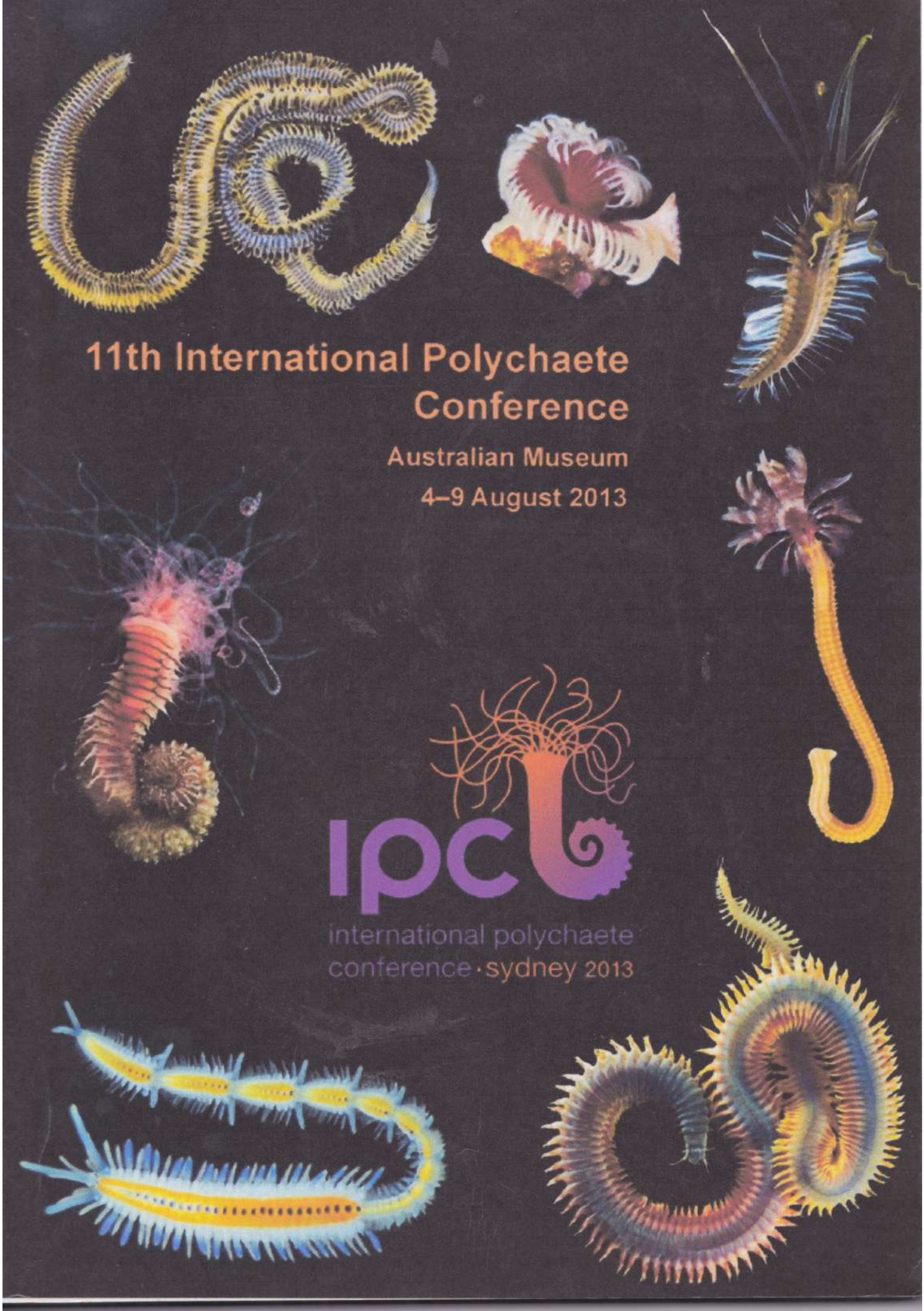

11th International Polychaete Conference

Australian Museum

4–9 August 2013

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CONFERENCE TIMETABLE AND PROGRAM EXPLANATION

The full conference program from Monday 5rd to Friday 9th is outlined in the following coloured pages.

No sessions will be held at the Museum on Wednesday which is an excursion to the Royal National Park.

Abstracts are in alphabetical order by the last name of the first author, with the presenting author marked with an asterisk. For oral presentations being presented by an author other than first author, the abstract is under the author, with a second entry under the presenter's last name.

Poster authors will be beside their posters during the Poster Cocktail Session on the rooftop on Tuesday evening to discuss their work and answer questions. Judging of student posters will be done during this session. The posters will be available from Monday morning until Friday afternoon.

The speakers, topics and times are correct at the time of publishing. In the event of unforeseen circumstances, the organisers reserve the right to alter or delete items from the Conference Program.

Sunday Timetable - 4th August

	AUSTRALIAN MUSEUM
3:00 – 5:30	REGISTRATION, PRESENTATION UPLOAD AND POSTER PREPARATION (ENTER VIA COLLEGE STREET ENTRANCE)
	OWN ARRANGEMENTS FOR THE EVENING

Phylogeography of the Christmas Tree worm *Spirobranchus corniculatus* (Annelida, Serpulidae) from the Coral Triangle, Australia, and Fiji.

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Christmas Tree Worms is a common name given to a group of large and colourful serpulid polychaetes of the genus *Spirobranchus* that are obligate symbionts of hermatypic corals commonly found in tropical and subtropical regions world-wide. While current taxonomic species delimitations of these worms are based almost exclusively on the morphology of opercular structures, particularly the number and shape of calcareous opercular horns, high levels of intraspecific variation in this morphological feature have made species boundaries within the genus difficult to resolve. Molecular work to differentiate serpulid worms has long been hampered by the availability of informative markers. Recent work on *Hydroides*, however, has facilitated the use of COI barcoding in serpulids, which, in conjunction with existing nuclear and mitochondrial markers, can provide a robust interpretation of phylogenetic relationships within *Spirobranchus*. Here, we present a multi-gene phylogenetic reconstruction of the *Spirobranchus corniculatus*- a species complex that tentatively includes three morphospecies: *S. corniculatus* s. str., *S. cruciger*, and *S. gaymardii*. Samples spanning the Coral Triangle (Indonesia and the Philippines) as well as Australia and Fiji were included to determine the geographical distribution of putative lineages. Morphological analyses of opercular structure variability were used to test the hypothesis that the *S. corniculatus*-complex includes three genetically distinct lineages identifiable by their opercula. Haplotype diversity measures revealed higher levels of diversity within the central Coral Triangle region and lower diversity measures at peripheral locations, indicating recent colonization of these areas or, alternatively, a high extinction rate of haplotypes at these sites.

Testing the serpulid fossil record by ultrastructural analysis of the tube

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In paleontology generic attribution of serpulid polychaetes is based on comparisons of general morphology of fossilized tubes with that of Recent calcareous tubes. However, unlike mollusk shells, serpulid tubes are not genuine exoskeletons, and thus, are not well-integrated with the soft body. This inevitably leads to weak correlations between tube morphology and soft body characters. Therefore, classification of fossil material in terms of Recent taxonomy that is based on soft body, is always problematic. We tested the interrelation of fossil and Recent species classified within the genera *Filogranula* and *Nogrobs* using tube ultrastructural analysis. Attribution of several common Mesozoic species (Jurassic *"Serpula runcinata* J. de C. Sowerby, 1829", *"Serpula cincta* Goldfuss, 1831") to *Filogranula* is widely accepted among paleontologists, while *Nogrobs* is a name originally provided for fossil tetragonal free-lying coiled tubes, and accepted by zoologists for a single Recent species having similar tubes (ten Hove, Kupriyanova, 2009). Ultrastructural investigation has shown that all seven studied species of Recent *Filogranula* (including previously described as *Chitinopoma*) are characterized by the same ultrastructure type (IOP *sensu* Vinn et al., 2008), while Jurassic *"Serpula runcinata"* shows SP structure. In the case of *Nogrobs*, studied fossil material, probably belonging to the type species of the genus *N. vermicularis*, again demonstrates SP structure, while Recent *"Nogrobs grimaldii"* has a multi-layered tube with IOP to SOIOP structure. The primary nature of fossil SP ultrastructures is confirmed by preservation of growth-lines on crystallites and by the high stability of ultrastructure within a large set of related forms. Close examination of tube morphology also clearly separated fossil and Recent species attributed to *Filogranula*, while for *Nogrobs* the difference is not so obvious. The present study shows that direct comparisons between fossil and Recent forms should be made with caution and should be when possible controlled by ultrastructural studies.