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# Mantis Study Group Newsletter 26

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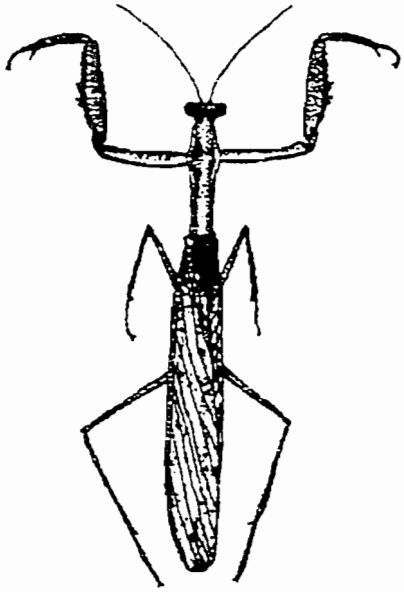

## Editorial

With nothing submitted, the have not been any newsletters since August 2002. Remember, no articles = no newsletter! Developing this theme, Vernon Durrant has come up with a list of twenty subject areas which would make interesting articles. So get writing folks!

Since we have not been producing newsletters, Paul Taylor tells me we have plenty of money in the MSG account so we have not had to ask for any membership subscriptions this year. We are intending to follow a policy similar to that of the Blattodea Culture Group (BCG), i.e. produce newsletters when we have material and ask for subscriptions when we run out of money, subscriptions will then run until the next cash shortage. This may mean, as with the BCG, that members are uncertain if the Group still exists, or if they are still members; despite these drawbacks, this seems the best option at present.

I am grateful to Kieren Pitts for continuing to provide me with the abstracts section.

## Exhibitions

We are no longer intending to book tables for the MSG at exhibitions, although both Paul Taylor and I are likely to attend the major exhibitions (probably on the Phasmid Study Group's stand). Dates I have been told about are:

**September 7th 2003** - Lincoln Exotics Show, North Kesteven Centre, Lincoln.
**October 4th 2003** - AES exhibition, Kempton Park Racecourse.
**March 28th 2004** - Midlands Entomological Fair, Kettering Leisure Village.

## Newsletters: why we don't get any — Vernon Durrant

I asked myself the question, why don't people or better still, why haven't I written anything, even though the request has been made? Is it lack of knowledge, feeling that everyone else knows this anyway? Lack of time, or plain inertia?

As articles are the life blood of every journal, I wonder why ours is bleeding to death through absence of material. It is intensely disappointing to those of us who know very little about these insects and would love to know more, and hoped that membership of MSG would help to redress this lack.

For myself, I had my first mantids from Graham Smith and the surviving female has recently laid her first ootheca. I only hope that the mating was successful as the male was eaten. While I am waiting, I have given some thought to MSG.

From the many thoughts and questions that have been in my mind I have selected one to develop here. Perhaps many of us who keep mantids, don't think that we can possibly have anything to contribute to the learned mass of knowledge, or that others would be interested to read? We faithfully provide the food for our charges, help with the mating process, and hope for new hatch. Developing the theme, I have asked myself, " What questions would I like answered". Many answers may have already been written about, but at present, I haven't found them. Here are some of those questions which I hope may be the launching platform for not only personal research but also a live MSG and articles for the newsletter.

1. A detailed description of the life history of the mantids we keep. A survey through the newsletters will reveal how few have been described in detail from the 50 or so which have been kept in recent years.

2. What mechanisms are involved in the hatching processes? Is it just a combination of temperature, humidity and time? Is there any form of communication between the unhatched insects? How critical are these factors? Is there a particular time of day or night? Can it be influenced?

3. How do the nymphs break free from their embryonic cuticle?

4. Which hatches first male or female, or is there no difference? Can this be influenced? If so how?

5. Can the number of instars vary within species? If so what influences this? Does temperature or food supply play a major part? Does the size of container have any influence?

6. Is the growth time between instars constant? What influences may be involved?

7. How much food does a mantis need before an instar change? Will it matter if the food is spaced out, or given in large quantities occasionally?

8. Can you feed an insect until it is full? How soon will it eat again? What effect will this have on the instar change?

9. Is there any physical growth between instars? If so how may is this be achieved? Is the growth only by stretching of the membranous regions?

10. Do the antennae grow between instars?

11. Does the number of tarsi change during the growth period?

12. Is there a particular time of day for an instar change? What influences it? Is this the same for different species?

13. What other physical differences can be seen in the various instars? Is it the same for all species?

14. Is the growth rate influenced the environment in which the insect lives?

15. What colour variations are there within species?

16. Do mantids have favourite foods? What influences this? Do they have positive dislikes? Does size, shape or colour have any affect on their preferences?

17. What signs indicate moulting is about to take place? Are they the same for each instar change? Is this the same for all species?

18. How long after ecdysis is it before the mantis begins to eat again? Can this time be influenced?

19. How much do mantids move about during the day? Does it have a pattern? Does the mantis have a particular place it seems to prefer?

20. If a limb is lost, how soon before another is regenerated? Does it matter which limb? Is the new growth sometimes muddled, i.e. an antennae where there should be a leg?

# Mantis abstracts

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

**Chong, J.H.** (2002) Influences of prey size and starvation on prey selection of the Carolina mantid (Mantodea: Mantidae). *Journal of Entomological Science*, **37**(4): 375-378.

No abstract available.

**Fagan, W.F., Moran, M.D., Rango, J.J. & Hurd, L.E.** (2002) Community effects of praying mantids: A meta-analysis of the influences of species identity and experimental design. *Ecological Entomology*, **27**(4): 385-395.

1. Generalist arthropod predators are ubiquitous in terrestrial ecosystems but experimental studies have yielded little agreement as to their effects on prey assemblages. Drawing on results from a suite of experimental field studies, a meta-analysis was conducted of the impact of praying mantids (Mantodea: Mantidae) on arthropod assemblages in order to identify predictable and unpredictable effects of these extremely generalised predators.

2. Results across different experiments were synthesised using the log response ratio framework, with a focus on quantifying net mantis impacts on arthropod density across taxonomic orders and trophic levels of arthropods, paying special attention to the contribution of mantis species identity and experimental design variables, such as the use of cages, length of experiment, and manipulated mantis density.

3. Calculated on a per mantis-day basis, the net impacts of *Tenodera sinensis* on arthropod density were generally weaker but more predictable than the effects of *Mantis religiosa*.

Mantids in general had weak negative effects on density for most taxa but exhibited strong negative and positive effects on some taxa. *Tenodera sinensis* tended to have negative effects on Homoptera, Diptera, and Hemiptera and herbivores as a group, however *M. religiosa* exhibited greater variation in response of different taxa that appeared to be affected more strongly by experimental design. The effects of *Stagmomantis carolina* tended to be negative or non-significant.

4. Experimental cages had little influence on either the sign or magnitude of net community impacts for *T. sinensis*, however cage experiments reversed the sign of the mean effect for two of six taxonomic orders when the experimental predator was *M. religiosa*. Cages also increased the variability of effect size greatly for *M. religiosa* but not for *T. sinensis*.

5. It was concluded that it is possible to use log response ratios to determine general, predictable trends in a well-studied system. Similar meta-analyses of generalist predator effects in other systems should produce predictions of how these predators influence food webs, an important step towards defining more clearly the influences of generalist predators on community structure and dynamics.

**Ghate, H.V. & Ranade, S.P.** (2002) Biodiversity of mantids, insecta: Mantodea, in Pune (Western Ghats) with notes on other regions of Maharashtra. *Journal of the Bombay Natural History Society*, **99**(2): 348-352.

No abstract available.

**Ghate, H.V., Ranade, S., Kaur, R. & Marathe, R.** (2001) On *Hestiasula brunneriana* Saussure (Insecta: Mantodea) from Pune, Maharashtra.
*Journal of the Bombay Natural History Society*, **98**(3): 473-476.

No abstract available.

**Ghate, H.V., Ranade, S., Soman, A., Kaur, R., Marathe, R. & Mukherjee, T.K.** (2001) Redescription of *Amorphoscelis annulicornis* Stål (Insecta: Mantodea) from Maharashtra. *Journal of the Bombay Natural History Society*, **98**(3): 476-480.

No abstract available.

**Hatle, J.D., Spring, J.H. & Dow, J.A.T.** (2002) Ion and water transport in the orthopteran alimentary canal: A comparison of Mantidae and Acrididae. *Journal of Orthoptera Research*, **11**(1): 19-24.

We measured haemolymph $Na^+$ and $K^+$ concentrations, gut $Na^+$ and $K^+$ concentrations, transepithelial electrical potentials (TEPs) and fluxes of $Na^+$, $K^+$ and water for the insectivorous praying mantis *Tenodera sinensis* (Orthoptera: Mantidae). In addition, we calculated transepithelial potential differences for $Na^+$ (ENa) and $K^+$ (EK). In the mantis, $Na^+$ concentrations were higher in the haemolymph than in the crop, caeca, midgut, ileum, and rectum. Potassium ion concentrations were lower in the haemolymph than in the crop and rectum. All mantis TEPs were lumen negative. The crop TEP was less negative than the TEPs for the anterior and posterior caeca, anterior midgut, posterior midgut, and ileum. Mantis ENa values were all negative and EK values were all positive. Mantis caecal $Na^+$, $K^+$ and water fluxes were all relatively small. These data imply that digestion of insect prey occurs largely in the crop, and the caeca and midgut may not play important roles in digestion. To maintain ionic homeostasis, mantids may actively transport $Na^+$ while passively

distributing $K^+$. We discuss these data for mantids in comparison to previous data on the gut function of desert locusts.

**Jantsch, L.J. & Pozza, M.** (2001) Genitalia de *Coptopteryx gayi* e *C. argentina* (Mantodea, Vatidae, Photininae). [Genital system on *Coptopteryx gayi* and *C. argentina* (Mantodea, Vatidae, Photininae).] *Biociencias (Porto Alegre)*, **9**(1): 45-50.

The genital system, male and female of *Coptopteryx gayi* and *Coptopteryx argentina*, are presented.

**Kisselburg, M.A. & Cochran, P.A.** (2002) *Mantis religiosa* (Mantodea: Mantidae) in Door County, Wisconsin. *Great Lakes Entomologist*, **34**(1) Spring-Summer 2001: 27-28.

The European mantis (*Mantis religiosa*) has been observed at several sites spanning a distance of approximately 50 km in northern Door County, Wisconsin. A reliable sighting of an unidentified praying mantis on Chambers Island in Green Bay suggests the possibility that the species occurs there as well. Lake-induced moderation of the Door County climate may have resulted in conditions especially conducive for the establishment of European mantids.

**Kristin, A. & Sarossy, M.** (2002) Orthoptera und Mantodea in Nahrungsterritorien der mediterranen Eulenart *Otus scops* in der Slowakei. [Orthoptera and Mantodea in foraging territories of mediterranean owl *Otus scops* in Slovakia.] *Linzer Biologische Beitraege*, **34**(1): 467-473.

In seven foraging territories of orthopterofagous owl *Otus scops* in southern Slovakia 39 Orthoptera species and one Mantodea species were found. Total number of species ranged between 23 and 29 species per locality, what shows the high diversity of potential food supply for investigated species Otus scops. In total 16 species (40%) are of tropical or pontic origin, of them characteristic are species *Ruspolia nitidula*, *Platycleis vittata*, *Melanogryllus desertus* and *Stenobothrus crassipes*. Distribution of these four species in Slovakia is almost the same as distribution of their potential predator *Otus scops*. The species *Ruspolia nitidula*, belongs in Slovakia to rare indicators of well-preserved warm and wet meadows. It's occurrence was confirmed in three from seven territories, on one locality (Kirt) high abundant (6-10 ex./100m$^2$). Following species were found in all observed territories: mantis *Mantis religiosa*, bushcrickets *Tettigonia viridissima*, two euryek species from genus *Metrioptera*, *Pholidoptera griseoaptera*, cricket *Gryllus campestris*, which are often the main prey for *Otus scops*, but also smaller species *Oecanthus pellucens*, *Euthystira brachyptera*, *Chorthippus biguttulus*, *C. brunneus*.

**Mao B.Y. & Yang Z.Z.** (2002) A new species of the genus *Anaxarcha* Stål (Mantodea: Hymenopodidae) from China. *Entomotaxonomia*, **24**(1): 1-2.

A new species of the genus *Anaxarcha* Stål (*Anaxarcha maculata*) from Yunnan, China is described. The type specimen is deposited in the Dept. of Biology, Dali Teachers College, Yunnan, China.

**Roy, R.** (2002) Contribution a la connaissance du genre *Tarachodes* Burmeister, 1838 (Dict., Mantodea, Tarachodinae). [Contribution to the knowledge of the genus *Tarachodes* Burmeister, 1838 (Dict. Mantodea, Tarachodinae).] *Bulletin de la Société Entomologique de France*, **107**(5): 534-536.

No abstract available.

**Roy, R.** (2002) Commentaires a propos du genre *Plesiacanthops* Chopard, 1913, et redescription d'*Acanthops tuberculata* Saussure, 1870 (Dictyoptera, Mantodea). [Comments on the genus *Plesiacanthops* Chopard, 1913, and redescription of *Acanthops tuberculata* Saussure, 1870 (Dictyoptera, Mantidae).] *Revue Francaise d'Entomologie*, (N.S.)**24**(4): 171-177.

*Plesiacanthops* Chopard, 1913, already considered as a synonym of *Acanthops* Audinet-Serville, 1831, has indeed no valid reasons for a rehabilitation. Its type-species, *Acanthops tuberculata* Saussure, 1870, badly characterized up to now and whose male was not yet validly described, is the matter of a detailed redescription.

**Roy, R.** (2002) *Euchomenella finoti* Roy, 2001, nouveau synonyme de *Rhodomantis queenslandica* (Sjöstedt, 1918) (Dictyoptera, Mantidae). [*Euchomenella finoti* Roy, 2001, new synonym of *Rhodomantis queenslandica* (Sjöstedt, 1918) (Dictyoptera, Mantodea).] *Revue Francaise d'Entomologie*, (N.S.)**24**(4): 169-170.

*Euchomenella finoti* Roy, 2001, described on a single male specimen in bad condition, is proved to be a junior synonym of *Rhodomantis queenslandica* (Sjöstedt, 1918), after comparison of the two types. The male genitalia of this species are represented and the place of the genus *Rhodomantis* is discussed.

**Roy, R.** (2002) Revision du genre neotropical *Macromantis* Saussure, 1871 (Dictyoptera, Mantidae). [Revision of the neotropical genus *Macromantis* Saussure, 1871 (Dictyoptera, Mantidae).] *Bulletin de la Société Entomologique de France*, **107**(4): 403-418.

Two species were originally put in the genus *Macromantis*, and further a third was added; but these species were badly definite, more or less greatly confused and at last synonymized. However they are really distinct, and even a fourth is present, described here as a new one. This paper, based on about one hundred specimens, states the question and gives the distinctive characters and the known distribution of each of these species.

**Roy, R.** (2002) Une remarquable espece nouvelle d'*Acanthops* Audinet-Serville, 1831, en Guyane francaise (Dictyoptera, Mantodea). [A remarkable new species of *Acanthops* Audinet-Serville, 1831, from French Guyana (Dictyoptera, Mantodea).] *Bulletin de la Société Entomologique de France*, **107**(3): 297-300.

*Acanthops soukana* n.sp. is described from a single female from French Guyana.