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Mantis Study Group Newsletter 10

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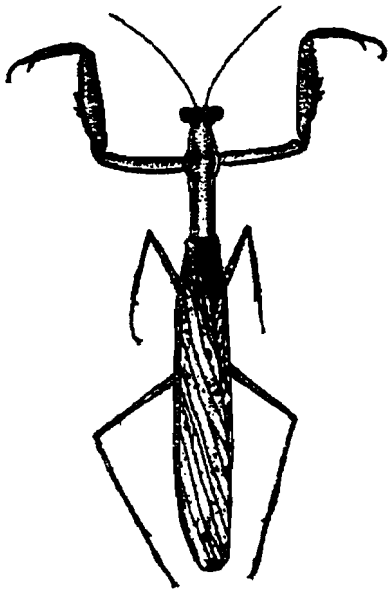


Editorial

I apologise for the late publication of this newsletter. This is due largely to moving house - the last newsletter was not really affected since it was more or less done before I moved - and starting a new job, and a large number of exhibitions to attend at weekends have caused a backlog of correspondence. Thanks to those of you that have sent in contributions for the newsletter, and apologies to the two people whose articles are still waiting to be typed up, they will appear in the next issue.

On the subject of typing up articles, it is helpful if you can submit your articles on disk. However, if you send articles on disk please send them in *WordPerfect 5.1* if possible (Users of *Word* can save files in *Wordperfect 5.1* by using the "save as" option under the "File" menu). If this is not possible please send a copy in ASCII (DOS-text). Please note that I cannot read *Word* files and with my current job I only have access to a machine which can convert the files about once every ten weeks, and that cannot read versions as recent as *Word 97*.

Membership renewals — Paul Taylor.

Members will find attached to this Newsletter membership renewal forms for 1999. Members will be pleased to note that there is no increase in membership fees for this coming year. Also on your membership renewal form is a section requesting information about which mantids you have in culture. The Membership Secretary (Paul Taylor), Livestock Co-ordinator (Josephine Wheat) and the Editor (Phil Bragg) are getting numerous requests for male or female mantids of one kind or another. Whilst Phil and I have some idea of what mantids are around, Josephine is totally in the dark as to what species members have available. Could members therefore, spend a little time in filling in the questionnaire which can then be passed on to Josephine.

Please, send all forms, with your membership renewal, back to the Membership Secretary as soon as possible. Members in the U.S.A. and Canada should send their renewal forms and subscriptions to Hélène Meausette in Canada.

Sphodromantis lineola available

Andrew Lau has lots of *Sphodromantis lineola* nymphs which he wishes to get rid of. Anyone interested in this species should contact Andrew on 0181-6941514.

Exhibitions

The MSG has recently had stands at several exhibitions, including: Sheffield Museum, Derbyshire and Nottinghamshire Entomology Society, Leicester Herpetological Show, and Kettering Insect Fair. As usual, we received notification of some of these too late to include details in the newsletetr.

The next scheduled exhibition for which we have a stand booked is Kettering Insect Fair on Sunday March 21st.

Travelling Mantis — Paul Taylor.

I recently had an interesting phone call from a Mrs. J. Foulkes from London concerning a mantis her husband had found. Her husband was moving steel sheets from a lorry at the Maritime Museum, Greenwich when he saw what he thought to be a piece of wood. He went to brush aside the wood, and realized it had legs. The insect was safely put into a glass jar and taken home, where a neighbour identified it as a Praying Mantis. I was contacted as the Mantis had laid a large foamy mass on the cage top, which was the oothecae, and Mr. and Mrs Foulkes had no idea what to do with it. It appears the lorry load of steel had come from Europe, and presumably the mantis had travelled all the way on the trailer unit. The mantis (following the description given to me by Mr. Foulkes) is probably *Mantis religiosa*, is in good health and eating two crickets a day. The oothecae has been kindly passed on to me for hatching.

The MSG on the Internet — Paul Taylor.

It is hoped that 1999 will see the MSG have our own home-page on the Internet. I am looking into the possibility of new members being able to join the Group by using an Internet membership form and paying by credit or debit card. More details about our home page next year.

Parthenogenesis — Bruno Meriguet.

I have found four articles about parthenogenesis. All new cases in all species are intersting information. But it needs a correct indentification of the mantids and a very strict virginity of the female. I'm interesting by all report of such cases. Those found are as follows:

Cukier, M. (1979) Parthenogenesis in *Coptopteryx viridis* (Giglio Tos, 1915). (Dyctioptera, Mantidae). *Biol. Bull. Lancaster*, **157**: 445-452.

White (1948) The chromosomes of the parthenogenetic mantid *Brunneria borealis*. *Evolution*, **2**: 90-93.

Adair (1925) On parthenogenesis in *Miomantis savignii*. *Bull. Soc. Ent. Egypte*, **8**: 104-108.

Flechtmann, C.A.H. (1994) Biological aspects of *Thesprotia macilenta* Sauss. and Zhnt. and *Tithrone major* Piza (Mantodea). *Anais Da Sociedade Entomologica do Brasil*, **23**(3): 479-486.

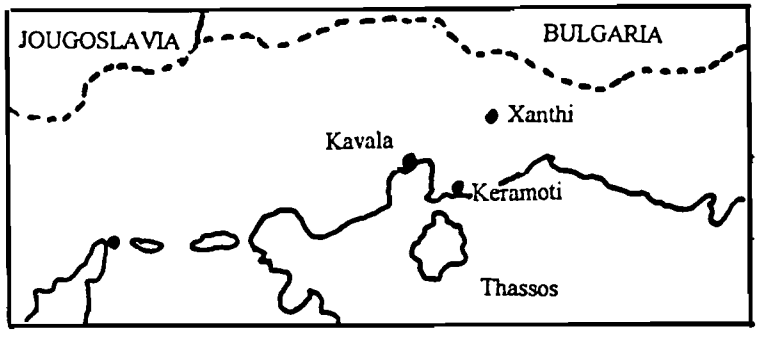
The abstract from the last of these papers includes the following information: *Tithrone major* Piza, was studied in the laboratory and was found to be parthenogenetic; it had low egg viability (*c.* 24%) and high nymphal mortality (*c.* 91%).

Microwaved mantids — Clive Curtis.

Clive recommends using a microwave cooker to dry mantids. A similar suggestion has also been made for preserving phasmids. A short time on a very low setting is needed.

Mantids on Thassos, Greece — Paul Taylor.

Our trip to the island of Thassos was primarily for a well earned break, but naturally, insect collecting would also be a feature. Having visited the island of Corfu a couple of years earlier, and having caught many mantids, we had some idea of what to expect. Our trip, although somewhat late in the year, 29th September - 13th October, was certainly blessed with some glorious weather, with only two nights when we had thunderstorms during the fortnight. We understand that the previous week to our visit had been rather unsettled.

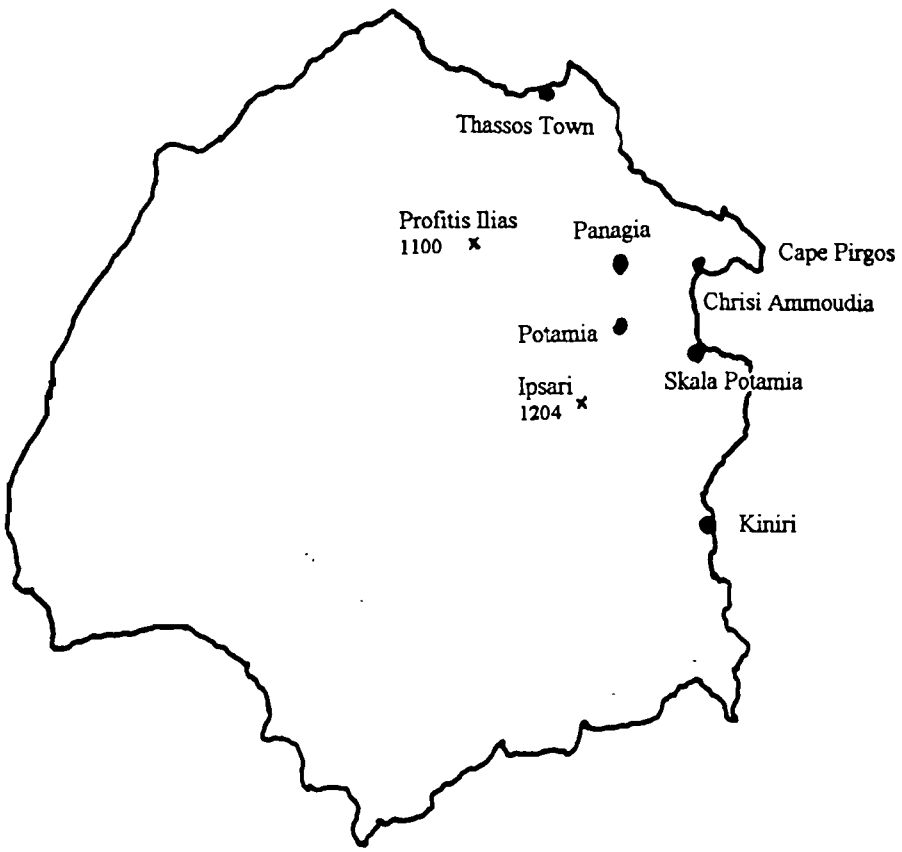


The island of Thassos is situated in the Aegean Sea, an area that is steeped in ancient history. It is the most Northern of the Aegean islands, and is situated about 8km from the mainland, with the nearest port being Keramoti. The island does not have an airport (too mountainous) so we flew into Kavala airport, transferred by coach to Keramoti, and caught the ferry to the island. Our resort was called Skala Potamias (the "Skala" meaning - "by the sea") which is situated on the Eastern side of the island (see map). The first impression of the island was how green it was. All of the mountain sides where covered in pine trees and dotted all around areas that had been cleared, with cultivated olive trees. Roadsides were lush with thick vegetation, something that we had not encountered on our visits to Corfu. An extract from the guide book on Thassos reads "*Thassos is an island of the sun. The sun that makes fertile this most ancient earth with a vast range of vegetation from the silver olive and the dark green pine to the simplest wild flower*", which proved to be true, the places we visited and walked to were just covered in wild flowers, herbs and trees.

All of our expeditions out relied on walking, so consequently most of the "collecting" was done around Skala Potamias, Potamia, Panagia and Chrisi Ammoudia. I say "collecting" because on the occasions we actually went out collecting we caught very little. Most of the mantids (and other insects) seemed to be caught by accident.

Our first walk on which we caught mantids was to the mountainside village of Panagia. We went through the village and started to go up the side of the mountain Profitis Ilias. About half way up, in the grass under pine trees, we not only found numerous crickets and grasshoppers, but the small mantis *Ameles* sp. All the mantids caught were females and were carefully collected up and taken back to our apartment. Some people who we had made friends with had also been up the mountain of Ipsari (the islands highest mountain at 1204m) and found numerous little mantids which they described to me as *Ameles* sp. This species was not at all common nearer the sea. We also found the species *Iris oratoria*, again females, along the roadside, when walking back from Panagia, through Potamia back to our apartment. Again these were carefully collected up and kept alive.

A number of male mantids were found which had been attracted to the lights on



buildings. No males were seen at all during the daytime, however when these males were taken back to the apartment they always died quite quickly. They appeared to be male *Mantis religiosa*, as they did not have the wing markings as did the *Iris oratoria*, but no females where found at all. We brought the dead males back with us and they will be looked at more closely in the near future to determine the species is *M. religiosa*.

Our second walk took us to Chrisi Ammoudia and further round the coastline to Cape Pirgos. Here we had fine views of the Bay of Potamia with the mountains of Profitis Illias and Ipsari in the background. The walk from Chrisi Ammoudia round to Cape Pirgos was along a dirt track along the side of the hill. Above and below us were pine trees, but as we reached Cape Pirgos the ground had been cleared and the area was predominantly olive grove, with grasses, herbs and flowers beneath the olive trees. This area again was alive with grasshoppers and crickets, but there were also numerous butterfly species as well. It was here we found the "prize" mantis, a nymph of *Empusa pennata*, and totally by accident. Having spent most of the day collecting, we headed back through the olive grove to the track. I put my rucksack down in the grass to get my water container out, and noticed that I had put my rucksack near to a long legged "spider", a right gangly looking thing. On closer inspection this turned out to be no spider but the *Empusa* nymph. This was carefully collected up and taken back to the apartment. This is one species of mantis that hatches in the summer, feeds throughout the autumn and winter before becoming adult the following spring. Again we found the adult female *Iris oratoria* along the tracks as we returned back to our apartment.

Our third, and final walk, took us from Skala Potamias, along the coast road, towards

Kiniri. This was a long uphill walk along the mountain side, with fine views of the coastline below us. Here we found the damage that had been done by man in the past. Fires had ravaged parts of the island in the 1970's and it was here that the evidence of this still showed. While a lot of the smaller shrubs, herbs and flowers had re-grown, the burnt out stumps of the pine trees were still visible. With bare rocks strewn everywhere and the odd pocket of greenery, the area looked like a lunar landscape. But all was not doom and gloom, for this area was the most prolific for insect life. Again the mantis *Iris oratoria* was found, but we also found a minute mantis nymph on one of the rocks. We have no idea as to what species it is, we shall just have to be patient and see what develops.

Regrettably, all good things must come to an end, and it was time for us to make our way back to the mainland. Again the mantis *Iris oratoria* turned up, on our balcony as we were just about to leave our apartment. In all we caught 6 female *Iris oratoria*, 5 female *Ameles* sp., 1 *Empusa* sp., 2 male *M. religiosa*(?) and 1 unknown mantis. The adult females have all produced oothecae, and to date we have only lost one *Iris oratoria* and one *Ameles* sp.

The island of Thassos has a lot of varied wildlife, with plenty of snakes and lizards to see, ravens, hooded crows, buzzards, falcons, vultures and numerous warblers amongst some of the birds seen, and numerous species of insects, all this as the season comes to an end. A book I always take with me on my trips, the Collins Guide to the Insects of Britain and Western Europe, was invaluable for identifying most things, but there certainly was some influence from the Eastern Mediterranean. Some insects caught have so far been unidentified.

Acknowledgment
A special thanks to my wife, Lesley, for putting up with the numerous pots of insects in our apartment, and helping me with my collecting.

References
Chinery, M. (1986) *Collins Guide to the Insects of Britain and Western Europe* (1986)
Toubis, S. - *Thassos: History, Folklore, Archaeology, Touring.*

Mantis 98 - The 1998 USA mantis season — *Andy Lasebny.*

[Following on from Andy's records for 1997, published in the last two newsletters, here are his records for 1998]

After only a short period of five weeks after the last mantis of 1997 died of old age on February 23, 1998, I got an adult green female *Sphodromantis lineola* on April 4, at a reptile show and sale. She came with two small egg cases, which I doubted were fertile. I never had this species before, so this should be interesting. She is very calm and tame, more so than the New Jersey species. She will sit for days in one spot.

On the 21st of April, one of the egg cases did indeed hatch, and about a hundred nymphs hatched, which are all doing well. Last week the mantis made another egg case. However, this egg case looks very different from the ones that I received. It is large and round, while the other one that hatched was much smaller and less definite in shape. This means that this may be the first egg case of this individual, and the other one was one of the

last from a different female. The remaining one that has not yet hatched is linear in shape, with parallel sides, looking like it is from another species.

The nymphs I have are very interesting to watch. I separated them out into 4 separate containers, with anywhere from about 8 or 10 individuals in one, to about 30 in another, to see how different densities work. So far, I see only some evidence of cannibalism, and these nymphs are very aggressive. They exhibit a surprising variation of behaviour. When I release a dozen or two fruit flies into their containers, many individuals immediately snatch them up. Some run after them, others sit and wait. Others, who did not get a fly right away, stare at any individual near them who caught one. Some seem to just watch intently as it's sister or brother eats it, almost as if expecting the other to give it some. Others try to push away the one who caught the fly, or even try to steal it! Usually this causes the one who has the fly to run away with the fly to a less crowded area of the container; some even jump down to the ground, or clear across to the other side of the container, still holding the fruit fly that is almost as large as it is. The most amusing incident was when one individual caught a large *Drosophila hydei* and the one next to it became angry and grabbed the other end of the fly. A tug-of-war began, with both individuals eating the fly for a few seconds, until the one who did not originally catch the fly pulled it away and ran off with it. I am using both species of fruit fly, including *Drosophila melanogaster*, the smaller one. I noticed that *D. hydei* is too large for many of the less aggressive individuals - they do not strike at it, only at the smaller ones. Other individuals do not care how big the fly is, and go right after it. I am assuming that the odds are that the ones that do tackle the larger flies are females, while the others are males.

Though there were little signs of cannibalism initially, by the time most of them had reached their second moult, it got out of control. By the end of May, I lost more than half to cannibalism, as I hurried to make more containers. By the time I managed to separate them into individual containers, there were 32 remaining, out of a total of about 75 that initially hatched. Some interesting behaviour worth noting included seeing many nymphs capture a fruit fly, then seeing another one crawl nearby, and grabbing it with one foreleg while holding the first one in the other. This was especially common as they got larger and the smaller species of fruit fly were too small, so they tried to get as many as they could at one time. Some of the more aggressive ones would attack and eat another nymph no matter how well they were fed. It seemed at times that they actually preferred to eat another nymph, and would ignore a tiny cricket that I put in for them. Are these insects territorial? They were constantly fighting, chasing each other, and staring at each other in a threatening manner.

The *Sphodromantis lineola* nymphs have grown well throughout July, but are taking much longer to reach adulthood than the species commonly found in New Jersey. I gave away 21 of these, and out of the 11 remaining nymphs, 3 died unexpectedly during the middle of July. One looked like it was about to moult, (with 2 more to go), and was dead on the bottom of the cage later that evening. It felt strangely soft to the touch, and when I cut open the plump abdomen, It was black or very dark green and liquid inside. I wonder what happened? About another week after, another one fell to the ground trying to moult and died, with slightly different symptoms. The last one that died did so 2 days after a moult. One of the forelegs appeared paralysed and hung limp at the joint where it is attached to the prothorax. The mantid's entire body did not seem to harden the way it should have, and it was behaving very strangely - it seemed always in a state of panic. When it died, the body was also very soft and limp, with the same dark fluid in the abdomen. It is as if the insides became liquified. Did anyone ever see this happen before?

Meanwhile, the adult female has made 6 egg cases between the second week in April and the first week in August. Someone told me that if I feed her less she will live longer, with a longer period of time between egg cases. After she made the fourth egg case, I tried feeding her one cricket every 2 or 3 days. This made no difference - she made the fifth in the same amount of time, only a much smaller one. The other problem was that she was always so hungry, that hand feeding her became a real problem one day. She was used to being given a cricket that I held in my hand, after initially tying it to a thread when I first received her in April. Eventually, I stopped using the thread, and she began taking it from my hand. This time she was so hungry that she wanted it all - including my hand. She opened her spiny forelegs wide and grabbed both the cricket and my thumb and forefinger - and would not let go. I tried to pull her off and then shake her loose, but this only made her grip even tighter, drawing blood. The cricket had escaped by now, and the mantis' wide open jaws were coming toward my hand, so I quickly reached down into the still open cricket container and put a cricket between her jaws and my hand while I carefully pried the forelegs off and onto the cricket. After that rather unpleasant experience I went back to feeding her daily, and she seems calmer now. I was surprised at how strong this 6.5cm long mantis really was. I could see how a very hungry mantis like this, especially a larger species, could grab onto even a larger vertebrate such as a mouse or even a small bird and be able to eat it by not letting go and just chewing on it as it tries to run away, eventually weakening the animal enough to subdue it.

By early August, most of the nymphs have one more moult to go. It appears that I may have 2 green males and 6 brown females when I count the number of abdominal segments. These all seem healthy and readily eat full size crickets and grasshoppers. A few have their wing stubs raised up high - a sure sign that they will moult soon. They are very plump and very inactive now. On the morning of August 10, 111days after hatching, the first adult emerged at 0600. This large nymph hung upside down for a few days before and refused all food. She is larger than the original female is. This species took much longer to reach adulthood than *Tenodera aridifolia sinensis* - something I did not expect. However, there was no 28 or 29 day period for the final moult as described in some previous newsletters. I guess that only some individuals stop eating for such a long time. This one stopped eating for less than a week before the final moult. The following morning, 2 more nymphs reached adulthood. The first one is a very dark brown, with a mottled appearance. The other two are light tan and dark brown.

On August 13, I found the first adult *Tenodera aridifolia sinensis* of the season, a large brown female. She was on the ground right in front of the front door of a store at 0830 in the morning, in the town I work in. If I had not found her, she would almost surely have been stepped on when the store opened. I found this one only a minute after finding a female *Mantis religiosa* just around the corner, on the upper portion of the store window frame. During lunch, I saw a brown adult male *Tenodera aridifolia sinensis* on the wall in the landscaped area between two buildings where I see these every year. Praying mantis season 1998 is well under way, and a bit early for the larger species. I do not know what went on here during the first 10 days of August, since I was on vacation in southern New Jersey, with a day in Delaware and Maryland. In southern New Jersey I saw 4 *Tenodera aridifolia sinensis* nymphs at the end of July, with 2 moults to go, all in the garden of the inn that we were staying in. In Delaware, I saw one other nymph of the same species in a garden in a small park.

Another *S. lineola* female became an adult on August 14, dark brown as well.

August 15 - A hot and humid, but partly cloudy weekend. I see an almost grown

brown *Tenodera aridifolia sinensis* nymph on a shrub in the town I live in, along the street I see these on every year. On the following day, I find another on like it only two houses away from mine, and take it and relocate it into my garden, which is finally getting dense enough to be able to support a mantis population. Last year, there were not enough plants yet - this year I added more and the previous year's have multiplied.

August 18 - Two more of the *S. lineola* are in the process of moulting at 6 o'clock this morning, including one of the males. During an early morning walk on Main Street in the town I work in on this very hot day, I see an almost grown green *Tenodera aridifolia sinensis* nymph in a small garden on a perennial flowering plant. Not more than ten minutes later, on the same building where I found the other mantids on August 13, I see adult green female *Tenodera aridifolia sinensis* on the store window. I take her and put her in a bag. During lunch, I see a brown almost grown nymph of the same species on an evergreen shrub in a small, unkempt garden about two blocks from the office.

August 19 - The last female *Sphodromantis lineola* became an adult, moult was complete by 0600. All 6 new females are brown.

August 20 - The other male *S. lineola* is moulting at 0630. - all of these are now adults. This individual took four months to become an adult. He is green, like the other male.

August 21 - On an evening trip to a pet store along the way home from work, I see the outline of a mantis on the beige stucco wall of a department store, high up by the lighted sign. I see this as I drive by, and when I get out for a closer look, it turns out to be a brown male *Tenodera aridifolia sinensis*. I try to reach him with a piece of lumber I have in the car, but he takes off and flies up and around, landing on the same wall about 20 feet high. Oh, well, better luck next time.

August 22 - My original female *Sphodromantis lineola* makes another egg case - her 7th. Will she ever stop??? An interesting bit of behaviour worth noting - My recently acquired brown female *Tenodera aridifolia sinensis* is turning out to be a poor eater, and will not take food from my hand or that which is tied to a thread - the total opposite of the aggressive female I had last year, who would run down her prey. When I gave her a medium sized grasshopper, she ate only half of it, leaving the entire abdomen and part of the metathorax with one leg still attached. I took out the remnants of the grasshopper, intending to give the rest to my original *Sphodromantis lineola* female. I put it down in front of her temporarily while I turned around to get either a pair of forceps or a thread to wiggle it, and to my surprise, the mantis began to immediately wave her antennas at it, and leaned forward, forelegs still folded, tasting it with her mouth. She then picked it up with her forelegs and began to eat it - without any movement at all taking place. What did the mantis detect? Was the freshness of the grasshopper remnant enough for her to detect it as food so that no movement was needed? Does the mantis have a good sense of smell, or is it some other sense working here?

August 23 - On this hot, humid and partly cloudy Sunday, I take a walk at around 1130 throughout the town I live in. Along the way I spot 5 *Tenodera aridifolia sinensis* - 1 large brown adult female, 2 brown last instar nymphs, and 2 green last instar nymphs. These are all in various gardens, and I leave them alone. At night, it is still very hot and the air is very still. There are lots of creatures around. I wonder what monday morning will bring.

August 24 - I arrive at work at 0730. I look near the front door and see 2 green female *Mantis religiosa*, only a few feet away from each other on the brick wall, right near where I found two last year. I take these, put them in the car, and go for a walk around the

shopping centre on Main street. In a few minutes, I spot 2 male *Tenodera aridifolia sinensis* - the relatively uncommon brown, green, and orange combinations. Both are on nearby store windows. Right up near a canopy concrete column, a brown female of the same species is perched up high. I have to go back to the car and get something long in order to get her down. I continue walking, and make my way around the same part of the building where I found the first *Mantis religiosa* on the 13th, and there is a green male of that species right on the wall. I take all of these home. The 2 males of the larger species are extremely active - when I bring them into the house, they run around and fly very quickly around the room, and getting them into a cage is very difficult. The female is only a little less active. None are interested in eating at all. The *Mantis religiosa* are calmer, and eat as soon as I give them crickets. The extreme heat and humidity of this evening appears to give them lots of energy.

August 25 - Another early morning walk - and I find 2 green male *Mantis religiosa*, one right on the wall near the front door where the females were yesterday, and another on the same store building as the others were yesterday. But he is too high to reach, so I leave him there. During lunch, I drive to a store a few miles out of town on the highway, and find another green male of this species right in the middle of one of the store windows. I take him and put him in the car.

August 27 - At 1800, as I am driving out of the parking deck to go home from work, I glance to the left and see something on the ground by the window of the building I work in. (It turned out to be a leaf.) I back up the car into a parking space and as I am getting out of the car, I see a green mantis about 10 feet away, on the ground in an empty parking space. From far away it looks slim, like a male *Tenodera aridifolia sinensis*, but, wait, I never saw an all green male - I pick it up, turn it over, and immediately identify it as a female *Tenodera angustipennis* - the first time I ever saw this species in this town. It's a miracle that she did not get crushed by a car. The orange spot on the prothorax between the forelegs gives it away. The other species has a yellow spot. The transparency of the hindwings also confirms it. At home, she immediately eats a cricket I offer her.

August 28 - I arrive at work later, at 1000. At the entrance of the building, on one of the concrete columns, I see a brown male *Mantis religiosa*. This is right near the same wall I found the females on. During lunch, I take a walk to the pet store to get crickets, and on the way I find 2 female *Mantis religiosa* on the windows of a video store, right near the same area I found the others on the 13th of this month. I take them and give them to a girl that works in the pet store, who had hatched an egg case in the spring and was interested in these.

August 29 - During a short late morning walk, I see an adult green female *Tenodera aridifolia sinensis* in a garden not to far from my house - the same garden in which I found the last one of 1997 on November 16. Later in the afternoon on this hot and sunny day I go shopping to a large clothing store along the highway about 15 minutes from my town. As I am walking away from the car and toward the store, I see what appears to be a brown male *Tenodera aridifolia sinensis* high up under the canopy on the aluminum window frame. Nearby, way up on the soffit near the lights I see what appears to be a brown female *Mantis religiosa*. Both are well out of reach. Later that night, 2300, I decide to have the first pair of *Sphodromantis lineola* mate (female #1 I will call h). I fed the female well - I gave her a large grasshopper in the morning. I take out the male and put him on a branch in the room and place the female near him. Neither of these are very active when compared to the species found in New Jersey. The female just sits there, not moving. I prod her gently to get her moving. The male just stares at her without taking a single step forward. She moves

only a small amount each time I poke at her, only a step or two. The male just stares at her without moving. Finally, after over a half an hour of this, he suddenly leaps onto her back and mating begins. I try to give the female a cricket while he is on her back, but she does not seem interested.

August 30 - In the morning, I check on them, and at 0900 they are still together - much longer than the other species. Not until after 1100 do they finally separate. The male ends up on a nearby houseplant, hiding between two leaves. I also see the sperm capsule that was described in the newsletter. The other species do not leave this behind. Right after this, I drive out on the same highway I was on yesterday to go shopping, and pass by that store. Out of curiosity, I drive into the parking lot and take a look. I see one of the mantises on a lower part of the same window, only about 3 feet above the ground. I take him, and when I get home and look at him more carefully, I notice the orange spot under the prothorax, identifying him as *Tenodera angustipennis* - perfect - a male to mate with the female I found a few days ago.

August 31 - On the way home I notice a small green male *Mantis religiosa* on the wall of the building I work in, this time on the other side, but he is too high to reach.

September 1 - During lunch, I see what is probably the same mantis, but he is lower down on the wall - I take him and bring him to the pet shop and give him to the girl who has the 2 females.

September 5 - A male *Tenodera aridifolia sinensis* is on a blooming clematis vine in the front yard of a hotel right along the road closest to the beach. A woman staying at the hotel happened to be walking by as I was looking at the mantis. As she slowed down to see what I was looking at, I pointed out the mantis. Her reaction was rather typical - she called out to the person who owns the hotel, who was on the porch, telling her that her garden " must be good - there is a praying mantis in it" . Of course, he was just passing through, in search of a mate, and only stopped in the garden for a short time along the way. He remained there during the entire hot afternoon, and during the still hot night I saw him perched on the very top of the plant. He was gone the following day.

September 6 - I see a green female *Tenodera aridifolia sinensis* on a shrub across the street from my house. In the evening, I make an attempt to mate another pair of *Sphodromantis lineola* (female #2). This male takes less than a minute to leap onto the female's back. The mating is successful, and he is fine the next morning. The first male to mate is not eating - he refuses all food. He has had only one cricket since his mating on the 29th of August. I wonder what is wrong.

September 10 - The male *S. lineola* who mated four days ago is dead - the one who does not want to eat is still alive, though. What could have gone wrong? He was in poor shape the night before, and I saw he was not going to last long. The only thing strange I can see is that the bottom of his light green abdomen has darker green and bluish blotches on it. There have not been any sightings of mantids in the town I work in since the nights have become very cool in the past four days. The one mantis I do see each day is the *Tenodera aridifolia sinensis* that I relocated to my garden on August 15, a relatively small brown female. She spends all her time on the butterfly bush, and I often see her eating large grasshoppers.

September 11 - I have the remaining male *Sphodromantis lineola* mate with another female (#3), and this time he is quicker to approach her. They remain together for more than 15 hours. I give him a cricket after, but it takes a lot of coaxing for him to take it. I have to practically shove it in his face. I wonder why he is so uninterested in eating. The males

of the two *Tenodera* species eat quite well.

September 13 - I give away 2 female *Tenodera aridifolia sinensis* and a female and male *Mantis religiosa* to someone who had asked about getting mantises. I keep the brown one of the larger species that I found on August 24. The male *M. religiosa* are poor eaters this year when compared to the ones I had last year.

September 15 - I go into my garden at 0630 in the morning, and find the female *Tenodera aridifolia sinensis* that is in the butterfly bush mating - a male found his way into the garden during the warm night, probably from the garden across the street from my house, where there is a row of hedges and flowering plants on which I occasionally see mantids. I wonder from how far away the male actually can detect the female's presence - or was he just lucky to have randomly landed near her while passing through, and then noticed her moving about. Has anyone done studies relating to this? At night, I have my brown female *Mantis religiosa* mate - the male seems hesitant at first, and the female either moves to quickly or not at all, so I give her a cricket, and as she is eating it, he approaches her and they are mating within a few minutes. I give the female *Tenodera aridifolia sinensis* a very large grasshopper. It is very strong, and can almost push itself away from my fingers with its hind legs. When I put it into the tank that the mantis is in, it jumps around, banging itself into the lid and glass. At some point, it landed close to the mantis, which grabbed it . The grasshopper began to kick very hard repeatedly in all directions, including the mantis's head, which received several blows. During this time the mantis kept biting whatever part of the grasshopper was closest at the moment, and trying to re-position it. I noticed a quantity of light beige fluid dripping all over the mantis's head and prothorax, and on the grasshopper. I could not tell if it was blood from the grasshopper or if one of the kicks had injured the mantis. The mantis kept on eating and shaking the grasshopper in a twisting, lateral motion as it continued to struggle. Eventually the grasshopper weakened and was subdued, and after about an hour, the mantis was still eating, so I assume she is not injured. After the meal, (and some grooming) I looked at her closely, and she is fine.

September 16 - The *Sphodromantis lineola* female (#3) that mated most recently made a very large egg case, sometime in the afternoon. At 2300, I take out a *Tenodera aridifolia sinensis* male, and have him mate with the female . It takes him about 15 minutes - when he finally leaps onto her back, he is facing the wrong way, but quickly turns around. The female then stretches her forelegs out in front of her and stays that way for a while. In the morning, they are finished before 0600, and the male is as far as he can be from the female, behind a bookshelf.

September 17 - Number nine, number nine, number nine. The original *Sphodromantis lineola* female makes her ninth egg case. How many can she make? This one is very small.

September 19 - Another *S. lineola* female makes her first egg case - this is the one that mated first, on August 29 (Female #1.).

September 21 - The *Tenodera aridifolia sinensis* female makes her first egg case.

September 22 - At 0600, I catch a *Sphodromantis lineola* female in the act of making an egg case, about 75% done. She was the second one to have mated, (#2). During a lunchtime walk in the town I work in, I see a brown female *Tenodera aridifolia sinensis* on an evergreen shrub in the landscaped area between two buildings - it appears to be stalking something, probably a wasp. At home another *S. lineola* female (#5) has made an egg case - but this one is not fertile since it did not get a chance to mate. I then choose another not yet mated female (#4) and get the male. As she eats a cricket I gave her, he approaches and she looks at him and momentarily raises her wings in the defense position, but quickly calms

down when she sees it is just a male approaching. At least that is what her reaction appeared to be. It is as if the sudden movement she saw out of the corner of her eye was perceived as a threat, but when she noticed what it was, she immediately calmed down and became indifferent to him, resuming her cricket meal.

September 23 - They are still together in the morning, but have wandered away from the plant they were on and were on a Ficus tree houseplant a few feet away. The same day, I receive from another MSG member a package containing 3 individuals of a native American species, some *Stagmomantis* species. Two are adult males, one appears to be an almost grown nymph of the same species. Though last year I had brought home a male *Stagmomantis* from Florida, it was considerably larger than these. That one may have been *S. floridensis*, I am still not sure. These are under 5cm long, not 7.5cm as the one from last year was. These are brown with stripes on the forelegs; one is green. I hope the nymph turns out to be a female. These are from Kansas, and according to a list I saw on the internet, there is *Stagmomantis carolina* and *Stagmomantis carolina irronata* present in this state. I wonder what the difference is, and how to tell what I have. The hindwings are transparent except for a darker mottled border along the edges that fades into transparency toward the middle of the wing. Maybe it's *Stagmomantis limbata* - since its common name is bordered mantis. I think the *Stagmomantis* that I had last year had completely transparent hindwings, if I remember correctly.

September 24 - At around 2230 I take out the female *Tenodera angustipennis*, put her on a plant, and give her a large cricket, to prepare for mating. This individual is very active, and seems curious about everything around her, looking around the room, with very animated motions of her body, always climbing upward. When she is finished with her meal, I take out the male - he grabs hold of my hand and will not let go - but not hard, like he was eating - he also seems confused and agitated - he must detect some scent or hormone from the female since I just handled her. It is as if he is trying to mate but can't find the female. I put him near the female and he watches her with great interest as she climbs quickly up the plant. After staring at her for a minute or so, he runs up and leaps on her back. Her reaction is exactly the same as that of *T. sinensis* - she stretches out her forelegs as far forward as possible and stays in that stiff position for a few minutes - is this maybe a signal to the male telling him that everything is alright, and he can proceed? That she is not going to strike at him with her forelegs? After a few minutes, the male finally bends his abdomen around to the end of the female's, and mating begins. At this time, she begins to walk around, exploring the plant she is on, trying to find a comfortable place.

September 25 - By 0600 they are separated and the female is still on the plant, while the male is further away on the top of a nearby cage. That same evening, I take out a male *Mantis religiosa* and set up a mating with the green female. He gets right to it within a few minutes, but she is considerably longer than he is, and he has a hard time reaching the end of her abdomen. It takes him about 15 minutes to finally figure out that he should move down further.

September 26 - The male is fine this morning, and I put both of them into their containers. The *Tenodera angustipennis* female makes her first egg case. She mated just in time. The latest *Sphodromantis lineola* female (#4) that mated made her first egg case. The small *Stagmomantis* nymph from Kansas just died unexpectedly - maybe it was trying to moult and could not? The person who gave it to me said it was this size for a month.

September 27 - I see a brown female *Tenodera aridifolia sinensis* in my father's garden in northern New Jersey. She is in a south facing perennial border. Later that evening, I take

out the male *Sphodromantis lineola* and get another female (#5). I have been feeding her all day, and giver her another cricket. The male takes a while to go after her this time, and finally does so when I give her another cricket. He jumps on her back as she is eating, and she momentarily stops, looks over her shoulder, then continues to eat.

September 28 - After a hot day and a warm previous night, I spot a mantis during lunch at the same shopping centre that I found the others in during August. He appears to be a male *Tenodera aridifolia sinensis*, but he is about 12 feet up on a concrete column, well out of reach. By now, all the females in the wild are too heavy to fly, so only the occasional male will be seen away from vegetation on buildings. The females now remain on whatever vegetation they came from originally. Though it may seem that there were very few mantis sightings during September, when compared to last year, what really happened was that I did not have much time to go for a walk on weekends in my town. Had I done so every weekend, I am certain that there would have been plenty of mantises visible. When I got home, I see that the brown female *Mantis religiosa* has made her first egg case.

October 2 - The green male *Stagmomantis sp.* dies. Though he did eat fairly well considering one foreleg was missing, something else must have gone wrong; he was not starving. The brown male of this species eats very well, chasing after the small crickets I give him.

October 3 - *Sphodromantis lineola* female (#5) makes an egg case.

October 4 - At about 1130 on this chilly and damp Sunday morning, I walk into town to get newspapers. On the way back I walk in front of a historic house museum, and see a brown male *Tenodera aridifolia sinensis* on an evergreen shrub in that garden. He is all wet, but does not seem to mind. Neither does the female that is in my garden. She has relocated to the white-flowered clematis vine that is on the fence in back, about 10 feet south of the butterfly bush she was on previously. This make perfect sense - I knew she would eventually go there as the days got shorter and cooler, since she can get maximum sun and southern exposure there, as well as a large supply of bees and flies.

October 7- The mantis in the garden makes an egg case, right on the vine.

October 11 - Day 2 of a 3 day vacation to the southern tip of New Jersey - again. On this sunny but windy day, I go to the same wild place I went to last year. This is where the monarch butterflies stop on their migration southward. There are thousands of them flying around here, along with at least 7 or 8 other species. After an hour long walk along the trails through the woods and marshes, I spot a green female *Tenodera angustipennis* on a dense, tangled vine, looking right at me as I walk by. I immediately take this one.

October 13 - Green female *Mantis religiosa* has just started to make her first egg case, while the original green female *Sphodromantis lineola* has just started her 10th, all at 0630 in the morning.

October 15 - I finally get a chance to mate the last female *Sphodromantis lineola*. The male takes only about a minute to leap onto her back this time. The female looks almost ready to make an egg case, so this is just in time. The previous egg case she made was not fertile.

October 16 - after 24 hours, they are still together. I wonder why he is taking so long this time?

October 17 - The male is now off of the female and is hiding under a leaf of a houseplant. The female is still on the same branch. I put her into the cage and decide to leave him out for a while. This male is so shy - very unlike those of the other species. Is this typical of male *Sphodromantis lineola*? He also does not move very much. The other

males wander about the entire room if they are left out of their cages for any amount of time, and do not necessarily hide under leaves. During the afternoon, as I am feeding the mantises, one of the *Tenodera angustipennis* females begins to make an egg case. A few minutes afterward, the other female of this species that I found last week in southern New Jersey, also begins to make an egg case. These make their egg cases so fast - only about an hour to do the whole thing. Outside, in the garden, I see a new visitor on this sunny Saturday afternoon - a brown male *Tenodera aridifolia sinensis* has arrived in the garden, right where the female was for the past month - right on top of the clematis vine. No sign of her, though. I have not seen her for several days. Maybe she is on the other side of the fence. The male is still there at night, and comes out of hiding when I turn on the outside light.

October 18 - No sign of the male on this unusually warm and sunny morning, but I spot the female. Unfortunately, she is badly injured - one foreleg is missing and part of one eye appears to be chewed away. Did she have a fight with another mantis? A bird? She won't live much longer now, but her life cycle is complete since she made the egg case. At 1300 I go for a short walk, a few blocks from my house. I see a brown female *Tenodera aridifolia sinensis* on an evergreen shrub in a garden. A block away, a green female of the same species is in the garden of a small inn near the beach. She is right on top of a clump of blooming chrysanthemums. Nearby are a couple of very large grasshoppers, no doubt as to what she has been eating. I'm sure that there are many others out today in other gardens, but I do not have the time to go and look.

October 20 - *Sphodromantis lineola* female #3 makes her second egg case.

October 22 - *S. lineola* female #4 is not doing too well - she seemed weak and lethargic for a couple of days, and now something is coming out of her ovipositor - looks like the substance that the egg cases are made of. It is a mass about 1.3cm long, soft and stiff. I carefully remove it, and will see what happens. I guess she must be egg bound. I do not think she will live too much longer.

October 23 - This mantis is now dead. When I lift it up, I see that the body is limp and the joints appear to be falling apart, similar to what I had observed in a few of the nymphs that died earlier in the year. The abdomen is plump, but has some light coloured fluid coming out on top. I cannot tell if the fluid is coming from between the segments or if the exoskeleton is disintegrating. When I bend the abdomen away from the wings to wipe it with a paper towel, the entire abdomen comes off right below the last segment. When I open up the abdomen, I am amazed at what I find - there is not a single egg in it. Instead, there is a sticky, milky white substance surrounding a dark gray mass, which makes up most of the contents of the abdomen. This mass is firm and easily separates out of the white substance. It is smooth and uniform in colour, and there is no sign of anything like parasites inside either. This seems different than what happened to some of the nymphs - there is no black fluid inside. Does anyone know what is going on here? I read in earlier MSG newsletters that others have found maggots in a dead mantis's abdomen, but there is nothing like that here. In other instances where a mantis died rather young, I always found a large number of eggs inside the abdomen. This individual did make one egg case successfully on September 26. The female (#3) that was next to this one in the same cage with a divider between the two, seems fine.

October 24 - the *Stagmomantis sp.* dies unexpectedly. The day before he ate a cricket, and now he is dead on the bottom. I guess his time was up. After all, he is was quite small, and small species tend to have shorter life spans, from what I hear. Later that evening, the female *Tenodera aridifolia sinensis* makes her second egg case.

October 28 - *Sphodromantis lineola* female #3 is behaving strangely - she appears to be spitting out a brown liquid onto the surface of the lid of the cage she is in. She is spitting it out then appears to be drinking some of it off the surface. She is also intermittently grooming herself over and over, to excess. She is also ignoring all food, even if I put a cricket right in her face. The day before, she seemed fine and ate as soon as a cricket was handed to her, as always. Is she sick? Having made an egg case recently, she is still slim, so she can't possibly be egg bound. I take her out and put her in a different, more ventilated cage. One of the male *Tenodera aridifolia sinensis* has been less than well for the past week or two, but he still eats occasionally. He holds his forelegs in a strange position all the time - folded way up, almost covering his head, rather than a bit below his head. The other, nearly identical male, is doing better and is still very active; I often release him into the room, and he flies all around, and quickly walks around, until he finds a comfortable spot. The male *Tenodera angustipennis* is also still very active, but seems uninterested in eating crickets lately. He seems to now prefer moths that I find outside by the lights at night. He grabs these right away, but just stares at crickets as they crawl by, then looks away with indifference. The two females of this species are also very active, more so than the female of the other *Tenodera* species. These eat well, and take food every day, while the males eat only a few time a week now.

October 29 - The newest female *Tenodera angustipennis* makes another egg case, her second in captivity. The *Sphodromantis lineola* female that did not seem all too well yesterday, is eating today. I will just have to wait and see if she will be alright or not.

November 2 - That mantis is spitting out brown fluid again, and only ate a portion of a cricket today. Her health definitely is deteriorating.

November 3 - A second egg case was made by *Sphodromantis lineola* female #5. Her first was not fertile, but this one is since she has since mated. Outside it has been cold for more than a week, with night temperatures getting close to freezing, and daytime highs only in the 50's Fahrenheit. There are probably very few mantises left outside by now. More than half the leaves are gone as well, so those that remain have fewer places to hide. Praying mantis season 1998 is almost over.

Mantis abstracts

The following are abstracts from papers published recently, or in some cases details of the paper but without an abstract. The papers are in English unless otherwise indicated. The editor would be grateful for copies of any recently published papers so that abstracts may be included in this section of the newsletters.

Benrekaa, A., Doumandji, S. (1997) Comparison of the diet of *Mantis religiosa* Linnaeus, 1758 and *Sphodromantis viridis* Forskal, 1775 in the suburbs of Algiers. *Entomologiste*, **53**(6): 253-256.

On laboratory, the analysis of excrement's content of *M. religiosa* and *S. viridis* on the periphery of Algiers, has revealed their remarkable insectivory. For *M. religiosa*, the part of insects corresponds to 93.2% of Hymenopterous. Sometimes *M. religiosa* consummates Arachnids (5.7%) and even a bird. Concerning *S. viridis*, it consummates, above all, insects (95.3%) with 60.7% of Hymenopterous with 41.5% of Formicidae, followed by Arachnids (4.2%) and Myriapods (0.5%).

Del Cerro, A.L., Cunado, N. & Santos, J.L. (1998) Synaptonemal complex analysis of the X-1X-2Y trivalent in *Mantis religiosa* L. males: Inferences on the origin and maintenance of the sex- determining mechanism. *Chromosome Research*, **6**(1): 5-11.

Characterization of sex chromosomes in males of *Mantis religiosa* L. (2n = 24 + X-1X-2Y) was carried out by C-banding, silver staining and fluorescence in situ hybridization. They are meta- or submetacentric, their arms being designated as X-1L, X-1R, X-2R, X-2L, YL and YR. Meiotic behaviour of the sex trivalent was examined through the analysis of synaptonemal complexes (SCs), prometaphase I (metaphase I) and metaphase II nuclei. On the basis of the SC analysis, chromosomal length measurements at mitosis and prometaphase I and data from several orthopteran species, it is proposed that the breakpoints of the reciprocal translocation that originated this complex sex-determining mechanism were close to the centromeres of the X and the largest autosome, and that the asynapsed X-1L and X-2R regions observed in the sex trivalent at pachytene represent the original X chromosome. The X centromere being probably that of the X-2 element because it lacks a partner in the SC pachytene trivalent. The relationship among synaptic pattern, chiasma localization and balanced segregation of the sex trivalent is also discussed.

Huang, F., Zhu, S., Gao, D., Liu F., Li, G., Xiao, W. & He, X. (1998) Characteristic analyse and taxonomic system on isoptera. *Entomotaxonomia*, **20**(1): 14-20.

This paper deals with the analyses about the types and application of the characters concerning the taxonomic systems of Isoptera. There are two kinds of characteristic morphologic structures in insects: "Unique characters" and "Systematic characters". It is considered that there are three unequal characters upon the Plesiomorphy. The more typical plesiomorphic characters of one group possessed, the more closely related to the ancestral group it is. If one group possesses only a few and aberrant plesiomorphic characters, it might belong to the evolutionary and present group. According to the fossil geologic period and morphological structures, the authors inquire into the relationship among the order Blattaria, Isoptera and Mantodea. On the basic study of the "Primary type" and "Transmuted type" characters of termite, we point out emphatically that the. "Transmuted type" as apomorphy is very important to discover the relationships between the termite families. In brief, the

certain characters of termite could not be used as evidences to identify for appraisement if these characters in the same taxonomic category are not independent. The authors put forward a tentative scheme on the relationships among the termite families on the basis of the action of "Primary type" and "Transmuted type" characters.

Karuppanan, U. (1996) Morphology of the ootheca of mantid *Euantissa pulchra* (Fab.) (Dictyoptera: Mantidae). *Journal of Insect Science*, **9**(2): 115-118.

Observations on the behaviour of the gravid female mantid *Euantissa pulchra* (Fab.), functions of the cerci and ovipositor and maximum number of oothecae deposition were made. The arrangement of eggs and the external and internal structures of oothecae of mantid have critically been discussed.

Kevan, D.K.M. & Vickery, V.R. (1997) An annotated provisional list of non-saltatorial orthopteroid insects of Micronesia, compiled mainly from the literature. *Micronesia*, **30**(2): 269-353.

The general literature relating to the non-saltatorial orthopteroid insects of Micronesia and certain nearby groups of smaller islands of Oceania is reviewed. The species known to occur in this region are listed according to order and family. Most of the information is based on literature records which have been updated, corrected and commented upon where appropriate. A few new records are included. The orders considered are Dictyoptera (including Blattodea, Mantodea and Termitodea (Isoptera)), Zoraptera (none recorded), Embioptera, Dermaptera and Cheleutoptera (Phasmatodea).

Klass, K.D. (1998) The proventriculus of the Dicondylia, with comments on evolution and phylogeny in Dictyoptera and Odonata (Insecta). *Zoologischer Anzeiger*, **237**(1): 15-42.

Striking similarities in the proventriculi (gizzards) of Lepismatidae (Zygentoma), Blattinae (Dictyoptera), and nymphal Corduliidae (Odonata) permit the reconstruction of the ground-plan of Dicondylia: Six major plicae, each with a large denticle-bearing sclerite anteriorly and a smaller pulvillus posteriorly, are present in a hexaradial arrangement. Hexaradial symmetry is overlain by a distinct bilateral symmetry established by an individual differentiation of the single plicae and their sclerites, denticles, and pulvilli: Two opposite plicae in the plane of symmetry are unpaired, four plicae are in two pairs. Within Odonata, Corduliidae are closest to the ground- plan, but the unpaired plicae are reduced. In the derived condition the proventriculus of Odonata has a tetraradial symmetry, with the bilateral symmetry lost. Within Dictyoptera, Blattinae are closest to the ground-plan, but the bilateral symmetry has become weaker. The proventriculus of Isoptera is not primitive within Dictyoptera, as previously thought, but highly derived. Many prior arguments for the exclusion of Isoptera from Blattaria are thus invalid. Similarities between Isoptera and certain Blattaria, mainly Cryptocercidae, may be synapomorphies, indicating a subgroup status of Isoptera within Blattaria. For the proventriculi of Blattaria and Mantodea, which differ greatly in appearance, a detailed hypothesis of homology is presented. This study gives also insights into the evolution of symmetry relations and reveals some unusual aspects of serial homology. Many homoplasies were found in the evolution of the proventriculus of Dictyoptera and Odonata.

Kral, K. (1998) Spatial vision in the course of an insect's life. *Brain Behavior and Evolution*, **52**(1): 1-6.

Praying mantises are considered to be phylogenetically ancient insects with their roots in the palaeozoic Protoblattoidea. They have evolved two mechanisms for spatial vision: (a) estimating the distance to moving prey objects with the use of binocular disparity (Rossel, 1983) and (b) estimating the distance to stationary target objects with motion parallax produced by head movements (Poteser and Kral, 1995). There is no doubt that the ability to use both visual cues is congenital, but the degree to which either mechanism is developed and its significance to the individual depends to some extent upon the animal's age and exposure to prey species and environmental cues. Experience and learning play an important role. It appears that young mantises can perform both binocular and monocular calculations of distance but they grow to depend more on the binocular mechanism. Motion parallax plays an important role in movement strategy throughout the course of a mantis's life, but this mechanism appears to be particularly in early life.

Maxwell, M.R. & Eitan, O. (1998) Range expansion of an introduced mantid *Iris oratoria* and niche overlap with a native mantid *Stagmomantis limbata* (Mantodea: Mantidae). *Annals of the Entomological Society of America*, **91**(4): 422-429.

Iris oratoria L. invaded southern California in the 1930s. We describe its subsequent northward and eastward expansion in the southwestern United States. The rate of expansion into Arizona suggests that human activities have played a part in its spread. This mantid has come into contact with a native species *Stagmomantis limbata* Hahn. We present 3 years of field data on 2 components of niche overlap between these 2 species: overlap in habitat use over time and in diet. At a field site in Davis, CA, *S. limbata* hatched earlier in the season than did *I. oratoria*, and *I. oratoria* tended to persist longer into the year than did *S. limbata*. The diets of the species overlapped to a moderate extent, yet they differed with respect to prey type and length. *S. limbata* ate a greater proportion of orthopterans and mantids than did *I. oratoria*, and *S. limbata* ate longer prey than did *I. oratoria*. Additionally, *S. limbata* adults had longer pronota and forelegs than *I. oratoria* adults. This difference in body size might be an important cause of the dietary differences between the species. Furthermore, the earlier hatch date for *S. limbata* also might result in a reduction of size overlap and, consequently, diet overlap among nymphs of the 2 species. Thus, the differences in body size and phenology may be mechanisms that allow these species to coexist.

Moran, M.D. & Hurd, L.E. (1998) A trophic cascade in a diverse arthropod community caused by a generalist arthropod predator. *Oecologia (Berlin)*, **113**(1): 126-132.

We tested the hypothesis that a generalist arthropod predator, *Tenodera sinensis* Saussure, could trigger a trophic cascade in an old-field ecosystem. These mantids had relatively weak effects on abundance and biomass of other carnivorous arthropods as a group. The effect of mantids on herbivores was stronger than on carnivores, mainly concentrated in Homoptera and Diptera. Herbivore load was reduced by mantids with the consequence that overall plant biomass (mainly grasses) was increased. Per capita interaction strengths between mantids and other arthropod taxa were, for the most part, weakly negative. Our study demonstrates that a significant trophic cascade can be triggered by a generalist predator even within the framework of a diverse community with relatively diffuse interactions.