

5. CONCLUSIONS

The GGE has co-existed with agricultural land use for over 100 years, apparently surviving major changes to its habitat mostly associated with agricultural development and expansion. However, the overall effects of these habitat changes on GGE survival and distribution are not clearly understood. Identifying the effects of agricultural and land management practices on the GGE remains crucial to the conservation management of this species. A key requirement in furthering our understanding of threatening processes on GGE populations is to more clearly understand the factors responsible for influencing earthworm distribution.

Active populations of GGEs were found at 6 sites in 4 distinct habitat types within the farm study area. These included; minor creek and drainage lines, flat to gentle sloping alluvial terraces above present flood levels, steep south facing hillslopes with terracettes and colluvial footslopes without terracettes. Examination of the GGE distribution at these sites in relation to geomorphology of the farm site identified various landscape features that may play a role in influencing GGE distribution. These include the nature and depth of the soil, slope, micro-topography and aspect of the steep hillslopes, in addition to site soil and surface hydrology. Density of revegetation may also impact upon GGE populations with earthworms found in the more open sections of the re-planted stream bank. Each of these habitat types is influenced by different geomorphological processes and may require different management considerations for GGE conservation.

The main processes identified that may require mitigation for GGE conservation include soil erosion, changes in soil and surface hydrology, and micro-topography of slopes. Agricultural activities that may contribute to these processes include: cultivation, stocking rates (pugging), infrastructure development, water run-off, effluent production and treatment, dams and drainage. The density and nature of revegetation of GGE habitat may need re-considering.

Management options for GGE conservation are to be developed jointly with DPI Agriculture staff, land-holders and other key stakeholders in the final phase of the project. GGE are often very localised in their distribution; hence managing and protecting populations by abatement or exclusion of threats can be feasible and effective. Farmers will usually be able to include habitat protection in their property plans (e.g. for pasture development, fence lines, tracks, drainage, dam construction) to assist conservation of the GGE. However, broader landscape factors, such as soil hydrology dynamics upslope of a GGE site, could have major local impacts on GGE populations.