would likely result in serious if not fatal injury. It was literally miraculous that the swarming kids could see well enough in the limited lantern light that they did not fall. Before long one of the boys ducked into a large crevice and emerged with a big gecko. Setting the lantern on the boulder, I took the gecko in both hands to determine which of the two species we had been getting was represented, but lo and behold it was neither—it was the long-sought *Phyllodactylus delcampi*, unknown except for Mosauer's specimens. That discovery fired us up long into the night, and when we gave up from sheer exhaustion we had thirteen.

We had to remain in Tierra Colorada several days after that, every night searching canyons everywhere in the vicinity of town, but never did we find Mosauer's gecko anywhere but in the Mili. So far as known even today it is restricted to the caverns among one of the most amazing aggregations of huge boulders I have ever seen. The Mili is also the sole known home of a beautifully marked species of *Sceloporus* (*stejnegeri*), which we discovered during the daytime there, although it remains very rare. Still a third lizard, *Anolis gadovi*, a large anole with a large, blood-red dewlap, was particularly abundant in that area.

The Mili thus remains today as an excellent example of a tiny stronghold, in an area of many apparently identical niches, serving as the refuge for the entire population of one or more species of animals. Mexico is particularly well blessed with such strongholds, some discovered a century ago by the veteran collector, Hans Gadow. This is one of the reasons why collecting in that country never becomes a bore. One never knows when one will stumble upon such a stronghold. It becomes exasperating when the discoverer leaves no clue where others could find it.

We found a similar stronghold in Zempoala National Park, in the mountains between Mexico City and Cuernavaca, about a half-hour's drive from the highway. Several clear, deep lakes are beautifully enclosed by steep-sided, pine-clad mountains that rise almost directly from the lake shores. The streams that enter the lake harbor a peculiar, permanently larval salamander, *Ambystoma altamirani*. A diminutive rattlesnake and a peculiar garter snake are also sometimes found there, as well as several widely-distributed ground and tree-dwelling lizards. The real rarity, however—the sole taxon restricted to the area—is a small-scaled rock lizard (*Sceloporus sugillatus*) found only on rocks at one end of lake number 4. It was not at all obvious why this lizard (new) was not found elsewhere in seemingly identical habitats, and only at one end of that particular lake. It remains another of those inexplicable cases of extremely restricted distribution.

Toward Guadalajara

March had already arrived, and with it came our boss, Dr. Alexander Wetmore, to Mexico City, on his way to Tlacotalpan, Veracruz, to investigate the bird fauna of that region. We spent two days with him in Mexico City, resting from our labors and enjoying the company of fellow collectors. He and his companion, Dr. James E. Stewart of the National Geographic, then continued on their journey, and the following day we left on what was essentially lap four of our journey. Our objective was Guadalajara. We had little time for that trip, because our permits required exit from Mexico by April.

One of our chief hopes was to find a rare, peculiar rattlesnake said to be common on the eastern shores of Lake Chapala. Not only is this rattlesnake (*Crotalus polystictus*) of peculiar coloration and scalation, but L. M. Klauber, a specialist in the study of rattlesnakes, had told me that Paul D. R. Rüthling, who collected there in the early 1920s, found them to be aquatic, like garter snakes. Rozella observed that they must have had a severe inferiority complex, because wet rattles won't rattle, as she learned while a graduate student at the University of Kansas. The several large rattlesnakes kept for her research in a cage in the middle of the building created a continual loud racket as people passed back and forth. They discovered that the noise could be reduced to a barely audible hum by squirting fluid onto the rattle.

Crotalus polystictus also occurred in the valley of Mexico, where Dugès reported long ago that they live in ancient lava beds—an entirely different habitat from that reported by Rüthling. This discrepancy in apparent habitat preference, and especially the possible unique preference of the aquatic habitat by the Lake Chapala rattlesnakes, led us to try to learn more about them. We accordingly headed for the same place where Rüthling collected specimens—the mouth of Río Lerma at

Lake Chapala.

In that section of the state of Jalisco, we found many roads crisscrossing the dusty plains, and during the dry season, when we were there, cars would speed along the single dirt trails at thirty miles an hour. Such speeds seemed like flying, and were somewhat dangerous, for the occasional bumps were hard to see at those speeds. We wandered from town to town in an attempt to find either suitable swamps, or a natural riverside habitat, but we found neither. Near the lake many irrigation canals and pumping stations dominated the scene, for much of the land was under cultivation. The famous swamps described by Beebe in *Two Bird Lovers in Mexico* were conspicuous by their absence.

Eventually we found ourselves following a deeply rutted, very bumpy, slow road on top of a high, broad earthen retaining wall that skirted the southeastern end of the lake. From this vantage point we were at last able to discern what had happened to the lake, and why we could find no swamps. This retaining wall had been built across the end of the lake, isolating the very extensive, shallow eastern end from the deeper portions toward the middle. Then the swamps thus cut off from the remainder of the lake were drained and with them disappeared their extensive bird and reptile faunas. Much of the area over which we had been driving had been under water not many years before.

Rather well convinced that we would not find any of the aquatic rattlers we sought, since their natural habitat had been largely destroyed, we continued along the road without further stops, and reached the small fishing village La Palma at dusk. Camping in that general area was out of the question, but no hotels were available in town, nor were there any of the usual *mesones*—the muleteers' refuges. Accordingly we negotiated accommodations in a very small, single-roomed restaurant which formed a part of the owner's home. That arrangement was none too satisfactory, for until the doors of the restaurant were closed, our every action was open to the watching eyes of the owner and all of his friends and customers. These seemed to include fully half of the town.

Our stay was by no means uninteresting, however, for that evening as we wandered about the edge of the lake with lanterns, searching especially for snakes, we discovered several specimens of a huge frog, certainly the largest in Mexico (save our own bullfrog, which has been introduced in the northern part of the country). Oddly enough, this very large species turned out to be essentially unknown (now *Rana megapoda*). Usually large species are the first to be discovered, but in this case it seems likely that most of its population had been exterminated for food, leaving only small populations in remote areas like La Palma. There the frogs could not have been much persecuted, for we obtained our entire series in a single pier of loosely piled, rounded boulders. Several large specimens escaped into the deep crevices between boulders, where they apparently seek refuge during the day. Our largest specimen had a snout–vent length of some eight inches.

Roadside pools in the vicinity of La Palma were very numerous, and as we left the next day we saw dozens of small turtles (*Kinosternon*) sunning themselves on the muddy banks. Inasmuch as we had been charged to make a special effort to get turtles of that genus, it was extremely frustrating to discover that in spite of their abundance we could not catch them. The mud was extremely soft and deep, so we could not approach quickly enough to apprehend them by either hand or dip nets, and of course it was impossible to use a seine there. We secured not a one ourselves, of the many dozens we saw, despite most of a day's effort. The only example we finally obtained was purchased from a group of fishermen who caught it in their seines in Lake Chapala. Dr. Stejneger was quite exasperated with us because that specimen seemed distinctive, but without a series he could do nothing with it. We tried on another occasion, but again our efforts were totally ineffectual.

Near where the highway first afforded us a view of the lake, going north toward Guadalajara, was a small mountain rising directly from the left side of the road. Of all uninteresting mountains, this appeared to be the least interesting of all. It was covered with very scrubby, sparse vegetation and a few loose stones. We once visited this locality while Taylor was with us. He had discovered there, exactly one year before, numerous specimens of a small, green tree frog (*Hyla smaragdina*) in small bromeliads. Although conditions were much the same when Rozella and I were there, we were fortunate to find just one specimen in spite of searching in many bromeliads. It was another example of the vagaries of collecting in bromeliads; one cannot be certain of what to expect.

One of the most picturesque of the numerous high lakes of western Mexico is the famous Lake Pátzcuaro, whose blue waters are enclosed by a very sinuous shore line dotted by several small fishing villages. The lake is well known herpetologically for a peculiar species of large, aquatic, permanently larval salamander, *Ambystoma dumerili*, not known from any other locality. The salamander was once very common, and the local inhabitants depended on it for a considerable portion of their diet. Unfortunately, however, bass were introduced into the lake, and after that the salamanders steadily declined, until they were nearly exterminated. Its near extinction is not only a zoological but a culinary tragedy, as several fishermen lamented to us. A nearby similar lake (Zirahuén) may possibly harbor the species, but we did not visit it, and have only the word of Pátzcuaro fishermen that they occur there.

A somewhat similar case of salamander extermination by introduced fishes came to our attention as we stopped at a small, clear stream crossing an open pasture in one of the high valleys of the mountains east of Toluca. Ed Taylor had found *Ambystoma altamirani* to be very abundant there in 1937. We wanted a few for our own collection, but after a half-hour or so we had seen not a one. However, sampling at various sites along the stream, we noticed a sign prohibiting fishing, because the stream had just been stocked with game fish. We later tried the same stream, without success, and concluded that, as at Lake Pátzcuaro, the fish had completely eliminated the salamanders. Fortunately the species is widely distributed and should survive elsewhere.

In other localities, however, we secured various species of

these stream *Ambystoma*s with considerable success. The species that has been known the longest, *A. altamirani*, was not uncommon at all at the Park at Zempoala, where we found them both in clear, fast-running streams and in a deep, quaking bog in an old lake bed. The latter was an unusual habitat. We would capture the salamanders by swishing a dip net back and forth as deeply as we could reach in gaps between the mats of floating vegetation. The stream habitat is more typical, and we usually looked for the salamanders swimming near the edge of the stream, or just lying on the bottom in the deeper, quieter pools, in water at a depth of two to four feet. When the water was muddy and we could not wait for it to clear, we would select the deeper pools and swish the water at random with a dip net, especially toward the bottom and sides of the stream, where they usually took refuge when alarmed.

In the western part of the state of Mexico, under similar conditions, we secured another species, *A. rivularis*, and in the stream near Río Frío, Puebla, occurs still another (*A. leorae*). However, the latter was discovered by our friends Dyfrig Forbes and his veterinarian, Gabino García. Forbes had read Hans Gadow's description in *Through Southern Mexico* (which we had loaned to him) of finding such salamanders by patiently watching for their movements, even when it seemed nothing was there. Forbes thought Gadow was writing about Río Frío, and therefore set about finding them there himself.

We could have saved him the trouble, because actually Gadow wrote about a stream west of Mexico City, not Río Frío, and furthermore both Taylor and I had thoroughly explored that stream and were convinced that no salamanders occurred there. Deprived of our wisdom, however, when the opportunity presented itself Dyfrig left Gabino in Río Frío (a small town by the same name as the stream, through which the stream passes), instructing him to get some of these animals that Gadow supposedly had found there. Following Gadow's methods, in short order Gabino had caught twenty specimens, and made no attempt to secure more since it was apparent that it was quite common. My surprise knew no bounds when some months later Dyfrig told me of Gabino's success.

The secret of his success, we finally learned, was that Gabino has simply gone upstream from town, whereas Taylor and I had always gone downstream, where possibly pollution or higher temperatures prevented the salamanders from occurring. Even Gabino found none downstream.

Mud-diving is not restricted to salamanders and turtles. Once when I was trying to collect near Progreso, Yucatán, I discovered that garter snakes were fairly common in the numerous clear pools lining the railroads and roads—essentially borrow pits. Below the clear water, however, is a foot or more of soft mud. The first garter snake I found plunged into the water from a low bush, swam a short distance, and then dived directly into the mud, just disappearing. I saw perhaps a dozen in an hour's search, and all performed the same trick, successfully eluding capture.

I had a different adventure with a garter snake at Lake Pátzcuaro. Several wooden piers on vertical posts extended out a short distance from shore, about two feet above the water. Rozella and I, accompanied by a few boat owners trying to drum up a little business, were walking down one of these piers late one afternoon, looking for snakes, when suddenly I saw one swimming slowly at the surface alongside the pier. The water barely reached the tops of many aquatic plants there, and looked quite shallow. Seeking to verify that assumption before jumping in, however, I quickly asked one of the men accompanying us whether the water was deep there. Deepness is relative, of course, and in that man's life it was shallow, and he said so. Whereupon I jumped in after the snake, expecting the water to be no more than knee deep. On the contrary it reached up to the middle of my chest, and not only was it much deeper than expected but cold. Furthermore I do not swim. I was quite stunned and took a moment to catch my breath. By the time I recovered my wits of course the snake had disappeared and our companions were in a high state of glee. Needless to say they secured no business from me.

One of these fishermen caused us more inconvenience the next day in an experience both ludicrous and embarrassing. We drove down to the pier early that morning to meet the many fisherman who dock with their catches of the previous night. Unfortunately none had salamanders, but our acquaintance of the preceding evening became very loquacious when he heard that we wanted some these animals. He told us that only yesterday some Americans had come in search of salamanders, and that he had secured a large number of them through his (the fisherman's) efforts. Only he knew where they could be found, over on the other side of the lake. We did not engage the fisherman ourselves, as we were very skeptical of his claim, and with good reason. But we were much interested in the prospect of meeting another American collector, and asked where he was from, what he looked like, and where he was staying in town. The latter the fisherman did not know, but he thought he was from New York (American Museum, we guessed); the man was tall and strong, accompanied by a fat wife who took pictures everywhere.

With that information, we spent the better part of an hour checking every hotel in town for any foreigners who might answer the descriptions. Not until we were sitting out in front of the last hotel we could find did it suddenly dawn on us that we were looking for ourselves. The fisherman had not recognized us with our different clothes. After the first shock of realization had worn off, I was somewhat mollified to think of the impression I had left, for I am short and thin, not tall and strong. Rozella on the contrary was quite incensed by his equally inaccurate, but less complimentary, description of her. She too was quite slender in those days.

Although time was getting short, we made a side trip to Uruapan, from which we hoped to reach the nearby lowlands that harbored many distinctive herps. I wanted to visit Hacienda El Sabino, where I had spent several weeks on other occasions, but we discovered that it was no longer under the control of our good friend Don Julio Raymond Bresson, as fine a man as one could hope to know. Don Julio loved hunting and guns, and was an excellent shot. One of his favorite stunts, which he performed several times for me, was to throw a two-centavo piece straight into the air and before it fell to put his

rifle to his shoulder and plug it. That is an amazing feat of speed and coordination. I could not do it even though I kept the rifle on my shoulder and let someone else throw the coin. Don Julio was a loner; his idea of a vacation from his work in charge of far-isolated haciendas such as El Sabino was to get farther away from civilization, as he regarded such places. He could not stand cities.

Since we could not go to El Sabino, our entrance into the lowlands was effected by means of a small, one-way, dirt road to Apatzingán. The trip lasted five days, during which we had eight flat tires that caused the loss of much time and rendered the trip most arduous. Our final camping spot, four kilometers north of Apatzingán, was made between a small stream and an irrigation ditch, in a spot not far from an old lava bed.

Although we were protected by the sparse shade of a small tree, the heat was intense. Part of the worst of one day we spent lying in the flowing water of the irrigation ditch. The evenings were comfortably cool, however, and during the mornings lizards were very abundant. There were several common species, the most striking of which was the false (black) iguana (*Ctenosaura pectinata*). These were most frequently seen on top of stone fences, where they sunned themselves and bobbed their heads as we passed some distance away.

The prize specimen at this locality, however, came to hand one evening after dark. Rozella was frying chicken over our camp stove, and I was preserving lizards, when we heard a curious, continuous rustle in the dry leaves on the ground several feet away from the tent and beyond the range of our gasoline lantern. I thought it might be a Gila monster, recorded from this general area, but when investigated with a flashlight it turned out to be a full-grown coral snake slowly moving in the leaves, apparently foraging. Coral snakes are always rare, and this kind especially so, and much preferable to a Gila monster (although we never secured any). When I placed my booted foot on the forepart of its body, the snake thrashed about wildly, in a seemingly uncontrollable frenzy. I shortly found the anterior end, grasped the snake behind its head, and carried it back to the tent. Its venom sacs were full, and several drops of venom dripped onto my fingers and the frying fork I was using to expose the fangs.

The second specimen of the evening came a short time after the snake was immersed in alcohol to drown, bounding against the tent wall and then into the open space where we were eating—a leopard frog, one of the most ubiquitous species complexes of North and Central America.

Although the season was very dry, and rain had apparently not fallen for many days, the animals seemed to sense the coming of the rains, which were then (late March) not far away. Later that evening a loud, raucous trill broke the silence of the darkness. Several visitors from a nearby ranch house, come to seek medical aid, thought it was perhaps an owl, while to us it sounded more like a woodpecker pounding away on a rotten log. In reality I thought it probably was a *Bufo marinus*, largest of the toads of the New World. After a few minutes' search with a flashlight I found it, sitting on the bank of the stream a few feet above the water's edge. Oddly enough, although we had been in Mexico over half a year, in areas where this species of toad is very common in the wet season, this was the first we had seen. The ability of this large animal to conceal itself completely during the dry season, where there is little moisture except in the summer months, is astonishing.

Upon returning to Uruapan, we hurriedly prepared to make a trip to Laredo with the large collection we had accumulated. At the last moment before leaving we discovered, to our dismay, that we had chosen a day of fiesta, and that there was no gasoline in town. We learned that the fiesta was in commemoration of the anniversary of the expropriation of foreign oil.

On the return trip to the United States, we took the opportunity to stop at "Kilometer 312" in the state of Hidalgo, where the previous year Taylor had found a curious, small, terrestrial salamander with red shoulders and a pink tail. We were fortunate to find four. They had a curious mode of locomotion using the long, slender-tipped tail as a means of pushing the body. With each step of one of the rear legs, the tip of the tail was curved forward, the tip touched to the ground, and as the step was made the tail pushed like an extra leg, serving as a sort of cane. I observed it in one other species later found in the desert hills west of Linares, Nuevo León, near Galeana. These were found during and shortly after a rainstorm, under rocks in semi-arid hills completely devoid, so far as we could discern, of adequate protection during the long dry spells that must be characteristic of the region. We were very fortunate to have arrived there when we did, for under ordinary conditions the salamanders could not have been found. Where they spend the major portion of the year remains a behavioral problem. This habitat is surely one of the most extraordinary for these delicate, moisture-loving creatures.

Piedras Negras and Palenque

On May 5, 1940, we left our headquarters at Potrero Viejo, Veracruz, on our way to Piedras Negras, Guatemala. It was to be a long trip, full of much wasted time waiting for boats. After four days in Veracruz, on May 9 our little steamer, the *Monterrey*, left port for Puerto México, where it would refuel. No oil could be obtained in Veracruz. The following morning we docked at Puerto México, and by evening we were on our way again to our next destination, Frontera (or Alvaro Obregón), Tabasco.

Arriving there early the following morning, we waited several days for the pilot of the *Carmen* to sober up. The ship was a large, stern-wheeled, three-decked ferry boat used as one of the few means of communication between Tenosique, far up the Usumacinta River, and Frontera. After the boat was ready, however, we learned that we must make a detour with it to Ciudad del Carmen, on an island at the mouth of the Laguna de Términos, Campeche. After a two-day delay there, while railroad rails were loaded onto the lower freight deck, we finally started up the river to Tenosique.

It was a great pleasure, at first, to lean on the rail of the

second deck and watch the scenery on either bank, as we slowly traveled upstream. Frequently we passed small clearings and houses on the high banks, and occasionally from one of these a dugout canoe would dart out and join the *Carmen*, where the canoe would be tied for a ride. The several nights we spent on board were very hot and uncomfortable, especially when we tied up to refuel with wood, or to take on or drop off freight. On the move there was a slight breeze, although in the small cabins on the second deck, where we were located, it would have taken a small hurricane to create any ventilation.

On May 18, Rozella's birthday, we arrived in Tenosique, a village through which the proposed Puerto México–Yucatán railway was supposed to pass. That was our last jumping-off place for Piedras Negras, actually just across the border on the south side of the Usumacinta River in Petén, Guatemala. Between those two localities were some thirty-six kilometers of jungle trail which we covered on mules in one and a half days. A short distance from Tenosique was a small ranch house, the only inhabited quarters between the two places. Otherwise, the whole, hilly trail passed through high forest largely untouched except by mahogany cutters, who seemed to have explored practically all of the jungle of southern Mexico.

Tenosique was at the very edge of the broad coastal plain of Tabasco and Campeche plain. A short distance inland low foothills could be seen extending in a long blue line as far as one could see in both directions. They extended inland a long distance, far beyond Piedras Negras, which had an estimated elevation of only some 700 feet above sea level. The trail we followed in some places was very steep, and so slippery when wet that it was well to dismount and climb or descend on foot.

When we finally dragged into the cluster of temporary huts that passed for Piedras Negras, our hosts, Dr. and Mrs. Linton P. Satterthwaite of the University of Pennsylvania Museum of Archaeology, came to check these strangers for any knowledge they might have of two Americans from the U.S. National Museum they had been expecting. Our long preceding months in the field had transformed us into what appeared to be unrecognizable natives. It was not a good first impression on our hosts, but they were good sports in spite of our casual appearance, and we thoroughly enjoyed one of the most comfortable and productive interludes in the field we ever experienced in the tropics.

The only other American there was a student, William Godfrey. These three had been there several months, excavating and studying in detail the remarkable ruins first noted in 1895. These were described by J. Alden Mason in the *National Geographic Magazine* for November 1935 (vol. 68, no. 5). Located on the high banks of the Usumacinta River, surrounded by rolling hills covered by a deep mass of green verdure, the place was without exception the most beautiful I have ever seen in tropical regions. Archaeologically it was fascinating with its many ruins and carvings. Godfrey and Rozella became very adept at carving facsimiles of the ancient stelae on local stone, but to their chagrin they were required to destroy all before we left.

Inasmuch as we were in Guatemala, a Guatemalan inspector also stayed in the camp, but we saw little of him. Having little to do, he seemed to spend most of his time drowning his sorrows in solitude.

Piedras Negras yielded some of the most unusual specimens we secured during our whole expedition, and here I caught the largest snake of my experience. Walking along a trail at the bottom of an arroyo about a kilometer from camp, I saw a few feet ahead of me a small, black tail of an unknown kind of snake disappearing into the high grass that bordered the trail on both sides. Immediately I ran up and stepped on it with my boot, since I could reach it more quickly that way than I could reaching down by hand. Besides, I could not be sure whether the tail was of a venomous or non-venomous species, or what size it might be. Much to my surprise, at the same time a huge, yellow snake head and neck reared a foot or two out of the grass several feet away and made a lunge at me. I was so startled that I raised my foot a bit, whereupon both tail and yellow head disappeared into the tall grass. It thus dawned on me that the black tail and yellow head belonged to the same snake. The grass was so high that I feared I had lost the snake, until I noticed that the snake's movements could be followed by the waving grass. I ran after it, and just as it came out of the grassy area and started up the edge of the arroyo under some low bushes I grabbed it in midbody. The snake lunged at me again, and I swung it in an arc in order to keep its teeth from catching my hand or body. I recognized it at once as a nonvenomous species (*Drymarchon corais*) but it nevertheless could give a very painful, lacerating bite with its strong jaws and some 100 big teeth. In swinging it, however, I did not realize the weight of the animal, and was completely thrown off balance. It was again loose, but before it managed to escape I fell on it with my entire body. Fortunately its head was under my body, where I soon felt it out and then lifted the entire animal free with both hands. It squirmed vigorously, and was far too large for any of the collecting bags I was carrying, so I wrapped its body loosely about my neck and chest while firmly holding the back of its head, and thus carried it back to camp.

We later measured the snake, at 8 feet 9 inches nearly a record size for the genus. When I arrived in camp, however, my first desire was to get it off of me, because the small ticks it harbored in huge numbers between its scales seemed much to prefer me over their original host. They were crawling all over me, into my hair, whiskers and ears, and much of the rest of the day was spent extracting them one by one. They were the end of the whiskers, too.

One of the most interesting and productive sites near the camp was a small lake, four miles southeast, which the local inhabitants called *Pozo de la Jicotea* [Well of the Turtle], in reference to the presence of aquatic turtles of the genus *Trachemys*. This small body of water, not over perhaps 600 feet in width at the widest point, was about half a mile from the river, separated by a high bank and a long, nearly level tract between two small hills. Nevertheless there seemed to be some underground connection between the two, because the level of the lake varied with the level of the river, even though it was perhaps a hundred feet above the latter. It appeared to be very

deep, but its depth had not been plumbed at the time. On nearly all sides steep, forested slopes encompassed the lake; the only level approach to it was toward the river, as we reached it. The contour of its shoreline was highly convoluted, so that only from a boat near the middle could all the edge be seen. On several occasions I started to walk around the lake, but the surrounding, very steep slopes, as well as sheer, vertical cliffs of limestone that rose straight from the water's edge, made a complete circuit an arduous and unprofitable task.

On one side of the entrance to the lake was a small, limestone cliff where a shallow cave, some six feet deep and a little less in height, had been formed. There we cached our belongings on each trip we made to the lake. We always visited the spot in late afternoon, so we could be there during the early part of the night.

Our first visit to the lake was with Aristeo, one of Dr. Satterthwaite's archaeological crew, who seemed to enjoy reptile collecting, and another man from the same crew. They patched up an old, very small, waterlogged dugout canoe some ten feet long that they found on the shore and, as soon as darkness fell, together paddled out in the lake to spear some turtles, which were quite abundant. There were also quite a few crocodiles in the lake, but they were not successful in spearing any of them although they did get a number of turtles. They watched with a flashlight for turtles slowly swimming in the water (their eyes cannot be shined). When one is seen, the paddler in the rear of the canoe quietly rowed alongside the turtle, while the harpooner in the front end of stood ready to throw. When well thrown, the harpoon would stick in the shell of the turtle, which was then readily pulled out of the water.

The harpoon was formed of a slender pole some eight to ten feet long, onto one end of which was loosely fitted a steel cone, perhaps two inches long. The cone was square in cross section, and at its base measured perhaps a half-inch on a side. The base was hollow, to receive the end of the pole, to which it was tied by a sixteen-inch length of stout cord. When the harpoon was firmly stuck in a turtle shell, it would slip off the end of the pole, giving the turtle considerable freedom of movement by means of the flexible cord.

As Aristeo and his friend searched for turtles, I waded about the bank catching a few of the frogs that were singing in the trees, bushes, water and ground. There were three arboreal hylid species (one new), and three terrestrial and aquatic species (*Leptodactylus* and *Rana*). Not far from there we found a very slender night snake (*Imantodes splendidus*) climbing the trunk of a large tree, possibly in search of frogs. A single specimen was found of a curious, beautiful long-legged, ivory-colored lizard with a vertical cranial crest (*Corytophanes cristatus*), perched asleep on a vertical twig with its folded legs at right angles to the body, which paralleled the stem of the plant. It was not unusual to find sleeping reptiles of diurnal species at night. Most common were the basilisks (*Basiliscus vittatus*), dozens of which could be seen from a single spot, all grasping twigs in much the same manner as the *Corytophanes*. We also found a couple of diurnal snakes (*Oxybelis acuminatus*) stretched out asleep on top of low bushes near water.

Our second trip to *Pozo de la Jicotea* was almost a tragic one, and furnished the only really close call of the trip—at least that we were aware of. Aristeo and I were alone, and went paddling that night in the canoe in search of more turtles and especially crocodiles. I was wearing heavy leather boots, a pistol and a machete. The boat sank without warning in the middle of the lake, for reasons we never determined. I do not swim, but even if I did I was so well weighted down that I likely could not have managed to get out of the lake on my own. As I sank into the water in total darkness I crossed off my life, realizing that it would end in the bottom of the lake. Much to my surprise, Aristeo grabbed my hair and yanked my head above water, whereupon reflexes took over and I let out a terrific scream that I realized was mine but could not stop. Very embarrassing.

After I had calmed down, Aristeo dragged me to the overturned boat. We both hung onto it for a half-hour or so as we pushed it as best we could, thrashing in the water, toward shore. Unfortunately we first headed into an area full of tree limbs, where it was impossible either to touch bottom or to land. Backing out of that inlet, we followed along a cliff until we came to a steep slope on the other side, where we beached the canoe and started to walk back to the cave at the entrance to the lake. Fortunately Aristeo's flashlight still burned, although dimly, whereas mine was functionless. We wandered around the lake seemingly interminably, sometimes losing the lake entirely as we climbed hills to skirt around cliffs.

Although pumas and jaguars do not frequently attack human beings, we thought and spoke of them frequently as we wandered, almost lost, through tangles of brush where hurried movements were impossible. One had its lair near there, we suspected, for it was not long before that a dog had been killed there by one. Led by the frog choruses, however, after an hour or two we finally reached the cave as the flashlight dimmed and went out. We thankfully warmed the lunch we had brought, and late that night returned to camp a very weary and bedraggled pair. Dr. Satterthwaite was not at all pleased that I had kept Aristeo out so late that he was unable to do much work the next day.

On our final trip to the lake, Rozella accompanied me, and we carried with us a hammock and blankets, passing the night there. It was a lonely and beautiful spot, with scarcely a sound breaking the silence save the intermittent croaking of the frogs. We collected a few more of the rarer frogs that we wanted, and then spent the rest of the night dreaming fitfully of *tigres* and *leones*, listening to the silence of the lonely lake as it muffled the hesitant calls of the frogs and sharpened the crack of falling, rotten limbs. The following morning, on a Sunday, Aristeo came to escort us back to camp, leading a mule for Rozella. We did not leave the eerie if enchanted place, where one of us nearly remained, with much regret.

The Satterthwaites were leaving June 25, and we decided to terminate with them our work in the area. At first collecting had been very stimulating and successful, but in the last week we had added only two species to the local list. At the end, our species list there numbered fifty-five, and our catalog of specimens a little over a thousand. Although we were just

across the river from Chiapas, and I would have liked to have spent as much time collecting there as on the Guatemala side, access was very difficult. I was able to spend only part of one day there, and therefore secured few specimens from Mexico. On the other hand, there was little doubt that whatever species we found in Piedras Negras also occurred in Chiapas at least across the river.

Waiting for a boat, we spent three days exploring near Tenosique, and then accompanied the Satterthwaites and Godfrey down the Usumacinta to Emiliano Zapata, or Montecristo as it is sometimes designated, where we waved them a final farewell and turned our faces southward to Palenque.

Late that same day we were on our way by mule to San Juanito, the ranch owned by Mr. Ernest Rateike, only a two minute walk from the small village of Palenque and a two-hour ride by mule from the Mayan ruins of the same name. We could not traverse the sixteen leagues before nightfall, so we stopped overnight in a thatch-roofed hut on an isolated ranch about halfway there. We slept in hammocks in the hut, but rather fitfully because the thatched roof harbored a host of large black scorpions that scuttled around there noisily. Every few minutes one would lose its footing and plop down on the ground or on our hammocks, which we kept rolled over us. They were of canvas, so when the scorpions landed on them they could not keep their footing and would scrabble noisily as they slid off to the ground. Fortunately none fell into the hammocks with us.

We arrived at San Juanito on the 4th of July, and were lucky to find Mr. Rateike and his sister at home and willing to put up two weary herp collectors. There we remained for a month, collecting erratically and awaiting the arrival of the rainy season, long overdue. Although foreigners, the Rateikes were regarded as possessed of supernatural powers, primarily because of an experience Ernest had a few years after they arrived. He was resented as an intruder, and was ambushed and shot one day, left for dead. Although he was indeed felled unconscious, and lay as though dead for some time, it turned out that he was in reality just creased. When he came to he walked home little the worse for wear, whereas local residents regarded him as rising from the dead. It was a life-saving as well as life-threatening experience. He was never attacked again.

San Juanito was situated in an area of rolling plains reaching from the foothills, a few miles farther south, northward to the sea. Toward Emiliano Zapata the plains became less rolling and undulant, and still farther north they gradually became swampy and level. About Palenque there was a great deal of apparently natural grassland, broken by scattered woods composed almost exclusively of oak trees. Mr. Rateike explained that the grasslands usually burned during the dry season, and that the oaks were the only trees capable of surviving the heat and flames. In the arroyos and river valleys, of course, where the moisture kept the flames at bay, there were many other species of trees, and a dense growth of underbrush.

The reptilian fauna of the region was disappointingly meager in the dry season, and we secured few rarities. Of much the greatest value were the animals we secured in bromeliads. Two species of the slender night snakes (*Imantodes*), as well as one of the common night snake (*Leptodeira*) were found in them in some abundance. Most common of all were specimens of a large, beautifully marked, red and black salamander (*Bolitoglossa mexicana*) with overdeveloped, fully webbed hind feet. These had never before been found in any abundance, so the series of some fifty we secured was of much value in demonstrating the extent of variation in the species.

We also found hard-shelled lizard eggs in large numbers in the bromeliads. They were generally in clusters of four, but frequently several clusters were placed together. Some bromeliads contained as many as twenty-four eggs. These were carefully removed and placed in rotten wood until they hatched. After a few days many did indeed hatch, and we were surprised that the little anoles belonged to a species we had not seen otherwise. We searched in vain during the rest of our stay for adults. The hatchlings were later identified as *Anolis pentaprion*, a Central American species not previously known from Mexico. We also learned that others had observed that the species is difficult to collect in the dry season.

For unknown reasons I began to suffer from terrific headaches that considerably limited activity, although ultimately I discovered that aspirin would greatly ameliorate them. On one of our forays along one of the nearby streams Rozella encountered quicksand for the first time, and it was with great concern that we managed to extract her with the aid of a horse.

We passed the better part of the usual rainy season waiting for rain in a region where the rainfall is usually the heaviest in the country, and still it remained dry. In the early part of August we gave up waiting, and returned to Potrero Viejo. There we found our good friend and mentor, E. H. Taylor, who promised to show us how and where to obtain species we had not yet sampled.

Central Mexico

Ed was with us only a month, but he was a whirlwind collector. During that month we visited more localities and collected more specimens and species than during any other like period on our whole trip. We went south to Acapulco, collecting at familiar sites at Zempoala, Cuernavaca, Agua del Obispo, Tierra Colorada and many others; west to Lake Chapala; and northeast to El Chico National Park, Hidalgo. On this trip we secured our only amphisbaenid, *Bipes canaliculatus*, our first caecilian, *Gymnopis oaxacae*, and many other frogs, salamanders and snakes not before secured.

As usual, bromeliads furnished several surprises in the form of new and rare species. When Ed left us on September 20, we had added some 2,000 specimens to our collection, and some forty species to our list. In exchange we lost not a few pounds of weight, and spent the next four days recuperating after the strenuous effort.

The trip was not without trials. Outside Acapulco Ed slept in his car while Rozella and I took ours and stayed in a motel in Acapulco, in recognition of our wedding anniversary. While Ed was off collecting somewhere in the vicinity, some-

one broke into his car by smashing a window, and stole a rifle I had loaned to him that was lying in plain sight. We tried finding the culprit, and even asked the highway patrol to seek the thief, but he happily explained that he wouldn't dream of going into the bush.

The night before Ed had inadvertently swallowed some formalin he had poured into an empty can and laid aside for future use. He thought (momentarily, until the contents were swallowed) that the can contained milk, which was one of his staple foods. Fortunately Ed had long ago acquired the ability to vomit at will, so the formalin was quickly regurgitated and replaced with copious swallows of water, also vomited a few times.

But his miseries there were not ended. He discovered as we were ready to leave that he had a flat tire, and on top of that his radiator had sprung a leak, so that every few miles he had to stop to refill it. A few miles outside Iguala he had another flat, and it was necessary for Rozella and me to take the tire into town for repair. When we returned we learned that World War II had started. While we were replacing the tire on Ed's car the same highway patrol that had refused to help outside of Acapulco caught up with us and merrily sat on his car, swinging his legs without a care in the world as he watched us finish work on Ed's car. I was grateful at the time that Ed, who was seething mad at the patrol, had not yet regained his skill in understanding Spanish, failing to comprehend the belittling comments that the patrol voiced. I was quite concerned that Ed might become as violent as he was capable of being; he seemed ready to explode at any time, but fortunately we moved out before that happened.

Then at El Chico National park we spent one night in a cabin that was available for campers, and since it was very chilly at a fairly high altitude, we had an open fire going in a central fireplace. We had been wading after frogs and salamanders, and our clothes were soaked. We hung them up to dry over the fire as we slept, but in the middle of the night we awakened as Ed's trousers caught fire. He surveyed the damage ruefully and declared with considerable venom that this was the damnedest trip he had ever been on. He left without regret the next day, not at all happy despite our very good collecting. Although I had collected quite amicably with him alone many times, I suspect that three constituted a crowd that rather spoiled the fun for him, especially since there were two strong-willed persons involved with different drives, and I was not one of them. Rozella was never one of his fans, and made our contacts with Ed in the future somewhat tense.

Tehuantepec

It was early January when we again found ourselves in the field, after a longer stay than usual in the United States (with Ed at KU), studying and sorting some of our specimens before forwarding them on to the National Museum. We were very fortunate to have chosen to work in the vicinity of Tehuantepec, where we stayed in a *casa de huéspedes*. We arrived there by train, inasmuch as access by road would then have been very difficult.

We found Tehuantepec surrounded by extensive, semi-arid plains of nearly uniform character throughout. Certain lizard species were common on the plains, and there were one or two common species of snakes (*Salvadora* and *Masticophis*), but other forms of reptile life were difficult to find, at least in the dry season when we were there. Our first impression was that the local herpetofauna was very meager. There were no bodies of water near at hand for frogs, turtles and snakes, except for one hog wallow and the Tehuantepec River.

Our success here—and it was considerable—was largely due at least indirectly, and to some extent directly, to the influence over many years of a Thomas MacDougall, an annual winter visitor to the region. Through many years of contact and work with the local talent, he had built up the collecting skills and interest of a number of young men who became well versed in the natural history lore of the region. Since Don Tomás (as we generally called him) was a botanist, his native aides were particularly proficient as plant collectors, but they had also gained considerable familiarity with the animal life in general of the region. Since they belonged to families from the hill and mountain country to the west, they knew that region much better than did the men from the plains families. The hill men did not care for the plains, seldom hunted in them, and were uncomfortable when they accompanied us to plains towns other than Tehuantepec. Likewise, the plains men avoided the hills. Tehuantepec was the meeting place of the two groups.

We engaged all the trained local talent we could to bring in whatever reptiles and amphibians they could find, which we bought for a few centavos up to a peso each, according to rarity. Soon very considerable quantities of material began coming in, until we eventually seldom went out to hunt in the immediate environs. Much of our time was occupied simply in preserving, tagging and cataloging the material brought in.

At considerable distances to the west and north were more or less scattered, isolated mountains, which together had a fauna distinctly different from that of the plains. Some of those mountains rose to seven thousand feet or more, and those still more distant were still higher. The nearest mountain of any size was Cerro Guengola (Zapotec, *guie*, stone or flower, according to accent, and in this case meaning stone, and *gola*, large or old), famed for its ancient ruins, and some ten–fifteen long, hot miles away over the blistering plains. It was about 5,000 feet high. Nearer at hand was the lower Cerro Mixtequilla, only some three miles away. About the town of Tehuantepec were grouped several small hills not over two or three hundred feet high, but these seemed not to have a fauna notably different from that of the plains.

Most of our personal collecting was done on a mountain some thirty-six kilometers distant from Tehuantepec, known as Cerro Arenal, or the Sandy Mountain. We rode out early in the morning on several occasions, on a truck carrying mostly woodcutters to cut railroad ties. We carried blankets and food to keep us until the next day, when we returned with the truck. Not far from the end of the "road," which was simply a trail for the logging trucks, and absolutely impassable in the rainy season, was a narrow stream of clear, cool water running

down the middle of a broad, sandy-bottomed arroyo. Here we cached our belongings and formed our base camp. From there we radiated out afoot in various directions, up and down the arroyo, or across country toward the peak of Arenal or across the ridge toward San Pedro.

When we first heard of the wood-cutting operation at Cerro Arenal, we visualized a heavy, verdant forest like that at Piedras Negras. It was anything but that. Everything was dry and brown, the earth barren and hot. The trees were low and scrubby, twenty to thirty feet high, and at that time of year gave almost no shade at all. The soil was formed of coarse, much broken and eroded, cracked stone, appearing like granite. In spite of the uninviting appearance of the place, some of our most prized specimens were secured there.

Most interesting and profitable of all was the night collecting. The most productive searching was in a small, very rocky, dry arroyo where large boulders bordered the stream bed on either side. On these we frequently found large "woods" geckos (*Phyllodactylus*) with sulphur yellow bellies. They were much different from the considerably smaller, white-bellied species common in town. Rozella discovered an undescribed race of curiously plated, rough-skinned, nocturnal lizard (*Lepidophyma*), and near the same spot I found the first specimen of a small, webless terrestrial frog (*Syrrhophus leprus*) not known since the type was collected by the famous naturalist Sumichrast sometime in the 1870s. Alejandro, our faithful Indian who was almost always with us, found a fine specimen of a very rare, curiously marked coral snake (*Micrurus ephippifer*) moving along the bottom of the arroyo. We all found occasional examples of the large, false, terrestrial geckos (*Coleonyx elegans*) with bands about the body somewhat like a coral snake. And there were many other oddities.

Late one day the woodcutting crew returned from their work with a large boa constrictor they had found and killed, and they draped it lifelike across the trail that we would follow as we returned to the truck to go back to Tehuantepec, and then hid themselves at a discreet distance to watch our response. I was in the lead as we walked to the truck, and spotted the snake at once, crouched low and dropped my luggage in order to catch the snake before it could escape. It took but a few steps to reveal that the animal was dead, but my initial approach had the fellows howling with glee.

One of our most entrancing episodes there occurred late one evening after we had returned to camp from a long search with our lanterns, and spread our blankets on the sand and gravel between the stream and a four-foot embankment some eight feet away. Before turning in we ate some of our sandwiches, listening the while to the chirp of insects and enjoying the cool night breezes, for one gets very hot carrying a lantern in the proper fashion, holding it close to the body to reflect its light from our clothing and to shade our eyes by its opaque metal lid. Movements in the leaves on the embankment caught our attention, and in a few moments over the bank came leaping and wriggling a small, black-lined snake (*Coniophanes piceivittis*) half covered with large, biting ants. We quickly gathered up the writhing snake, removed the ants, and then hurriedly moved all of our belongings to the other side of the stream as the swarm of army ants poured over the side of the bank in search of their prey. Very systematically they went through every crack and crevice, scaring out dozens of large, yellow scorpions whose presence we had never suspected. They were as much afraid of the ants as was the snake, but instead of rushing about as they do when scared by some large animal, they moved slowly and gingerly, keeping all of the body and as many of the legs as possible in the air. So long as they could keep the ants from touching their bodies they seemed safe, although the ants swarmed about and under them. For some reason the ants did not run up their legs.

As the ants crossed the gravel spit, we observed them forming bridges of themselves in several spots. In all cases the bridge had as its foundation a twig or stick, from both sides of which was stretched a layer of live ants hanging onto each other in such a fashion that they created a broad lane some six inches wide. Over this living bridge the ants streamed in large numbers, hurrying on to find more food. When they reached the stream they turned aside instead of crossing it, and went on up the arroyo. After they disappeared we moved our paraphernalia back and slept peacefully the rest of the night.

My only direct encounter with a scorpion occurred there one night when I saw a gecko on a tree trunk, where it moved ahead of me as I inched around the tree in pursuit of it. It kept persistently ahead of me, just out of arm's reach, most exasperatingly. Ultimately I managed to sneak up on it close enough to quickly grab it before it could slip away again. The only trouble was that the object I had so quickly grabbed was a huge black scorpion, which immediately stung my hand. I dropped it, of course, and continued my pursuit of the gecko, which however climbed higher than I could reach and escaped. Fortunately the scorpion sting caused only a little pain that soon subsided without any further effects.

Don Tomás secured many rarities for us while we were there. One of his prizes was a casque-headed frog which he found on Cerro Arenal in the center of a terrestrial bromeliad. This curious frog (*Triprion spatulatus*), some two and a half inches long, had a bony, somewhat spatulate, flattened head that looked for all the world like a hard, grotesque mask. The illusion was strengthened by the presence of a bony ridge at the posterior end of the head, creating the impression that the mask had just been pulled over the real head. Supposedly the frog seals the opening into its burrow or bromeliad by bending its head downward, presenting a bony wall to any snake or other enemy. Even in death its head tended to bend downward at right angles to the body, and even though I weighted it, the head slowly moved into the protective position.

Don Tomás walked everywhere on the Isthmus, carrying all of his necessities, including collecting equipment, in a small *moral* (a woven, light shoulder bag), tiring even the Indian guides or helpers who usually accompanied him. He thus reached far beyond our range of activity, and even more far-flung areas than our collectors cared to visit. He typically slept on the ground with only newspaper for cover. Sampling such distant localities, he brought many rarities to us, including two members of the lizard genus *Lepidophyma*, one of

which has not yet been rediscovered.

The difficulties of life in the field, combined with an inadequate diet and poorly chosen diet, had their injurious effects on Rozella's health. A council was held, and we decided that she should return to Mexico City alone for a medical examination, while I stayed in Tehuantepec and collected with Alejandro. She left early in February, and for the next few days Alejandro and I collected without great success near Matias Romero, Oaxaca, and Tonalá, Chiapas. Then I received word that Rozella had appendicitis. I hurriedly terminated our activity in the Tehuantepec area, and took the train to Mexico City to be with her. We passed nearly a month there as she recovered from the operation, and as I spent considerable time recovering from a bout of malaria.

While we were in Mexico City, Walter Necker, who held a Carnegie Museum grant, and I started a study of the old Dugès types of snakes, lizards and amphibians which were in the *Museo Alfredo Dugès* in the state university in Guanajuato, where Dugès spent most of his life. He was a naturalist of the old school, with a keen scientific interest in all plants and animals of Mexico, including especially amphibians and reptiles. He was born in France, but came to Mexico as a young man, remaining for the rest of his life. His most active work was done between 1870 and 1895, during a time that saw a great deal of activity in the field of descriptive herpetology in Mexico. His contribution to that field was one of the greatest of all time; he is often rightly regarded as the father of Mexican herpetology. Not only did he describe various members of the herpetofauna himself, but he sent invaluable material to various museums in other countries, especially France and the United States, where specialists studied and described it.

Dugès' own descriptions of new species, although better executed than many of that time, were inadequate for the more detailed comparisons later needed with other newly discovered taxa. Usually in such cases of doubt concerning the identity of a described species, the problem is readily solved by re-examining the original type. In the case of Dugès' types, specialists since his time could not do that, because the types were far from the centers of research—essentially inaccessible. As a result, detailed redescriptions of all of his types were an urgent desideratum.

When we arrived in Mexico City Walter had already visited Guanajuato, in company with Dr. Alfonso Dampf of the Instituto Politécnico in Mexico City. Through the good offices of Dr. Dampf, the Dugès types were borrowed, part at a time, and taken to the Polytechnic Institute for study in his laboratory. I spent considerable time redescribing them during our stay in February, and the study was completed at a later date after a trip to Chiapas.

Chiapas

Although we had collected in northern Chiapas on the Atlantic side, we had not yet sampled the very different fauna on the Pacific slopes of that state. Accordingly we were very pleased to have the invitation of Eizi Matuda to visit him at his ranch La Esperanza in extreme southern Chiapas.

We first heard of Matuda at Piedras Negras through the muleteers who carried supplies between camp and Tenosique. Their report was of a Japanese botanist camped near the trail with his three aides, and that they were combing the surrounding country on all sides for plants. Unfortunately we missed him there. When we returned to Tenosique, however, we finally met him, and spent several hours in his company.

We arrived at La Esperanza in early April. It was hot and very dry, and smoke from burning fields and brush hung thick in the air, greatly obscuring the view. The sun rose red and dim, looking like a ball of fire. Not until midday did its rays penetrate the smoke clouds, and by mid-afternoon it retreated again behind its screen. No wind or rain relieved the still, stifling atmosphere. Nevertheless we were very happy in the new terrain, and collected assiduously.

The ranch was situated at the inner edge of the narrow (fifteen–twenty miles) coastal plain, beside a long, low hill, one of a series of foothills bordering the long chain of mountains stretching from the Isthmus of Tehuantepec far into Central America. On that hill grew Matuda's coffee, rubber and cacao trees. There was also plenty of uncleared land on the hill, covered with forest nearly as high as that at Piedras Negras. Here we found some of the very best collecting of the whole trip.

Several miles toward the interior the foothills rose to merge with the high mountains of the central part of the state. The outpost of this mountain chain was Cerro Ovando, a 7,000-foot peak isolated on all sides from other mountains of similar height. Its only connection with the main mountain mass was a low ridge, some 3,000 feet high. We made but one trip up the mountain, spending five days there. In spite of such a short time, it was, beyond any comparison, the most exhilarating trip of our journey. We climbed on foot the whole distance, because the trails were too steep for mules carrying a human being, although pack mules managed to struggle up and down the slopes with some difficulty.

Near the top of the mountain, between 6,000 and 7,000 feet, many bromeliads occurred on the trees. There were three species we could distinguish, of three sizes; a small, compact species, a medium-sized, less compact species, and a large species found in high trees. The small species rarely harbored animals in which we were interested, but the other two were very productive of frogs and salamanders. There were two species of salamanders: a small, brown one some two inches long, and a larger, gray one with lichen-like spots, about three inches long. The single species of frog was green with a sharp snout and a curious spine-like inner projection on the thumb (*Plectrohyla*). Another species of the same genus was found in the stream near the house where we stayed at 6,000 feet. These had the extraordinary habit when caught of bending the head down and scratching our hands with their tiny, elongate teeth in the upper jaw. One wonders what predator might be deterred by such behavior. All of these species were new to science.

Snakes were not abundant on the mountain near the peak. We secured only three species there, all well known although

rare. One was a nearly perfect coral snake mimic (*Pliocercus*). One of our indefatigable boys discovered it moving about near the base of a large tree at about 6,500 feet, during the day. At a distance I was sure it was a coral snake, even though they are seldom abroad during the day. Even after Gregorio had shot the snake and I was holding it in my hands, the possibility that it was not a coral snake did not enter my mind. As I was expounding to people around me how one could always tell a coral snake by pattern, and came to demonstrating the infallible characters of lack of a loreal scale and presence of a short tail, did I realize that this snake had a loreal and a long tail. Many years later my colleague David Chiszar and I monographed the genus.

While hunting at night in the mountains not far away I did find a true coral snake, and of this one there could be no doubt, although it was found under peculiar circumstances. Coral snakes are strictly terrestrial, and during the day remain underground. They emerge only at night. It is almost axiomatic, then, that any red, black and yellow snake seen abroad during the day, or in trees, is not a coral snake, but some mimicking harmless species. In my experience the first generalization has always proven true: every coral snake suspect found during the day (except under objects) was eventually found to be innocent. But the second axiom was proved false when the snake I shot out of the limbs of a tree one night, where it was moving nervously through the leaves about ten feet above the ground, turned out to be a true coral snake.

Toward the end of our stay in Chiapas, the first rains of the wet season fell, and the frogs began to emerge and sing from all sides. Also, for the first time we could get a good view of our surroundings. Shortly after they started we visited Finca Juárez, a large coffee plantation in the mountains northeast of La Esperanza. One night we discovered a small still pool of water, enclosed on two sides by vertical, natural walls of stone about six feet high, where there were considerable numbers of large, green tree frogs (*Agalychnis moreleti*). This species does not lay its eggs in water, but in large clusters pendant from leaves hanging above water. There they remain, if all goes well, for a few days, until the larvae have partially developed, and then the whole mass slides into the water, and the tadpoles swim free. The frogs we found were just laying their eggs. Clusters could be seen on all sides. We heard some of the males calling, and were surprised that their song was a single, low note much like the call of a very different, small, common, terrestrial frog, *Leptodactylus melanonotus*. In fact, we almost passed these by at first, thinking that the notes we heard were produced by the common species.

After we had watched the frogs for a while and had collected several, we suddenly noticed a small, elongate night snake (*Leptodeira annulata polysticta*) crawling on the ground—with green *Agalychnis* eggs hanging from the corners of its mouth. We captured the guilty-looking snake, which also had a suspicious bulge in its stomach, and not long afterwards found another *Leptodeira*, also with bits of egg still clinging to its mouth. Soon we began finding snakes on all sides, as we learned to spot them, and in a short time had ten of them, all concentrated about the single small pool, eating frog's eggs. One snake we watched for some time, as it crawled on a rock, then up the trunk of a small tree, out on the first limb, and up to a cluster of eggs, where it calmly opened its jaws and started to eat them. Apparently the snakes were not molesting the frogs, which may have been too large to swallow.

After we had spent nearly two months enjoying the hospitality of the Matudas, and increasing our collection rapidly, it became increasingly difficult to secure additions to our list. Time was growing short, and we still had work we wished to do in central Mexico.

Accordingly, we bade farewell to our generous hosts, and in the middle of June were back in Mexico City. Here and at our headquarters in Potrero Viejo we spent the rest of June and July, and in August we turned northward with all of our collection and collecting equipment piled to the ceiling of our truck. Our two years in Mexico had ended, and we were at last glad to be out of the field, even though we greatly enjoyed the freedom of life in the open. We had kept ourselves reasonably busy, and thus happy.

That we had come to a certain degree to look like natives of the country was brought forcibly to my attention some distance north of Mexico City when a highway patrol stopped us and, after a brief inspection, started to give a me sound tongue-lashing with a great deal of indignation, accusing me of being one of these unprincipled gringos who raid Mexico of their beautiful maidens. He was never convinced that Rozella, with her dark-skinned, dark-eyed, voluptuous beauty, was not a Mexican, but he let us go anyhow.

The great amount of material that we had accumulated, and the length of time that it would take to study, we did not realize until we were once more in Washington, and were confronted with all of the collection at once. There were some 20,500 amphibians and reptiles alone, and in addition a few mammals, birds and insects. Our species list numbered a little over 500. Much to our surprise, we had missed our goal, set at the first of the trip, by a third, but we were not at all displeased, because that third was over and above what we had hoped to achieve. That was, however, my farewell to Mexico, for I did not return for over fifty years, and even then only for very brief periods. It was not for lack of interest, but because Rozella refused to go again (she never camped again, and swore correctly that henceforth travel would be Best Western or nothing), and she did not want me taking the risk. So thereafter for many years I relied on the collections that students and friends made in the country.

The third year of the Scholarship was spent in Washington studying the collections we had made. Actually, Ed Taylor studied and reported upon the amphibians, while I contented myself with the reptiles, which were reported piecemeal. Then followed four years during the war at the University of Rochester, teaching Navy premeds comparative vertebrate anatomy, classified as 1A throughout, much to the discomfiture of especially Rozella, who did not know from one day to the next whether I would be drafted or not. My ancillary military function seemed however to satisfy my draft board.

For three years after we returned from Mexico we enjoyed the company of a delightful coati mundi we had acquired at La Esperanza, Chiapas, as a young individual. It was of the dark-hued forest variety, and was a very loving creature that had full run of the house when we were there, but was caged in our absence because of its very destructive tendencies that needed constant attention. We traveled with it everywhere, but it was still a wild creature that could slash viciously with its long canines when it felt threatened. Unfortunately one of its victims was K. P. Schmidt, who erroneously assumed that he could reach into its cage just as we did.

Huizi was a perpetually curious animal, its wiggly snout snooping into everything. It quickly learned to avoid electrical sockets after it first stuck its nose into one and received a shock that sent it bounding away in one huge leap backward, its hair standing on end and barking indignantly for several minutes. A hand-held socket thereafter became a disciplinary tool on occasion.

When our first child was born in 1943, however, we could no longer keep the animal, because it would certainly severely injure the baby if they ever met. Thus it was donated to the Rochester zoo, where we visited it frequently and were greeted in its loving, chittering embrace. We were told that it was a terror with the keepers. Actually I was just a little wary of it, but Rozella, having been with it far more than I, could handle it quite freely.

To be continued

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Book Review: *A Field Guide to the Amphibians and Reptiles of the Maya World: The Lowlands of Mexico, Northern Guatemala, and Belize* by Julian C. Lee 2000. Comstock Publishing Associates, Cornell University Press, Ithaca, New York Illustrated with 191 color photographs on 32 plates, 174 text figures 163 b/w distribution maps, Glossary, Bibliography, 416 pp. Hardcover/DJ (ISBN 0-8014-3624-9), $59.95; Paperback (ISBN 0-8014-8587-8), $35.00

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At first glance one cannot escape the feeling that *A Field Guide to the Amphibians and Reptiles of the Maya World* is nothing more than a condensed version of author Julian Lee's exceptional and pioneering monograph, *The Amphibians and Reptiles of the Yucatán Peninsula*, also published by Cornell University Press back in 1996. Indeed, the color photos, b/w line illustrations, maps, and even the table of contents of the present volume for the most part initially seem virtually identical to that of this "field" guide's far larger predecessor.

A casual examination of the text further reinforces the impression that this is a shortened, "*Reader's Digest*" edition. With the exception of a rewritten Preface of uncertain authorship, the book's Acknowledgments, Introduction and chapters on the Environment, Habitats, and Composition of the Herpetofauna are, textually at least, largely just abridged versions of those provided by Lee in his original Yucatán volume. An additional two chapters from the original monograph, "A Brief History of Herpetology in the Yucatán Peninsula" and "Ethnoherpetology in the Yucatán Peninsula," as well as the 18-page Gazetteer have also been omitted from the field guide entirely.

Consolidation and other space conserving efforts are equally evident in the field guide's Species Accounts section. The general commentary beginning the reviews of each respective amphibian and reptile group has been substantially abridged, almost to the point of becoming nonexistent. This in turn has necessitated the removal of any text figures originally associated with these opening overviews, although a fair percentage of these have been relocated to the new book's Introduction. Also conspicuously absent are the numerous original bilingual English/Spanish species identification keys, features which while obviously space consuming, nevertheless would certainly contribute much to any field guide.

The species accounts themselves are likewise condensed significantly. Gone is the information on author(s) and date of initial description, original nomenclature, type specimen and locality, and the list of relevant English, Spanish and Mayan vernacular names. Also absent entirely are the etymologies of scientific names and the sometimes quite lengthy listings of regional locality records. While the Description (subtitled "Identification" in the field guide), Similar Species, Distribution, and Subspecies portions of the original accounts remain largely intact, data on natural history and any additional comments have also been extensively abridged.

Fortunately, with the exception of the sonograms of the calls of frogs and toads, field guide species accounts do incorporate virtually all of the excellent b/w line drawings that supplement Lee's original reviews. These include illustrations of all anuran tadpoles, which undoubtedly will assist greatly in their identification. All told, 174 of the 193 b/w text figures included in the original monograph are reproduced in the field guide, with most of the decrease attributable to illustrations associated with the two previously mentioned omitted chapters.

Distribution maps too have mostly been reproduced with only slight modification. The open circles plotting specific locality records present in the originals have been eliminated, however, leaving only the more generalized "shaded" depictions of overall regional geographic distribution. In apparently yet another attempt at condensation, several field guide maps now depict the distributions of multiple species. This has resulted in a reduction of the original monograph's 188 maps to just 163 in the field guide; these totals include the political map and vegetation map present in both as well as six additional maps eliminated via omission of the Gazetteer in the smaller volume.

While these multi-species maps for the most part function well, the distributions portrayed in the combined maps for the two caecilians, *Dermophis mexicanus* and *Gymnopis syntrema*, the frogs *Eleutherodactylus alfredi* and *E. chac*, and the lizards *Gymnophthalmus speciosus* and *Ameiva chaitzami* do not exactly match the data provided in the respective individual maps of the monograph. Whether these represent actual revisions to the distributional data or are simply reflective of inadvertent publishing mistakes is impossible to say, as no accompanying map commentary has been provided. The fact that field guide map 13 is followed by map 16, then 15, and finally 14 before reverting back to ascending order is, however, certainly attributable to editorial error.

That a fair amount of actual revision has indeed occurred becomes evident upon more thorough examination of the field guide's content. The number of species covered is now 188, instead of the 182 reviewed in Lee's original monograph. Newly added species include *Bufo campbelli* (briefly mentioned as a possible sympatric species in the monograph's *Bufo valliceps* account), *Eleutherodactylus psephosypharus* and *E. sandersoni*, two additional unnamed *Eleutherodactylus* species (termed species A and B respectively), *Gonatodes albogularis*, *Cnemidophorus lemniscatus* and *C. maslini* (the latter treated as a subspecies of *C. cozumela* in the monograph), and *Tantilla tecta*.

Additional taxonomic realignment is also readily apparent. The name *Sceloporus teapensis*, for instance, has been updated to *Sceloporus variabilis*. A number of species formerly classified in the genus *Anolis* have been reassigned to the genus *Norops*. The original monograph's review of *Eleutherodactylus rugulosus* has also been deleted entirely, with any relevant data now apparently incorporated into one or another of the above-mentioned unnamed *Eleutherodactylus* species accounts. Not surprisingly, such changes are reflected in the respective distribution maps as well. At the same time, a number of additional distribution maps have also apparently been revised. These include the maps for *Crocodylus acutus* and *C. moreletii*, *Hemidactylus frenatus*, *Lepidophyma mayae*, *Leptotyphlops goudotii*, *Dendrophidion vinitor*, *Geophis carinosus*, *Ninia diademata*, *Oxyrhopus petola*, *Scaphiodontophis annulatus*, and *Agkistrodon bilineatus*.

Significant differences among the color photographs included in each volume are likewise evident upon closer review. Most conspicuous is the absence of the monograph's plates of twenty-four color habitat photos, which have instead been reproduced in b/w and relocated to the field guide's Environment and Habitat chapters. While representing a decrease in overall number of color photos, the field guide's thirty-two color plates provide 191 animal photos, four more than included in the original monograph. Naturally, pictures of the species—with the exception of *Tantilla tecta*—not reviewed in the monograph easily account for the higher number of photos. The inclusion of six additional photos illustrating the dewlaps of anoles, however, as well as newly added shots of *Sibon nebulata*, *Stenorrhina degenhardtii*, *Dendrophidon vinitor*, *Coniophanes fissidens*, and juvenile specimens of *Elaphe flavirufa*, *Dipsas brevifacies*, *Iguana iguana*, and *Ctenosaura similis* has necessitated the elimination of an equal number of original photographs. Fortunately, most of this sacrifice has come at the expense of species represented by unneeded multiple views. At least another twenty-four original monograph photos have also been replaced. While almost invariably of better quality, the smaller size of reproduction imposed by constraints of the field guide's format largely negates any improvement associated with these replacement photos.

Although undoubtedly a worthy volume for any library currently lacking a reference on the herpetofauna of Yucatán, *A Field Guide to the Amphibians and Reptiles of the Maya World* certainly presents an interesting dilemma to those already owning a copy of Lee's original monograph. Do the revisions and changes mentioned above warrant the field guide's purchase price or would the money perhaps be better spent on some other alternate volume? Jonathan Campbell's *Amphibians and Reptiles of Northern Guatemala, the Yucatán, and Belize*, for example, which covers the same geographic region from a somewhat different but equally informative perspective. *A Guide to the Reptiles of Belize* by Stafford and Meyer, covering some 120 species, provides yet another potential candidate.

Of course, it is possible that some may find Lee's new book of serviceable use as a field guide, which is after all the volume's purported purpose. Many, including this reviewer, however, prefer "pocket-sized" field guides, a description that most decidedly does not apply to the present volume. Nevertheless, all things considered, *A Field Guide to the Amphibians and Reptiles of the Maya World* can still be highly recommended.

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HerPET-POURRI

by Ellin Beltz

About this month

Dear Readers: After nearly two decades in the same place and town, I am moving. And as I sit with my life all disarranged around me (even though I can find the latest mail and clippings), I find I cannot write. So for your amusement this month, I offer an electronic pot-pourri. I wish to thank my long-time contributors and my regular mailing friends for everything they've sent (and which I'll use right away to write my June!). Don't stop now. But do change your address books. E-mail <ebeltz@ebeltz.net>; URL <http://ebeltz.net>; mail P.O. Box 934, Ferndale, CA 95536-0934. For those of you with 1000 questions about who, what and where—wait. I will tell all—in a future column!

From: Ken Mierzwa

"Dear Ken: . . . something funny happened to me yesterday when I went frogging. As [my helper] and I were walking back towards my car at [our study site] we saw another car pulling up next to mine and then a bright light was pointed out at [us]. We had to walk back in that bright light and there was a cop next to my car when we got there. This was our exchange (PO = cop):

Me: Hi, we're doing a calling survey. . . .
PO: Hi, a what?
Me: A calling survey.
PO: . . . ??? . . . you're culling?
Me: No. No we are listening to frogs calling.
PO: ???
Me: You know, the frogs are making sound and we listen. . . .
PO: . . . ??? . . . Is that some environmental thing?
Me: Yes, yes it is some environmental thing.
PO: Oh, ok.

And then he left. I thought it was funny that an "environmental thing" should get us off the hook. Thought that those things usually get you into trouble with the officials. But now I learned my lesson and next time I'll inform the[ir office] that I'll be out there. . . . PS. We heard peepers, chorus and leopard frogs (not all at the same site)."

From: George M. Patton and Martha Ann Messinger

The account of the Reuters news story of Monday, April 9, 2001, goes like this: "A Vietnamese truck driver veered into a motorbike and a bicycle killing three people after spotting a snake slithering about his cab. . . . [The driver told police he] panicked when he noticed the snake and lost control of his vehicle. The paper said one other person was injured in the accident on the outskirts of Ho Chi Minh City Sunday. It said police were investigating."

From: Wes von Papineäu

"Dear (very-patient) Herp Friends: While doing an archive search for a friend's query, I tripped over a rather startling fact: Since 1997 when I began to keep computer records of this sort of thing . . . I've E-mailed out the equivalent of 4,444 (the number of the beast?) pages of single-sided, 11-point Times Roman font, herp-oriented press information . . . to each individual that's been with me since 1997! What's more . . . the pace is accelerating! In 1997 I E-mailed about 592 pages; and given the routine established so far to date this year . . . we might make 1,900 pages in 2001! This translates into (very roughly) about 7,150 individual press items! OK. . . . What this tells me is that: 1. I really should get a life and perhaps introduce myself to the nice lady that lives in my home; 2. That I want to thank/curse (choose one depending on what else is going on that day) Ellin Beltz; late of the departed and lamented *Vivarium* magazine's `Herps in the News' column; for getting me into this news-clipping stuff back in '94! Thank you Ellin for the kind words and support over the past seven years and three keyboards! [Hey, Wes, I'm moving—not dead!] 3. I hope that you people are not trying to print all this stuff out once you get it. . . . It would take two men and a small boy to carry it all! And; 4. Last, thank you all very much for allowing me the privilege of `bombing' your E-mail box with this massive on-going electronic `brick'! Your kind interest, recommendations and notes make it all worth while when I bring my head up off the keyboard and discover that I've missed dinner . . . again! Cheers, Wes von Papineäu" So *In Honor of Wes's Never-ending Contributions (subtitled "How Wes saved me again")* the rest of this column will be from his postings! All material is quoted directly from source. [Additions or clarifications in brackets are mine. eb]

• *THE STATE JOURNAL-REGISTER* (Springfield, Illinois) 16 April 01. River Dredging Plan Threatens Frog Species -- Beardstown: A noisy little frog that already is on Illinois' threatened species list may be facing a new peril from the U.S. Army Corps of Engineers. The Corps intends to dump material dredged from the Illinois River on two sites near Beardstown, an action the Corps acknowledges could kill an undetermined number of the threatened frogs. Amphibian expert John K. Tucker said the frog is found on one of those sites and may be living on the other. Tucker, a research scientist with the Illinois Natural History Survey, and Patrick Owen, a doctoral candidate from the University of Connecticut, are conducting research at the sites for the Corps of Engineers. What has brought the Corps of Engineers and the Illinois chorus frog into possible conflict is the very nature of the amphibian's life cycle and limited habitat. The Illinois chorus frog is the only burrowing frog in America. "They are the mole of the frog world," Tucker said. Furthermore, in Illinois the frog lives only in sandy soils on the eastern side of the Illinois River, primarily in Cass, Morgan, Mason and Scott Counties. The frog also is found in a small area of Missouri and Arkansas. The adult frogs, which are about 1.5 inches long, emerge from the ground as early as February. They breed in shallow pools that hold water into June, returning then to their subterranean life. Unlike other frogs, freezing temperatures kill the Illinois chorus frogs. The male frogs are especially loud, producing a call of 90 decibels, which Tucker described as a high-pitched single note. . . . The impact of the Corps project may be intensified because Illinois chorus frogs occur only in small numbers in any given area. Tucker said a typical community may

number 100 to 150 frogs. Some conservationists fear the entire population of chorus frogs in the sites will be destroyed. "They shouldn't do it," Illinois State University professor Lauren Brown said of the Corps of Engineers' plans. "They should put it (dredged material) on the west side of the river. This should go on a wasteland site." Lonn McGuire, a project manager with the Corps of Engineers, said his agency is seeking an "incidental take authorization" from the Illinois Department of Natural Resources. This would allow it to proceed with its plans to dump dredged materials on the two sites on the river's east side. A "take" means animals will be killed or injured, according to Glen Kruse of the Illinois DNR. He said this is the first time the department has been asked to grant an incidental take authorization. Placing dredged material on the west side of the river is impractical because of cost and the need to cross York Lake and the Coal Creek Levee, McGuire said. In its public notice, the Corps contends "the placement of dredged material consisting of clean, medium-to-fine sand constitutes more suitable non-breeding habitat than currently exists (on the sites)." However, Brown said, material taken from the river probably will contain chemicals and other pollutants that may be harmful to the frogs and other life. Tucker said it is not yet known whether Illinois chorus frogs are living in dredged material that was previously dumped by the Corps on one of the two sites. He said his research will help determine whether the new sand will support the frogs. Furthermore, Tucker said the frogs need a "fluffy, sandy soil" in which they can readily burrow down to a depth of about a foot. The dredged material tends to be more compact than existing habitat, but he does not yet know whether frogs are living in this material. McGuire said the Corps is confident its plans will assure the Illinois chorus frog population is brought back to its current level at the two sites—although he acknowledged that no one knows how many Illinois chorus frogs populate the sites. Not only does the Corps believe the dredged material will attract the Illinois chorus frog, but McGuire said plans call for construction of three suitable breeding pools near the sites. Owen Dratler, a Cass County Sierra Club leader, said his organization is reviewing the Corps' plans. Kruse said the DNR is accepting public comments on the Corps' proposal through May 7. Comments should be sent to the Illinois DNR at the Division of Natural Heritage, 524 S. Second Street, Springfield IL 62701-1787, or by E-mail to <endspec@dnrmail.state.il.us>. The Corps' conservation plan can be obtained by calling the DNR offices at (217) 785-8774. It also is available at the Beardstown Public Library and at the Illinois DNR office in Alton. <http://www.sj-r.com/news/Monday/b.htm>

• *LAS VEGAS SUN* (Nevada) 23 February 01. A tip from employees at McCarran International Airport resulted in the seizure of five venomous snakes, including two from Asia, by game wardens, . . . [one of whom said] that there is no antivenin available in the state for exotic species that have been unlawfully imported. Therefore a bite could pose a serious health risk.

• *HERALD-TRIBUNE* (Sarasota, Florida) 23 February 01. Officer Puts Stop to Slithery Surprise -- When a snake's head popped out of a toilet in a Venice home Thursday morning, then stuck its tongue out at police Patrolman Bob Dodd, the officer figured he could help the family get rid of it. [And he did. And they reported every detail. You can imagine.]

• *ENVIRONMENT NEWS SERVICE* 16 March 01. Australia Declares Biological War on The Cane Toad -- This week they spread to [the Kakadu] world heritage site and moved politicians to act. After colonizing most of Queensland, large parts of the Northern Territory and New South Wales, cane toads (*Bufo marinus*) are heading south and west at the rate of about 30 kilometers (18.5 miles) a year. . . . Scientists have already ruled out the use of viruses from Venezuela to control Australian cane toads. Laboratory tests showed that the viruses killed Australian frogs as well as the toads. Scientists also believe that some native animals are learning to avoid eating them. Other animals have shown they can eat the toad. The keelback snake can detoxify the venom and water rats, ibis, crows and some other birds turn the toads over and eat only the nonpoisonous internal organs.

• *INDEPENDENT SWINDON TOWN ONLINE* (Swindon, UK) 21 March 01. It's looking more and more likely that the front garden area is a no-no for a new stadium. Latest reports on the area are now saying that a colony of rare [great crested] newts have been found there. If this is true then it's going to be almost impossible to put anything on that stretch of land. [Then in 15 more paragraphs and 2 more articles the humans complain that the newts will stop the people from making money. Forget it, folks. The Thatcherian days of "Swine and Porsches" are gone; newts rule.]

• *NORTH DEVON JOURNAL* (Barnstaple, UK) 29 March 01. Mystery sign says `Mind our toads!' The mysterious appearance of strange signs in a small village warning motorists to watch their speed, is baffling residents. For the signs, which suddenly appeared in the middle of the night, have been erected to warn about toads crossing the road. The "Careful—Toads Crossing" signs are on view in the village of Cobbaton, near Chittlehampton, and the hunt is on to find the person or persons responsible. [A couple] owns a pond in the village where toads often head to spawn. But the hopping creatures have to negotiate a road to get to their destination—and sometimes they meet a sticky end. [The husband] said: "We have not got a clue who put the signs up and it really is a mystery. One day we just noticed the sign and must have been put up in hours of darkness or very early in the morning." Cobbaton has been graced with two signs which warn drivers traveling both ways to brake slowly and avoid any stray toads that may be crossing the road. [And it's working. According to a later story, signs actually make drivers slow down.]

• *AUSTRALIAN BROADCASTING CORPORATION* 29 March 01. Wildlife rangers fear a practical joker has dumped a meter-long saltwater crocodile in a swimming lagoon at a north Queensland golfing resort. [Perhaps they were "inspired" by the Internet legend.]

• *FYI ETYMOLOGY* -- There are, however, worse things to be than a flunkey. And a "toady" is one of them. Back in the 17th century, certain charlatans and patent-medicine quacks claimed to be able to cure poisoning with their potions. Since

toads were considered poisonous, a quack's sales pitch often involved having his assistant eat a toad in front of the gullible crowd, whereupon the miracle elixir would be administered and the assistant cured of possible poisoning. The assistant was naturally known as "the toadeater" or "toady," and the term eventually came to mean anyone who will do absolutely anything to curry favor with a boss or superior. <http://abc.net.au/newsradio/wordwatch.htm> [FYI, my last trip west I actually met some folks who'll probably be writing me now asking how to curry toads and if that would get them high.]

• *THE NEW VISION* (Kampala, Uganda) 10 March 01. An Ebola survivor was on Wednesday bitten by a snake and died. [A] 58 [year old], resident of Obia west, was bitten as she was fishing at Paliga swamp. The snake attacked her at around 11:00 A.M. but she died later in the evening.

• *EDMONTON JOURNAL* (Alberta) 03 April 01. Stolen Van May Be Final Curtain for Safari Jeff and Reptile Show -- Animals' owners stuck in hotel room with their 12 reptiles -- Edmonton: Father Time, Spirit, Phantom and nine other reptiles are holed up in a Fort Road Hotel until Safari Jeff and his partner get their stolen van and trailer back. . . . Without the van and trailer, the reptile road show can't go on. . . . Police are searching for a dark blue 1992 Chevrolet Astro van with Alberta license TDT 403 and a 12-foot white Truline trailer with Alberta license N24 517.

• *DAILY UNIVERSITY SCIENCE NEWS (USA)* 05 April 01. For the first time, researchers have identified a direct link between global climate change and local factors that cause the death of amphibian eggs in the wild, according to a paper in today's issue of *Nature*. <http://unisci.com/stories/20012/0405013.htm>

• *P.M. NEWS* 20 April 01. "Lagos, Nigeria: Two titled chiefs from Igbogbo community . . . and three others were yesterday at a . . . Magistrate Court docked on a two-count charge of conspiracy and stealing of a snake belonging to a farmer at Ikorodu. The suit, which has been in court for the past five years . . . " is about who or what stole a snake from a snake trap that was set by the farmer.

• *MILWAUKEE JOURNAL SENTINEL* (Wisconsin) 22 April 01. Huge Dead Snake Found in Wreck -- Rescuers who helped free a motorist trapped all night in his overturned pickup truck made an unusual discovery Sunday morning—a dead 15-foot-long boa constrictor in the back of the vehicle. The snake, as thick as a human thigh, did not have a head. The truck owner said he planned to have it made into snakeskin boots."

• *WPLG CHANNEL 10* (Miami, Florida) 18 April 01. Pot Bust Uncovers Guard Gator, Police Say -- Gator Well Fed According To Wildlife Manager. Miami: You've heard of guard dogs, but what about a guard gator? That's what police say they found when they made a huge pot bust Tuesday night. Officers say that they entered a Miami house, found 25 pot plants, an additional 10 pounds of marijuana in the refrigerator, and keeping an eye on the stash was a 5-foot-long alligator. . . . Investigators believe that the stash the gator was guarding is worth about $125,000. No arrests have been made yet. Police are trying to find the homeowner. [Honestly, I DON'T make this stuff up. It's all real.]

• *THE HINDU* (Chennai, India) 23 April 01 -- It was a different experience for Mr. Romulus Whitaker, Chennai's herpetologist, the other day. Instead of his routine reptile-handling work, he had to field a volley of questions from children and their parents. The occasion was the release of *Croc Talk: Your Madras Crocodile Bank Companion* at Goodbooks, Book Store and Resource Centre. . . ." <http://www.indiaserver.com/thehindu/2001/04/23/stories/0423401z.htm>

• *INDIA EXPRESS* 18 April 01. Satellite Telemetry to Track Sea Turtle Migration -- Special tracking devices were fitted to four female olive ridleys near the Devi river mouth, emerging as another nesting ground for the marine turtles, on Tuesday under a Government of India-United Nation Development Programme sea turtle project with the active collaboration of wildlife wing of the Orissa Government and the Wildlife Institute of India. <http://www.indiaexpress.com/news/regional/orissa/20010418-0.html>

• *GRIST MAGAZINE (USA)* 24 April 01. Big Danger for a Small Species -- Austin: At first blush, it hardly seems fair to compare the plight of the Barton Springs salamander to that of endangered species such as the fierce grizzly of the northern Rockies or the no-longer-so-resilient salmon of the Pacific Northwest, totemic animals that characterize whole regions and spark national debate. After all, the Barton Springs salamander is a tiny creature, with full-grown adults measuring just a little over two inches, and the salamander's range is only a few miles of stream running through the Texas capital of Austin. But given the real and symbolic importance of the springs frequented by the salamander, the deep-in-the-heart-of-Texas struggle to save the salamander has corollaries with the battle on behalf of the nation's charismatic megafauna. A pair of pending lawsuits filed by Austin environmentalists on behalf of the Barton Springs salamander belie the notion that bigger creatures inspire—or deserve—bigger support. One of the suits targets the U.S. EPA for failing to protect water quality along the creek; a legal agreement reached last December continues to languish without an authorizing signature from the Bush administration. The other suit alleges that a new regional water-supply system planned by the semi-private Lower Colorado River Authority fails to adequately address environmental concerns while encouraging unwanted development. . . . Local environmentalists have not always been so aggressive in their litigation. Nearly a decade ago, well ahead of lawsuits that led former Interior Secretary Bruce Babbitt to list the salamander under the Endangered Species Act in 1997, environmentalists brokered a deal intended to prevent developers from impinging on the land around Barton Springs. That deal, spearheaded by the Save Our Springs Alliance (SOS) and known officially as the SOS Ordinance, still stands as a watershed event in Austin politics. The hope was that the ordinance would preserve Barton Springs as a source of drinking water in this notoriously water-deprived state, as (in part) a swimming hole where thousands congregate during the summer to take a break from the hot Texas sun, and—not incidentally—as the home of the Barton Springs salamander. The SOS Ordinance limited build-

ing along the Barton Creek section of the Edwards Aquifer "recharge zone," which feeds Barton Springs and supplies most of Austin's drinking water. Viewed by some radical voices as a compromise measure, the ordinance nonetheless mitigated the impact of development in a community largely at the mercy of developers and private-property rights advocates. In turn, zoning rules limited the amount of pollution from run-off and created a boundary of 200 feet around the creek within which development could not take place. Unfortunately for wildlife and swimmers alike, recent tests have shown a variety of pollutants continue to find their way into the spring-fed pools. The listing of the salamander as a federally protected endangered species in turn gave environmentalists another set of tools to preserve the springs. In fact, the two pending law-suits filed by SOS advance the cause of U.S. Fish and Wildlife Service scientists entrusted with ensuring the salamanders' survival. At the heart of both lawsuits is the question of just how development affects the salamander.

• *KITV-4* (Honolulu, Hawaii) 25 April 01. Cobra Found On Hawaii-Bound Flight -- State agriculture officials discovered a live cobra over the weekend on a Philippine Airlines flight to Honolulu. It is the first live cobra ever captured in the islands, where all snakes are outlawed. The poisonous two-and-a-half-foot cobra was found Saturday in the cargo hold of a Philippine Airlines Boeing 747 from Manila. Authorities said that they do not know how it got aboard the jet. Experts believe that the venomous snake is a monocle cobra, but said that they are conducting further research to positively identify it. Officials said that since the cobra has a visible wound, it is not a good exhibit specimen and will probably be destroyed.

• *PRESS PLUS* (Atlantic City, New Jersey) 26 April 01. Lawrence Township: [A 10-year-old boy] didn't panic when his brother's pet—a 10½-foot African rock python—latched on to his eyelid Tuesday at his home. "I knew if I wasn't calm the snake would put its jaw down really hard and I would be blind," [he] explained Wednesday. "I really was thinking I might go blind." But thanks to the quick thinking of three New Jersey State Police troopers and other rescuers, [the child] emerged from the bizarre, 1 A.M. incident with some cuts and bruises and required only minor plastic surgery. . . . [The snake got loose, the whole family chases the snake, the snake bites boy, rescuers save boy, doctors treat boy, insurance company bills family . . . but that's next month.]

• *SUN-NEWS* (Las Cruces, New Mexico) 23 April 01. Snake Roundup Lives on Despite Protest -- Only a thin layer of Plexiglas separated the throngs of young children from more than 100 poisonous western diamondback rattlesnakes, as more than 300 people packed the snake exhibition room at the 15th Annual Rattlesnake Roundup in Alamogordo on Saturday. The children watched in rapt fascination at the snakes—most of them bundled on the cool cement floor in piles—as the room filled with the hollow, wispy chorus of rattles. The snakes were just some of the more than 1,000 western diamondback rattlesnakes that organizers say will be gathered this weekend, eventually to be sold for meat and their skins. . . . But just minutes earlier, [a] veteran snake handler . . . was rushed to the hospital after being bitten in the hand while performing one of the tricks he has entertained audiences with for more than a decade at snake roundups across the country. . . . [Protestors] echoed similar arguments made by New Mexico Land Commissioner Ray Powell who has criticized the rattlesnake roundup as "inappropriate exploitation" of wildlife. "This is an unregulated exploitation of wildlife, which could disrupt the delicate balance of this desert ecosystem" he said. In a statement released earlier this month, Powell, who is also a veterinarian, warned hunters found trapping or killing snakes on state trust land will be prosecuted for trespassing. Powell said rattlesnakes help keep the rodent population down, as well as the threat of hantavirus and plague, which can be carried by rodents. [An] organizer . . . said, contrary to popular misconception, the rattlesnake round-up does not involve people roaming mesquite bushes bashing snakes with clubs. Rather, the snakes are collected from their dens in the early morning springtime hours as the snakes, hungry and cold, venture into the light of day to hunt. . . . The snakes are then sold to a wholesaler who sells the snakes to two different processors. One of the processors has the snakes butchered. A percentage of the snake meat is cooked at the roundup while the rest is sold to overseas markets. . . . The remaining body parts, from skulls and teeth to skins and tails, are processed and made into wallets, belts and other products. . . . [He added] the hunts occur only on private lands, often at the landowner's request, though he said the snake hunters do not disclose the location of the dens they return to every year to gather snakes. About 1,000 to 1,500 rattlesnakes are gathered every year . . . helping to reduce the rodent population as well as keep the danger of poisonous snakes down. "What would those bunny-huggers have us do? If they had snakes in their backyard, I guarantee you they'd kill them," [he asked] "But I love (that the protesters are here). It's good advertisement." "The biggest rodent here is that (Ray) Powell guy," [the organizer added]. New Mexico Game and Fish Herpetologist Charlie Painter said, as a reptile lover he opposes the roundups on philosophical grounds, but he recognizes the other voices in the community that want the roundups to continue. As part of his extensive research of rattlesnake and other reptiles and amphibian populations, Painter has been at every rattlesnake roundup in Alamogordo since it began 15 years ago. Among other measurements, Painter monitors the average size and weight of rattlesnakes brought in to gain insight about population levels and the general health of the local rattlesnake population. He said the controversy surrounding snake roundups is often driven by philosophical—and often emotionally charged—differences rather than science and definitive evidence. Painter said there is no reliable scientific evidence that snakes—which compared to other predators like birds and coyotes kill far fewer snakes—significantly reduce rodent populations. Conversely, though roundup organizers claim the roundup addresses the threat of dangerous snakes crawling into homes around Alamogordo, Painter said there is also no indication that rattlesnake roundups are needed. Painter said the supposed threat that the snakes would swarm Alamogordo "is not going to happen." Other areas in southern New Mexico where the concentrations of rattlesnakes are likely higher do not have roundups and do not have a significant problem with snake bites, Painter said.

And the last huzzah!
Websites and addresses of various nonprofits concerned with endangered species.

• **National Audubon Society**, 700 Broadway, New York NY 10003, (212) 979-3000 <www.audubon.org>

• **Chesapeake Bay Foundation** - 6 Herndon Avenue, Annapolis MD 21403, (301) 261-2350 or (888) 728-3229 <www.cbf.org>

• **Defenders of Wildlife** - 1101 14th Street NW, Suite 1400. Washington DC 20005, (202) 682-9400 <www.defenders.org>

• **Friends of the National Zoo** - 3001 Connecticut Avenue NW, Washington DC 20008, (202) 673-4950 <www.fonz.org>

• **National Wildlife Federation** - 11100 Wildlife Center Drive, Reston VA 20190-5362, (703) 438-6000 or (800) 822-9919 <www.nwf.org>

• **The Nature Conservancy** - 4245 North Fairfax Drive, #100, Arlington VA 22203, (800) 628-6860 <www.nature.org>

• **Sierra Club** - 85 Second Street, Second Floor, San Francisco CA 94105-3441, (415) 977-5500 <www.sierraclub.org>

• **World Wildlife Fund** - 1250 24th Street NW, Washington DC 20037, (202) 293-4800 <www.wwf.org>

Don't forget to contribute to my new address!

Unofficial Minutes of the CHS Board Meeting, April 13, 2001

The meeting was called to order at 7:30 P.M. Board members Greg Brim, Char Haguewood, Mike Redmer and Jenny Vollman were absent.

Officers' Reports

Recording Secretary: Emily Forcade distributed and read the minutes of the March board meeting. Corrections were made and the minutes were approved.

Treasurer: The Treasurer's reports were distributed and discussed.

Membership Secretary: Mike Dloogatch said that membership had increased to 830. Much of the increase was due to ReptileFest. There was a discussion about the Family Membership in terms of what it confers to the family and therefore what incentive there might be for families to join. Family members are allowed to exhibit animals at shows. Lori wondered if there might be a certificate of membership issued. This would have a special appeal to children. Emily Forcade reported a question she had been asked about the meaning of a Sustaining Membership. It amounts to a way to make an additional contribution to the CHS.

Vice-President: Peter Pritchard, the April speaker for the general meeting, will be coming in early Wednesday. His wife will not be able to come since she is in China. Lori has a 100-year-old bookplate of softshell turtles to raffle that evening. Linda Malawy said that she would want to give it to Peter if she won and that she felt many people might feel an obligation to do so. Will Forcade mentioned that based on his considerable experience in winning raffle prizes, he would not find it difficult to control that impulse. Lori mentioned that the McCormick Room at the Nature Museum still doesn't have shades or a slide screen. The May speaker hasn't been determined yet.

Corresponding Secretary: Steve Spitzer is working on an announcement of board meetings for the *Bulletin*. He said he received a number of messages from people who went to Northeastern University for ReptileFest. It takes some time for people to adjust to the change of a longstanding tradition.

Standing Committees

Grants: Mike reported that 13 applications had been received before the deadline.

Raffle: Gary Kostka said there had been no volunteers to take over running the raffle. He asked for Jack's assistance, perhaps in raising it at the general meeting. Will Forcade suggested running an ad in the *Bulletin*. Ron Humbert said we should ask someone directly. Linda Malawy wondered about selling tickets at the door but then decided this would be too complicated. Jack said that Gary and John are running the raffle so well that it's difficult to replace them.

Library: There is nothing new. Jack will drop this for discussion until we get a storage site close to the meeting room.

Adoptions: Rich Crowley and Linda Malawy report that there are a few boas, iguanas and turtles. Recent E-mails about adoptions are coming in from northeast Indiana. Jack said this may be due to the ads for the 'Fest placed in Indiana papers and his recent interview by an Indiana newspaper.

ReptileFest: Jack congratulated Darin Croft and his crew for a wonderful 'Fest. Darin has volunteered to chair the 'Fest next year and Jack said he should consider himself appointed. Darin has reserved the same site for March 23–24, 2002. It will again be the weekend after the Arlington Chicagoland Family Pet Show. Rich Crowley said that some UIC administrators came through and really admired it. Perhaps they can help us get an earlier set-up time for March 22. WBEZ called Darin. They want to do something for the 'Fest. The only part of the income that fell off was from the vendors. The breakeven point may be too high for many of them to make it worthwhile to attend. Since Reptiques was very popular, it demonstrates that the sales are there. Lori said that we sometimes need to help the vendors decide what to take into account as they select items to bring.

Ad Hoc Committees

CAS: Jack said everything at the nature museum is in the process of change. We have the McCormick Room on a month-by-month basis only. So we need to continue to look for an alternate venue.

Trips: Char said that 19 people have signed up for the Toledo Zoo Trip. As yet there is no South Side location designated as an additional pickup point.

Salamander Safari: There were problems this year in Cook County's handling of the reservations and in their untimely notification of restrictions to the field areas available to us based on their assessment that there was an unusual and, presumed by them, pathological die-off of the salamander populations. Mike Redmer drafted a letter to send them regarding our ideas of how we, as the regional herpetological society, could be involved with them in a mutually beneficial way. The group discussed some of their ideas, although most people did not have access to the letter. Jack said we were in agreement that a letter should go forward. Steve, Mike Dloogatch and Mike Redmer will work on a draft to be approved by the board. Jack will send copies of the original letter and the revised version to people who provide him with an E-mail address or a postal address if they have no E-mail access.

Public Relations Committee: Steve said that the committee is looking at what media outlets to target for directing information about us. Lori said that she is in contact with Steve Dale who wants to help us get on the Animal Planet channel.

Picnic: No one has volunteered to initiate this activity.

Nominating Committee: Steve Spitzer and Char Haguewood have volunteered to sit on the committee. Bob Herman will sit on the committee as a non-board member but he does not want to chair.

Old Business

Retreat: There was some discussion about the proposed retreat site at Ron Humbert's Michigan home. A number of people felt they could not stay for a weekend, and so preferred a closer site. Ron Humbert will discuss The Grove in Glenview as a possible site with Steve Swanson, the director.

New Business

Illinois Endangered Species Protection Board: Mike Redmer asked Mike Dloogatch to raise the subject of how the board members are chosen. He said that it consists of six people with a rotating membership (i.e., two people rotate off at a time). It has always been composed of people knowledgeable about the biological species under consideration. The state is planning, or thinking about planning, a different selection process in which the state would select members who are qualified for something, but not the protection of endangered species. Steve Spitzer made a motion that we send a letter to the appropriate state agency/administrator which says that the CHS supports the work the IESPB has done over the years and that we would hope that it continue to function in its current form. Linda Malawy seconded the motion. It carried unanimously.

Round Table

Mike Dloogatch passed around an AP photo from a Peoria newspaper that published a captioned photo of Bubba at ReptileFest.

Lori King showed some bank checks with lizard backgrounds that she thought were very well done. Part of the money used to purchase them goes to the San Diego Zoo.

Jack Schoenfelder said that we had the opportunity to consider ordering some well-made clothing items with the CHS logo. The group expressed interest. He will bring in more information.

Ron Humbert asked if containers for the *Bulletin* were available. Jack said there aren't any now but they can be ordered. When this was last done, about half were quickly bought and the rest were stored so long they were eventually discarded. Rich Crowley suggested that they could be sold at ReptileFest and brought to the general meetings. Jack will look into this.

Gary Fogel offered to have the next board meeting at his new residence. He will provide directions and mentioned that there is little available parking space in the area.

The meeting adjourned at 9:30 P.M.

Respectfully submitted by Recording Secretary Emily Forcade

Herpetology 2001

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

SPATIAL LEARNING BY SPOTTED PYTHONS

A. Stone et al. [2000, J. Herpetology 34(4):575-587] note that spatial abilities are important in mediating natural behaviors in snakes, such as localization of refuges. Twelve spotted pythons (*Antaresia maculosus*) were trained to find the location of an escape hole in a circular arena, given a choice of eight holes. A snake was deemed to have learned the task if it found the goal on eight out of the last ten acquisition trials. Only half of the animals learned the task after 32 training sessions. When sensory cues were manipulated after training, the subjects differed in their responses, suggesting the use of different cues to find the goal. Ten of 12 animals were also tested for shelter preferences. Snakes were given a choice of three different shelter sites (submerged, on the surface, or elevated) to determine the relevance of the arena escape task. Most snakes preferred elevated shelters and showed fidelity to shelters chosen on the first day. These results suggest that juvenile spotted pythons may be more motivated to seek elevated, instead of submerged, refuges, and this may account for the failure of half of the snakes to learn the spatial location task.

NESTING OF TURTLES IN ALLIGATOR NESTS

K. M. Enge et al. [2000, J. Herpetology 34(4):497-503] examined summer use of American alligator (*Alligator mississippiensis*) nests by nesting turtles, principally Florida redbelly turtles (*Pseudemys nelsoni*), in lakes Okeechobee, Apopka, Griffin, and Jesup during 1986–1991 and in three other wetlands in peninsular Florida for ≥3 yr. Other turtle species recorded using alligator nests were *Apalone ferox*, *Kinosternon* sp., and *Sternotherus odoratus*. In the seven wetlands, 26.6% of 1586 occupied (i.e., active) alligator nests contained *P. nelsoni* eggs. Of the four lakes sampled for 6 yr, Lake Okeechobee had the highest incidence of use of occupied nests by nesting *P. nelsoni* and the most turtle clutches per occupied nest. Nesting *P. nelsoni* used occupied nests more frequently in Lake Apopka than in Lake Jesup. Nesting *P. nelsoni* used vacant alligator nests (63.6%) more often than occupied nests (36.1%) at Lake Okeechobee, which suggests that attending female alligators may deter nesting turtles. Annual incidence of nest use by nesting turtles was correlated positively with June–July mean water levels in lakes Okeechobee and Jesup, where emergent marsh was the principal habitat and alternative nest sites were probably limited during high-water conditions. In the four lakes combined, turtles did not preferentially select alligator nests in a particular habitat type. Use of 1330 occupied nests by turtles in the four lakes was significantly lower in 1990 (13.5%) than in other years (21.9%–29.3%). The authors hypothesize that observed differences among lakes in turtle use of alligator nests resulted from differences in (1) water-level fluctuations, (2) availability of alternative nesting sites (i.e., distance to upland habitat), and (3) turtle population sizes.

FOSSIL SALAMANDERS FROM CHINA

K. Gao and N. Shubin [2001, Nature 410:574-577] report the discovery of extraordinary salamander fossils from China and include these new specimens in a study of the relationships among salamander families. The new fossils were recovered from the Fengshan locality in Hebei Province, China. Geologic data suggest the fossils were buried as the result of a volcanic eruption that occurred approximately 150 million years ago during the Late Jurassic. More than 500 articulated salamander specimens have been recovered from the locality including both adult and larval forms of two species: *Sinerpeton fengshanensis* (a new species described by Gao and Shubin) and *Laccotriton subsolanus*. *Sinerpeton* was a neotenic form that retained gills as an adult. *Laccotriton* went through full metamorphosis. Gao and Shubin include the new data from these salamanders in morphological and total evidence (morphological + molecular) phylogenetic analyses of salamander families in order to investigate their interrelationships. Contrary to trees published in other studies (which place Sirenidae as the most basal salamander family), both of the authors' analyses place *Sinerpeton*, *Laccotriton*, Cryptobranchidae and Hynobiidae at the base of the caudate tree; Sirenidae is located as the sister-group to Proteidae. This topology suggests that basal salamanders first radiated in Asia and only later spread to Europe and North America. This is supported by the presence of another late Jurassic basal caudate (*Karaurus*) in Khazakstan and other Cretaceous salamander fossils in Asia and Europe. The analysis of fossil evidence also supports the idea that extant salamander families have been evolving separately since at least the Early Cretaceous.

BOLIVIAN AMPHIBIANS

I. De la Riva et al. [2000, Revista Española de Herpetologia 14:19-164] present, based upon ten years of intensive research, an updated checklist of the amphibians of Bolivia. For each species, information on its general distribution within the Neotropics, its occurrence within Bolivian departments and ecoregions, and habitat use is provided. Key literature and taxonomic remarks, if pertinent, are added. The list contains 186 valid species recorded from Bolivian territory, 33 (17.7%) of which are Bolivian endemics. Two species reported recently (*Hyla walfordi* and *Phrynopus peruvianus*) are not included because those reports were based on misidentifications. Nine species (*Allobates femoralis*, *Epipedobates trivittatus*, *Hyla koechlini*, *H. sarayacuensis*, *Phrynohyas resinifictrix*, *Scinax squalirostris*, *Phyllomedusa tomopterna*, *Eleutherodactylus ventrimarmoratus* and *Ischnocnema quixensis*) are recorded for the first time. Moreover, 67 additional species are expected to occur in the country. The article includes a comprehensive bibliography on Bolivian amphibians and an iconography, with color photos of almost all Bolivian species.

ECOLOGY AND REPRODUCTION IN A SOUTHERN AFRICAN COLUBRID

J. S. Keogh et al. [2000, African J. Herpetology 49(2):129-137] examined museum specimens to quantify diet, reproductive cycles and sexual dimorphism in body size of the colubrid snake *Crotaphopeltis hotamboeia*. Females attain sexual maturity at approximately 300 mm snout–vent length (SVL) and males at approximately 240 mm SVL. Females grow larger than males (maximum SVLs of 830 vs 700 mm), and also have longer and wider heads and wider bodies than do males of the same body length. Males have relatively longer tails than females, but eye size relative to head length shows no sexual dimorphism. Both sexes breed each year. Females commence vitellogenesis in late winter (September) and oviposit from October to January. Clutch size ranged from four to 12 eggs with a mean of 7.58 and was highly correlated with female SVL. The testes of adult males are turgid throughout the year, suggesting a prolonged mating season. Of 73 prey items recorded, 97% were anurans. Six anuran families were represented among the prey items, but bufonids (39%), ranids (29%) and microhylids (25%) comprised most of the 51 anuran food items identified to genus. Larger snakes ate larger prey items, in terms of SVL as well as mass. However, the snake's sex and age (adult vs juvenile) did not affect prey type. Bufonids, microhylids and ranids were consumed by snakes of all ages and both sexes, and were eaten all year except during midwinter (July and August).

AMPHIBIAN ACTIVITY IN PEAT BOGS

M. J. Mazerolle [2001, J. Herpetology 35(1):13-20] investigated the activity, direction of movement, and body size (snout–vent length) of amphibians in both pristine and fragmented bogs of southeastern New Brunswick. Drift fences with pitfall traps were used to capture amphibians in six pristine bogs and six bogs undergoing peat mining (i.e., bog fragments) in 1997 and 1998. Results indicate that seasonal activity patterns of amphibians in bogs peak during August and correspond to movements of adults (following breeding) and juveniles (after metamorphosis) from adjacent wetlands. A seasonal shift in species composition occurred, as most captures early in the season consisted almost exclusively of ranids, with an increase in salamander captures in late summer and fall. Climatic variables generally explained more of the variation in amphibian activity in fragments than in pristine bogs. Wood frog activity near fragment edges was more dependent on amount of precipitation than in pristine bogs. Wood frog and green frog movements were nonrandomly oriented relative to mined fragment edges. Orientation of leopard frog movements was strongly influenced by year. Wood frogs occurring in fragments were larger than those in pristine bogs. The size difference in green frogs was not significant but followed the same patterns as wood frogs. Leopard frogs within bog fragments were larger than those in pristine bogs but only in 1998. This study implies that peat mining influences amphibian activity and movement patterns in neighboring bog fragments. Larger individuals may be better suited for survival in disturbed environments, such as mined bogs, because they are less sensitive to desiccation than smaller ones.

YOSEMITE TOAD POSTMORTEMS

D. E. Green and C. K. Sherman [2001, J. Herpetology 35(1): 92-103] examined histologically 12 adult and 25 larval Yosemite toad *(Bufo canorus*) specimens from the eastern Sierra Nevada of California for evidence of infectious, toxicological and degenerative diseases. The preserved toads were selected from 21 that had been salvaged or collected during a die-off in 1976–1979 that immediately preceded a population decline. Causes of death of four toads were determined histologically; clinical signs and field observations suggested causes of death of three more. Four toads died of infectious diseases, including chytridiomycosis of the skin (N = 1), bacillary septicemia (N = 2), and combined chytridiomycosis and bacterial septicemia (N = 1). Infections by a funguslike organism (*Dermosporidium penneri*), renal myxozoa (*Leptotheca ohlmacheri*), larval *Rhabdias*, various gastrointestinal nematodes, urinary bladder flukes, and lung flukes were detected in five specimens. No evidence of degenerative diseases, virus infections, or intoxications was found. The variety of lethal diseases and the authors' inability to determine the causes of death of five specimens suggests that one or more histologically undetectable diseases or intoxications may have also contributed to the deaths and population decline.

EFFECTS OF GESTATION CONDITIONS ON A VIVIPAROUS LIZARD

R. Swain and S. M. Jones [2000, Herpetological Monographs 14:432-440] note that viviparous squamates offer opportunities for exploring the importance of past maternal resources (yolk) and current resources (placentotrophy) to support embryonic growth during gestation, and to optimize offspring fitness. Both thermal and nutritional environment of the mother during gestation may be expected to be important in determining offspring fitness. Using a two-way factorial design, the authors investigated possible interactions between food intake and thermal environment during gestation in the viviparous skink *Niveoscincus metallicus*. Among the females given restricted basking opportunities, fewer females gave birth, there was a significant increase in gestation length, and relative clutch mass was reduced due to smaller neonatal size; none of these parameters were influenced by nutritional status. Neonates from mothers given restricted basking opportunities were lighter, had shorter snout–vent lengths (SVL), and smaller fat bodies than neonates from mothers given optimal basking opportunities; their postnatal growth rate (over 8 weeks) was also significantly lower and they showed a reduced incidence of basking behavior. There were interaction effects between thermal regime and food supply for neonate SVL and neonatal fat body weight. Sprint speed within 24 hours of birth was significantly increased in neonates from mothers given restricted thermal opportunities; however, for weeks 1–8 postnatally, there were no differences in sprint speed in offspring from any of the treatments. These results suggest that, contrary to the initial hypothesis, females maintained in nutritionally favorable conditions are unable to compensate for the gestational effects of a thermally poor environment. In *Niveoscincus metallicus* facultative placentotrophy may allow mothers to improve offspring fitness by increasing neonatal fat body size.

LANDSCAPE ASSOCIATIONS OF FROGS AND TOADS IN THE UPPER MIDWEST

M. G. Knutson et al. [2000, J. Iowa Acad. Sci. 107(3-4):134-145] examined frog and toad distributions in Iowa and Wisconsin to determine if landscape-level habitat associations were consistent between the two states. Wood frogs (*Rana sylvatica*), spring peepers (*Pseudacris crucifer*), eastern gray treefrogs (*Hyla versicolor*), and cricket frogs (*Acris crepitans*) were identified as forest species. The chorus frog (*Pseudacris triseriata*), American toad (*Bufo americanus*), Cope's gray treefrog (*Hyla chrysoscelis*) and leopard frog (*Rana pipiens*) were identified as grassland species. The bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans*), pickerel frog (*Rana palustris*), and mink frrog (*Rana septentrionalis*) were identified as lake or stream species. Of the species examined, the best bio-indicators of habitat quality were the forest species *R. sylvatica*, *H. versicolor* and *P. crucifer*, the grassland species *R. pipiens* and *P. triseriata*, and the cold water species *R. palustris*. Changes in habitat associations between the two states may indicate changes in these relationships across species' ranges. Interspersion of different habitat types was positively associated with the distributions of several species, and there were consistent negative associations between amphibians and urban development.

POND USE AND RECRUITMENT IN FLORIDA GOPHER FROGS

C. H. Greenberg [2001, J. Herpetology 35(1):74-85] examined spatio-temporal dynamics of Florida gopher frog (*Rana capito aesopus*) breeding and juvenile recruitment. Ponds were situated within a hardwood-invaded or a savanna-like longleaf pine-wiregrass upland matrix. Movement (N = 1444) was monitored using intermittent drift fences with pitfall and funnel traps at eight isolated, ephemeral ponds February 1994 to January 1999. Adult pond use was low but relatively constant among years and did not differ between habitat matrices. Juvenile recruitment was significantly higher in the savanna-like upland matrix. The number of adults using ponds was positively correlated with the number of next-year's recruits in only one year. Recruitment rates were relatively low (maximum 175 captured/pond/yr), but juveniles were produced from most ponds in three of five years. Recruitment was negligible in 1994 because of ponds drying and in 1997 for unknown reasons. Juvenile body size differed significantly among years and ponds. Body size was negatively correlated with the number of juveniles exiting ponds in. only one year, suggesting that intraspecific competition is only one of many factors affecting juvenile body size. Most emigration by metamorphic juveniles occurred May through August and was unrelated to rainfall. Dates of first emergence and length of emigration periods varied. A high proportion of juveniles with tailbuds and similar tailbud lengths in most months suggest that metamorphosis occurred throughout the emigration period. High variability in juvenile recruitment success and significant differences in body size among years and ponds suggests that each is influenced by factors at both a landscape (e.g., rainfall and pond hydrology) and within-pond scale (e.g., competition and predation).

ANTIPREDATOR MECHANISMS OF AUSTRALIAN FROGS

C. R. Williams et al. [2000, J. Herpetology 34(3):431-443] examined the antipredator mechanisms of 19 Australian hylid species (two genera) and 23 myobatrachid species (nine genera). Frogs of 39 of the 42 species exhibited one or more defensive mechanisms (other than escape), including postures, bright coloration, adhesive skin secretions, and/or calls. Defensive posturing occurred in individuals of 38 species, and varied in relationship to morphology and localization of skin glands. Bright colors, when present, typically were displayed during defensive postures. The authors documented dramatic geographic variation in the antipredator display of one species, *Limnodynastes tasmaniensis*. Defensive postures were accompanied by secretions from dorsal skin glands. These secretions were sometimes associated with a distinctive odor. Adhesive skin secretions were present in burrowing frogs of three genera. Defensive calls were emitted by most hylids but none of the myobatrachids. The authors hypothesize mimicry to explain the behavior pattern of exposing the bold black and white ventral surface in *Pseudophryne* and *Crinia* species.

THE CANTILEVER ABILITIES OF SNAKES

H. B. Lillywhite et al. [2000, J. Herpetology 34(4):523-528] quantified the abilities of snakes to extend the anterior body horizontally without support, and evaluated data for 31 species representing five families. Generally, terrestrial snakes exhibit rather uniform cantilever ability and can extend the body 30-50% of total body length. Arboreal species exhibit statistically superior performance both within and among families, with some species extending the body to more than 50% of body length. Extreme divergence of cantilever abilities occurs between arboreal and aquatic species. Intraspecific comparisons also show that juvenile snakes cantilever better than adults, presumably due to a lower mass relative to body length. Musculoskeletal features of the vertebral column are generally conserved in evolutionary terms, thus possibly explaining the generally uniform cantilever abilities in large numbers of snake species. However, several modifications of vertebrae and associated epaxial muscles and their tendons appear to be related to cantilever performance.

WATER COLLECTION BY A VIPERID SNAKE

D. V. Andrade and A. S. Abe [2000, Amphibia–Reptilia 21(4):485-492] describe a previously unreported behavior for water collection in juveniles of a Neotropical viperid snake, *Bothrops moojeni*. When sprayed with water, this snake displays a stereotyped coiling, bringing body loops in close contact with each other, so that water is retained between the loops and over the body surface. This water is continuously ingested during and after collection. The functional significance of this behavior is suggested to be related to the acquisition of water from short rainfalls, and with the special climatic and geologic conditions of *B. moojenii* habitat. Rates of evaporative water loss did not differ between juvenile and adult snakes, but since juveniles have a greater surface-to-volume ratio, they were significantly more sensitive to desiccation than the adults.

Advertisements

For sale: Frozen rodents now available at the General Meeting! Just another good reason to come to the meetings at the Chicago Academy of Sciences Patty Notebaert Nature Museum. Assorted sizes of rats and mice. Call Rich Crowley at (708) 485-5705 for details and pricing.

For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (352) 495-9024, E-mail: GrmtRodent@aol.com.

For sale: murine-pathogen-free rats and mice available in all sizes, live or frozen: pinkies, fuzzies, crawlers, small, medium and large. Frozen crawler mice in lots of 2000, $.17 each. Also available, full grown hairless mice. FOB shipping point. Master Card accepted. Call (518) 537-2000 between 8:00 A.M. and 5:00 P.M. or write SAS Corporation, 273 Hover Avenue, Germantown NY 12526 for prices and additional information.

For sale: from **The Mouse Factory**, producing superior quality, frozen feeder mice and rats. We feed our colony a nutrtionally balanced diet of rodent chow, formulated especially for us, and four types of natural whole grains and seeds. Mice starting from: pinks, $.17 each; fuzzies, $.24 each; hoppers, $.30 each; weanling, $.42; adult, $.48. Rats: starting with pinks at $.45 each, to XL at $1.80 each. Discount prices available. We accept Visa, MC, Discover or money orders. P.O. Box 85, Alpine TX 79831. Call us **toll-free** at (800) 720-0076 or visit our website: http://www.themousefactory.com.

For sale: from Bayou Rodents, excellent quality feeder mice and rats. Every size available. Pinks starting at $20/100. Orders are shipped by overnight service Monday thru Thursday. We accept Visa, MasterCard and Discover. For more info, contact Rhonda or Peggy, (800) 722-6102.

For sale: **high quality frozen feeders**. Over a decade of production and supply. Seven sizes of mice availabe: small newborn pinks up to jumbo adults. Prices start at $25 per 100. Feeders are separate in the resealable bag, not frozen together. Low shipping rates. Free price list. Kelly Haller, 4236 SE 25th Street, Topeka KS 66605, (913) 234-3358 evenings and weekends.

For sale: herp books. John Van Denburgh, *The Reptiles of Western North America*, 1922, 2 vols., 1028 pp. total, 128 b&w plates, bound in buckram with title, author, vol. no. and author stamped in gold leaf on spine, the binding of this classic will make a handsome addition to your library, $395; R. D. Auerbach, *The Amphibians and Reptiles of Botswana*, 1987, 295 pp., 19 multi-photo color plates, b&w photos, drawings, range maps, extensive bibliography, some minor creases on cover, spine slightly scuffed and worn, softbound, excellent reference, $92; Harold Ehmann, *Encyclopedia of Australian Animals: Reptiles*, 1992, 495 pp., excellent color photos drawn from the Australian Museum's photo collection, dust jacket slightly worn, hardbound, scarce, $120; Steve and Terri Irwin, *The Crocodile Hunter*, 1997, 144 pp., many good color photos (some full page), softbound, exploits with Australian reptiles, interesting reading, $30; Wright and Wright, *Handbook of Snakes of the U.S. and Canada*, 1957 (2nd printing), 2 vols., 1105 pp., 304 figs, hardbound, top of dust jacket slightly torn on both vols., $110; Alan Wykes, *Snake Man*, 1960, 221 pp., b & w photos, DJ, edge of pages browned with age, exploits of Ionides with reptiles in Africa, $25. All books in excellent condition except as noted. Prices postpaid. William R. Turner, 6838 S. Ivy St. - Apt. 302, Englewood, CO 80112, (720) 493-9378. E-mail: turnerbmrk@prodigy.net.

For sale: **Now taking reservations for c.b. 2001 aberrant garter snake offspring**. Following are expected to be produced this year: **Easterns—**Blais Flames (speckled, $125 each, red & orange phase, $50-$125 each, peach phase, $50 each); anerythristics, $175 each; hets, $50 each; Florida blues (not *similis*), $10–50 each; melanistic, $35 each; erythristic (2 strains): erythristic × Blais flame & erythristic × melanistic, $50–100 each. **Plains—**Snows (2 strains), $375 each; hets, $175 each; red-albino (double hets), $150 each; albinos (2 strains), $125 each – hets, $50 each; anerythristics, $100 each – hets, $50 each; possible het plains (66% chance of being het for albino, anerythristic or snow), $35 each; normals, $25 each/2 for $40. **Red-sideds—**anerythristi, $100 each (hets $50 each & possible hets $35 each); normals, $25 each/2 for $40. **Wandering—**het albinos, $75 each; normals, $25 each/2 for $40, & more. Babies will be available starting in June, call for availability. Please call (919) 934-0110. E-mail: Sirtaliso1@aol.com Website: http://www.thamnophis.com/features/ScottFelzer. [NC]

For sale: 2001 potential offspring; we have eggs and/or gravid females for the following species—hi-orange western womas; pastel hypo pyros; yellow anacondas; Argentine boas; Dumeril's boas; Brazilian rainbow boas; Amazon tree boas; apricot Pueblan milks. Babies due April through August. Call or E-mail for prices and availablity. Mark Petros, Strictly Serpents, (847) 854-3259, E-mail: MLPserpents@hotmail.com.

For sale: Send SASE to CRC, P.O. Box 0731, Las Vegas NV 89125-0731 for brochures and list of species available. Limited bookings available for guided tours of herpetological collection sites in Nevada. Call/fax (702) 450-0065. URL http://www.herp.com/crc/ E-mail: crcsafetie@aol.com.

Tours: Adventure tours to Madagascar! Join **Bill Love** seeing and photographing fauna and flora, heavily herp-biased, across the world's least known mini-continent. Maximum fun & photo ops assured on every trip. Contact him at: BLUE CHAMELEON VENTURES, P.O. Box 643, Alva FL 33920. TEL: (941) 728-2390, FAX: (941) 728-3276, E-mail: blove@cyberstreet.com.

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Wanted: adult lizards. One female jeweled lizard (*Lacerta lepida*); one female giant frog-eyed gecko (*Teratoscincus scincus keiserlingi*). Henry Cohen, 24 St. Johns Place, Buffalo NY 14201, (716) 881-6724 (mornings only).

Wanted: Aberrant/unsual garter snakes. Scott, (919) 934-0110. E-mail: Sirtaliso1@aol.com. [NC]

Wanted: west Florida reptile collector would like to hear from other reptile collectors from all parts of the U.S. to trade, buy, sell reptiles of all types. Tony Picheo, 11080 lillian Hiway, Pensacola FL 32506, (850) 453-8133.

Wanted: big-headed turtles; mata mata turtles; Mexican giant mud turtles (*Staurotypus triporcatus*); exceptionally large common snappers (45 lbs. & up); large alligator snappers (over 90 lbs.); spectacled caiman from Trinidad, Tobago and Surinam; dwarf caiman; smooth-fronted caiman; albino turtles (except red-eared sliders). Walt Loose, (610) 926-6028, 9:00 A.M. – 1:00 P.M. or after 11:30 P.M. Eastern Time.

Line ads in this publication are run free for CHS members—$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (773) 588-0728 evening telephone, (312) 782-2868 fax, E-mail: <MADadder0@aol.com>.

BOARD OF DIRECTORS' MEETING, JUNE 15, 2001, 7:30 – 9:30 P.M.

Are you interested in learning more about how the decisions are made which determine how the Chicago Herp Society runs? And would you like to have input into those decisions while they are being made? If so, why not mark your calendars for the June board of directors' meeting. Topics likely to be discussed at that meeting will be: the June Show and Tell meeting, other upcoming meetings and what is planned for them, how to make the society more interesting to members, just to name a few. The nominating committee for the 2002 slate of elected officials of the society is being formed now, so a attending a meeting might help you decide if you would like to seek a position on the board. After the board meetings there is usually a social gathering at a nearby restaurant. The board meeting will be held at the North Park Village Administration Building, 5801 North Pulaski Road, Chicago. Coming from afar, the best way to get there is to take the Edens Expressway, I-94, and exit at Peterson eastbound. Go a mile east to Pulaski, turn right and go south two blocks to the first traffic light. Turn left at the light into the North Park Village complex. At the entrance is a stop sign and a guardhouse. When you come to a second stop sign, the administration building is the large building ahead and to your left. Drive around the front of the building and park behind it.

CURRENT RESEARCH ON HERPETOFAUNA OF THE SONORAN DESERT II

The Tucson Herpetological Society and cosponsors are pleased to announce the second meeting of *Current Research on Herpetofauna of the Sonoran Desert*, to be held April 5–7, 2002, at the Four Points by Sheraton Tucson University Plaza, 1900 East Speedway Boulevard, Tucson AZ 85719. The goals of this meeting are twofold: 1) publicizing research on the herpetofauna of the Sonoran Desert—in the states of Arizona, Sonora and on the Baja California peninsula and gulf islands, and 2) bringing the interested community together to get better acquainted. There will be a Friday evening Icebreaker Social, Scientific Sessions on Saturday and Sunday, and a Saturday evening Banquet. Invited speakers are Harry Greene, and Dan Beck. The CRHSD II call for papers will come out in fall 2001. Current information is on the THS web site <http://tucsonherpsociety.org> and is also available from Roger Repp, (520) 318-8210, rrepp@noao.edu or Dave Hardy Sr., (520) 624-8879, dhardysr@theriver.com.

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, May 30, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. **Brian Jones** will give us the lowdown on "Captive Care and Breeding of Chuckwallas." Brian is a local CHS member who has enjoyed spectacular success breeding a variety of iguanian lizards.

Our always popular annual **Show & Tell** meeting is set for June 27. All members are encouraged to bring a favorite animal and to be prepared to come up on stage and tell us something about the animals they have brought.

The regular monthly meetings of the Chicago Herpetological Society now take place at Chicago's newest museum—the **Peggy Notebaert Nature Museum**. This beautiful new building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

The Chicago Turtle Club

The next meeting of the Chicago Turtle Club will be their Spring Turtle & Tortoise Show, Sunday, May 20, 1:00 – 3:30 P.M., at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Meetings are informal; questions, children and animals are welcome. Parking is free. For more info call Lisa Koester, (773) 508-0034, or visit the CTC website: http://www.geocities.com/~chicagoturtle.

DONATIONS TO THE MARCH 28 RAFFLE

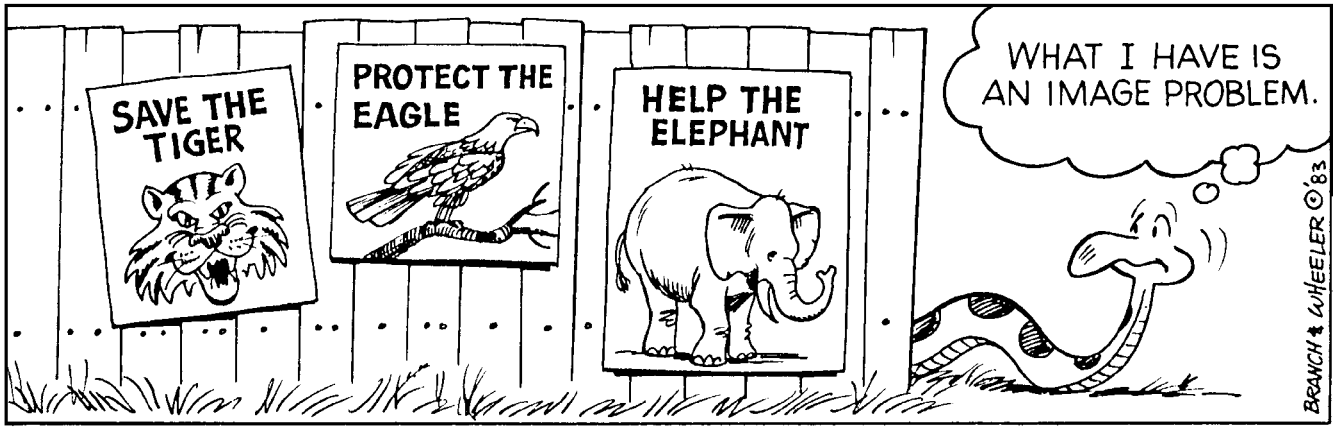
The following is a listing of those businesses and individuals who generously donated items for our monthly raffle at the March 28 meeting. The donated items are shown in parentheses.

Fluker (iguana food); **Midwest Zoological Research** (NutriBACdf supplement); **Absorption Corp.** (Carefresh pet bedding); **Hagen** (OrnamentAlls cage decor); **Super Pet** (Hanging Gardens cage decor / rock pool cover / Floating Island / Island Sanctuary); **ZooMed** (herp night light / Repti-Temp rheostat); **Gary Fogel** (decorative cobra candle); **Sally Hajak** (herp color prints); **Karl & Erik Graff** (book: *Kingsnakes and Milksnakes*); **Don Wheeler** (plastic Gila monster); **Ron & Dotty Humbert** (aquariums / Budweiser frog glass); **Lori King** (glow-in-the-dark frogs / art deco alligator ash tray); **Charlotte Henkle** (light stand & fixture / aquarium, stand & light fixture combo); **Jack Schoenfelder–Reptiques** (complete set of Wildlife Fact Files); **Dr. Cheryl Roge–Best Friends Animal Hospital** (screen top); **CHS** (T-shirts).

CHS MEMBERSHIP LIST AVAILABLE TO ALL MEMBERS UPON REQUEST

A listing of names and addresses of all members of the Chicago Herpetological Society, current as of August 2000, is available to members free of charge upon request. Send your request to Chicago Herpetological Society, 2060 N. Clark Street, Chicago IL 60614, or you may E-mail your request to Joan Moore at Joan.Moore@worldnet.att.net.

THE ADVENTURES OF SPOT



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