Appendix 2. Referee's report of James *et al.* "Nine new species of *Amynthas* from Taiwan .." ms 67183/03.70 by current author (RJB) 8th January, 2004 to *Journal of Natural History*.

"This ms highlights the need for closer cooperation, communication and consensus between taxonomists, earthworm taxonomists in general, Asian earthworm taxonomists and Taiwanese earthworm taxonomists in particular. The delay to review this ms was necessarily to avoid problems of *nomina nuda* of Taiwan species referred to Shen et al. "in press". This referee just learned of that publication and found some miscitations.

The ms proposes nine new "*Amynthas*" species from Taiwan but several descriptions differ only slightly, if at all, or apply to taxa already known. Six of the names are Latin "locative adjectives" ending in "- *ensis*" which is may require caution, especially if they later prove to be introduced or more widespread taxa. I would advise formation of shorter more descriptive and distinctive names.

Authorship of any new taxa under ICZN (1999: Art. 51C, 51E) would be "James *et al.*" unless implicitly stated that a name is the responsibility of less than all of the authors, so that it is to be cited as "B in A, B, & C", or whatever.

Page 1. The ms soon hits an obstacle in the Abstract with *Amynthas* species being put in a *"Metaphire sieboldi*" group. Obviously Sims & Easton's 30-year old informal species-groups are long overdue for revision and in this case a better group representative would probably be *A. aelianus* (Rosa, 1892) that as well as being an *Amynthas* also has simple intestinal caeca. At some stage, someone, somewhere must take the challenge to revise not just *Amynthas* but the all of the "pheretimoids" rather than adding further provisional taxa thereby making this task increasingly onerous.

Page 2 (and Page 18). The other immediate problem is the citation of the *P. bermudensis* synonym of *P. litoralis* as if it were still valid. This must either be supported or justified, otherwise it could be stated that the synonymies of Easton (1984) and Blakemore (2000, 2002) are accepted. It may also be time to decide that *P. litoralis* is ascribed to the family Megascolecidae *sensu* Blakemore (2000) rather than to the family Acanthodrilidae as per Gates (1959; 1972). Similarly citation of other peregrine species should be identified with reference to one or other recent author's family and species concepts (e.g. those of Blakemore, 2002 "Cosmopolitan Earthworms"). However, it is gratifying to see some more recent revisions being supported in contrast to some American publications where *Amynthas diffringens* (Baird, 1869) and *A. hawayanus* (Rosa, 1891) persist as valid taxa for *A. corticis* and *A. gracilis*. The two new Taiwan records of peregrines are important!

Pages 3 and 21. The ecological information obtained during collection (e.g., depth in soil, soil type, trapped, etc.) would be useful for inclusion in species descriptions (as would the nature of the gut contents). Is use of Roman numerals preferable to the more familiar Arabic (as used by Michaelsen, 1900; Blakemore, 2000, 2002), especially for Chinese readers? It is a shame types are fixed in formalin as it makes DNA more difficult to extract; a better idea is to separately preserve in alcohol small tissue samples.

Page 5 and subsequently. I have to question the validity of "*A. nanjenensis*". Is it really different from *A. corticis* and its 40 odd synonyms? These are listed most recently in Blakemore (2002, 2003). Certainly it is part of an *A. corticis* species-group *sensu* Blakemore (2003), but is *A. penpuensis* Shen et al. 2003 to be included? Despite Gates (1972: 178), iridescence of male funnels is sometimes recorded for this species-group (and for *A. gracilis*), although the several morphs are parthenogenetically degraded. If you find viable sperm, then this morph may be closer to the ancestral and biparental population of the complex (also indicative of the region of origin?). Gates (1972: 151; 214) says "Our knowledge of the vascular system accordingly is based mainly on a study of *P. diffringens* and *P. posthuma*", "Bahl's non-contractile hearts of x-xi now seem likely to be only such connectives", and "the absence of hearts in x-xi of *P. posthuma* is no more characteristic of the genus *Pheretima* than are the casts". Somewhere else he also indicated that deletion of hearts may occur independently of parthenogenesis. Note that *A. penpuensis* may also lack hearts in 10. Contrary to the ms authors' argument, it is the usually accepted that the spermathecae rather than the vascular system

provide the most taxonomically useful character, the problem is their deletion and deformation by pathenogenetic degradation (see Blakemore, 2002, 2003).

Page 5 and thereafter. "*A. gajulanus*" is almost certainly the same as *A. corticis* (e.g., see description in Gates, 1972: 178 where he says "hearts in x usually aborted" and also see the descriptions and figures in Sims & Gerard, 1985, 1999; Blakemore, 2002; etc.); moreover, its differences from *"A. nanjenensis*" are morphologically slight.

Page 6. "*A. monsoonus*" is close and probably synonymous to the originally misdescribed and recently restored *A. carnosus* (Goto & Hatai, 1899) and its synonyms (*kyamikia* Kobayashi, 1934; ?*youngtai* Hong and James, 2001; *sangyeoli* Hong & James, 2001) that are known from Japan, Korea and Quelpart Island and from China - Jiangsu, Zhejiang, Anhui, Shandong, Hong Kong, Sichuan, and Beijing. (see Blakemore, 2003 and http://www.senckenberg.de/odes/03-11.pdf). Note that Shen et al. (2002: 484) independently put *A. sangyeoli* in synonymy of *A. carnosus*.

Page 7. Please correct all miscitations such as "*A. fenetrae* (Shen, Tsai, & Tsai, 2003)" that should be *A. fenestrus* Shen et al., 2003 (no braces!) as described in Shen, Tsai C.-F. & Tsai, S.-C., 2003.

Page 8. The first paragraph is speculative and rather misleading. Regarding "*A. huangi*" are the male pores really superficial and, if so, how does it differ from *A. asiaticus*, or not when compared especially to the type species of *Metaphire*, *M. javanica* that Blakemore (2002; 2003) argues is a synonym of *M. californica*? In this latter case "*A. huangi*" would belong to an *M. houlleti*-species group of 40+ taxa.

Page 9. "*A. kaoshihfoensis*" is the same as *A. gracilis*.

Page 11. If cited, "*A. tesselatus*" should be corrected to *A. tessellatus* sub-spp. with proper authorship.

The next two proposed species are mutually similar and are compared to *A. formosae* (and its synonym *A. yuhsi*?) but without inspection of the types (in Leiden and Hamburg). The comparison with species having seminal grooves is very limited: I can immediately find at least six other *Amynthas* species reported with seminal grooves (these are noted on the ms) with which these taxa could be linked, or should they be put in *Metaphire*?

I have not considered in depth the final two proposed species, which however do seem more tenable, as much basic research for this ms is still required and further comment and correction perhaps exceeds a mere referee's task. Some other notes are on the ms.

The figures are adequate (are the scale bars all correct?), I prefer the less truncated illustrations with enlargements of key features and the inclusion of all spermathecae (with their locations, cf. fig. 2C), like those in the style of Blakemore (2002). One figure per page/definition may be more helpful for the student reader/researcher?

Would an appendix with all currently known Taiwan species be useful for further study?
Please ensure correctly published names (and descriptions?) are searchable on the Net. ”