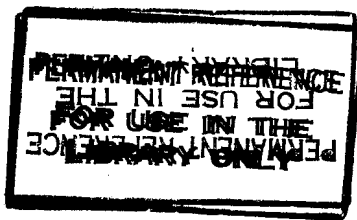


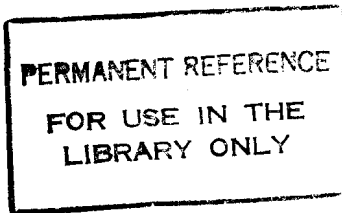
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**DISTRIBUTION AND ECOLOGY OF EARTHWORMS IN SELECTED  
HABITATS IN SRI LANKA WITH EMPHASIS ON SOIL FERTILITY  
AND COMPOSTING**

A THESIS PRESENTED BY

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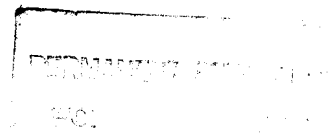
## DISTRIBUTION AND ECOLOGY OF EARTHWORMS IN SELECTED HABITATS IN SRI LANKA WITH EMPHASIS ON SOIL FERTILITY AND COMPOSTING

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Earthworms (Annelida: Oligochaeta) contribute to soil fertility and play a key role in composting garbage. Very little is known about the earthworms of Sri Lanka apart from work done in the mid 1900. With a view to identify soil living earthworms in natural and man – made ecosystems, collections were made from several habitats in 22 sites located in different ecological regions. Based on adult and cocoon morphology, 22 morphospecies of earthworms in 9 families were recorded. These were identified to 16 genera and 15 species and the balance 7 morphospecies awaits formal identification. Six of the families and 9 genera are new records for Sri Lanka. Earthworm cocoons common in soil and leaf litter were easily identifiable to species level based on size, shape, colour and incubation period, than adults. Keys were constructed for the identification of collected species, based on observed external features of adults and cocoons. Distribution of earthworm species in the study sites was found to be determined by altitude (and the associated temperature) and rainfall than soil type.

Of the ecologically different earthworm groups, endogeic forms were the most common and of them, *Pontoscolex corathrurus* was the dominant species in man-made and natural sites. The epigeic earthworms, *Periyonix excavatus*, *Eudrilus eugenia* and *Eisenia foetida*, used in vermicomposting world over were common in most of the study sites.

Earthworm casts recorded a higher level of available plant nutrients than surrounding soil. Furthermore, activity of *Pontoscolex corathrurus* significantly increased plant growth in *Zea maize*, in pot experiments. Bins and tanks specially prepared for vermicomposting yielded nutritively high compost with better particle size than composting without earthworms. The findings on earthworm diversity, improvement of soil fertility and composting using local earthworms have useful field applications that should be popularized.

