

LINN S C NEWS

NEWSLETTER No: 182

SEPTEMBER 2021

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NEW MEMBERS: We welcome:

Mr Brian Everingham. Fields of interest: ecology, heritage, park management

Mr Andrew Macqueen. Fields of interest: ecology, geology, hydrology, cultural history

Mr Jonathan Sanders. Fields of interest: geology, fire ecology, animal ecology, botany

Mr Simon Wild. Field of interest: natural history of the Blue Mountains



ARTICLES RECENTLY PUBLISHED in Volume 143, 2021

Kobayashi, T., Hunter, S.J., Ralph, T.J., Maguire, J. and Wolfenden, B. Trophic conditions and planktonic processes of semi-arid floodplain lakes inundated with environmental flows.

Timms, B.V. A new species of *Branchinella* (Crustacea: Anostraca: Thamnocephalidae) from Alice Springs, Australia.

Wang, G.X., Percival, I.G., Zhen, Y.Y. and Webby, B.D. Late Ordovician corals from allochthonous clasts in the Devonian Drik-Drik Formation of northeastern New South Wales, Australia.

All recent papers published in the *Proceedings* (from Vol. 133) are freely available from:
<http://ojs-prod.library.usyd.edu.au/index.php/LIN>

Earlier volumes are available from: www.biodiversitylibrary.org/bibliography/6525

Please check regularly the Society's home page for recently uploaded papers by going to "linneansocietynsw" then click "Journal (Proceedings)".

2021 Natural History Symposium - Update

In view of the continuing Covid-19 pandemic in NSW, the Council of the Linnean Society has reluctantly decided to cancel the Natural History Symposium planned for late October this year. The extension of the lockdown in Greater Sydney to the end of September, with no certainty that the outbreak will be contained by then, means that intending registrants are understandably reticent about whether to proceed with booking, and preparing talks. Travel restrictions are also of concern as these are unpredictable and may impact intending participants and registrants from regional areas and interstate.

Much planning and preparation has gone into the organisation of the Symposium to ensure it will be as successful as those the Society has previously held, and there has already been considerable interest expressed by those wishing to participate. Our intention is therefore to reschedule the Symposium to September or October 2022 (exact dates are yet to be determined) to take advantage of the spring flowering of wildflowers then. The format of the 2022 Symposium will be identical to that now postponed, involving two days of talks, and a full day field excursion to Ku-ring-gai Chase NP (West Head and Bobbin Head areas), the Ku-ring-gai Wildflower garden and other localities. A potential silver lining of the postponement is that there may be an opportunity to visit the exposure of the Hornsby Diatreme which would not have been possible this year.



REPORT FROM PAST RECIPIENTS OF RESEARCH GRANTS

It is a condition of an award that the recipient reports the results to the Society. Some have had their works published and others are preparing papers for publication.

Nicole Lynch (University of Sydney) 2020 Joyce W Vickery Scientific Research Fund recipient.

Title of project: *Individuals matter: defining the ecological significance of behavioural differences among spotted-tailed quolls.*

In the early stages of the project, funds from the Joyce W. Vickery Fund contributed to my initial surveys of field sites in Western Sydney and lower Blue Mountains for spotted-tailed quolls. During this time, detectability of quolls became a major focus of the project. To survey for quolls, I used remote cameras with raw chicken as a lure. Preliminary results from 20 quoll visits found the presence of drainage lines near cameras to be important for detecting quolls. I also found most quoll visits occurred around eight days after the chicken was deployed. I have further analysis to conduct on the data. The next phase of my project will further investigate detectability and individual behavioural differences.

Sophie Preston (Curtin University) 2020 William McLeay Microbiology Research Fund recipient. Title of project: *Causes and consequences of growth anomalies affecting Isopora palifera at the Cocos Keeling Islands.*

Background

This project aimed to characterise the bacterial associations of growth anomaly (GA) affected *Isopora palifera* at the Cocos (Keeling) Islands as part of a wider project examining the putative outbreak at an integrated ecological and molecular level. In 2018, a putative outbreak of growth anomalies was observed to be affecting the scleractinian coral *Isopora palifera* at the Cocos (Keeling) Islands (CKI). Typically the result of environmental anomalies or high anthropogenic pressure, the occurrence of this disease was unusual, in that CKI supports a low-density population (~600 people) and its coral reefs have not been affected by recent abnormal environmental events. Furthermore, this is the first occurrence of this disease on this species globally. We undertook an integrated ecological and molecular approach to characterise this disease and its distribution across the atoll. Specific aims for the ecological project were to

quantify the distribution and abundance of GA affected corals across the atoll and confirm outbreak status. Secondly, we described the effects of this disease on the host by examining changes to the biological and reproductive functioning using histology and skeletal geochemistry.

Project results

Ecological surveys revealed an outbreak of GA's to be affecting one-third of the *I. palifera* population, present at 75% of sites surveys. Histological analyses revealed reduced biological and reproductive functioning, as reported in other GA studies. Skeletal geochemistry indicated a shift in the carbonate matrix, from dense aragonite to softer calcite, potentially the result of bacterial bioerosion. 16S rRNA gene metabarcoding indicated broad similarities in bacterial communities across all control, asymptomatic and diseased coral samples, opposing the currently held conception that growth anomalies are the result of dysbiosis (or an imbalance of bacterial communities). Rather we found that the bacterial associations of *I. palifera* were affected by environmental conditions as a result of spatio-temporal variability, supporting a similar finding in GA affected *Platygyra carnososa*. The bacterial associations of corals displayed a distinct microbiome to that found in the surrounding water column, and importantly there were no bacterial associations between potential sources of aquatic pollution (West Island Dump, West Island Outfall). The water samples displayed three groupings, potentially as a result of the fine scale environmental variation across the atoll. Significantly, these findings indicate that the outbreak of GAs at the Cocos (Keeling) Islands is not likely to be the result of a bacterial agent as previously thought, and future research should investigate the role of other microbial agents, such as fungi or marine viruses, as well as determining the mode of transmission across the coral reef.



SNIPPETS FROM THE PAST

From the Transactions of the Entomological Society of New South Wales, Volume 1, Part 1, 30th January, 1863; William MacLeay, Esq., President, in the Chair

PRESIDENTIAL ADDRESS

Gentlemen,

As the first stage in our history has now been reached, it may not be amiss that I should take the opportunity of saying a few words on the objects and prospects of the Society.

The advantages which the original promoters of the Institution anticipated were of a two-fold character. They wished to give all who were interested in the Science of Entomology opportunities of social intercourse; and they also wished to be the means of assisting in the publication of such Papers connected with the Science as might be deemed worthy of their sanction.

Viewing these as the main objects of the Society, I think I am justified in saying, that it has already been as successful as its most sanguine promoter could have desired. A number of gentlemen, previously unknown to each other, have been afforded opportunities of meeting together, which, without the intervention of the Society, would, perhaps, never have existed; an impetus has been given to collecting in a degree hitherto unknown in the Colony; and from the facilities given of communicating information, an unusual amount of observation has been concentrated on the history and habits of the Insect tribes.

During the few months of the Society's existence, six Papers have been read. Mr. Schrader's Paper on the Gall-making Coccidae of Australia was the first in point of date, and, perhaps, the first also as regards the interest and originality of the subject; since the knowledge which entomologists have as yet acquired of the Insects which produce Manna may be considered as very restricted. The Rev. Mr. King has contributed a most valuable Monograph on the Pselaphidae of New Holland. The Hon. A. W. Scott, Esq., has given us an interesting account

of the habits of an Ovoviviparous Moth of the genus *Tinea*. And I have read three Papers on Coleoptera, mostly descriptive of new species.

These Papers will be immediately published, and will, along with an abridged account of the proceedings of each Monthly Meeting, the Rules of the Society and the list Original Members, form Part I of Vol. I of the Transactions of the Entomological Society of New South Wales.

As regards the Monthly proceedings, I may observe, that the Members generally, have derived much pleasure and information from the ample collections of Insects exhibited at each Meeting, and it is to be hoped that a practice which adds so much to our knowledge of species and their habits will be continued; but the Council have, while entering these exhibitions in their minutes, not thought it necessary to mention them in their published proceedings, except in those instances where some specific information has been derivable from the exhibition. The mere mention of the exhibition of a fine collection conveys no information to the reader, nor is even the recital of a list of names of any value unless accompanied by a statement of some peculiarity of habit or structure.

The chief difficulty which the Entomologist has to encounter in this country, is the impossibility of ascertaining what has already been done with respect to the nomenclature and description of its Insect Fauna. Insolated [sic] descriptions of species are to be found in the Natural History Periodicals of almost every country in Europe, but few attempts have been made to consider the Australian Fauna as a whole. Boisduval's « Faune de l'Océanie » is, I believe, the latest work of the kind published, and it is of little use as a means of investigating species; the descriptions are short, and would for the most part apply to all species of the particular genus mentioned. To obviate such difficulties should be our first endeavour. Thus, before a Student can think of arranging objects of Natural History, he must be conversant with the structure and habits of these objects. Two books are quite sufficient to enable him to attain both of these objects. The first is Kirby and Spence's Introduction to Entomology, in four Volumes; the late editions of the two first volumes are useless to the Entomologist, the last two volumes of the complete work being those that give the general history of the Science, and what is still more useful, the Orismology, or definition of those technical terms which will enable the Student to make out the name of an Insect, and to describe his new species. The other book is « Cuvier's Règne Animal ». The French editions of which, are, of course, the best, but in the event of the Student not being familiar with the French language, there are plenty of English translations procurable. I would, therefore, I repeat, recommend Kirby and Spence for analysis; and for synthesis, I would recommend Cuvier, or rather Latreille, since it was the latter eminent Naturalist who wrote the volumes on Insects, which form so bright a part of the far-famed Animal Kingdom of Cuvier.

