

# Mike's Travel in Thailand ~~Page~~ Book

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AUTHORS NOTE: This is a rough draft. Most of it was put together in the field, late at night, with little to no proofreading. This was originally presented as 19 webpages, where page breaks were immaterial. I only had 10 MB of space on my webpage (those were the days!), so I reduced the quality of the photos as much as possible, even deleting non-relevant portions of a picture to reduce its size. In preparing this book version I have done virtually no editing, all errors stand, and photos (while high quality originals exist) remain lower quality. I took about 3,600 pictures on the trip.

2003





## Table of Contents

Trip over and first night.	-		-		-		-		-		1
First full day and first collecting trip!					-		-		-		5
Supper and Next day	-		-		-		-		-		11
More Stuff	-		-		-		-		-		14
EVEN more stuff	-		-		-		-		-		21
Additional Stuff	-		-		-		-		-		29
Seven Finally up and running			-		-		-		-		33
Eight, this one (or the next) is really big.			-		-		-		-		40
Nine - Finally up with pictures.			-		-		-		-		49
Ten – up	-		-		-		-		-		66
Eleven – up	-		-		-		-		-		76
Twelve – up	-		-		-		-		-		86
Thirteen (Lucky Number 13 took me three different internet cafes to upload!) – up	-		-		-		-		-		97
Fourteen - Finally up!!!! Sorry it took so long. Good stuff to come too!	-		-		-		-		-		107
Fifteen!	-		-		-		-		-		123
Sixteen! Nearly a week long struggle but his page is up! TWO BEST PICTURES OF THE ENTIRE TRIP!!!	-		-		-		-		-		132
Seventeen, I'm getting caught up!!!	-		-		-		-		-		151
Eighteen, Last one till I come home.	-		-		-		-		-		171
Nineteen, Home and alive - Last log	-		-		-		-		-		187
Appendix I	-		-		-		-		-		210



## Trip over and first night.

Cold, drizzly, at times pouring, a good send off from Columbia. Kiefer drove, heavy traffic. We stopped at a Pizza Hut/Taco Bell for lunch around 2:30. Nothing better than beans and grease just before a two day flight. Got to St. Louis, Kiefer dropped me at long term parking, met a couple headed to Oklahoma City. He helped build malls around the states. First debacle - I had a trunk with collecting equipment, a duffle bag with personal equipment, and a tube with net handles. That makes three, only two items can be shipped! And you have to pay extra regardless of size, and weight. I asked if persons checking only one bag got a discount. She couldn't understand my logic. Wandered to the proper gate and waited. Found a seat next to a pay phone make for handicapped people. These are the best, they have outlets! So I read a few articles by Clarence Darrow whilst waiting for my flight. They announced the delay of a flight for Vegas four of five times, but not for my flight. I could see over the gulf of the waiting area that my flight, scheduled to leave at 6:30pm was now advertised as leaving at 7:40pm. Not a word, but curiosity reigned. Can't leave my bag to save my seat. So I packed up, waited for an opening, sprang into action, rushed the lady at the desk, "Is it delayed?" "Yes." Mad rush back to my special seat for a plug in and a good read. Laptops are nice, wanted to keep the battery fresh for the long flight.

Zoom to San Francisco. It was night, occasional scattering of lights below. Arrived an hour late, but no worries, what once was a four hour layover became three. Scouted, got another outlet, on the wall this time.

In the big plane! Three seats, isle, four seats, isle, three seats. Past one in the morning San Francisco time. Three people in my row of three seats. I was the isle. They handed out slippers. A lady came by (saint) and directed me further back into the bowels of the jet. It was not a full flight. I got an entire row unto myself! Ate supper, stretched out, slept about five hours. Up again. Still night of course. Watched some movie, forget the title. Not a happy movie. Set in 1957-1958. Husband realizes he's gay and wife falls in love with black man. Annoying because it was supposed to take place in the fall, but they bumped up both the reds (turning leaves) and greens (grass). So it was a spring green that covered the yards, and a fall red that graced the trees. Took pictures of the moon, and sunrise over Japan. Flew more. Watched Maid in Manhattan. Didn't listen to Antwan Fisher. A couple other movies came and went, Emperors Club, etc.



--Sunrise over Japan with the moon off the tip of the wing.

Taiwan- Many masks, but no health check. I exchanged \$5 for local money and got a can of Coca-Cola for Mary and a can of Iced Coffee for me.



Landed in Bangkok. They set up a thermal camera with a monitor in the airport to scan people as they walked by. I passed, they took my temperature using a thermal strip, and ask me if I had had flu like symptoms in the past two weeks. Made it through. Received a mask for my effort. On the front was the cartoon of a guy's face with the bubble, "Please don't bite".

Went through customs, got my luggage, and headed to domestic terminals. This building is separated from the international terminals. A 480 meter enclosed skyway links the two. There was an air conditioner ever 20 feet. It was hot and muggy still. I saw the flash of a mocking bird (they have two stripes of white running laterally across the middle of their wings) then remembered that some time during the night I switched continents. Probably not a correct ID. A kind of Jay, maybe. Checked in at the counter and headed to my gate. I was on the second floor,

my gate was down an escalator on the first floor. I hopped on the escalator. Air Conditioning, low humidity became 90 degrees F and 98% humidity with an altitude change of just 20 feet. Needless to say, I wandered back up stairs. Ate at Burger King, had a cheesburger and red Fanta. My flight was called, we loaded on a bus and were driven to the plane. By now my body thinks its 3:30 am and I've had 5 hours sleep in two days. I slept about 30 minutes in the flight. I needed a shave and shower.



-- Clouds over Thailand

The jet touched down to a large city in the flats under forest covered mountains (about 6000 ft). The air was fuzzy with smoke from the fires set by farmers. I collected my baggage and was met by Nan and two of her friends. She was wearing a black Mizzou T-shirt, and had been forwarded a picture of me by Bob. Not hard to pick out in a crowd (especially a Southeast Asia crowd), I was met with a smile. We all loaded into her car and wove through the streets. When last I was here I had driven perhaps a few thousand miles, if that. Now, having driven for 7 more years and 28,000 miles in the last 14 months I was acutely aware of how helpless I was as a passenger in the drivers side, in traffic that LA doesn't see on the worst days. Sit back and enjoy the ride!

She dropped my at the international hostel maintained by Chang Mai University. Pre air conditioning architecture, with ceilings at least 12 feet. My room was a double with bath, closet, and two short beds in one room, TV, refrigerator, and couch in the other. I showered. The water heater is a wall unit, about 18 inches, by 12 by 4. There is no tub, only a drain in the floor. Very economical, practical, and environmentally sound. After a shower and a shave I felt much better. New clothes, and I went down stairs for a red Fanta. I wandered around the building and looked at bugs. Ants everywhere, butterflies, lots of snails. Back to the room about 7pm (sun was setting). I fell asleep over the covers and awoke at ten. Akekawuat came shortly there after and took me out to eat. It was a cart by the road. For 15 Baut (50 cents) I had soup, very good. Back to the hostel for sleep.





-- Honestly I had an idea for a water heater just like this. No 20 gallons of water wasting energy all day long. This only runs at about a quart a minute, but water pressure makes up for it.

## First full day and first collecting trip!

Sun was rising just before 7am. Northerners such as myself (and geocachers) relish the longer days. As Missouri is headed toward 15 hours (or more) of blessed sunlight, the tropics sit at more or less a constant 12 all year round. Down with A to the restaurant down stairs. We got a free breakfast for staying at the hostel. I chose the Western Breakfast. Two eggs (yolks unbroken - icky), two pieces of toast, coffee with lots of sugar and heavy cream, a thin slice of ham, and a hotdog/sausage. The table with the coffee and tea sits with its legs in bowls of water. Protection from the ants. A has promised to take it easy on me today, apparently Bob has bad jet lag the first full day. I didn't. Back to the room I showered. Twice a day, just before rest and just after rise, is an acceptable shower schedule. We picked up DaNong (not even close, but its phonic if you cover one ear and squint). Then went to pick up another young lady at the train station. Over to the bank to exchange money and on to the lab. A three story building with a courtyard in the middle. We're on the second floor.



Hanging around the lab, I met the Professor whom is a Co-PI (Principal Investigator) for the grant A is getting money from. A and I went through the supplies we had, plenty for now. Lunch was a large outdoor affair with more different kinds of food than one could imagine.



I had rice, a whole boiled egg, some other stuff and grape drink. Cost about 60 or 70 cents. Not bad. Back at the lab I noticed a dragonfly. Its wings still possessed that glint of shine that speaks teneral. So I took its picture and not its life.





The FAA will not allow specimens to be transported in alcohol. So we spent a few hours transferring specimens that A had collected out of cups of alcohol and into small plastic ziplock bags with just a squirt of alcohol. After, I typed and prepared page one for the web.

We left around 6 with DaNong and picked up Bau. Driving at breakneck speeds to find a book store. I ask A how it was that he could navigate through traffic so well. He explained that eyes don't see everything, and mirrors lie, so he uses The Force. Honestly, it's a good explanation. The bookstore failed us so we went to eat. Monkey ("ling" in Thai) Club was the name of the restaurant. Nan met us there. Squid, shrimp, a fish (head and all), fruit, curry, pork, and a fried banana with strawberry icecream! Back to the hostel by 10:30 pm for a shower and much needed sleep.

Poles- When we had lunch I noticed that the electrical poles are made of concrete. Why don't they use wood, I thought. Bad environment, wood would rot too quickly. Then I corrected myself., I come from the bad environment. A concrete pole would be affected by neither woodpecker nor rot, but in Missouri freezing would tear it down in just a few years.

Breakfast, to the lab, check email, round up equipment, and then in the car and on the road. Three of us went, A, Me, and Bau. We started up into the mountains. Thick forest on both sides of the highway. There are two lanes for going up, but only one for going down. We checked in at a station and then drove on to the first stop of the day.



I prepare The Big Net. I haven't swung at a dragonfly in 6 months, and never with this net. Some things need to be said about the differences between here and home. First of all, the dragons are faster. None of this flit around, poof, poof, land, sit a bit, flit around, poof, poof, land. Nope. These guys cruise. Also at home near water a good 50 to 60% of the movement (flying things) you can see are dragonflies. Here there is stuff flying everywhere! Big stuff too. Butterflies the size of my face keep getting in my way.



Did I catch any dragonflies? OH YES! We visited three sites (L-488, 489, and 490) and I got many different species of dragons and damsels at each.

A notable encounter: The last site of the day, and this butterfly was bugging me. Very beautiful, black wings with white spots. A bright orange body. I was scanning for damselflies. It finally started to fly away, but the wing movements just weren't right. Flashback! Two months ago, David Bowels is looking over my Megaloptera, A brings him a dingy, badly colored specimen. "These are beautiful in real life, but the alcohol takes the color away," says David. I spring into action, jump up from where I am, run across the creek, and almost take a swing at it with my aquatic net! I throw that down and frantically pull the sweep net from my belt. Its landed in thick branches, my first sweep prunes back a tree, but misses my quarry. It takes flight, a swing and a Catch! Not very good picture below (squirmy).



Quick pic of Killer spider then home for shower, and food. (I'll tell about that later).





## Supper and Next day

For the benefit of the American readers.

A legged pot about a foot across filled with very hot coals. On top goes another piece shaped like a angle food cake tin (instead of a hole in the center it is rounded over and ringed with slits). In the circular troff goes water which presently boils. Plates are distributed with small raw seasoned cuts of pork, chicken, beef, squid, etc. Greens (cabbage? and another) and torn to small pieces and put in the water. The meet is placed either on the top to "grill" or in the "soup". Keep the top covered with meat and greens in the soup and eat all you can! Of course I'm from the states. We run thousands of miles of fences through the back yards of our towns and villages to Keep THEM Out. (THEM being our friends and neighbors.) Food is no different. You get a plate, if you pick from someone else's it's a minor sin to be done craftily. Here it's a free for all. Mikey's timid at first. Have you ever seen eagles stuff food down the gullet of a chick? Well those in the know made sure I didn't starve at first. By the end I was pretty deft at this form of food and could hold my own. And that was supper.

The next day- Up and out, headed to the mountains. We visit waterfalls mostly. Believe it or not there are insects specifically adapted to live on the rocks "in" the waterfall. Not the pool below or above, but in the area of the rocks that the water is flowing vertically. They have a tight grip! We sample the pool above and below of course.



Let me introduce you to one of the common damselflies; *Aristocypha fenestrella* (this is a tentative identification, but I'm fairly certain its correct). These are at most sites we've collected at so far.



Here are some of the sights along the way to and from the site.



Later that day we went in search of books again. This time we hit pay dirt! I got *Dragonflies of Thailand* for exactly half what it would cost in the States. This book is a compilation of the papers written by a man in Japan giving keys to the adults (few pictures) to all the known species of dragonflies in Thailand. Additionally I picked up *Atlas of the Dragonflies of Thailand*, which gives ranges for all the known species, and has photographs of 120 species. Very helpful. Also I picked up a very nice book on the trees of Northern Thailand, and a great big book on the Beetles of Thailand (Its mostly nice pictures, and not much else, but it outlines the common families). Needless to say, I was very happy.

## More Stuff

On the road. We have checked out of our hotel, packed enough for two nights and three days and struck out into the great beyond. The adventurers on this trip are myself, Akekwa, Pow (Formally Bau, I'm dealing with sounds I can't hear or repeat) and Ell. Pow and Ell (spelt incorrectly I assure you) and two beautiful young ladies that are working on their Ph.D.s. Both speak enough English to converse with me, if I'm slow and use easy words. This is very good, in fact its amazingly good, as I only know about 12 Thai words, all of which I pronounce incorrectly. Apparently the schools teach children a little English starting at about 10 years old.

We drove. And drove some more. Stopped for gas, if you spend more than 400 Baut on gas you get a free glass! Spent 410, so we got our free glass. Drove some more, and still more driving, into the mountains, up and down, around blind corners, etc, etc. It had been raining heavily that day, but was beginning to let up, then we drove above the clouds, and back into them. Our first stop was near a temple, (perhaps I have been here before). The fog was thick, but we wandered down. The water was cold, so much that it almost hurt, and the air was about 60.



It is here that I make an amazing find. I pluck from a blade of grass a huge exuviae (the skin left over when a dragonfly emerges). Its mouthparts tell me that it is in the dragonfly family Cordulegastridae. This family is unmistakable, even in the field.





Its cold, perchance there are newly emerged adults about, that have not yet flown away. I search the grass and find many more exuviae belonging to this and another family, Gomphidae. AND I find three newly emerged adults!! Later, looking through my books, I find that there is but a single species of Cordulegastridae known in Thailand!! And using a key from China I ascertain that the exuviae I collected are in the same genus. Very good news for my project. The Gomphid larvae and adults will have to wait until I get back home for identification, as I need a good microscope and a lot of patience to ID them.



Back to the car, very happy. We drove and drove and drove some more. Finally ending up, where else, by the highest place in Thailand, 2565 meters above sea level. (Approx. 8415 Ft.). This also happens to be a virtual cache, and is the first Geocache I've had a chance to visit in Thailand. There is a radar station on the other side of the parking lot. The signs in English and Thai read, "Photography is forbidden".



We drove a little ways and stopped at Aang-Ka Trail (Michael). I don't know what my name is doing on there, but its on the sign. It is a raised boardwalk through the forest. This place is a natural basin that has been filling with sphagnum moss for tens of thousands of years. Additionally it is home to many endemic species (plants and animals found nowhere else in the world). The most beautiful place I have ever been. Picture a tropical rainforest or a swamp, with the giant trees, beautiful flowers, everything caked in moss and lichen. Birds bobbing in and out, giant beetles shooting through the forest. Rotting logs to and fro. Now, imagine this rainforest at 65 degrees. HEAVEN! Ell (who, by the way, weighs almost exactly half what I do) was very chilled by the walk, and we had to quicken our pace towards the end for fear of hypothermia. She did regain her warmth only after a cup of hot tea later down the road. I, on the other hand, was exhilarated by the walk and am now planning on looking into cloud forests as a Ph.D. project (perhaps South America).







We finally reach where we will be staying the night after much more driving. The Royal Agriculture Station on Doi Intanon (the name of the mountain it is on). I whip out my trusty GPS and take a way point. How far, I ask myself, are we from the hostel we had stayed at the night before? 100 miles? 150 miles? Well, as the crow flies, only 31 miles! We were in Bungalow number 2. A small A-Frame building, with a front and back door, bathroom in the back and electricity. As we unload our stuff A says to me, "Maxwell lives in number three. He is the best." "What in", says I. "Plant Taxonomy."



A few words on plant taxonomy. This is the science of describing, naming, and figuring out how plants are related to one another. Plant taxonomists are a little touched in the head. To go into this field you have to be a genius or slightly insane. Why, you might ask. Well I'll tell you. Plants don't operate under the same rules as animals. Animals get one set of genes from mom and one from dad. If they get two from mom and one from dad the offspring is not viable and does not develop (and vice versa). Down's Syndrome is the result of only one extra chromosome (47 instead of the usual 46). Plants don't care. A genetic mixup during the production of one seed can result in an entirely new species in a single generation! Plus plants have few characters that can be used to reliably help with showing relatedness of species. Leaves, stems, flowers, can all change and look very different for closely related plants. Honey Locust and Soybeans are in the same family.

We eat and set up the light trap. The Cicadas are deafening. At all hours of the day too, not just evening. I check lights for bugs, take care of my specimens, and wander down to the main hall. Maxwell is there, Pow, A, and another Thai that had been helping Maxwell earlier that day. Max is European, probably English. Rags for clothes, thick glasses, speaks Thai fluently. Could drink an Irishman under the table. Chain smoker. Loud. Offensive. Speaks his mind and doesn't care who he bashes. Been in Thailand since 1969, he's 58 now. He was complaining heavily about posters and speeches that students are required to give, the incompetence of the professors, government, everyone in general. We ran through the list of faculty in Biology at Chiang Mai U. and he shot every one of them down. Mentioned that a few people need to die and get out of the way. He complained long and hard about a paper where they listed only the genus of oak, and not the species. A crazy old sumbitch, but most of what he said was right. Honestly I thought he was a great guy. He reminded me a lot of an old professor I had way back when. You need

people full of (piss and vinegar) the old spirit, hate change, challenge the status quo, aren't afraid to speak their minds, ect., etc.

It is nice to have someone around who knows what's going on. Why is there a forest agriculture station? Well, opium is a very profitable crop, and apparently sustainable and forest friendly. But its frowned upon by most of the world, so the King said no more opium. But the hill people still need to get money (I won't mention that with education rather than a strong back, their children and future generations could make fortunes in computer related industries. Computers are universal, highspeed internet can be supplied as easily as cell phones [they do have cell phones] and when you only need \$2 a day to survive, a lot of people would want you to help build and maintain their web pages, programs, etc.). So the government is trying to find alternative crops and using lots of pesticides in the mean time.

The walk along Aang-Ka Trail (Michael) was nice. But the area has been severally affected and changed do to the boardwalk that was built so that people could enjoy the area. And only 15% of Thailand's virgin forests remain. How deep is the top soil? A good 30 centimeters! Less than a foot! These things I learned from crazy Max. Cigarettes ran low, it got cold, people drifted off to sleep. About midnight the bottle was dry and we all tottled off to bed.

## EVEN More Stuff

Up at Dawn (7am). What's the game plan boss? We're going to go to the waterfall Max was talking about last night. So we pack up, drive about 10 minutes, find a sign, a parking lot, and a trail. The dirt here is red, the trails are bare dirt about three foot across. We start off into the great beyond. Flanked by chrysanthemum farms we soon leave them behind and plunge into the twilight of the forest. Now I'm not in the best of shape. I can meander or wander for days without end, but a brisk walk better be brief. And with no hope of a Coke machine at either end, well I start panting pretty quickly. So the others shot ahead, and I wandered behind. Max is in shape, and I figure I walk about 25% slower than an in-shape-man. So his 40 minute walk should take me about 50. I watch for bugs, birds, and caught quite a few damselflies along the trail. The trail went up, and then down, and then up and then down, unending. Occasionally I would come across the pleasant smiles of my female companions, and a whiff of smoke from A. Then they would strike off again, soon out of sight. Only stopping to plop specimens in my kill jar, it took me 53 minutes to make it to the waterfall (A timed me). The others set about working busily, and I began stalking for dragons.





I get a picture of a chrysalis. A couple hours of collecting, we shift down stream and collect some more. So as to not delay I set out about 10 minutes before the rest and head for the vehicle. Up and down, up and down, slowly making my way through the forest I take my time. I get a few nice damselflies, some beetles, and a picture of a nice snake.





Time back to the vehicle: one hour ten minutes. I'm dead, and begging for Fanta.

The last place we went that day was a waterfall frequented by many people. When we parked we were immediately set upon by about five drunken morons. These idiots had just purchased two fledglings from a farmer who had collected them in the forest.



The price, 20 Baht, 50 cents American. Not old enough to take care of themselves, they begged for food loudly, opening their big beaks wide to show a bright yellow mouth. Without proper care (24 hours a day) they were dead. The stupid, idiotic, morons, kept giving us bananas to feed the chicks. They finally left to go pollute the waterfall with their presence. There wasn't much at the site anyway. I collected a few grasshoppers and Ell (a good mother) fed them to her two new

babies. We smuggled them back to CMU. I have not inquired as to their fate. Probably dead. This is what happens when you mix idiots with a farmer that is trying to get enough money to survive to tomorrow.

I got a few pics on the way home. Americans can be pretty boring, so I was going to get a picture of this truck (with standard Thai decoration), when its proud owner sprang from his hammock and posed for me! Plus, guess what this sign designates.



The next morning welcomed in a much needed day of rest. Up with the sun again, I wandered to the lab. Around 9 we went to the herbarium to meet Max. Pow, A, and I went to get books. A lab to be proud of, very spacious, open air, and well lived in. We met Max downstairs, stripped to the waist readying plants to be dried. In a flurry of action we went upstairs and began searching for keys to get into a cabinet to get keys to get into a closet to get the books. The keys were soon found and the books presented. Few pictures, the wealth of these books lies in the table towards the end. It lists the 2247 species of vascular plants known to inhabit Doi Sutep-Pui National

Park. We get him to sign our books. Pow gets the best inscription, it read something to like this: This book is the product of 1. Hard Work, 2. Dedication, 3. Research, not some idiot meetings, seminars, or posters. Max CMU 4 May 2003. Max was not a fan of meetings (he called them "Beetings" with the emphasis on the first e), seminars, or posters.

I wandered home to work on my logs and A worked in the lab on the computer. Around 4 he came back and collected me. There is a very large temple on the topish of the mountain that overlooks Chiang Mai. Ell and DaNong agreed to accompany me on a trip up to it. So A drove the three of us to the tour company (Two trucks on the side of the road). For 60 Baht (\$1.50) each they would take us up and bring us back. So we hopped in the back and were off. Now the road up the mountain is up. And windy. You're in the back of a quarter ton pickup truck with a camper shell you're whipping from side to side, inching further and further back. Passing motorcycles like their standing still. It was a ride!! Made it to the top. Lots of shops about.



One specialized in the big insects, and yes those are bats too! Most of our insects will go extinct from habitat loss, not over collecting, but that cannot be said for something like bats. Too bad. Saw the temple, pretty.





Got some pictures of the city which I put together into a panorama.



The truck dropped us off and we walked across campus back to the Biology Building. The symbol (mascot) of Chiang Mai University is the Elephant. What a wonderful mascot. Powerful, yet wise. Social, illustrating good family values. The young can be so playful, the adults so wise. Elephants never forget, you know. And as an added bonus, elephants not only live in the same Hemisphere, same continent, but also live in the same country, and region that Chiang Mai University is situated in! (Its not that I think using the Tiger as a mascot for a university in Missouri is stupid, I just wish they'd put up a big fence around campus and let one go free. It'd be a lot more meaningful, not to mention fun.) Topiaries run rampant around campus, mostly of elephants.





Dinner then off to the night market. Anything and everything you could ever want and more. People packed in like sheep over entire square blocks. Clothes, knives, food, music, art, it was all there. Hot and muggy, not a breath of air in the place. The foreigners were easy to spot, often not American, mostly French, Australian, German, and Russian. Most are under thirty, 6 feet 2 inches tall (males and females) and skinny as a rail. Lots of sights and sounds, then packing, and sleep.



## Additional Stuff

Last day in Chiang Mai. The day before I passed a pond on Campus that was teeming with dragons. So A was kind enough to take me there in the morning for some quick collecting. I grabbed 4 or five species I had not seen before at any of the sites in the mountains (for good reason, these are pond species). We got ready for the long trip, packed the car FULL, grabbed DaNong (She is to be our guide for the next 10 days), said our goodbys (misty eyed) and headed into the great beyond. We ended up over 150 miles (straight line) from where we started. It was a full day of driving, hard driving and A did it all (I can't drive over here, its madness). While we're driving let me tell you about some things.

Money: The largest bill in circulation is the 1000 baut. From there it trickles down to ten, which is rarely seen because there is a 10 baut coin. The bills size gets smaller as the value decreases. This makes them easy to tell apart but creates an uncomfortableness for myself. All me to explain. I carry a wallet and a money clip. In the wallet goes the big bills, and in the money clip the smaller ones. In the states I always try to keep a one on the outside of my clip (I'm the kind of guy that likes to rap a \$1 bill around a stack of hundreds). This way noone knows how much you have. Here, you can't hide a 500 with a 20! Very annoying.

Most meals run between 50 cents and a dollar each, including drinks.

So far two things have been omnipresent in Thailand. Not the heat. Mind you, I've gotten to spend the night at elevation, and nearly froze! I felt so sorry for little Ell! No, the first thing that is everywhere are ants. Some people are of the mind that the tropics are up made of ants... and some other stuff. E.O. Wilson puts the ant biomass (that is, living weight of ants) at a full 10% of all the biomass of a rainforest. There are over 8000 species of ants world wide, and I have accidentally stepped on at least 20 here in Thailand. Different shapes and sizes, colors and densities, they are everywhere. And helpful too. Spill a little something, have some bugs that died at a light last night, want roadkill cleaned up? There are ants there to do the job. Happily, too! Fun little guys. Some bite and sting to beat the band, so watch out for those.

The other thing I have encountered where ever I have ventured throughout this distant land is the genuine smile. Everywhere. Shopkeepers, people on the street, people driving, working, walking, standing, guys with badges and guns, kids, old people, everyone, everywhere smiles. Genuinely! What a weird world.

Well, our trip is nearly complete. We go through the gate at the park (we get in free, cause we're with the university) and get our room. Time for food, set up the black light, shower, and rest.



The next morning. Short drive, bright sun. We get a guide. He has a rifle and short machete. We wander up the road a bit and plunge into the forest. This trail is different, just a parting of the vegetation. The forest is thick, very dark compared to the clearing of the road. We walk quickly, too fast for me, I want to watch for stuff. I lag behind and pick up a few damselflies along the way. Eight tenths of a mile into the bush we come to a cool stream. Collect all you can, says A, and I set to. A beautiful female Cordulid (I think) was laying eggs and I scooped three of those.



Small damselflies skirted to and fro. Of course we had to get a picture holding the rifle. "When Bugs get Big, We Put the Nets Away."



The next place we visited was a waterfall. The sign across the stream said something akin to "unexploded bombs, do not enter". I collected a beautiful male Gomphid.





The third site was a beautiful stream with a large rock bluff to the right. There had been a mass (about 15) emergence of Aeschnids last night, or the night before. There were exuviae all along a rock bluff.





The last site for the day was 400 meters straight down. I made it down easy enough. A beautiful waterfall, I took some video (too big to show here) and caught some damselflies. It was getting dark and not much was flying. As A and DaNong finished up I started my ascent. Not too bad actually, I was only minorly huffing and puffing when I hit the top. At the top there was a swarm of dragonflies which I suspect are in the genus *Pantala*. We have the same species in Missouri (I've seen them in Belize too), yellow, with clear wings, they can easily be seen in parking lots, where the females will be attempting to lay eggs on the shiny hoods of cars. These are very strong, agile fliers. I took a swipe and missed. They simply increased their altitude and kept on feeding. Well, Mikey has a new net! A 15 foot net! So I extended it as far as it would go and popped it up way into the sky. A whoosh, a flip, and I had a specimen! Amazing.

Headed out tomorrow, so packing and feeding and sleeping.

## Seven Finally up and running

7 May 2003

We wander to some big falls early in the morning. Hunting around I get some good specimens, including this red one.



I see my white whale. A big dragon with orange, black, and yellow on the basal half of the wings. The rest of the wings are clear. An individual, it flits and flirts on the other side of the river, out of reach of even my big net. I never get a change to swing, but we'll meet again.

We relocate 150 miles southwest. It's a long drive and no more collecting for today. We find ourselves in a hotel. Big room with a good air conditioner. There is a book store downstairs, I get a children's book written in Thai, *The Buprestids of Thailand* (metallic wood boring beetles). I also got some postcards, still haven't mailed any. I may hand deliver them (for that personal touch) when I make it back to the states.

8 May 2003

Up and out. I have toast, ham and scrambled eggs for Breakfast. Proper. We start on a four lane highway, two lane highway, paved road, dirt road, and finally a dirt track which requires 4WD and a lot of patience. Finally we reach our destination. A waterfall unlike any I have seen here. Limestone, these falls are being deposited rather than worn away. There are ledges and pools, it looks more like cave formations than a waterfall. A beautiful site (sight).





I took lots of pictures here, so lets get through the good ones. First of all there were Cordulid dragonflies at the riffles, so I got a few of those.



I got a picture of a cute little beetle on a stick.





Also I found some carpenter bees working. Those holes are bigger around than a nickle. I also netted one of these guys later. They are as big as a ping pong ball!



I saw another snake. Not until I looked at the pictures did I notice that you can see its eye.



I got a fabulous picture of some aphids (? That or psocops, not sure).





And a picture of a cute little fly.



The next set of falls were similar to these, but were a popular people destination, so collecting wasn't quite so good.



The third site was a wet place (pond) by the side of the road. Again, these harbor very different species than the mountain streams.



On the way to the fourth site we passed some children driving the coolest piece of machinery you could ever have. Lucky Kids. I want one (not a kid), maybe later.



At the last site I finally connect with one of the coolest guys I've met so far. Very small (wing span of an inch) these guys are very fast, and especially in fading light, hard to see. Believe it or not, quite a few swipes with a 24 inch hoop were needed to collect this little beazer.





Back to the hotel, food (inside, it was threatening to rain). Shower and sleep.

A few notes on the typing. Harry Flashman (a character of a series of novels I'm reading) says he never worries about praying for his soul, there are plenty of good people out there that are willing to do that for him. While I do run spell check continuously, I don't worry about misspelling, because there are plenty of people out there that are willing to correct me! Thanks for putting up with it, though.

A note on the trip. The funding for this research was provided through the Brown Fellowship. Offered to American Citizens in the College of Agriculture at the University of Missouri. The purpose of the fellowship is to allow an American to research abroad and have a meaningful cultural experience. To win this money I wrote a proposal (paper). With help from Bob (Dr. Sites) I won the money and am now over here. I say this because when I make a mistake I admit it. Damn those English teachers for being right!

Eight, this one (or the next) is really big.

9 May 2003

Up and out we are on the road again. We stop by a national park, Do you have a waterfall? Yes, it is a two day walk. So we are on the road again. Watching for "ponds" we continue at break neck speeds. We stop to lighten the load, and wander back behind the gas station. A pretty good spot, begin collecting.



My white whale makes an appearance and then is gone, never a swing is made. Working around I pick up all the other species around, including this beast. I kept thinking of it as belonging to the family Gomphidae. Much to my surprise it turns out to be in the family Libellulidae! So much for ID of foreign dragons on the wing.



At the next spot I encounter let another species, and disaster. First the new (to me) species. Amazingly small, with solid black on the basal half of the wings. The white wisps past the black reveal that this is a male. Cute little guys, I collected a couple.



The disaster. I take a whack at a dragon and CRACK! The handle of my Big Net is cracked. This handle is made of five pieces of circular fiberglass that telescope. Mr. Kiefer invented an ingenious method to allow my to vary the length of the extended handle and not have to have it at the full 15 feet all the time. The most distal (smallest, innermost) piece had worn through and cracked at the junction of it and the next larger piece. Well, this isn't too bad, because the piece that broke does not have to remain hollow.



Setting up shop in the hut, I take the handle apart, whittle a piece of wood to fit, and get a tube of epoxy that I had with me in my bag. 10 minutes and its fixed, just needs time to set. We eat lunch and head to the next site.

Another pond, we've been eating and driving for an hour. I pull out the Big Net. Will it work, is Mikey's craftsmanship up to par? Well I picked this guy up, and the net is still working as of this writing!





Fourth pond for the day, this is honestly in someone's front yard. The white whale flies by once. I grab what is becoming the usual species complex for the lowlands. The kids come out and want to see what we are up to. Fun is had by all.

The last site of the day are another set of falls. Quite a few people were around. A different species complex here (it really will be interesting to see exactly what I got where, because some really good patterns will emerge). One young man comes over and asks me what I'm up to. Wonders if he could get his picture taken with me! When I'm rich and famous that picture will be worth money! LOL!



Back to the hotel, food, process specimens, recharge batteries and prepare for the next day.



10 May

Going to be a long haul with many stops to collect, we set out on the road. We collect at a "pond". Pretty much the same species as before. Which is annoying. Not only because I want different stuff, but because the red ones are really fast! Every time we stop its another hard fight to get common stuff! Not a problem, though, its all part of the fun.



Early in the morning A (ever vigilant) checked the level of coolant in the reservoir. It was full. Less than two hours later it was nearly dry. We added water, turned off the air conditioner, drove to the nearest gas station and got antifreeze. Added that, drove a ways and checked again. Almost empty. This is not good, not only is it hot here but this is a rental vehicle, and we go to some pretty remote places. Places that, if you're car dies, you walk out or ride out on a water buffalo. We stop at a garage and they check out the car. The problem is identified (I don't understand what exactly it was, lost in translation), but fixing will take a few days. A is on the phone with the rental company. If we can make it to a big town down the road they will send another car from Bangkok to meet us. We dead head in, my eye on the temp gage the whole time.

We make it, and have a few hours until the replacement gets to us. So we check into our hotel and set off in search of internet. For a people that have happily (and very quickly) embraced all forms of technology, they are sorely underdeveloped when it comes to the internet. Don't know why. Actually, when it becomes mobile (PDAs, Pocket PCs, etc) perhaps they will embrace it then. After much searching we come across an internet café. Twenty minutes and still can't get online we give up and head out again. The next one works. I check email, quick switch computers and upload pages (5 and 6 I think). The new car arrives, we switch, eat and ready for the next day. Adventures.

One more thing. While having the car looked at I finally get a picture of one of these. They are the Swiss Army Knife of the Thai farmer. Two wheels and a big engine. They are everywhere. Used for transportation, planting, harvesting, pumping, spraying, you name it, it can do it. Very practical.



11 May

(Finally I am catching up) Three stops today. The first is a pond. I attempt to get a picture of a small damselfly.



This is a tricky situation. Any picture of a live specimen is tricky. Let me explain. I'm holding a captive specimen that, if given the chance, will break free. I'm standing in a gravity well that, that if given the chance, will pull my camera towards the center of the earth. I'm standing in water that, if given the chance, will get my camera very wet. And I'm trying to juggle the camera, specimen, nets, set up the camera, hold the specimen just right, get everything in focus, etc. Its actually very simple compared to how it was done before digital technology, but still pretty tricky for a slow person such as myself. I see a big Aeschnid dragonfly at this site. I tracked him for 20 minutes, but never get a swipe. These dragons are big. Built more like a sparrow, if these guys ever learned to cooperate they could carry off puppies and kittens. LOL Perhaps I will collect one at a later date and get a good pic.

Site two is beside a rice field. Picture of a mature male dragon.





They are combining the rice as we collect.



A great tracked vehicle, its like something out of a Star Wars movie. That being said, there are vehicles of all shapes and sizes here. I try to get pics of them, but they're moving, we're moving, its tough. After we finish collecting we follow the highway until it ends! There is a ferry across the river. Hope it doesn't sink!





We make it across and continue on our way.

The last site of the day offers the usual set of dragons, and two which I believe are new to me!





My white whale is there. The big dragon with orange, black and yellow at the base of the wings. The water is too deep cross and there is one, only one, on the other side. I extend the net to full length and give it a swipe. I miss. My whale will be collected on another day.

We head down the road and pull into a Tesco Lotus. A big store, Wal-Mart sized only with covered parking. A's parents are there. We exchange, our specimens (to make room for us) to them, and they give us mangos galore! A very nice people. We drive on. It begins to rain, so much we seek shelter under the roof of a gas station. After 15 minutes it has let up enough to let us drive on. We get to our hotel, check in and eat.



I write this log, and am now headed to sleep. Goodnight.

## Nine - Finally up with pictures.

12 May

I got lots of specimens today. We are near Kanchanaburi (spelt incorrectly). The first site is a very nice stream and it is teeming with bugs. I swipe low at two dragons and scoop too much water. CRACK! I got my specimens, but the net is in two pieces again. I start taking it apart and up from the log I was by flies a teneral dragon. I swipe it and find an exuvia on the log. A possible association, it will take a little lab work to find out. Ten minutes, bamboo, and Duct tape and I'm back in business. I'd like to say something about bamboo at this juncture. Bamboo is nature's plastic. Immensely useful you can do anything with it. Its easy to work with, strong, and lasts. We have native bamboo in Missouri, lots in Sam A. Baker State Park, and even some growing on MU's campus. However our bamboo is somewhat spindly. You could kill a man with the bamboo around here. Kill a man and build a coffin to put him in. You could kill a man, build a coffin to put him in AND a raft to float the coffin down the river. You could kill a man, build a coffin to put him in, a raft to float the coffin down the river, and do all of this in the shade of a hut built out of bamboo. That's good grass.

Lets look at some pictures. Here are two exuviae. These are the outer skin of a baby (larvae) dragonfly. The one of the left is a damselfly (there are the remains of three gills at the base of the abdomen). The one on the right belongs to a dragonfly in the family Aeschnidae.



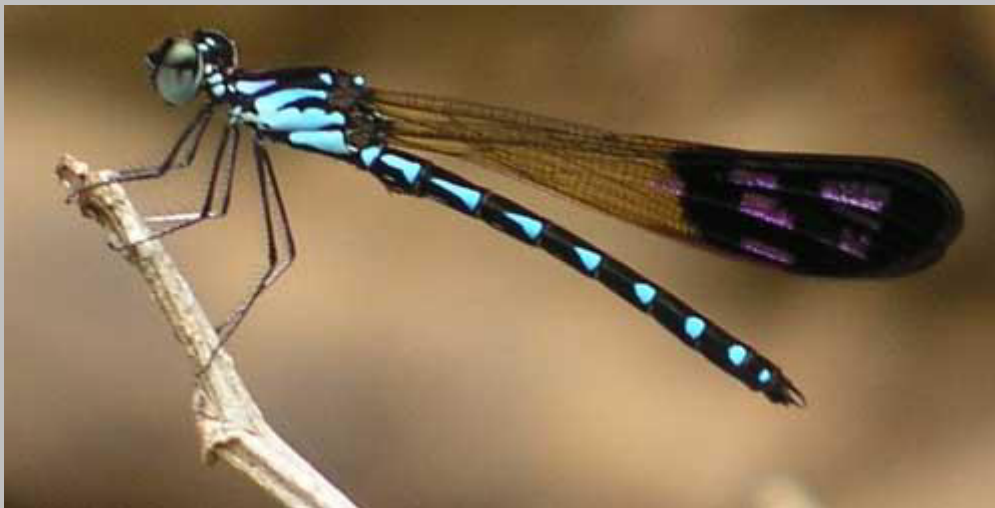




Here are some shots of new species for me. How many species of dragonflies and damselflies are there in Thailand? The last count was more than 315. I hope to have at least 100 by the end of the trip. We'll see.







Believe it or not, this little yellow bastard took 10 minutes to collect. Was it the only one? No, there were lots of them! I swiped and swiped, got lots of other things, but it took forever to get this guy. He's not oriented right (I should be showing you the left side), but this picture was the best for showing characters.





Another picture not oriented right, I wanted to show you the dorsal (top) of the wings in this specimen. Also note the plethora of veins in the wing.



And finally this is what a good collecting stop yields. These will all be put in triangles, labeled, put in acetone over night, and then be brought back to the states for ID.



The next stop was a big one. A beautiful stream with a "pond" right by, this area had both species complexes. I got at least 50 specimens from here. Additionally I saw my white whale, and, unlike Captain Ahab, I got it. In fact I got three!



Here are some more specimens I got from the site. And a shot of a nearby mountain. These look very different from the ones at Doi Intanon (near Chaing Mai).







The third site was a disappointment. Looking for *Hydrometra*, A found none. I found some great exuviae, but alas, no good larvae. All in all it was an amazing day. Well over 100 specimens for one day.

13 May

The night before I got a picture of the crab sculpture that graces "Main Street". Apparently (and I could be wrong here) it was a new species found that made the region some what famous. Whyever, it was a nice sculpture.



Long drive today, but we stop (A is good to me) by the Bridge over the River Kwai. Not the original bridge, but the original site. Of course lots of tourists, tours, shops, restaurants, boat rides, museums, etc. Its nice that we can capitalize on history.



The first site is a "pond". I get all but two species that I see there. The two I missed were a huge *Anax* (bigger than a Green Darner) and a very frustrating *Macromia* (I think). But I got everything else, including this pretty yellow damselfly.



More driving, with rain. We make our way to a national park. We collect in what used to be a spring, but is now much more stagnant due to a recent dam that was constructed. A had visited the site before when it was a spring. I could tell the change had happened due to the rocky bottom covered with 6 inches of silt and mud. Additionally the dragonfly community was made entirely of pond species.



We head back to town. Looking for internet, we finally find a spot, but no CD-Roms in the computers! So I can email, but can't upload any new pages. Oh well, will do later. Eat, take care of specimens, and bed.

14 May

We go to a large waterfall that has 9 "levels". The night before A mentions that he will head to the top (level 9). I'm slow out of the vehicle, so A gives me the keys and he and DaNong head up ahead of me. Well, remember I wander, stroll, mosey. I do all three as I ascend along the trail. I got a bunch of dragons! Lots (maybe 4 or 5) species that are new to my collection.



The huge claspers on this guy are used to hold on to females. Also they act to make sure the male grabs a female of the correct species.



Making my way up and up and up. Finally the trail turns to almost nothing and I am climbing on vast rocks following trees with red stripes painted on them. Quite a while has passed, I don't really know where anyone else is, its very hot, this "trail" is leading me more toward the top of the mountain than the top of the falls, screw this. I take a waypoint and decide to head back down. It is now that I come across the first of the more unusual beasts I have yet to encounter on the trip.



What is it? Mouthparts of a beetle, antennae of a butterfly, wings similar to damselfly. This is none of the above. This is an Owlfly (Family Ascalaphidae). It is in the Order Neuroptera, lacewings, antlions, mantidflies, etc. I collect 4 of these wonderful beasts on way down.



When I make it to the car, my companions are waiting. Did they go to the top? No, just a little ways. How long have you been waiting? An hour and a half. Well, sorry guys. But I got some great specimens!

Also I got a pic of this huge spider, the abdomen (not counting the head) was at least 4 inches long! The little spider also in the web was probably the male. Typically male spiders are disposable after mating, so there is no need to grow them large of long lived.





We continue on our way and come to another set of falls. I collect all I see and get these pics.



After a late lunch we drive to the big city and put DaNong on a bus. She is headed home. But we will meet again later in southern Thailand. A and I secure a hotel room and strike out again. Not far out of the city we find a promising "pond". It turns out to be quite profitable. As A and I stalk about, a gaggle of small children swarms, questions and chatter. I swipe a dragon and they crowd in to see. One of the little monkeys starts tugging on the sweep net I have in my belt. So I lend it to him, and he becomes a dragon hunter too. The whole group helped, as he would collect they would ferry specimens too me.



I pick up a female that is new to me. I don't know if I've already collected the male of this species or not.



When I begin to collect at a site I keep track of what species (forms) I see and which I have collected. I always try to collect at least one of each, even if it's a very common species of which I already have many specimens, I still want to record its presence at that location. This site was no different and I stalked and stalked, slowly picking up each of the species I'd seen flying. I was down to one little skinny dark blue bugger which I had only seen for a fleeting instant. And low and behold, here comes a grinning face with an out stretched hand. With a



little help I have a specimen of every dragon I saw at the "pool". Before we left I requested a picture, here are my helpers.



Food, sleep (in a very small room).



## Ten - up

15 May

The first site today is rice field that hasn't been planted yet. I collected all I could, and chased two species all over the place, finally we had to leave.

The second site was a very black ditch beside the road. Not many species flying, but I got all I saw. Then we relocated to the other side of the road to a better looking (and better yielding) "pond". Although it was small I got quite a few species, including the female that I had only picked up once before.

The last site of the day was a nice stream, but it was raining, so I was reticent to use the camera much, I got good specimens, including some exuviae. Lots of driving today.

16 May

Today was an adventure. We drove to the west into the mountains. One section of the road had this sign, possibly the coolest sign ever created by man.



And they weren't kidding either, here is a pile of evidence. It was undoubtedly left by a domesticated elephant taken for a walk.



We drove and drove and drove, ask the locals for directions and finally we came to a beautiful stream.



There was a little gomphid that was thick, I must have picked up ten before we left.



I got a lot of exuviae and, also got good pictures of these guys, which I believe are new to my collection.







This little guy is called a tortoise shell beetle (something like that). He was poking along, so I got his picture.





We continued on and went to a National Park. 200 Baut (\$5) for Foreigners to get in, 50 Baut for Thais. The road into it is very poor, we went 4 wheel drive, 15 miles an hour all the way to the water fall.



The parking lot, of course, is full. Mercedes, Toyota Land Cruisers, even a tour bus (one of the double decker ones, with seating on top and luggage down below). No permit to collect, I went hunting with my camera. This is the best of many failed attempts to get a good picture. The camera lens was maybe 1.5 inches from the dragon when I took the picture!



We make it back to the car and head out to another spot, and what do we see, but a man walking his elephant. A passes him and pulls over so I can get some shots. The story is best told in the pictures below, but I shall narrate here. Upon exiting the vehicle, the elephant jogs over to me, extends his trunk for a smell hello. I give him pats keep clicking pictures. Soon bored with me he trots around the vehicle and continues to wander down the road, eating grass as he goes. The keeper and A are taking about the cost of a room at the park. They say their goodbys. The trainer yells a command, and just like a puppy, the elephant wheels around, and trots back to the keeper. Pats are exchanged and they head into the brush toward water. The elephant was a three year old.



Let me introduce to the Thai trash can real quick. I have seen these all over the country, from the biggest cities to the smallest villages, the richest neighborhoods, to the poorest slums. Made from pieces of used tires bolted together, these are virtually indestructible. With a lid they are trash cans. Without, they make wonderful planters. Thais are masters at recycling.



The last site of the day was another pond, I got a good damsel from there. We head into town, get on the internet (very slow). I'm on for an hour and only get the basics up. I need to manually change a line of code every time I insert a picture, and forgot to on a page. Have to leave to get clothes from cleaner and eat. Will fix page another day.

17 May

The first site today was a beautiful stream heading out of the mountains. Again, the road goes from good to bad to just a track only accessible to 4WD. And of course it ends at a fully equipped station. However, no one was home. So we quick started collecting. Big nice streams have lots of species and I start swiping. The bigger guys are hard to catch, and some of the smaller ones are darn near impossible. Slowly I collect more and more guys. I got some good exuviae, and a nice picture of these moths mating.







The hours tick by and some farmers come along. I'm down the stream and don't want to draw undue attention, so I drop my net low. And what do I see but this female laying eggs along the shore right in front of me! A swipe and she is mine, the only one I saw that day.



Just before we leave a male bird shoots across the stream. I only get a second's look but it's one of those with the tail feathers which are nearly as long as the rest of its body. I'll have to look it up when I get a bird book. I collect all the species I see at the stream (an amazing accomplishment, I had at least 30-35 species). Happy day, we head for food and the next site.

The next site is a pond, red with mud. It's sprinkling, so I take few pictures. Not many flying, but A gets some good larvae (live, for me). I notice some antlion pits in the dust near the car, and low and behold, a swipe for a damselfly (which I got) also yields an antlion adult! I collect two total. Good site.

The last site of the day was another pond, this one better than the last. Some monks were placing flags by the road and stopped to watch what I was doing. By then I had collected nearly all the species I'd seen at the pond, and was after an old male. Body of pale red, with red on the basal third of the wing, and a patch of white distal to that (same species as pictured on one of the previous pages). He was the only one, I must have swiped 20 times, and 20 times he flew around, without a care in the world. Well, he didn't learn, and I did. Picking my spot I waited, a fly by, a final flip and he was mine. Finally.

Want to see how pineapples are grown? These are too young, but in the fields with older growth there is a piece of newspaper lovingly wrapped around each fruit. Built like a cactus, I do not envy the farmers who must work with these plants.



Back to prepare specimens, and sleep.

## Eleven - up

18 May

The first site is a pond. It's a bit cloudy so the dragons are slow and I swipe a few big ones easily. There are about 10 common species flying about. Just another pond, I guess. Wait! What's this? Dragon about two inches long, clear wings, a black (or very dark blue) body with the first two sections of the abdomen bright yellow! I've never seen this one before. (I suspect it may be a wasp mimic, mostly because that's the first thing I thought of when I saw it - That's a wasp mimic!). He keeps himself in an area just out of the optimal sweep of my net. Finally I take a shot, and miss. He flies away, never to be seen again. Oh well, he who fights and runs away, lives to fight another day. I continue around the pond collecting more and more as I go. Almost all the way around I see something I had completely forgotten about. There are two good books on Thai dragonflies. One is very technical with keys and drawings of specific parts of the anatomy. The other has ranges of each species, notes on each, and photographs of about one third of the dragons of Thailand. One the cover of the first (but not at all in the second) is a small poor picture of a dragonfly black wings that shimmer like oil on water in the sun light. The picture is not named in the book (as far as I know) and I often wondered if the animal actually existed. Twenty feet in front of me is just that Dragon.

Before we go on let me tell you something about dragonfly wings. They are not flat. Some veins stand above the level of the wing, and others below. This creates an air foil which allows the dragon to glide. A fly, on the other hand, can't glide, and must constantly beat its wings or it will fall. Some dragonflies (the genus *Celithemis* in Missouri and my White Whale over here) will beat their wings and then glide, beat and then glide. Wandering through the air like they're half awake. That is, until you take a swipe at them, then they're little bolts of lightening. They fire just 2 inches to the left or right or over the net, you miss and look like an idiot. Often they then slowly (but faster than you can run) fly off into the sunset, and you are left to cuss alone. We are dealing with just such a flyer.

I take a swipe and find this out. I'm sweating bullets. The only one I've seen, can't let it get away! Swipe one - Miss. Swipe two - Miss (but he's still here!). Third swipe - HIT! I (carefully!) get my pictures. This was a good site!

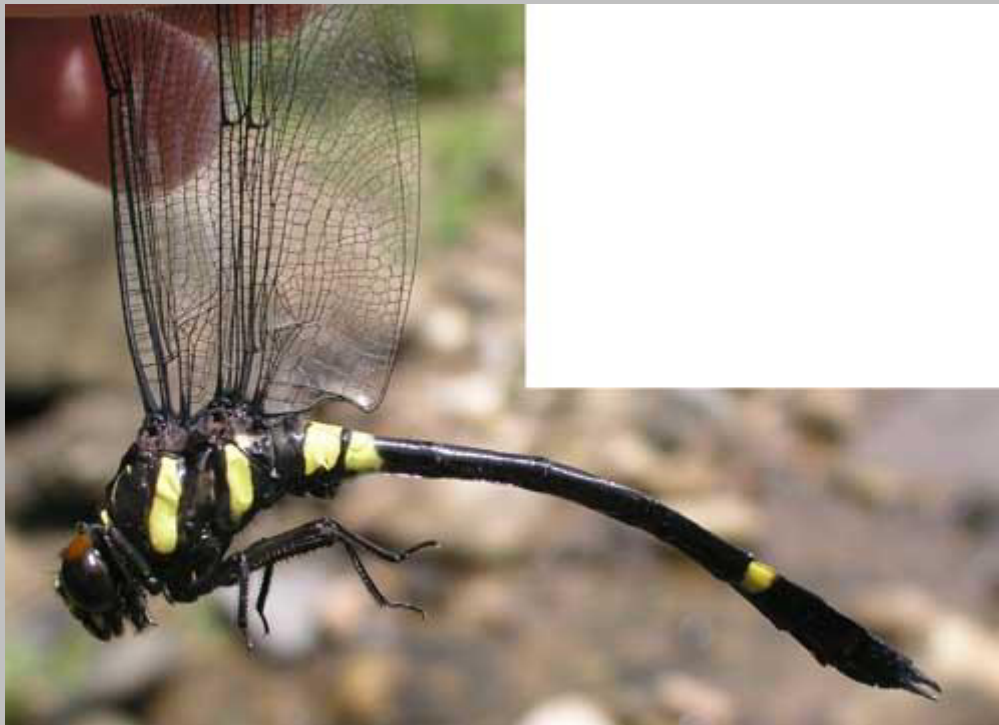






Head to the next site. Now, I must tell you why I am here. The quicker of you no doubt realized that it has something to do with dragonflies. Well, all dragonflies have an adult and an immature stage. The adults fly around and the immatures swim about. Immatures look like the exuviae that I show pictures of (in fact this is the final outer covering that an immature has). Now if you collect an adult dragonfly in Thailand there is a 95% chance that you can find out what species it is (there are some undescribed species still scooting about). If, however, you collect an immature dragonfly in Thailand there is only about a 1% chance that it can be identified to species. There must be an association between adult and larvae. This is easily done by rearing a dragonfly. Now you have an adult and exuviae (adult and larvae). My prime directive for this adventure is to make these associations. I have, throughout the trip, been collecting live dragonfly larvae and attempting to rear them. Sickness, failure, loss of limbs, arrests, and tragic elephant trappings are all issues I would rather not mention (this is a happy log), therefore I have not mentioned my failure to rear any larvae.

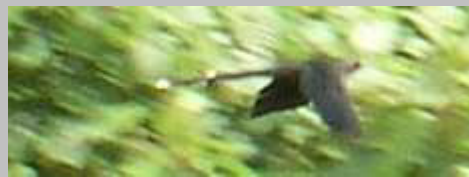
We are on a single lane dirt road in middle of nowhere. All of a sudden we come to a brand new bridge (twice as wide as the road) which spans a beautiful stream. We dismount and begin collecting. I work my way up the stream and get all I can. I watch for exuviae left on the plants and rocks near the shore. Dragons in the tropics typically emerge at night, so they are ready to fly when the birds (perhaps the early bird) are out hunting. So finding a dragon while or just after it has emerged is a rare thing. Well, honestly, I got lucky. It's 1 in the afternoon. The sun is beating down, I'm dripping with sweat and I see a HUGE dragon hanging from a plant just inches from ground. Tenebral! I carefully (but very quickly) drop my net over it and snake it out, carefully placing it in its own container. Now the fun starts. I have the adult, but can I find the skin he left when he emerged? On a leaf just inches from where he was hanging I find the exuvia. Ladies and Gentleman, we have an association! Just 314 more to go!



Thailand doesn't have ticks or chiggers, but they do have leaches, but terrestrial and aquatic. The great thing about leaches is that they don't vector any diseases to humans. The bad thing is you don't feel them till its too late, and after you pull them off you bleed like a stuck pig (they have an anticoagulant). This little guy was swimming along when I got his picture, he's about 6 inches long here.



I'm not a very good birder so when this guy shot across the clearing I shot a general picture and hoped for the best. Fully zoomed in this is what I got.



After we got done collecting at this site we ate. I got a picture of the table and chairs at the shop beside us.



The next stream was just as beautiful. I got some plant pictures, the roots sweep with the flow of the water, and this is a fresh stalk of something.





While we're looking at plants let me show you the most unusual bark I've seen. The first plant ID class I took started in winter, so we learned to ID trees using bark, and limb characteristics, so I'm always looking at tree bark. It can be very distinct and quite impressive at times. It looks as if someone has taken a chisel to the entire tree. I have seen these at other places, but am now fairly convinced that this is natural.





I collected a gomphid that may do new to my collection.



A photo of A collecting.



Last site for the day, home, eat, deal with specimens, write log, shower, and sleep.

19 May

First site is a stream, and offers a beautiful flower (about a foot tall) on the walk in.







The second site is a triplet of ponds baking under the tropical sun. The usual suite of species are flying about. Remember that one I haven't got yet? Wasp Mimic, black body and yellow ring. Well, lots of misses, but I connected. Actually got two before we left!



I've been collecting enough here that I know which species to expect at a particular site, and watch for them. On the far side of the middle pond, about 10 minutes after I collected the above, I see in the grass out of the corner of my eye and flit of yellow and brown. There is one species of dragon (a female) that is yellowish and about that big, but this was way too fat (thinks I). I spin my head around and search the brush with my good eye, and what do I pick up but another species of owlfly! I'm headed to Texas for a few weeks at the end of July to go to an international symposium about Neuroptera (the order to which owlflies belong) and perhaps I will be able to have these guys identified (or find a paper which I can use to ID them).



The next site is a small pond bordered on one side by an electric fence (Careful!).

The last site of the day is another pond. I get a new species for me. A distinct feature of this very small dragon is the brown tips of the wings, so I worked him around and got two kinds of pictures.



We decide to call it a day. We've been about two weeks of working without a break and a few extra hours are needed to write logs, take care of stuff and rest. It's a new day tomorrow, and who knows what new stuff we may find.

## Twelve - up

20 May

The first site of the day was a beautiful waterfall, low volume, that went more or less straight up. With a little monkeying you could make it quite a ways up.



I didn't get much, just common stuff, but A motions for me to come up higher. He found Naucorids. Flattened oval shaped bugs that scoot around on the vertical rock surface. They belonged to a undescribed species in an undescribed genus, AND they were about 400 miles further south than anyone had ever found them! A very important find for him. The waterfall is spitting drops on me, and the naucorids are scooting fast, but I want a picture of one on the rock surface. I shield my camera from above with my sweep net, point, click, and hope for the best. Well, miracle of miracles, one shot and it came out wonderfully. He's on a vertical surface pointed head down and covered with a thin film of flowing water.





Stumbling around I got a picture of this flower, about two feet high. I know not what it is.



I still don't know what to think of these. I've collected these white damsels at a few locations now and I still don't know if they are white, or have just not come into their colors yet. I'll find out when I get it identified.



The next site was a pond. There were some big guys I couldn't get, very annoying. Just before we left some water buffalo wandered into a far off field. These are used as beasts of burden. They are huge, and built like mobile rocks. I've never seen a small one, I think they only come fully grown. They never seem mean, actually for the most part they act board. As I understand it they are little changed from the wild ancestors from which they came.



Looking for the next site, it began to rain. We found a nice stream and waited under the eaves of a nice family (or two) that lived across from the creek. The rain let up so we set to, but it was soon pouring again. I made it under the bridge before the worst came down, but got soaked heading to the house.



The last site of the day was a big waterfall right by the road. Technically not a place we want to be see collecting, I stood watch while A scraped some good specimens (more naucorids) off the rocks. Just as well, the sun was nearly set and I saw no dragons nor exuviae.



21 May

It rained hard. From first light till about 2 in the afternoon. We breakfasted at the hotel restaurant. A spotted this and we both got pictures.



24.	ข้าวผัดอเมริกัน	60
	American Fried Rice	
25.	มันฝรั่งทอด	50
	French Fry	
26.	หมูสันนอกเคียว	85
	Rosted Pork Loin in Brow Sauce	

We made it to the trail for one waterfall. A kilometer (six tenths of a mile) walk. It was still raining so we decided to skip this one and head on. The next waterfall was less of a walk. We were even guided by a nice guy that somehow was associated with the Royal Thai Forestry Dept. I didn't see anything, flying, in the water, nothing. No worries. Its still raining but I ziplocked my camera and was (carefully) able to still take pictures. A found only one adult of his naucorid, and I got a picture of a snake.



Well by now, dear reader, no doubt you are beginning to think, "Is this the end for Mike? So many species that were new to his collection, perhaps he has run out of luck. Nothing more for Mike to do, but just step back and call it a trip." Well, read on.

There is a brand new, with wide shoulders and fresh lines, highway through the middle of nowhere which leads right to another waterfall (and ends right there). No one is around, the rain is letting up. It's a short hike to the falls and what do I see on a tree trunk about 12 feet up, but this surprising little guy. The sun was not out, so you can't see the iridescent blue that was in the center of the base of the hind wings, but it is there nonetheless.



Everything is wet. When walking on a waterfall you are offered NO cushions. Its just you and a rock. And that rock is always slanted down. This waterfall was huge and it took us many tries to get up to the rocks that would let us access the rock face. Well, you could access the face if you walked down a crevasse, placed your foot in the only foot hold available and allowed the rest of your body weight to fall against the rock face. I monkeyed my way down and noticed that the only foot hold was in the middle of a perfect slide down to the small pool at the base of the falls. The falls were huge and all of the water was passing UNDER two huge rocks and a log about three feet across. Naucorids were everywhere so I grabbed one and held it up to A, "I got one," I yell over the noise of the falls. He motions me up. I scamper out, "If you slip, you die," says I. He made it about half way down and decided that only a complete moron would keep going. Luckily naucorids were everywhere. We got about forty before heading on down stream.



I collect lots of specimens. Stumbling along the stream I see a pale damselfly sitting on a rock! Instantly I pounce, and sure enough there is an exuvia right beside it! Second association!!!! It was very teneral so I got no pictures. Sorry.

There was a "pond" in the middle of an island created by the splitting of the stream and I picked up a second specimen of the little blue spot above. Just about time to leave I see the sudden flash of a gomphid. Just inches above the water and traveling at top speed you could only follow him with your eyes for a few feet before you lost him. I slowly make my way up stream hoping to find him perched. I look across the stream and see a huge gomphid on a perched stick. The only one I've seen, and at that size if he flies I'll never get him. I have the whole stream to cross. Slowly I stalk forward, you have to be careful not to take too big of steps, or lose your balance and make a sudden move or you'll spook him. I get him in range, calm myself, stop breathing, relax, relax some more, relax a little more, and SWING! The rustle of wings against net, the second sweetest sound in the world (have you ever listened, really listened, to the sound of a can of Mountain Dew being opened?). I breathe again. This is one of the most beautiful flying/eating machines I've ever seen. Red and green, look at the claspers on the end of the abdomen. A full four inches long with jaws that would have drawn blood. One of my favorite specimens to date.





As I slip him into my killing jar, who comes buy, but the little gomphid I was chasing in the first place! He was nice enough to hover for me, and I swiped him! A very good site.



We collect one more stream before going home. This one was very pretty and I got lots of specimens and exuviae.



22 May

Sunny this morning. We check out and hit the road. Let me say something about breakfast here. Thais never figured it out. Breakfast (which we have every day) is the same food that one would have for lunch or supper. It's not unpleasant, just strange to me.

The first site is a pond. There are dragons with, except for the tip, entirely red wings. There must have been 150 of them at this pond. Flying all over the place. This makes it hard to track and collect other species, but I grab all I can. Common stuff.



As we are heading towards the car I see a little gomphid hovering and hold back to take a swipe. I give him time and he lands, which and he's mine. I take my pictures and head to the car. Not until I look at the photos later do I realize that this is actually a libelluid! A completely different family (I can tell due to the veins in the hind wing).



The second stop of the day was the worst water I've been in so far. The water was crystal clear, but had recently risen about a foot due to rains. There was some sort of fungus growing on the decomposing plants that was red. I thought it smelt faintly like blood (due to iron), A thought is smelt like sulphur. Whichever, it was bad. I got common stuff, and (Lucky) my white whale mating! We hit a gas station and washed our legs afterward.

The last stop was another pond. Chasing common stuff I feel something biting my foot. It was a leech, about 6 inches long without stretching. I ripped him off and tossed him on shore. They have an anticoagulant, so I bled for about ten minutes, still have a pretty big bite mark. Mean little guy.

We continue driving looking for more spots, see one we'll try the next day, and I get a picture of a mountain near a national park. Check into a hotel, eat, and write logs.





## Thirteen (Lucky Number 13 took me three different internet cafes to upload!) - up

23 May

We had spotted this waterfall the day before, right beside the highway and technically in a national park, so no collecting for me. However A's collecting can be done more discretely, so we grab some specimens.



Lizards are everywhere, especially in the forests. They're fast little guys though, so the opportunity to get a picture has not been available to me. Until now! This guy was very content with his position and let me get to within inches for a pretty good portrait.



The second site of the day was a bit unexpected. While passing some water filled ruts on the way to an intended site, A took a swipe and came up with a lot of mud, and also some very interesting specimens. So I grabbed the dragonflies that were around, and he got everything else (including two dragon larvae that I am attempting to rear).



We continued on to the intended stream. I think a water buffalo took a leak here and the butterflies wanted the nitrogen, so I got a picture. One swipe and I would have filled a bug box.



There were small gomphid exuviae everywhere. I got this guy (maybe new, honestly all the smaller gomphids look alike to me). I also got three teneral gomphids and saw three more. No good associations though.





The mountains are different still. Huge faces of living rock stare across the flats. The rest is covered with the thin covering of a great forest. Caves abound, and the rock is dissolved back in places to create overhangs, many with giant "stalactites" with hang down like fangs.



I got a picture of a rival collector. I'm not proud and will happily steal from a spider web (in fact I've gotten some rare specimens that way), but these were common and I'd collected them from the site, so I left him to his meal.



The last site of the day was another set of limestone falls that looked more like stacked puddles than anything else.



I've collected this damsel before, but don't think I've taken his picture. Damsels are very hard to photograph.



Wandering around I found a birdnest. As I positioned to take a picture, like a bolt of lightening, one of the parents shot out of the nest and into the forest.



Not much flying here. I got all I saw, including another gomphid (the only one I saw). The road to these falls was flanked by rubber tree "forests". The trees take six years to come of age, then the bark is cut in a long, downward slit. The sap flows down the slit, out onto the little stick and drips into the cup. The dried sap feels just like caulk. This is where natural rubber comes from. Apparently rubber is only produced in three countries, Thailand, Malaysia, and another one (I forget). The rubber producers have banded together to create a united front (like OPEC) and now rubber is a profitable crop. After 20 or 30 years the trees are past their prime. The wood is used to make furniture and new trees are planted.





We head for our next stop. A has a friend who is now a professor at a college down here. We are going to stay with him for three days and collect all around the area. But that is a story for another day.

24 May

The night before (before 24 May) we ate supper with A's friend O and then headed out to get supplies and gas. We ended up in a bar. The building was beautiful, all wood with very nice decoration. It was a Folk, Country, and Blues Bar (in Thailand!). There was a band (very loud) and we listened to La Bomba, Crazy (Patsy Cline), Hotel California, I think Lynard Skynard (Son of a gun, we'll have some fun down on the Bayou!), Pearl Jam, etc. There was a very nice 4 x 8 foot painting of B.B. King blowing the harp with Eric Clapton strumming his guitar beside. I had warm Coke cooled with ice. I'm not a Coke fan, nor an ice fan, but hey, its caffeine! There was an old Thai Hippie who was probably drunk before he got there at the table opposite us. Just before we left he came over and shook my hand. He spoke English pretty well but with the band it was hard to tell what he was saying. Fun guy. We wondered back home.

Up the next day to a huge breakfast, shot out to hit some national parks in the area. We don't have permission, but if you know the right people you can get it! So we collected at a nice stream. Not much was flying, I grabbed all I could. Got a nice picture of a little spider in her web.



We headed further up the creek to the falls, can't collect there but still not much flying. Got another picture of another much meaner looking spider.





The next site was more river sized than stream sized. Still not much flying, but I got most all that I saw. I got a nice picture of a frog and the best portrait of the trip so far.



It may see like a waste of time to get pretty pictures of stuff while I should be hunting dragons. However it does serve a purpose. It makes me stop, take out the camera, turn it on, and all the while I'm looking very closely at an area that, otherwise, I would have glanced at while I walked past. Plus stuff starts flying around you, instead of away from you, if you stop for a few seconds. I've noticed a few still dragonflies because I've stopped to take a picture of something else.

Kind of a boring day (from the standpoint of the log) so lets learn some stuff. There are no vending machines (so far as I can tell), you buy everything from a person. People specialize, too. Many times we have purchased food from people who have a cart and only sell one type of item. Often times the item costs 5 Baut (12.5 cents). We buy three or 4 of them at a time, but still this isn't much money. Can one make a living at this business? Well, minimum wage is currently set at 110 Baut (a little less than \$3) per day. That's not much, but stuff is cheap and its is minimum wage. But this means that, yes, people can make a living at selling things for 5 baut each. Although, not much hope of advancement, and they could probably never afford a lot of the toys others take for granted.



Schools can be state, private, associated with a university, or something else. You have to pay to send your child to school (not sure if its all schools or if public schools are free). There are different levels of schools (informal I believe, "That school is very good, I would not send my kid to that other school.", etc. for public, but very important when speaking of private). Good schools can be very expensive (millions of Baht a year). In all schools: All the children wear uniforms, light blue shirt, shorts for boys and dresses for girls. They have exercises in the morning and prayers (Buddhist). Girls are not allowed to wear make up, nor possess it on school property. I know that in some schools, probably all, there is a day when the mothers of the children come and all sit in a row. The children, one by one, come forward, bow to their mother and present her with a gift. Children are very respectful, and I don't know what sort of punishments can be used to discipline them (or even if they need to be used).

Thailand is made mostly of Thais. There are lots of Chinese (I haven't seen many on the trip so far) and some Indians (haven't seen any). Consequently, foreigners stick out like a sore thumb. We are "Farang", a corruption of the English Foreign, I believe. Its not an insult like, Frog, Limey, or Canadian. Its just a statement of fact. Little kids like me, some stare wide eyed as I go by. A lot of people honk, or yell "Hello!" when they see me. People are very friendly.

Another huge supper made by O's mother. Good food.

A note on the Apartments were they live. Four towers linked in the center by a central stairway. Each tower is offset so that each apartment is about three feet above or below the apartments in the other tower. There are two bedrooms, a nice kitchen and a living room. The ceilings are at least 12 foot high (probably 4 meters). There are three walk out balconies. It's a very nice apartment (although I instantly wanted to start building lofts, cabinets, etc. LOL).



Sleep.

Enough for today. More tomorrow.

25 May

We drove and drove and drove. The roads were so bad in places that I got out and directed A on where to put the tires. We crossed bridges that were just two planks spanning a gulf of nothingness. Single lane for miles. Slow driving. Food is everywhere in Thailand. There are people along the superhighways with huts selling food. It is everywhere. We brought our lunch with us today. That's how far in the middle of nowhere we were. The first site was a waterfall at a national park. The coolest thing I saw was a gomphid with the tip of its abdomen orange. I broke my net twice trying to get it, but alas, to no avail. The Big Net is holding up pretty well, considering. Epoxied, glued, and Duct Taped, its about three feet (total) shorter.

The second site was a bit better, I got three gomphids. A had a much better day, he got some very good specimens.



Let me tell you a bit about what I'm collecting. Of all those beasts we call insects there is a group with chewing mouthparts, and four membranous wings which cannot be laid flat against the back. This group is called Odonata. The Odonates are broken into three subgroups. One is Anisoptera, dragonflies, another is Zygoptera, damselflies, and the third is a weird group consisting of only two species (one in Northern Japan and the other in the Himalayan Mountains) called Anisozygoptera (not sure of the spelling). The dragonflies are typically larger, with thick bodies, a hind wing that is wider at the base than the front wing, and have eyes which are very close or meet at the midline. The damselflies are usually smaller, have thin bodies, the front wing is wider at the base than the hind wing, and their eyes are usually very far apart (almost on stalks). There are also important differences in the veins in the wings, but I don't have good pictures to show you. All dragonflies have wings, and all are predacious in both the adult and immature forms.

Damselflies break into many families (there are only three in Missouri but 12 in Thailand). The dragonflies break into a few families. Aeshnidae are called Darners in the US (like the Green Darner). Gomphidae is another family, common name of Club Tails, due to the swelling of the end segments of the abdomen. These look very similar to me, fly similar, and set similar. That's why I get all I can, because I can't tell them apart! There are some other families but they look very much like the largest family, Libellulidae. The veins in the base of the hind wing form something that looks like a human foot, so these are easily told apart from other families.

Also let me give you my email address. I don't know who all is reading these logs, so if you have questions, comments, requests, etc. give me an email. I don't guarantee a response (at least not till I'm back home with good internet). [Spongy\\_mesophyll@hotmail.com](mailto:Spongy_mesophyll@hotmail.com)

End of day. Mike

## Fourteen - Finally up!!!! Sorry it took so long. Good stuff to come too!

26 May

Still staying with O. Up to a huge breakfast made by his mother, she even packed a lunch for us! We headed to a far off stream.



The last few days have been kind of bummers, but today was different! I got three species of Gomphids (Big, Medium, and Small). I'm pretty sure I've identified the larger one and have collected it in a providence from whence it has not yet been reported.







Another great find. The first time I've seen this great big red guy, and I got him! Another possible range extension.



I got some other pictures of the local critters. I have a feeling that, had I touched this, I would have been badly burnt. All those branches probably have either small hairs that break like glass and get embedded in your skin, or hairs tipped with some form of venom, like a bee sting. Either way, I took its picture, but did not pet.



Here is a stand off. The mantid was immature, therefore it lacked developed wings. If it moves the frog can see it, and GULP! If it holds still its safe. How it ended I know not.



And here is a wacky katydid.



The second site was similar, a very nice stream. I got the big red guy again!





Also I've collected this species before, but I don't think I've taken a picture of it yet.



The last site was a pond by the side of the road. Little kids swarmed. Nothing new, I got the usual complex of lowland species. You got to see a small picture of this guy setting, but here he is in the hand.



Back for a final night with O. We drove many miles today. When this is over I'll make a map of all the places we collected. So far It would consist of about 80 dots scattered from Chiang Mai all the way down the west side of the country until you get to about the level of Phuket (pronounced Poo-Ket). We're headed further south in the next few days.

Anything can be fascinating if you know enough about it. Dragonflies are just the tip of the iceberg. But if you're interested in dragons there is a wonderful book for the beginner. It has a description, color picture, range, and notes concerning each species in the United States. The title is Dragonflies Through Binoculars. Written by Sidney Dunkle (I think). Anyway its about \$20-30 and well worth it. (If they still have copies available [www.hamiltonbooks.com](http://www.hamiltonbooks.com) has it for \$20 plus \$3 SandH.)

27 May

Before we left for today's drive I got a picture of the building that O works in. It is a huge horse shoe shaped building, newly finished. Located in the middle of many plots of rubber trees, its back is flanked by real forest. The building is three or four stories tall (12 ft tall ceilings). Much of it, however, is open air, all the hallways and the cafeteria. The offices can be closed off and air-conditioned, and some of the class rooms.



Drove to a new area and started looking for streams or ponds. We used an entire tank of gas and only found one place to collect! It was a stream that had been dammed to provide a reservoir for the locals. So around and above the dam I collected pond species, and below I collected stream species. The local kids showed up to swim but swarmed A and I. Nothing special, but with the help of the kids (they would yell "One!" and point whenever they saw a dragon), I got every species I saw. Even the common species have not been recorded from all the provinces they are in, so common stuff from the right place can be very important.

I got a picture of this bug while I was collecting. Know what it is? Why a butterfly of course. About a half inch long.



28 May 2003

Drove to a better area of the county. Got to a waterfall around 10am.

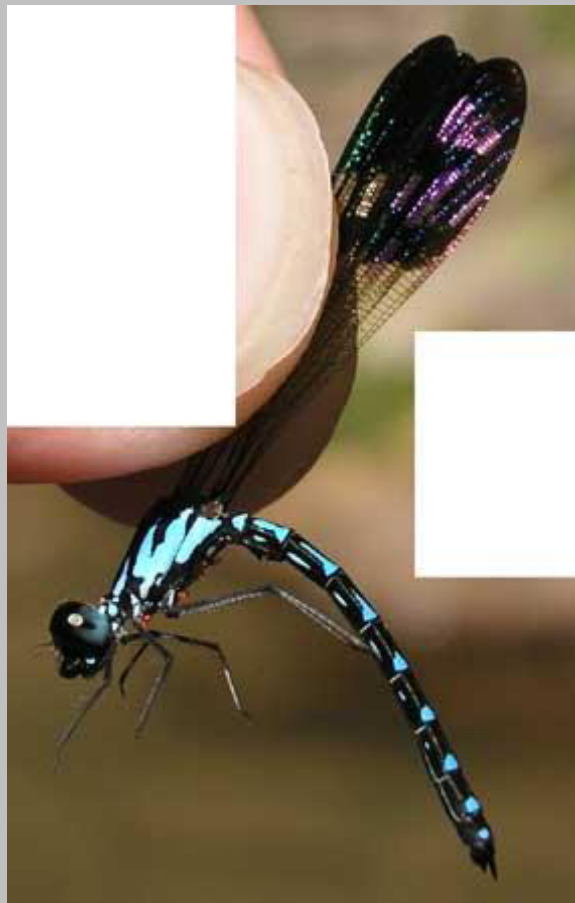


We started collecting and I was grabbing all I could get, when what do I stumble onto but a very important find. Remember that my prime directive is to associate immatures with adults. Well, here's a risky shot, but I got it collected AND FOUND TWO MORE! I'm pretty sure they are all the same species, but that doesn't hurt.





I've collected this guy before, but I don't remember if I've shown you a picture.



This is the first time I've seen one of these (though undoubtedly I've walk past thousands). This is the exuviae of a damselfly (positive) in the family Calopterygidae (Pretty sure). They are very long and stick like. It helps them hide in the water plants and attack prey on the sneak.



The next spot was a stream that A had collected before. They had built a nice new road and he barely recognized the place. I got new species for me here. It is a little damselfly which looks like the little yellow (bastard) that was so hard for me to catch earlier. Only this guy is red instead of yellow. I tried to get pictures, but it was overcast and none of the color came through. There was a walkway over the stream. I spotted a wasp nest and took a quick pick. Cute little gals.



The last spot of the day was a very wide, shallow snakeish river. I grabbed all I could, including a very small dragon I only remember collecting one other place. A, of course, figures he got a new species from there! Before we left I saw a school of newly hatched fish fry, so I got a shot.



We went in search of a hotel, food, and internet. Scored on all three. Much appreciated rest.

End of Day.

29 May

The first site today was a beautiful set of falls with a nice stream below.





I started gathering the usual species. A was on the falls and yelled for me to come, as there were some big dragons up there. I climbed my way up and saw a huge male gomphid setting happily on a stick across the falls. I made my way over (carefully), lined up my shot, stopped breathing, psyched my self up for a hit, and fired my net out and over so fast it was a blur. I never saw him move but before I'd rolled the net over I knew I'd missed. Some of these guys are ghosts! I was cussing. Some big guys just disappear after a miss, and I may have missed my only chance. I started looking, the sky, the ground, the trees, everywhere. Straight behind me, he was sitting, cool as you like, on a stick. Lets do it all over again. Slowly cross over, line up the shot, double psyche, gotta GET HIM! Fired as fast and hard as I can and knew I had him before I had the net closed! I don't remember collecting something with so much black and so little yellow (I'll have to review my pictures), but here he is.





After that I picked up another specimen of the real big red guy I'd gotten earlier. Wandered over to A, he was having a red letter day, with three possible new species. I climbed up and a rock and looked down to find another new species of dragon (for me) setting happily on a stick by a pool. The only one I've see this trip and I got it!



Wandering around I spotted this chrysalis hanging from a leaf.



And I got a picture of a nice flower (can you see the two ants?).



Looking long and hard we finally found a private pond at which we could collect. After about a half hour it started raining, hard. I'd already grabbed most all of what was flying, and A had gotten good stuff, so we waited it out in a gazebo built over the water and then headed out to find another spot. Lots of driving all over the map led us to a perfect looking pond on the side of the road. Turns out it wasn't good at all (most of the water was from rains the day before) and the mud was bad. I stayed out of it and got everything that was flying and in my



searching saw this. I'm really surprised that I haven't blundered into one of these and gotten the crap stung out of me. I see these wasps everywhere. Cute little gals.



Back to the same hotel we stayed at two nights ago. Nice place. They have hot water. I've failed to mention that hot water is not a given in Thailand, even in the cities. Some places you have to pay extra to get a room with hot water, and as A is tougher than I, I've taken a few cold showers to save a little money. Hey, you need cold showers and a couple months without Mt. Dew to make you realize just how important hot water and that sweet nectar o' the Pepsi Corporation really is. Stumbling up the steps I find the decapitated remains of what looks like a species new to my collection. The findings of the next day will call that into question, but no worries, all will be revealed when I'm home with my scope.

Fell asleep early, but some damn horny frogs were really loud about 3am. Give me chickens any day.

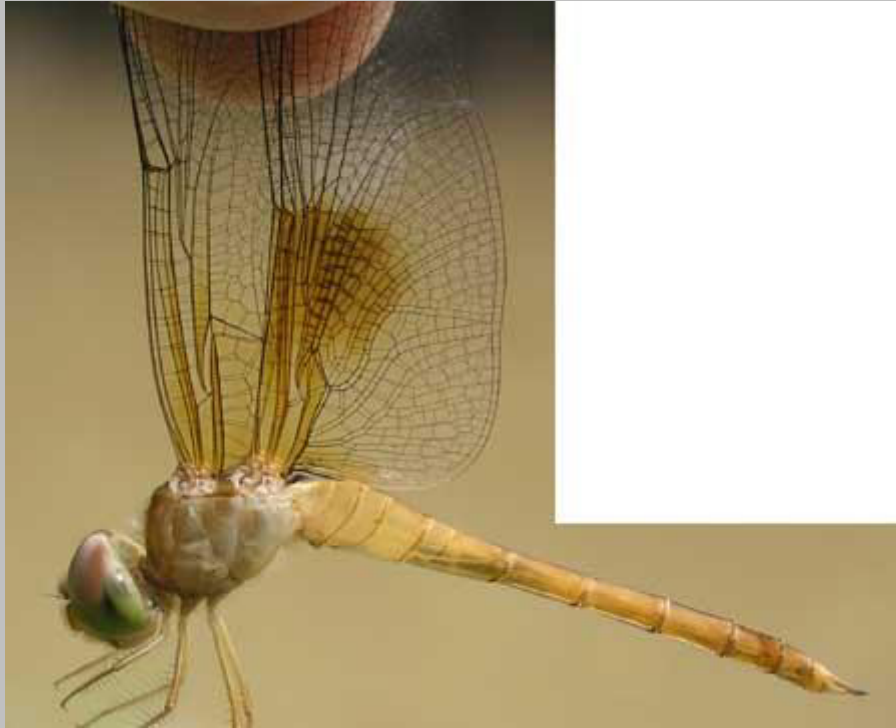
30 May

Another long day of looking for a place to collect.

We went to a most unusual place. There are, scattered about, hot springs. Really hot actually, these are geothermally warmed and spout out of the earth steaming. Well, this place not only had a hot spring (keen), but also the spring fell over a waterfall (very keen). We had to pay a couple dollars to get in, but they had a very nice elevated concrete walkway through the forest back to the falls. Just a little drop, not more than ten feet but it was very nice. Of course there were two guys taking showers in the falls when we arrived, but this is standard fair around waterfalls in Thailand. They had shunted some of the flow off to the right to fill two pools for people to sit in. We looked and looked and couldn't find a single living thing in the water. No dragons flying either. So we wandered on.

We drove and wandered and wandered and drove and finally made our way to a waterfall by the highway. There was a huge pool at the base of a rather small fall. The species collected by both A and I were indicative of stagnant rather than flowing water. I collected a (whole) specimen of the "new" species I had found decapitated

above. However, I think it may be a young example of a species I'm collected before, its just not old enough to show its true colors.



Here's another dragon I'm not sure if I've shown you, and a very nice toad.





Although I got common species, there were a lot flying and this was a new province for me to collect in, it was a very profitable stop.

It's the start of the rainy season here. Which means that it's the end of the dry season. Its been raining buckets most mornings for about the last four or five days. So when we see a "pond" by the side of the road we have to scrutinize it to see if it's a real pond or just new water. New water doesn't bother me if I'm collecting adults because they will set up territories around new or old water. It was getting late and we stop at a pond. New water, so I collect all I see while A waits. No more sites for the day. Just because I'm not getting new species for my collection doesn't mean this collecting is for not. Even the common species have not been collected from all the provinces in which they occur. This means that my collection will help flesh out where and when particular species occur in Thailand. Some will be found over the entire country the whole year round, while others will be much more restricted in their distribution and flight times.

We find a hotel and eat a big supper.



# Fifteen!

31 May

Running behind, so the logs will be a bit truncated. First site of the day was a beautiful stream, just down from a national park. We didn't have free range, as someone was bathing further down, but I worked my way up stream and got some good stuff. Another I've collected before but haven't photographed. This is a female.



Another nice stream not far from the last, this one had some stagnant water on one side, so I was able to pick up some pond species too. A flock of children descended. They were grabby, wanted to hold my net, feel its weight, one picked up A's GPS! I got a picture of an amazing caterpillar on a leaf. Another that one would probably not want to touch.





The next site was a pond by the highway. In a gully and behind tall grass, people still yelled Hello as they drove by! Common stuff, but you never know which will uncommon for the area.

Fourth site (its good to get four sites in a day) was another pond. One little guy was way out in the middle of a deep area on a limb of a dead tree. I stretched my little net out way far and swipe, I got him! We headed to town and I got a picture of a Matrix Reloaded ad and a railroad crossing sign. They hand paint billboards for the front of theaters and to put on trucks to advertise movies.



1 June

Today we meet Bob (Dr. Robert Sites, my advisor). But we do a little collecting on the way to where he's staying. The first was a really big fall and I saw two dragons I really wanted, but was not to be. Again little kids swarmed.

The second site was a nice small stream that looked perfect. But I worked and worked and literally collected 80% of what I saw flying (only about 7 specimens!).

The last site was much more profitable. A rather large falls, however the water that would have cascaded over the lowest tier was diverted to a man made irrigation ditch. A good site nonetheless. Waterfalls here usually have many levels. I collected the second level where water was still running and got the usual stuff plus what looked like a new female. But female dragons are usually drab and can look very similar, so who knows. Later I decide to take the trail through the woods up to the next tier and what do I see, but another of these females! After collecting her I wandered up further and got two of what I think are the males of the species! I call him Wasp Mimic II! LOL The first and only time I've run across this species.



There is also a fern which grows down here that looks like the branch of an evergreen tree. You can't see it, but the frond blends from spring green at the edges to an almost unearthly blue in the center. Very pretty.





We stopped for gas and the girls at the station had this in a jar. When A ask what kind of beetle it was, they said it wasn't a beetle and gave a word for cow (because of the horns). So people are insect illiterate all over the world!



We dead headed to Prince Songkla University (again spelling) at Hat Yai to meet Bob. We got checked in to our (complementary!) room and had supper. Tomorrow is the first day off since Chiang Mai!

2 June

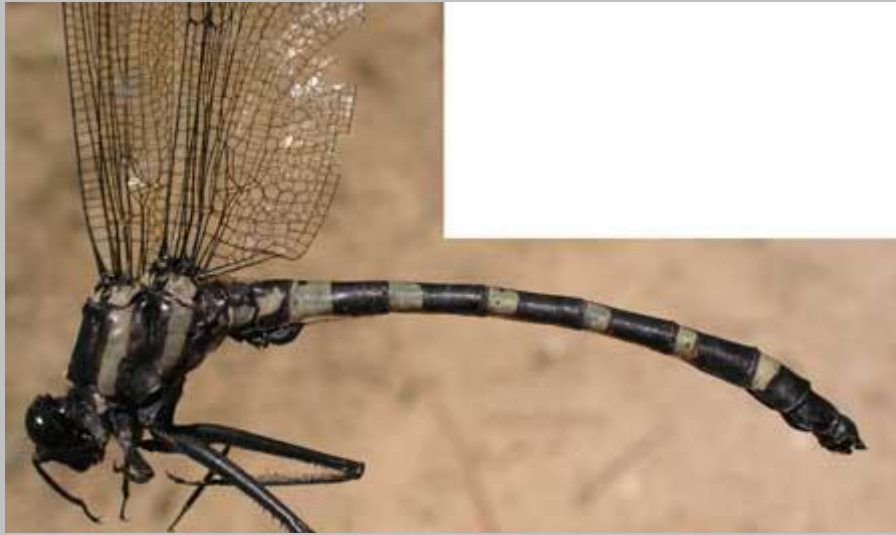
First day off since Chang Mai! Today was the meeting of the professors -Bob and Dr. Houseman (a termite guy) on the Missouri team and three professors on the Thai side. The Thai professors (sorry, can't even get close with names, much less spellings) are all very nice. Nothing but smiles. A and I tag along (in long pants, they're formal here), so I'm introduced to all the big wigs. Good talks. Lunch was wonderful, we ate at the hospital cafeteria! Did a little shopping (I got Matrix Reloaded on DVD!!!!!!) We were a little late back to home (and there was some miss-information) so the van waiting to take us to our Greeting Dinner had left. We were a bit late, but no worries. Good dinner, all Bob's favorites.

FINALLY got home so I could do the most important duty of my entire trip. Watch Matrix Reloaded!!!!!! I was up till 1:30, it was worth it. Up at 6:15 the next morning to try to get new emerging dragons from a near by pond.

3 June

We venture into the wild blue yonder with Bob and Dr. Houseman. Our first stop was a heavily populated waterfall. Not allowed to collect, we pounce like ninjas and grab all we can! I wandered around, took pictures, and watched for any new species. Wandering back in the direction of the car I spot a Big Old Gomphid. All I have are my hands and my wit. Not much wit really. So I stalk, slowly... slowly... nearer and nearer. A yells from the bridge to hurry up, they're leaving. Closer and closer, I reach out and Whomp! He is mine. Don't know if I've got this one before, but the "collection method: hand" was very cool!



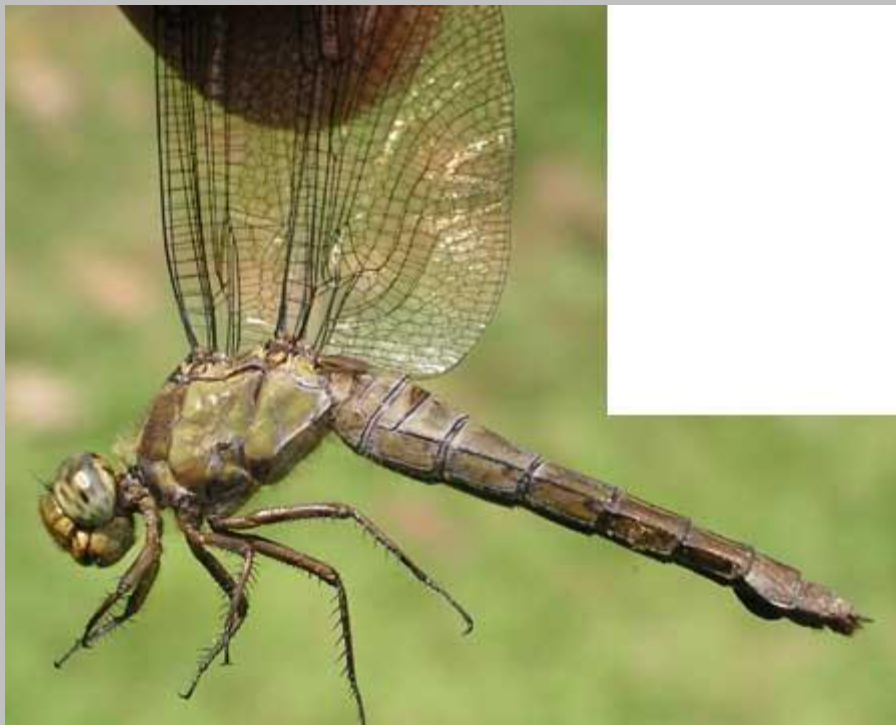


Second spot was down stream a ways on the back side of a temple. Picked up a nice gomphid and got a great shot of a moth.



Our third stop was neither pond nor stream. It was in someone's yard. We were after termites for Dr. Houseman. Some of the termites around here build huge (up to ten feet tall, and I'm not exaggerating) mounds. There was just such a mound in this yard. I wandered watching for dragons and amazingly picked up what I think is a new species for my trip! Perhaps even two! Again, I'll know once I'm in the lab.





I saw an ant nest made of living leaves woven together and got a picture of the main entrance.



Headed back I ran into the main party. They were attacking a big mound and I played camera man. I took over 100 pictures! Termites (except maybe soldiers) are very vulnerable to attack, especially from ants, therefore their mounds are fortresses with inches of thick hard mud encasing the inner parts. You need a pick ax and sturdy back to collect from one. A mound is an entire city in which thousands of termites live. There are chambers for all sorts of things, but the most interesting and beautiful are the fungal gardens. They remind me of coral or Morel mushrooms. On these strange things fungus grows (the white specs) and the termites tend it and eat it. Dr Houseman got many good specimens, but our quest for the queen failed.





After that we headed for the border. Malaysia. You have to fill out paperwork and get a stamp to leave Thailand, then you drive about a quarter mile to the Malaysia side and fill out paper work to enter the country. This went well. On my walk through the building towards the exit I got called over by two security/soldiers. "Let us see you're passport, where are you from? USA!" "Best friend George Bush!?" "No, I can't stand the guy." "You don't like him?" "Nope." "Why not?" (Have I forgotten to mention that Malaysia is majority Muslim?) I gave my reasons. "You like war or you like peace?" "I like peace." "Good Man." He shakes my hand. They are curious as to how old you have to be to vote in the states. What are Bush's chances of winning again? What am I up to, where am I going, etc. They let me go and I wander out of the building.

Bob and Dr. Houseman have been waiting. We cross the street and fill out paperwork and get a stamp to get out of Malaysia. Back to the car, and paperwork and a stamp to get into Thailand.

Why go through all this? Two reasons. First, cool stamps in your passport. Second, you are only allowed to stay in Thailand for 30 days without a Visa. Well, Bob is going to stay about 40 or 50 days and doesn't have a Visa, so if you leave the country, turn around, and walk back in you get a whole new 30 days! Funny.

Not end of day, but end of log.



## Sixteen! Nearly a week long struggle but his page is up! TWO BEST PICTURES OF THE ENTIRE TRIP!!!

3 June cont.

There are an entirely different type of termite nests in the area, too. These are aerial nests. Built in the trees these appear as a giant ball of mud, about basketball sized or smaller. The termites construct mud tunnels from the tree down to the ground where they forage for food. The great thing about these is that the entire nest can be collected, unlike the ones built on the ground with vast underground chambers. When you collect an entire nest you can look at the proportion of soldiers to workers, etc. Additionally there are many types of insects (called termitophiles) that will live in nests with the termites, and these are of special interest for two main reasons: First, some are found only in association with termites and nowhere else. Secondly, the other insects are essentially wolves in sheep's clothing and the mechanism by which they cloak themselves (be it mechanical, behavioral, or chemical) is important to understand.

We drove back and found ourselves near a rubber tree plantation. Lots of aerial termite nests were to be seen, so we picked a low one and headed over. Two people held a trash bag against the tree while another held it open. Dr. Houseman reached up and with a mighty tug pulled the nest down, placed it in the bag and then scraped and aspirated the rest of the nest inhabitants into the bag. No big deal. The whole operation took maybe 7 minutes. Noone got dirty or even broke a sweat. Easy.



So we wonder to the next one. A little higher up, A grabs a drum they pour latex into and Houseman climbs up. We all stretch and position the bag. Now Dr. Houseman is the second tallest person we'll meet on this trip. He's about 6 foot 4 inches, not a spindly man either. His mighty hands grasp the nest, a great heave, and... nothing happens. He tries again. Nothing. I honestly believe he could have done a pull up and not even budged it! So we

break out the ax and start chipping away. About 20 minutes later dried mud is flying everywhere, the bag is catching most of it, another heave, the main nest flies, Houseman leaps from the drum, makes a mid air catch, and we have another nest.



The third wasn't any easier. I was showered with dried flaky mud, Houseman was literally causing the entire tree (about 14-16 inches thick) to sway. We finally got it down, Collecting three entire nests is excellent. Concerning how we go them down, well, we call it the "Houseman Technique".





In the car, we race like mad men back to the city. Why? Food of course. I forget if I got to shower before or after, but we went and got Muslim Fried Chicken. Bob knows food in Thailand, and there is a particular lady with a particular stand where you can get the best Muslim Fried Chicken in Thailand (according to Bob, and he may be right). I got a piece, it was pretty good. We went shopping for souvenirs and then made it back to our rooms.



But don't forget, Houseman has three garbage bags full of live termites, etc (multiple thousands in each). What ever shall he do? Well, there is a technique called floating where you toss what you've collected into a bucket of really salty water. Freshwater floats in salt water and living things are mostly fresh-ish water. So when you toss a pile of dirt, leaves, and bugs into salt water, the living things float and everything else sinks (mostly). You skim what you want off the top and dump that into alcohol. Below are pictures of floating and the aftermath.







4 June

We load up and head to a beautiful lake with a waterfall near by. We have lunch in a gazebo built over the lake and there is a boardwalk out and along one edge. The dragonflies are thick, but we don't have permission to collect yet, so I take pictures instead. Black Beauty is here, and quite abundant, and so is an amazing brown winged species, of which I had only collected one. I was able to get pictures from 4 and 5 inches away.



We finish lunch and get permission to collect. We decide to collect the waterfall first. I get pictures of a beautiful caterpillar, some pretty flowers, and of course a staged... er, I mean, REAL photo of Bob actually working.







We head back to the pond and it is dead. Almost nothing is flying, I'm fighting to get common species, 30 minutes of collecting and I never once see the brown winged dragon! NOT ONCE! I was mad. I got 4 Black Beauties, and some other nice specimens, but it just goes to show, never go anywhere without your net!

The next stop was another waterfall. No collecting for me, too many people. Looking for water bugs in the falls, I slip and almost go down, but correct and survive. I got a picture of a nice frog in some moss.



We make a stop at a huge termite mound built around a tree. These termites are different from what we've seen before. The soldiers are yellow, and when they bite they extrude some sort of yellow goo from their mouths. Here is a picture of a soldier and a worker side by side.



There was another mound a few yards away in the field so we took a whack at it, and collected some termites there too.



Here is a picture of the soldier with spit. (I would like to add that the insect was maybe a quarter inch long, moving, I have no tripod, external flash, or skill with a camera. I love technology!)



The main defense system of termites is their nest. If the nest is breached they are essentially helpless. Soldiers are used to protect the workers while the hole is fixed, but cannot be used to hold off a long sustained attack. We only took a little whack out of this mound and after only about 15 minutes they had nearly repaired the breaches. This isn't the best picture, but the soldiers are yellow, protecting the workers and the darker mud lining the holes is all new. Some of the smaller holes (mid and lower left) are already closed.





A very good day of collecting, we head back to our rooms. Remember I mentioned that I was trying to raise dragonflies, but had so far failed. Well, I had three dragonflies in an extra room and when I checked on them I noticed that one larvae had crawled out of the water onto the side of its container. And I saw a wisp of white on its back (when an insect molts it sheds its old breathing tubes, and I've collected may exuviae with just such white wisps). I snap around and look for an adult! There he is, a beautiful little male gomphid hanging on the wall, pretty as can be. So I have succeeded in raising a single Thai dragon! Another very good association for me. Thanks to A for getting the larvae.





Well I know you are saying to yourself, "That's all well and good Mike, but where are they really good pictures, the spectacular photos that make you look twice, look again, and leave you with nothing to say but WOW?" Well, we went out shopping again that night and took a taxi back home. These are open air affairs built somewhat like small trucks with entrance and exit through the back and bench seating on the sides of the bed. Whilst racing back home through the streets of Hot Yai we found ourselves in the company of three young ladies on a motorcycle. Their route was ours and after a little while nods, smiles, and waves were exchanged. I took two pictures of them. The first didn't turn out, but the second is one of my favorite pictures of the whole trip. I apologize for its reduced size and quality.



End of a wonderful day.

5 June

We were scheduled to leave for a trip today, but one of our number fell ill, so it was postponed till the next day. My group suited up and headed out to collect. Our first stop was a beautiful waterfowl preserve. Thick mud and thin water stretched to the horizon. They had boardwalks built out into the "swamp". Lots of little birds scurrying around.



The head guy wasn't there and we didn't get good permission to collect, so we walked around. The dragons were so thick I got a halfway good picture of one on the wing.



We ate lunch at a roadside restaurant and I got a picture of a water buffalo skull hanging on the wall.





We went to a big national park and got a good map of it. A told the man at the information desk he was frightened to go to any waterfalls without a guard station. So we found out which falls didn't have checkpoints and immediately left for the nearest one. Not much new was flying but I got almost all that I saw. The second one I've seen, this is an immature semiaquatic cockroach. They look something like the Madagascar hissing cockroaches.



And I got another specimen of an old friend! A much better picture, this Dobsonfly (genus *Neohermes*) was happily sitting on a leaf for me.



Are you ready for the next picture? This picture ranks right up there with the girls on the motorcycle. Ten Bees (Bee-Line). I was walking against the bank looking for emerging dragons when I saw these guys setting on a limb. The picture is perhaps 2 or 3 times natural size. One of them would fly in and try to squeeze between two others. This would cause one to drop off and try to find a place to land between two others, resulting in one dropping off, etc. They were kind enough to let me get to within a few inches to snap some photos.



We headed back to campus where we had been staying and sampled a nearby pond in the failing light. I had already sampled it before by myself so I got pictures of bats. Not much color and a little lacking in detail!







Dr. Bruce Barrett arrived today. The tallest guy on the trip, 6 foot 6 or higher. He is scheduled to take a tour of many places near the Malaysian border (where there have been many killings recently). So we will make sure to get a picture of him tomorrow for the scrap book.

Early to leave on the morrow, so got some much needed rest.

6 June

The promised picture of the crew. If any name is spelt correctly it is merely by mistake. Back row from left to right - Dr. Houseman, TangOn (formally DaNong in my logs), Bob, Dr. Barrett, Me, and Dr. Surikai. Front row - Akekawat (A in my logs). Dr. Barrett will be going on his own trip, but the rest will be companions for the next few days.



We stop by a waterfall that's no good for bugs, but Dr. Houseman grabs some termites. Lots of driving and its lunch time. The restaurant we stop at is very nice with lots of birds and animals caged all around. They had the cutest ducks, little tiny things with a singsong voice rather than a quack.





Plus I got a picture of this guy. I believe he is a Lineated Barbet (I finally picked up a book on Thai birds).



We stopped at a small stream where I got this guy, who may (or may not) be new to my collection. On the drive out we find a road killed (what may be a) cobra.



He head back and catch up with Dr. Houseman and Company. He is collecting termites of a different breed, these have major and minor solders. The major solders are quite impressive and deliver an impressive bite.



I got a picture of a big leaf on the ground as we were leaving.



One last stop for the day this is a beautiful stream which pours from the forest into a large clearing. Not much flying for me, but everyone had fun. Rain threatened and retreated the whole time we were there.





We load up and stay in a very nice hotel. I take care of specimens and hit the hay.

## Seventeen, I'm getting caught up!!!

7 June

First site of the day is a small termite mound on the back side of a campus to which we drove. We all load back up, drive 60 feet and stop. Get back out for the second site. There is another aerial termite nest in a rubber tree and luckily this is right by a little pond. So collecting for all. The nest was about 10 feet up in the tree and while we were looking for a way to get to it, Dr. Sirikai takes off his shoes, hangs his cell phone and glasses in a bush and proceeds to climb tree. Straight up it! Everyone is in awe, I'm taking pictures like mad and Bob walks up with "Don't feed the monkeys, kids". An absolutely amazing feat. So termites were easily obtained to the enjoyment of all.



The pond had some nice dragons flying around it and I was swiping them up. Bob and A started collecting and got one of these. This is a type of water scorpion (it is an insect, not a true scorpion -family Nepidae), and some other interesting specimens.



The next site was rather unexpected. We went to the main building of the college to get drinks and they had a very large pool built against the front of the building. Everything is new, so they haven't had time to put in plants or fish or whatever, but there were dragons flying and waterstriders everywhere. Well, easy pickings, so we collected while the others went to attack another innocent termite mound.



We load up and head out. Our next stop is at a waterfall that A and I had already collected at. But the termites were good, so we got some more specimens for Dr. Houseman. Here's a close up of one of the fungus gardens and a solder (on my finger).





We drove and found ourselves in the immediate vicinity of the ocean. Of course you are never far away from the ocean in Southern Thailand, but most of the time you can't see it. In the distance you can see the (and I'm not making this up) Pee Pee Islands. One of them is featured in the James Bond (the one before this newest one [Tomorrow Never Dies]) so there are lots of advertisements to go to James Bond Island!



We made two more stops for Dr. Houseman. To identify termites to species you either need a winged adult, or a soldier. Usually soldiers are easy to come by because when you breach the nest they come out to defend it. At the second stop we were collecting termites from mud tubes on the side of a tree (the main nest was way too high). We must have spent fifteen minutes and only got a single soldier - at the very end!



Our next site was a water fall. Too many people (lots bathing, too). I got a picture of a family near the base of a somewhat large tree.





Another very large tree had multiple bee hives in it. Here you see two fresh ones (yellow) and one that has been covered in dirt.



Last site of the day (of nine total). A termite mound in a field. The first few whacks yielded nothing but ants, which had apparently invaded one side and set up shop. The other side of the mound was much better for us, equipped with pollen combs and everything.





I got a pretty good shot of a soldier in action. What is he biting into? My wrist just below the palm! I never felt him, just noticed him when I was brushing off dirt.



We stayed the night in Phuket (pronounced Poo-Ket), a big tourist location. We headed to the night market in search of a hole-in-the-wall restaurant that Bob visited last time he was here. Everybody was selling something, and they were very persistent. It was late and I was hungry, so we split up. I stuck with Dr. Siriaki and Dr. Houseman and the rest went with Bob. They never found the restaurant Bob was after, but we got to eat good, do a little shopping, and back to bed before midnight!

8 June

Our last day with the group. A and I are headed back to O's house for the night and then to Bangkok the next day. A has visited Thailand many times while working on his masters and Ph.D. Every place he collects specimens is given a number, i.e. L-12, L-368, etc. The numbering is sequential starting at L-1 many years ago. When A arrived this trip he was on L-415 (the 415<sup>th</sup> location that he has collected at in Thailand). When I met A a month later, I first collected at L-488. Yesterday we collected at site L-599. We are all hungry for 600.

Before we split up we find a waterfall and start collecting. I only got one specimen, but it still counts!



This park is also home to a gibbon recovery project. Many people get gibbons as pets, but can't take care of them when they grow up. There are also a few wild gibbons floating around, thus the sign:



One the way out we stop by an elephant trekking place and get pictures of the great beasts.





We drive to a shaded park on University grounds to transfer stuff between vehicles and repack. There is a little muddy pool right beside us. Whenever you watch a nature program and they start talking about fish leaving the water and their lineage giving rise to amphibians they always show a particular little muddy fish that swims, but spends most of its time out of the water jumping, running, and barking. This little muddy pond was infested with them! But if you got too close they would plunk right down into a burrow.



The rest of the day is driving. We make it to O's house and have another wonderful supper prepared by his mother.

9 June

Another day of driving. First of all, the vehicle was packed full. Two Thirds the back seat was also full, just barley enough room for TangOn to squeeze in.



Whipping along the highway I spot the answer to one of my many questions. How do Thais transport large quantities of aquarium fish? Well, here's your answer.



We stopped by a huge market of fruits, cookies, and candies. A got a bunch of stuff for his family. One of the interesting pieces they had on the wall was this carving. About ten or 12 feet long this is a carving made from Teak wood. They bond four or five 2x6 inch (approx.) pieces of teak together to create a huge board. Then the carving is made from this single piece of wood. We'll see more of these later, with better photos.



We drop TangOn off at her house, she will be leaving for Japan for a conference in a few days. A picks up his younger sister (he has only one sister, but in Thailand you always to state younger or older. So we make fun of poor A.). She is amazingly nice and has helped get me a very good hotel at an even better price. A heads home, I shower and procure nourishment.

A few hours later A picks me up and we head to the airport. We are going to pick up Dr. Houseman and take him to his hotel. He leaves the next morning for the US and back to his much missed family.

10 or 11 June

I lost a day somewhere. I didn't take any pictures! So you will get two days mixed together. I believe it was the 10<sup>th</sup> that A took me to KU (Ksomething University). A huge beautiful university in the middle of Bangkok, A

spent 15 years going to school there (Kindergarten through college). He introduced me to one of his professors. A very, very nice lady. She showed me pictures of her latest trip to Washington State. I headed over to another lab where some people were showing off a keen little digital camera that magnified 40x and 140x. It had video out, so you could hook it to any monitor or TV and see the magnified image. Really cute.

Speaking of really cute... Every entomology department in every Thai university that I have stopped at so far is almost totally populated by female students. And they are all beautiful. Happily most of them speak English very well. I got to talk to a couple of them at KU. The one I spoke with the most was named Yolk (perhaps not spelled right). She mentioned this too, and pointed out they only had one male ent student. I asked why she thought it was that there are so many female entomologists in Thailand. She said it was probably because females are more focused and can concentrate better. I agree, who could be focused with all the cute girls running around! LOL

She was working on stoneflies (Plecoptera). I work on those, among others, and she showed me some of her specimens, and a few that she had reared to adulthood. Its really fun to get to "talk shop" with someone. We got onto English. They pointed out that W-I-N-D and M-I-N-D are pronounced wind and mind. I understand, it doesn't make any sense to me either.

Also on the tenth we made another airport run to pick up Poo. She flew from Chiang Mai, will spend a few days in Bangkok, fly to Japan for a conference, then fly to Iowa (yeah, I said (stifling a yawn) Iowa) where she'll work for 6 months on her Ph.D. project. I told her she was more than welcome to come to Columbia where she could see things other than corn and soybeans, like trees and hills.

There are three Thai people who work in my lab in Columbia. Yam, a graduate student whom we met in Hot Yai. Akekawat (A in my logs), a Ph.D. student with whom I am traveling. And Aea (means Boo in English), she is a Ph.D. student in education, but works as a tech in my lab. A and Aea have been good friends for years so we head over to say hi to Aea's parents. We park the car at A's grandparents house. I get to say high to everyone there, and immediately they have tons of fruit out and ready for me to eat! I've never been really hungry Thailand, and most days I'm stuffed to the gills, especially when I'm around families. I got a picture of their gate. Gates and fences in Thailand are not that horrid chain link you see in America. They are works of art (and very expensive from what I hear). I haven't been able to get any good pictures because we always pass them at 90km an hour. This one is very beautiful but is certainly not the most ornate I've seen.





We hop into a taxi and head to Aea's parents business. When we get there I wander in and before I can even look around I see a familiar smile and hear "What's up Mike?"!!! It's Aea's younger sister Rose! I ask her how long she'd been back in Thailand- Since two this morning, she said. Aea's parents are absolutely the nicest people you would ever want to meet. We all load up and they take us to eat. Rose helps me order and keeps me from dying.

The next day A, Rose, and I went to the Grand Palace. A huge place full of many temples. It's been around for at least 200 years and amazingly ornate. I don't know any stories or explanations, so here are some halfway decent pictures I took on the tour.















We took a tuk-tuk to and from the Grand Palace. These are those three wheeled affairs that Thailand is known for. I pretty much fill one by myself, but we all fit and it was an adventure. We made it back and Aea's parents took us out for supper. I got a nice picture of them and Rose. Lovely people.





12 June

A's sister (the younger one) came by after breakfast. We rode a city bus for a while (fun) and walked a bit. She took me to a street full of tour agencies. We wandered around and I signed up for some day trips next week. We went to a huge mall, as big as my home town. She said it was one of the smaller ones. At a pet store I got a picture of a small crocodilian you could buy for a mere 69,000 Baut (\$1,700)!



We met up with A, and picked up Rose. To another mall, we milled around and ate "buffet" at a suki-yaki restaurant. Remember the meal way back when that I had where you grill your own little pieces of meat. Well this was much more civilized, the grill was flat, so meat didn't slide off into the soup. When you order the buffet you can have as much of any type of meat that you want. And they had Hosin sauce, a thick sweet sauce that I love. It was a great meal.

13 June

Today Bob flies in from Hot Yai and we are to pick him up. A grabs me after breakfast and we head to the airport (I think this is trip three now). We get Bob, and careening through the streets of Bangkok to his hotel A points out the Beer Chiang building. Their label has two elephants on it, and their building IS a giant elephant. I got this picture out the back window as we shot by.



A has other business for a while so Bob and I go out and wander the streets. Past shops and tables filled with all kinds of wares, we come to a huge market under a roof built over the empty space between two buildings. The majority of Thailand is functionally pre-refrigeration. What I mean by that is, the bulk of what Thais eat is fresh, or held through the day using ice. Fruit of course will hold for a given time, most other vegetables, leaves, etc have been harvested at most a day or two before they are finally consumed. Fish are still flopping.

Here's a picture of a meat seller. Its 100 degrees, if this meat doesn't sell today it must be thrown away. The entire country is full of fresh food. The production and transportation of food must be enormous.



Another picture. I can see ten different types of fruit and there were at least 5 more than were above, below or to the sides of the picture. Amazing.



Bob takes us out to eat and we have chicken wrapped in banana leaf, or something like that. It was very good. A and Bob drop me at my hotel and head to pick up Bob's wife and two of his kids, at the airport!



## Eighteen, Last one till I come home.

14 June

A picks me up early and we head to Bob's hotel. Its Saturday morning and we have an appointment at the Weekend Market (JJ Market), a huge open air affair with hundreds of stalls all covered haphazardly to keep out the sun and rain. Bob's incredible, amazing, wonderful, and very beautiful wife Sandy was there. And, completely unrelated to the adjectives above, she brought me 4 tins of Altoids! I had run out about a week earlier and had to eat horrid little Fisherman's Friend Peppermint Lozenges. Additionally two of Bob's (and Sandy's) daughters showed up. Everyone looked chipper. We set out in the street and walked a couple blocks. Bob knows the Sky Train very well and that will be our main conveyance to the market. The sky train is an elevated (about three or four stories) light rail system. It runs smooth as silk, very efficient and clean, but currently it only makes about 15 stops, they need many more lines to cover the city. Only 10 baht to go to the next stop, we all clamber in, zoom, and clamber out.



We had a couple of hours to wander around the market. I got some stuff for people, A got a huge bag of stuff that Aea had "ordered" and the Sites Fam got things as needed.



We all bustle back on the train and head back to the hotel... by way of an internet café! I had already checked my email that morning, so I played camera boy.



A drove me back to my hotel and I took a wander around the block (which is about a quarter mile on each side). I got a picture of a mailbox on the street. Apparently there are only two places in the world...



Finally I got some time to update my logs and post another page on the web. It may not look it, but it usually takes 4 to 6 hours to write logs, prepare pictures, and then put the web page together.

15 June

Today the Sites Fam is headed to the floating market. A worked it around so that the tour van would pick my up after they picked up the Sites Fam. My pick up time was to be 5:45am. I asked the girls at the front desk for a 5:15 wake up call. It came and I was downstairs dutifully waiting at the street side for the van. Traffic was very light at such an ungodly hour and the Tuk-tuks were screaming by. About 6:43am I gave up, perhaps they forgot, no worries, I went up stairs for some rest, emptied my pockets, and fell on the bed. 6:47 I get a call, they're downstairs, trouble with the vans AC.

OH, I forgot, when I got up, bleary eyed and wobbly, I spied that one of the dragonflies that I had been raising had finally emerged!!! So I have another association! Very good news for me.





The first stop was at a stature and park dedicated to the first Siamese Twins. Well, the ones that gave the condition its name, at least. Remember that Thailand used to be named Siam, they changed the name to Thailand when they changed from an absolute monarchy to a democracy in the 1940s.



We all loaded into a "long tail boat", which is a long skinny boat with a very long straight shaft motor. They shoot you along canals that people live along (its like a little Venice) and finally you come to a T intersection rife with tourist shops on the shores and people selling all sorts of stuff on boats.



I broke from the Fam and wandered on my own. I had gotten a few things and was down to 13 or 14 hundred Baht. Everyone bargains here, little kids would run up with post cards and say "100 Baht", and they show you their hand with 100 written on it. When you say no thank you, they instantly flash the other hand with 50 on it and say "50 Baht". It is a game and there are rules. You can inquire as to the price of things, but then you have to say no thank you profusely and move on quickly to get out of it. Don't bargain with anyone unless you intend to buy. You can get out of it if you come to an impasse in price, but this takes a long time. The other way to get out of a bargain is to name an impossibly low price from the start, this saves time, they understand, you part company and everyone is happy. Well, Mikey starting drooling over this very large box full of big insects. I just

had to ask what she wanted for it, but knew I couldn't afford it. The bidding started at 3800 Baht. All the money I had would be an insulting offer. I said no thank you, but she wouldn't let me go. "How much you pay?" over and over. Finally I said, "all I have is 1000 Baht", this is about 60% below the best deal you could ever hope for on a box this big. I was hoping she would let me go. Oh no, she saw I had some Dollars. 1000 baht and ten dollars - no - and 6 dollars - no - 1200 baht - no. Ok, 1000 baht. I never even said yes, she just started wrapping it! Even Bob (some people might call him... frugal) said it was a good deal!

Time was almost up, I wander back toward the pick up point and find myself near a stand where they take your picture with a digital camera and print it on a T-shirt. If only someone had an embarrassing picture of someone else, in digital format, then one could have a T-shirt made with said embarrassing picture right there on the spot! I love technology.

We load up with our treasures and head to a teak carving place. Teak is a very desirable wood, very hard, weather resistant, has a good grain and texture. The live tree looks almost exactly like Catalpa, but without a certain wave to the limbs. Very expensive, and beautiful furniture is made of teak. Remember the carving I showed you earlier, well here is one in progress, and a close up of another. Supposedly, and I'll believe them, this is but a single piece of wood. So everything that is hanging over other things is actually carved beneath, not glued on. Most of the larger murals were on the order of 5 to 12 thousand dollars. The most ornate (of which you have a close up) took two masters 9 months to complete. Very impressive.







I haven't mentioned it, but this is actually my second trip to Thailand. The last one was as a tourist seven years ago. Both trips were fantastic, but being a bit older, wiser, and already initiated, this trip has been amazingly informative. The family that I stayed with low those many years ago still remembers me and today I was finally able to get in touch with them. I grabbed a taxi and went for a visit. Their house is still amazingly beautiful, and the kids I knew are now adults. They were interested in what I was up to, when would I come back to Thailand, and do I have a Thai girlfriend yet? (Because they're the best, you know). They treated me to a movie and a very nice dinner. Here's a picture of us after dinner. If you remember Sesame Street - "One of these things is not like the other..." LOL.



The nicest family in the world!!!

End to a great day.

16 June

My first day all to myself!! Up late, none of this 5:45am stuff. Breakfasted and was on the street by 9:30. The taxi that took me home the night before had driven past the zoo, so I knew where it was, only about two blocks away. I'm at the zoo before 10. Great fun.



It was a nice size with lots of animals. A big lake in the center full of thick green brown water. Occasionally a huge boil would erupt and a big tail fin would sink back under the water. I think it is some sort of catfish and they all look to be between twenty and forty pounds, or maybe bigger I still haven't seen a full one, just tails.

They had a extraordinarily good reptile house with many different types of turtles, big lizards, and snakes.





There were Pigeons, and English Sparrows, but the coolest pest bird were big black Crows. Hoards of them. When I got my meal I put in on a table and then went to get drink. When I came back there was a lady with a slingshot standing near it eyeing the crows in the trees. I got pictures of some of the different animals, and an unusual tree with flowers on its trunk.









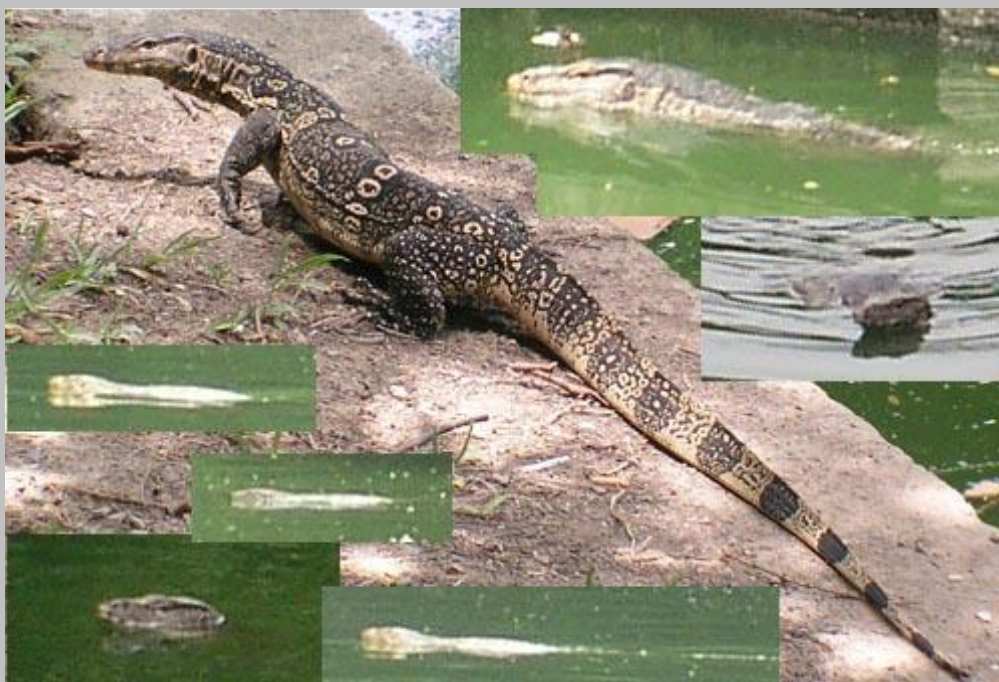


They had a good collection of big Hornbills. These birds are as big as an eagle with a huge beak and beautiful plumage. I was shooting from a long ways away through the cage, but this one caught a starling like bird and is probably about to eat it.





I was standing on a bridge taking pictures of some turtles when the Loch Ness Monster started swimming across the water in the distance. I got some pictures and then another one started swimming across. As near as I could tell they were big monitor lizards, about 4 or 5 feet long! I started watching the lake and they were all over the place! Just wandering around loose. So here is a bunch of Lock Ness pictures I took, and a good shot I finally got. A few days later while taking a taxi ride I saw another of these on the bank of a canal in the city, so I guess they are all over! Amazing.





I filled both cards in my camera and finally made it back from the zoo around three.

17 June

Up early, got a taxi to the road upon which there was a business with which I had reserved a tour. I was there early and decided to get an iced tea in a restaurant. There was only one other person, a farang, and he invited me to his table. English, he had been traveling for a few months. He had just graduated from university and gotten a good job. He explained that that was why the trip was so short, if he hadn't gotten a job he would have traveled for a year. Apparently this is common in Europe. I waited on the van next to a young lady named Clair. She said Thailand was the end of the road. She'd been traveling for four months throughout Southeast Asia and after a couple weeks in Thailand she was headed home. We made it into the van and I met another European lady named Liz. She was married with 4 children, the youngest was 17. Now that they were old enough to fend for themselves, she had decided to travel, leaving hubby behind to deal with the kids. She had started out on a charity trek along the Great Wall of China, but SARS sent her back home, then everything reconvened in India. Much more traveling through Vietnam, Laos, Cambodia, and now Thailand.

Another English lady, Sarah perhaps, was much the same way, a couple months off to travel. She was a lawyer. She told me that when she told Americans that they usually recoiled, but in England it's not evil to be a lawyer. She was a prosecutor, I told her we don't have any of those in America. There was also a man, Paul from New Jersey. Traveling for a couple weeks in Thailand, then a few days in Singapore, I think. And there was a young man from Japan, his English seemed pretty good, but he didn't say much. Great fun.



I'll show you a picture of the group, but the story of the rest of the day shall have to wait. As must the stories of my journey to the Ancient City, which is 40 years old, my adventures whilst geocaching, and the police raid that set back my DVD shopping.

Mike

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Sorry, but everything above this line is an advertisement. Tripod puts it in there not me. One of the costs of a free website.

## Nineteen, Home and alive - Last log

17 June cont.

Ayutthaya was the second (?) capital of Thailand. It is a large city which lies on an island formed (and surrounded) by the meeting of three rivers. Many temples abound, along with huge halls, and many, many statues of Buddha. Our first stop put is at a newly renovated temple. A farmer was grazing some water buffalo across the way.



We all wandered up to the top for a look around, and for photos.



Then down to some of the older temples below. Here is a Chinese Buddha.



Just before we left Clair ran to the top for a photo. She's the black dot.





Our next stop was nice as three main styles of temples were within walking distance of one another. The first was a Burmese style temple, then a Sri Lankan, and finally a Cambodian style temple.





I got a picture of a Sitting Buddha.



Our next stop was the Grand Hall. A huge building which used to house a 16 meter tall Buddha. Ayutthaya was abandoned as a capital because the Burmese (Myanmar) would come over and fight all the time. The giant Buddha was burnt for its gold covering, but the bronze core was left behind. This was then removed and placed somewhere else.





There were some elephants nearby. For 10 Baht you get a pile of bananas that you can feed the elephants. Amazingly the elephants are nice enough not to just take them away from you, and they let you hand the bananas to them which they take with their trunks, or they'll open wide and let you put a banana directly in their mouth. That's Sarah's arm.



They drove us to a little restaurant on the river. Here's the picture of the group, again.



Immediately thereafter we took a boat ride around the city. I got a picture of another Cambodian style temple (my favorite style).



Afterwards we went to another set of ruins which represented a huge complex of temples. I got a picture of a fig overgrowing a Buddha image. This is the same sight that graces the front cover of the little booklet which tells the history of the region.



We were stopped by the tourist police there. I was detained the longest. This was day 7 of a 10 day training deal for the tourist police and they were stopping English speaking persons so they could practice speaking English. So I ran through a ritual of What's your name, Where are you from, Would you sign your name here, with about 5 or 6 guys. I taught them Where is the restroom/bathroom/loo? They didn't want to talk with the Limeys! Apparently the British accent is hard for Thais to understand. I've had a couple people mention this, but they tell me Scottish is the worst!

On the way back home we crossed Rama VIII bridge. Here is a hurried photo of the main mast from out the window of the van.





18 June

Second day of tours, I was scheduled to go to the Ancient City and the Crocodile Farm. Twice before I had asked for a wake up call and received one, so I did the same the night before. At 6:20am I get a call, We're here to pick you up! I'm dressed and downstairs by 6:25. The van takes me to a hotel and leaves me with a very nice lady who will be my guide today. Apparently I was the only one booked for the tour, so they grabbed her from the office to take me! A very nice lady, she spoke English very well and used to lead tours years ago. So off to the Ancient City, which had been built 40 years ago. Here's the story as was told to me. The man who owns (or owned) Mercedes-Benz donated money to have this built. Situated over a hundred acres or more, all of the significant buildings and places in Thailand's past and present are recreated and arranged so as to allow the traveler to "visit all of Thailand in one day". Here are some pictures I got on the tour. A city gate, a few bridges, a deer, and some temples (one with the sky altered in photoshop), and a "self portrait" mostly of my nose though.











On the way to the Ancient City we passed a HUGE statue of a three headed elephant. This is my favorite of symbols that you see around Thailand so I asked my personal (LOL) guide if we could stop by on the way home. All we had time to do was pull in, get a brochure, and leave. Never-the-less, I got a good picture. If you look closely halfway between the fore and hind legs there is a dark square. In the original there are little people waving from there. Notice also the truck parked in front of the statue for scale. This was funded by a man who wished to obtain and preserve Thai items of historical and cultural significance.



My guide dropped me at a hotel where myself and three other guys were picked up for the next tour. I'm pretty sure the guys were Chinese, but they were from LA here on vacation. Happy funny little guys. The rest of the group was a large family from Singapore. Decision making required everyone to talk simultaneously for about ten minutes. So they are a family like any other. We went to the Crocodile Farm and Elephant show. The prices at this place were nearly on par with the US! I had a pretty good buffet lunch then we went in for the elephant show. This is a very good show. They explain the uses of elephants in Thailand through history. They are trained very well, and the elephants seem to really like performing for the crowd. They lined them all up and each elephant did a head stand, but when we came to the three year old baby, he fell over! Later he got it right, and as they were headed off stage another one did two or three headstands! It was fun. They stage a mock battle with very good pyrotechnics, and the elephants do a very good job.







Immediately afterward there was the Crocodile show. Two happy little guys in the pit with several crocs. The main stunts were putting their heads in the crocodiles mouth and their arms in the crocs mouth past the elbow! Amazing.





The rest of the time we got to wander around the park. They have large pits full of crocs sitting around.



A mother and very new baby elephant were out for display. Mom really wanted bananas so I got her two bundles. The trainer played with the baby a bit and I got some pics and a short movie. Just like a VERY big puppy.





Just before I left I got this picture of a giant seat. Its made from part of the root system of a giant tree. The portion that you sit on is the trunk, the large flanges on each side are buttresses and the mesh of wood that is pointed up are the roots. This gives you a perspective how shallow root systems are over here (with less than one foot of topsoil).



19 June

Shopping of course. A picks me up. We head first to his grandparents house and he and his mother visit a monk. We run out and pick up Rose. Then head to Pontip Plaze. Another huge mall (have I mentioned that malls over here are 3 to 4 times to size of malls in the US?). Well, this mall is about 7 stories high with an open core. They specialize in computer and technology related items. The best place to buy DVDs is in the back corner on the top floor. We hit every camera shop looking for a lense I was after, but no one had it. When we made it to the



top floor it was empty. Just a few people loitering around. A and Rose speak the language and found out that there was a police raid at an illegal DVD store on the first floor. So down we went to see the action! The building is open core so all the balconies were lined with onlookers all the way to the top. The cops were busy confiscating things, but I guess the guy had gotten away. We waited around for them to leave, and headed back up the to top floor. Merchandise started to drift back in, but a cop walked through and it disappeared instantly! Finally we went to another mall for some other stuff. When we came back by a few hours later the cops were gone and everyone was back in business (including the place that was raided a few hours before!). They movies that haven't been released yet! And some really nice computer programs. If you decide to buy, you place an order, pay your money and get a receipt. Fifteen minutes later the merchandise shows up (from somewhere) and you go on your way.

I only took three pictures today and they were of an intersection. Sorry I don't have more sweeping photos of the skyline of Bangkok, but the curvature of the earth won't allow it. Bangkok is huge with skyscrapers spaced far and wide, not bunched like most American cities. I asked A's younger sister if she had ever been to the US. She'd spent a year in New York City once. She thought it was a nice little town! In the picture below you can see the streets on the ground. The sky train is blue in the middle and another line of it is above the one you can see. Additionally the dark concrete across the top of the picture is an elevated 4 lane highway. Bangkok will also have a subway operating by April of 2004!!!!



20 June

I take a taxi to meet A and his younger sister where we take a boat ride to get on the sky train so it will take us to the mall. A nice temple along the river-



The big box of bugs I accidentally got won't fit in any carry on luggage so I need a bigger suitcase. I ended up getting one big enough to put a body in! A sends me back to the hotel and I drop off my luggage. Then I head to the Beer Chang building (the one that looks like an elephant) because there is a geocache nearby. If you're not familiar with this, geocaching is when you hide something (a tupperware container, ammo can, etc.) and use you GPS to get its latitude and longitude. Then you go to [geocaching.com](http://geocaching.com) on the internet and post those coordinates and some information about the area for people to see. Before I left Missouri I knew about his cache (and others) in Thailand (it is a global sport). The taxi driver drops me off at the building and I'm about 6 tenths of a mile away, so I wander toward the cache. Down one alley, then back out, down another, then back out until I find an entrance to the park where its hidden. At first I figured it was gone, a pretty barren place to hide a cache, but I found it!! First finder too, so far as I could tell. I signed the log book with my name (spongy\_mesophyll) and the date. There are also things called travel coins and travel bugs that you can pass from cache to cache and the computer keeps track of where they have been and how far they have traveled. I collected a travel coin from here in Missouri, I typed in its serial number to prove that I had it, and then reported that I had left it a this cache in Thailand. So the computer says that its traveled over 8,700 miles in one hop!! I picked up another travel bug from this cache and will "release" it here in Missouri.

Here is a picture of where the cache was hidden, a clear plastic container under the rock at the base of the tree. And here is a picture from the cache site, the Beer Chang building is on the far right.



Back to the hotel and then a quick walk to the zoo. I enlisted the help of Mr. Kiefer (my roommate) to make a copper medallion with a secret number on it. A bit of stalking about, some JB Weld and it is now a permanent fixture at the Dusit Zoo, Bangkok, Thailand. I will list this on the geocaching website and allow people to log a find if they can tell me the secret number. My own Thai geocache!







21 June

A day for writing logs and packing. I wandered back by the zoo for lunch to check on my installation of the day before. It was fine. I wrapped and double wrapped everything, and completely filled my suitcase.

22 June

Headed home. The best part of the day was while waiting in line at Bangkok International Airport a young man ask me if I could take a picture for him. I said yes. Well, he was part of a tour group probably from Singapore or Taiwan of about 25 people. Cameras erupted from everywhere! I took at least 20 pictures, grab a camera, back up, frame the shot, take the shot, dart back in grab another camera, repeat. And the last picture I took was with my own camera.



We had fun with customs. President Bush has called them our "Front line of defense against terrorists." All I can say is that we are screwed, ladies and gentlemen, totally screwed. San Francisco INTERNATIONAL Airport - "We have insect specimens and we need to speak with someone from Fish and Wildlife." "Well, he's not here right now and his cell phone is off, it's Sunday you know." What!!! WHAT!!! INTERNATIONAL AIRPORT ladies and gentlemen, Sunday, One Guy????! I won't tell you the rest, or about the asinine measures they take (and don't take) at security (they waved the metal detector wand over the soles of my bare feet, but did not at any time check my hair or in my mouth). We are all screwed.

Anyway made it back home and alive. One of A's bags was lost somewhere in LA, so hopefully it will make it back here some time. Aea was there with a big van to haul us home. I got a shot of her in the rearview mirror while she was driving. Not a bad pic to end my Thai Adventure.



Mike



# Appendix I

Following are two publications that resulted from this trip. The first (in full), published in 2006, is a description of the immature form of the dragonfly *Gomphidictinus perakensis* (Laidlaw). You can read about my collection of that specimen on pages 77-78.

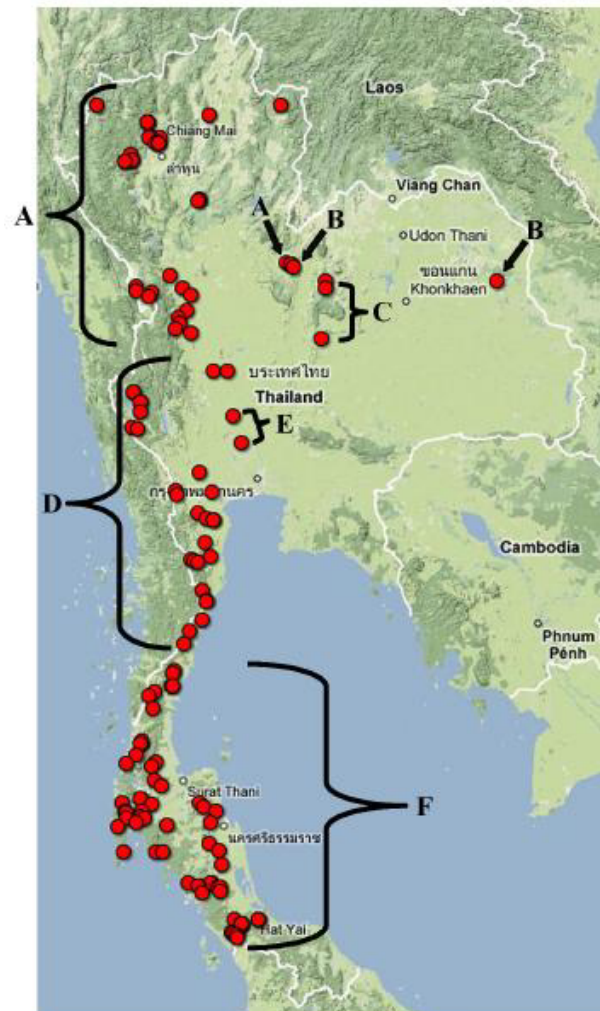
The second publication came a bit later (2009). Here, I reported on all 1515 dragonfly specimens I collected in Thailand, and many more collected by others in the lab. This publication provides a good summary of dates, locations, and what species I collected on the trip. Below is the abstract, citation, and a map of where I collected (all regions except B and C).

## Contributions to the faunistics of Odonata in Thailand

Michael L. Ferro, Robert W. Sites, and Akekawat Vitheepradit

**Abstract.** Distribution and habitat information are provided for 1578 adult specimens of Odonata representing 127 species in 70 genera and 16 families that were collected from 143 locations throughout Thailand. Of the species collected, 25 (20%) were represented by a single specimen, and 40 (31%) were collected from a single location. Collections were made at 49 lentic and 85 lotic sites, and an average of 6.9 and 6.6 species were collected at each site in each habitat, respectively.

Michael L. Ferro, Robert W. Sites, and Akekawat Vitheepradit. 2009.  
Contributions to the faunistics of Odonata in Thailand. *Insecta Mundi* 0104: 1-24



**Figure 1.** Map of Thailand showing collecting localities for which GPS coordinates were known. **A** = Northern Region; **B** = Northeastern Region; **C** = Eastern Region; **D** = Southwestern Region; **E** = Central Region; and **F** = Peninsular Region.

**DESCRIPTION OF THE LARVA OF *GOMPHIDICTINUS PERAKENSIS*  
(LAIDLAW) (ODONATA: GOMPHIDAE), WITH DISTRIBUTIONAL NOTES**

MICHAEL L. FERRO AND ROBERT W. SITES

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**Abstract.**—The final instar of *Gomphidictinus perakensis* (Laidlaw) is described and figured from exuviae and larval specimens collected in Chiang Mai, Kanchanaburi, Prachuap Khiri Khan, and Surat Thani provinces in Thailand. This large species is flattened, subovate, and the posterolateral corners of abdominal segments III–IX have an elongate, broadly-recurved flange. Distributional information is given concerning additional collections of adults, larvae, and exuviae from Thailand.

**Key Words:** Odonata, Gomphidae, *Gomphidictinus*, larvae, Thailand

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The Odonata fauna of Thailand has been documented more completely than has any group of insects in Thailand, and might represent the best understood fauna of an order of insects of any Indochinese country. Specifically, this order was the focus of a 21-part series, which included descriptions, illustrations, and taxonomic keys to most of the known species of adults (Asahina 1993). Recently, the current state of Thai odonatology was summarized and 315 species were reported to occur in the country (Hämäläinen and Pinratana 1999).

The known Thai fauna of Gomphidae is represented by 21 genera, including the monotypic genus *Gomphidictinus* Fraser. Laidlaw (1902) described *Gomphidia perakensis* from one male from Perak, Malaysia and subsequently recorded two additional males from that region (Laidlaw 1931). Fraser (1942) described a new genus and species, *Gomphidictinus wheeleri*, from the Federated Malay States. Fraser's genus and species were synonymized with *Gomphidia perakensis* by Lieftinck (1954). However, Gambles (1987) regarded *Gomphidictinus*

as a valid genus, including only the one species, *G. perakensis* with its synonym *G. wheeleri*. *Gomphidictinus* is currently recognized as a valid genus, although some scientists prefer to retain the species in *Gomphidia* (e.g., Asahina 1993).

*Gomphidictinus perakensis* was first reported from Thailand based on two specimens collected in 1965 from "Fang N. Thailand" (Asahina 1981). Eight more specimens were reported from Thailand, each near running streams in "deep jungle" (Asahina 1986). Despite the two separate descriptions and multiple records of adult *G. perakensis* from Malaysia and Thailand, no record of immatures exists, except the inference that the adults near streams in "deep jungle" (Asahina 1986) likely occur as immatures in those streams.

Herein, we present the original description of the larva of *G. perakensis* (Laidlaw) from exuviae, one of which was associated with a recently emerged adult male.

**MATERIALS AND METHODS**

All measurements were taken in the dorsal view using an ocular micrometer and

represent maximum values unless otherwise stated. The head was measured from the anterior margin of the clypeus to the posterior margin of the postocciput and the abdomen from the base to the tip of the caudal appendages. Width of the abdomen was determined by measuring the distance between the tips of the posterolateral flanges of segment VII. The outer surface of the leg was considered the dorsal aspect. Mid-dorsal and mid-ventral abdominal lengths were measured from anterior to posterior margins of a sclerite, excluding dorsal hook, if present. Posterolateral flange width was measured in ventral view from the intersection of the posterior margin with the anterolateral corner of the succeeding sternum to the base of the apical spine. In some specimens, the spine of the flange was broken off. Caudal appendages were measured from the posterior margin of tergum X to the tip of the appendage. Each site sampled was given a locality number (L-number). Photos of each locality can be viewed at the Locality Image Database link of the Enns Entomology Museum internet site.

Specimens have been deposited in the Entomology Museum, University of Missouri-Columbia, and the National Science Museum, Pathum Thani, Thailand. Genetic material has been deposited in the tissue collection at Brigham Young University, Provo, Utah.

#### SYSTEMATICS

##### *Gomphidictinus perakensis* (Laidlaw)

(Figs. 1–4)

*Gomphidia perakensis* Laidlaw 1902: 81–82, figs.—Williamson 1907: 281–282 (taxonomic notes).—Laidlaw 1931: 208.—Fraser 1942: 99–101, figs.—Liefstinck 1954: 80.—Asahina 1981: 8.—Asahina 1986: 43–45, figs.

*Gomphidictinus perakensis*: Gambles 1987: 51–60.—Pinratana et al. 1988, fig.—Hämäläinen and Pinratana 1999: 77 (Thailand distribution).

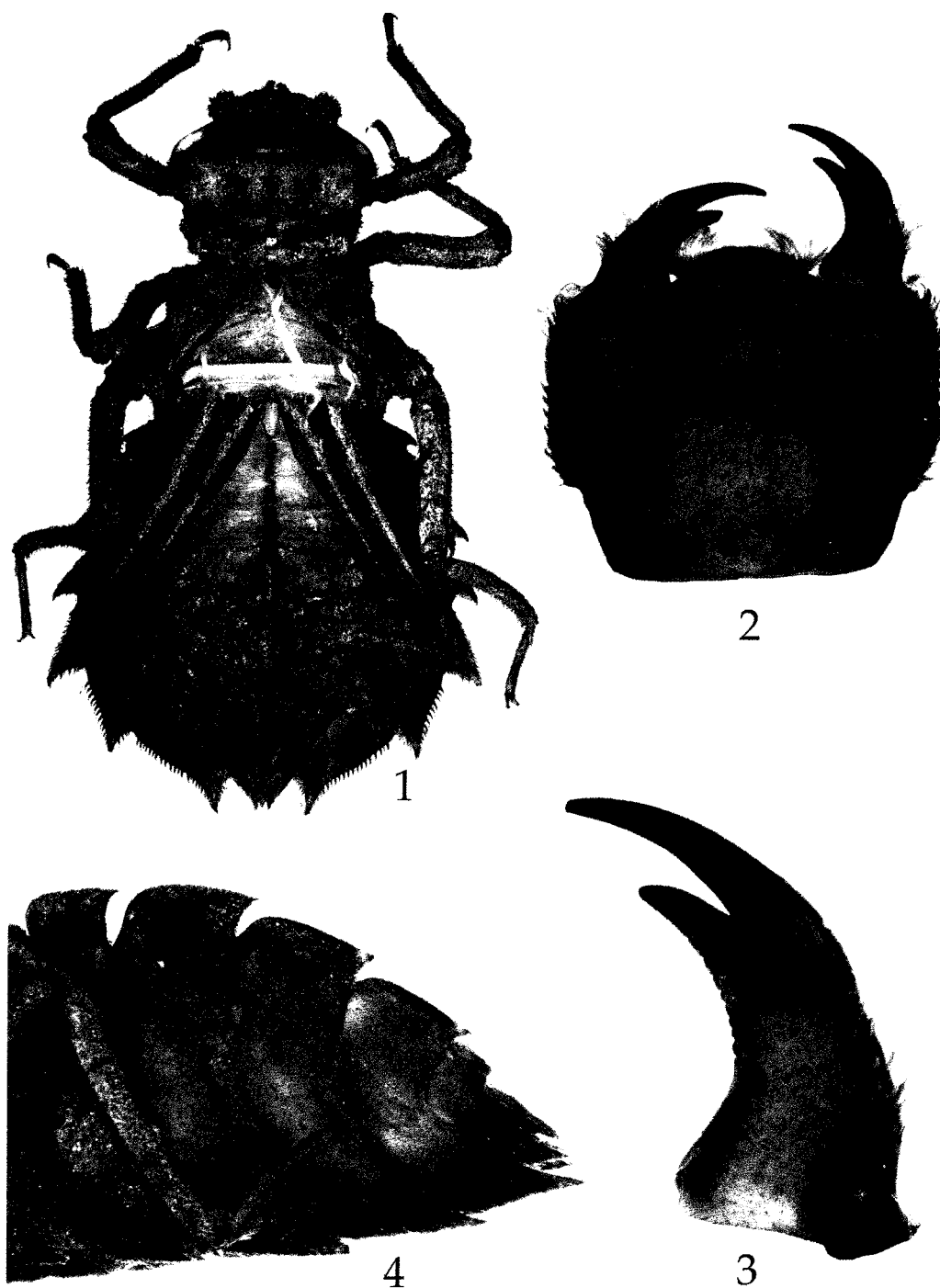
*Gomphidictinus wheeleri* Fraser 1942: 88–101, figs. Synonymy by Liefstinck 1954.

**Description.**—Length, 28.0 mm; width, 15.8 mm. Overall body shape elongate-oval (Fig. 1). Color generally fuscous with areas of darker brown. Ventral surface covered with fine setae.

**Head:** Length, 4.7 mm; width, 7.8 mm. Posterolateral corner with protruberance projecting slightly above level of eye, covered with stout, dark spines and elongate, light brown setae. Clypeus extending to two-fifths length of third antennal segment, labrum extending to apex of antennae. Compound eyes emarginate laterally. Antenna concolorous with body; segments I and II subspherical, segment III elongate, slightly expanding toward apex and bowed mesad. Ratio of antennal segment lengths 15:8:55:3. Prementum in ventral aspect gently expanding apically (Fig. 2), covered in short, recumbent, scalelike setae; mid-ventral length 3.5 mm, width at middle 4.2 mm; ligula evenly convex, crenate, with dense fringe of long hairlike setae. Setal fringe with lateral one-fourth twice as long as middle half. Blade (first segment of labial palp) cuspidate apically with ca. 10 short, nearly obsolete, squarely-truncate teeth along mesal margin; tooth width and obsolescence increasing apically (Fig. 3). Thick, recurved spines and elongate setae on elevated processes mesad to antennal bases and on anterolateral shelves of vertex laterad of antennal bases. Glabrous portions of head include clypeus except lateral corners; broadly lyriform area on vertex midline; broad band bordering mesal margin of compound eye and lateral ocellus; median elongate oval and lateral “U” shaped areas on ventral deflection of vertex; area forming right angle anterior and mesad to protruberance of posterolateral corner.

**Thorax:** Dorsally, medium brown with areas of dark brown pigmentation dorsad of procoxal base, forming inwardly curved longitudinal stripes bordering midline of pronotum; ventral edges of meso- and metapleuron; midline of mesonotum; costal margin of wingpads. Thick, black, recurved spines on ventroanterolateral and dorsopos-





Figs. 1-4. *Gomphidictinus perakensis* larva. 1, Dorsal view of larva. 2, Ventral view of labium. 3, Labial palp. 4, Lateral view of abdominal segments VI-X and terminal appendages.

terolateral corners of pronotum and ridge of meso- and metaepimeron. Smaller spines on anterior and posterior median humps of pronotum. Rest of thorax with various degrees of spinosity. Femora of all legs (most pronounced in profemur) and pro- and mesotibia with dark band on either side of middle. All femora and tibiae with longitudinal rows of setae. Setae on inner surface of tibia elongate and spinelike, other setae scalelike. Length of hind femur 7.0 mm, apex attaining middle of abdominal segment VI. Last tarsal segment of all legs pale in basal third, dark in distal two-thirds. Length of meso- and metathoracic wingpads 8.2 and 8.7 mm respectively, attaining ca. posterior margin of abdominal segment VI. Wingpad costal margins spinose, elsewhere glabrous. Wingpads subparallel in larvae (appear divergent in exuviae because of ecdysial fracture).

**Abdomen:** Length, 15.0 mm; maximum width, 15.8 mm. Ovate, triangular in cross section, shurikenate, with well developed mid-dorsal ridge (Fig. 4). Dorsally, with lateral margins of segments I–VI densely setose, segments VII–IX with stout recurved spines and sparsely setose. Posterior margin of tergites I–VIII with row of short spines except beneath wingpads. Area beneath wingpads shiny with scattered, fine, wisplike setae. Scattered setae on mesal half of tergites VII–IX, becoming denser posteriorly on VII; lateral half sparsely setose. Tergites III–VIII with transversely-elongate oval area surrounded by bifurcated row of short spines along posterior margin halfway between mid-dorsal ridge and lateral margin. Mid-dorsal length of tergites I–X 0.8, 0.8, 0.9, 1.2, 1.3, 2.0, 2.4, 2.2, 1.8, and 0.8 mm, respectively. Mid-dorsal ridge well developed (Fig. 4), segment I without process; segment II digitate; segments III–V increasingly longitudinally expanded and apex posteriorly directed; segments VI–IX gryphoform, each ridge extending posteriorly as rounded spine slightly overlapping succeeding segment. Posterolateral corners of abdominal segments III–IX with elongate,

broadly recurved flange. Corner of flange pale, tipped with stout elongate dark spine; each spine encircled with veil of golden setae. Flange with spine lengths on segments III–IX: 0.7, 1.2, 1.7, 2.0, 2.7, 2.3, and 3.3 mm, respectively. Posteriorly directed lateral flanges of abdominal segment IX extend to, or slightly beyond, tips of cerci. Epiproct length 1.5 mm, slightly shorter than paraprocts. Cercus length 1.4 mm.

**Distribution.**—*Gomphidictinus perakensis* has been collected from nine provinces scattered throughout the northern, northeastern, southeastern, and peninsular regions of Thailand (Hämäläinen and Pinratana 1999), and it occurs as far south as Malaysia (Laidlaw 1901, 1931; Fraser 1942). The exuvial nepionotype was collected in Prachuap Khiri Khan Province and represents the northernmost record of *G. perakensis* in the peninsular region of Thailand. One adult was collected in Phang Nga Province on 28 May 2003, and one larva from Surat Thani Province on 24 May 2005, representing the first records of *G. perakensis* from these provinces. Additional larvae and exuviae were collected in Kanchanaburi and Chiang Mai provinces, from which the species has already been recorded.

**Exuvial nepionotype.**—THAILAND: Prachuap Khiri Khan Prov., Amphur Bang Saphan, stream from Kha On Waterfall, L-544, 11°26.351'N, 99°26.052'E—WGS84, elev. 117 m, 18 May 2003, MLF, 1 exuviae. The exuviae was collected from the upper surface of a broad leaf ca. 30 cm from the ground and ca. 50 cm from the stream edge. No other exuviae was in the vicinity. The teneral imago was hanging from an adjacent leaf and did not resist capture.

**Additional material examined.**—THAILAND: Kanchanaburi Prov., Amphur Thong Pha Phum, Heuy Ou Long, 14°46.922'N, 98°40.165'E—WGS84, elev. 124 m, 12 May 2003, M. L. Ferro, L-525, 1 exuviae; Surat Thani Prov., Khao Sok National Park, stream from Sipet Chan Waterfall, elev. 42 m, 24 May 2005, 08°54'N, 98°31'E—

WGS84, R.W. Sites & T.O. Prommi, L-795, 1 larva; Chiang Mai Prov., Mae Kuang, 19°00.015'N, 99°17.163'E—WGS84, elev. 521 m, 15 May 2004, A. Vitheepradit, L-689, 1 larva; Chiang Mai Prov., Doi Suthep-Pui National Park, Monthathan Waterfall, 18°49'N, 98°55'E—WGS84, elev. 700 m, 19 May 2004, A. Vitheepradit, L-697, 1 larva.

Diagnosis.—This species can be recognized by its large size, well developed mid-dorsal ridge, and extremely well developed posterolateral flanges of abdominal segments III–IX. Because *Gomphidictinus* is a monotypic genus considered to be closely related to *Gomphidia* (Gambles 1987), comparisons should be made with species of *Gomphidia*. The larva of *Gomphidia kruegeri* Martin, a species known from China and Thailand, was described and illustrated by Needham (1930). The larva of *Gomphidia kruegeri* is slightly larger (length 30 mm, width 18 mm) than that of *G. perakensis*, otherwise the written descriptions are in accord. However, characteristics evident in Needham's illustrations are sufficient to distinguish the two species: the setal fringe of the ligula with lateral one-tenth twice as long as middle, as opposed to lateral one-fourth in *G. perakensis*; posterolateral corners of abdominal segments III–IX with much reduced recurved flanges compared to those of *G. perakensis*; and the posteriorly-directed lateral flanges of abdominal segment IX extend to half the length of the cerci, as opposed to as long as the cerci in *G. perakensis*.

#### DISCUSSION

*Gomphidictinus perakensis* has been reported only from Thailand and Malaysia (Asahina 1986). The two adults collected from this research are new provincial records (see Hämäläinen and Pinratana 1999). Both specimens were collected at swiftly flowing, intermediate-disturbed, sandy bottomed streams with occasional boulders and emergent vegetation (Location-544 and L-577). Each stream was largely surrounded by forest, which is consistent with the hab-

itat description of the adult given by Asahina (1986).

Larvae were collected from Monthathan Waterfall, Mae Kuang, and Sipet Chan Waterfall. Each larva is dimensionally and proportionally nearly identical to the exuviae described above, including wingpad length, and therefore considered to be a *Gomphidictinus perakensis* final instar. Structurally, the larvae and exuviae are identical, although the color pattern differs slightly as follows: Larva with greater contrast between the dark bands and background color; transversely-elongate oval area surrounded by a bifurcated row of short spines along posterior margin halfway between mid-dorsal ridge and lateral margin of tergites III–VIII more distinct and darker than exuviae; single glabrous oval cephalad to the bifurcated row of short spines on segments IV–VIII is very distinct.

One well-developed larva (Mae Hong Son Prov., L-306) and one exuviae (Prachuap Khiri Khan Prov., L-540) were collected which are morphologically similar to the larvae and exuviae of *G. perakensis*, with some notable exceptions. The relative lengths of the recurved flanges on abdominal segments VI and VIII of *G. perakensis* are 74% and 85% the length of the flange on segment VII, respectively. However, the relative lengths of the recurved flanges on segments VI and VIII are much shorter in the larva (L-306) and exuviae (L-540), and are only 30% and 43% (L-306) and 75% and 70% (L-540) the length of the flange on segment VII, respectively. Additionally, the transversely-elongate oval area surrounded by a bifurcated row of short spines along the posterior margin halfway between the mid-dorsal ridge and lateral margin of tergites III–VIII is much reduced in these specimens compared to those of *G. perakensis*. Because complete formal descriptions are lacking for the larvae of *Diastotomma* and *Gomphidia* (except *G. kruegeri*), which are thought to be closely related to *Gomphidictinus* (Gambles 1987), and the degree of interspecific variation in



*G. perakensis* is unknown, we have not assigned identities to the specimens from L-306 and L-540.

Two months of sampling throughout Thailand by MLF yielded odonate exuviae at nearly every locality sampled, and approximately 350 exuviae were collected. Although zygopteran exuviae were scarce in general, most were of Calopterygidae and Euphaeidae. Anisopteran exuviae were much more common, especially the Aeshnidae, Gomphidae, and Libellulidae. Few exuviae were weathered, and most appeared to have been left only the night before collection. This suggests that rearing, emergence traps, and observation of rocks and vegetation at night or early morning may yield many and diverse adult/immature associations in a short period of time.

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#### LITERATURE CITED

- Asahina, S. 1981. Records of little or unknown Odonata from Thailand. Tombo 23(1/4): 3–16.
- . 1986. A list of the Odonata recorded from Thailand, Part XIV. Gomphidae—2. Tombo 29(1/2): 7–53.
- . 1993. A list of the Odonata from Thailand (Parts I–XXI). Bangkok, Bosco Offset. ca. 460 pp. [No consecutive pagination; contains copies of 430 papers from S. Asahina].
- Fraser, F. C. 1942. Dr. Raymond Wheeler's collection of the Odonata from the Federated Malay States, with the description of a new genus and two new species. Proceedings of the Royal Entomological Society of London (B) 11(7): 95–104.
- Gambles, R. M. 1987. Hagen's tubercle, a largely overlooked but potentially useful character in gomphid taxonomy (Anisoptera: Gomphidae). Advances in Odonatology 3: 51–60.
- Hämäläinen, M. and A. Pinratana. 1999. Atlas of the Dragonflies of Thailand: Distribution Maps by Provinces. Brothers of St. Gabriel in Thailand, Bangkok, 176 pp.
- Laidlaw, F. F. 1902. On a collection of dragonflies made by members of the Skeat Expedition in the Malay Peninsula in 1899–1900. Proceedings of the Zoological Society of London 1(5): 63–92.
- . 1931. A list of the dragonflies (Odonata) of the Malay Peninsula with descriptions of new species. Journal of the Federal Malay Museums 16(3/4): 175–233.
- Lieftinck, M. A. 1954. Handlist of Malaysian Odonata: A catalogue of the dragonflies of the Malay Peninsula, Sumatra, Java and Borneo, including the adjacent small islands. Treubia 22 (Supplement): xiii + 202 pp.
- Needham, J. G. 1930. A manual of the dragonflies of China: A monographic study of the Chinese Odonata. Zoologia Sinica, Invertebrates of China, series A, 11: 339 + 11 p.
- Pinratana, A., B. Kiauta, and M. Hämäläinen. 1988. List of the Odonata of Thailand and annotated bibliography. Bangkok, The Virathan Press. 20 pp. + 20 cl. plates. [No pagination].
- Williamson, E. B. 1907. The dragonflies (Odonata) of Burma and Lower Siam -II. Subfamilies Cordulegasterinae, Chlorogomphinae, and Gomphinae. Proceedings of the United States National Museum 33: 267–317.