

**Lockyer Valley Regional Council
Community Environmental Grant
2013 - 2014**

**Citizens of the Lockyer Inc.
Invertebrate Fauna Survey
Western Lockyer Valley**

**Final Report
Summary**

Introduction

A structured survey of invertebrate fauna was carried out by Rod Hobson and Wesley Jenkinson from 8 -12 March 2014 inclusive under the auspices of the Citizens of the Lockyer Inc. (CotL). Financial support for the survey was provided by a Community Environmental Grant from the Lockyer Valley Regional Council (LVRC). This survey augmented a database of incidental invertebrate records collected from the beginning of November 2013 until the end of April 2014 i.e. the period from the receipt of the above grant until the completion of the survey report.

This grant was the third of three grants received from the Lockyer Valley Regional Council by CotL over successive years. Each has focused on building up a comprehensive database of the fauna of the Upper Lockyer Valley, the compilation of which commenced in October 2011 and is currently still in progress. In addition to the three structured fauna surveys financed through grants from the LVRC, all other records have been obtained through the efforts of local landowners and other interested parties working on a volunteer basis. It is intended that this database be available to local government agencies, NGO's, educational and recreational bodies, professional consultants and members of the public who have a vested, scientific or general interest in the fauna of the western Lockyer Valley. All data are stored on the Department of Science, Information Technology, Innovation and the Arts (DSITIA) WildNet website and can be accessed through that forum.

To date 597 species of fauna have been recorded including 287 vertebrates and 310 invertebrates.

Rationale for Invertebrate Survey

The first two surveys funded by LVRC and carried out under the auspices of CotL focused on vertebrate fauna, that is, the more charismatic animals such as mammals, birds and amphibians. This follows the general trend with such community grants, as vertebrate fauna is better known and more widely accepted by the community in general. The pool of expertise required to conduct vertebrate fauna surveys is very much larger and does not require the higher level of expertise that is required to do comprehensive and rigorous invertebrate survey work. This has led to a misconception that invertebrates are not as important a component of a healthy ecosystem as are vertebrates. However, this is far from the truth. Invertebrates form the base of the food chain and the health of a natural community depends on a healthy and viable invertebrate community. Invertebrates are also important in recycling of plant and animal matter, soil enrichment, aeration and drainage and in helping maintain the balance between species, either botanical or faunal, that left unchecked can have a serious biological, ecological or economic impact.

Invertebrates are animals without backbones and make up about 98% of the animal kingdom. These are the "creepy crawlies" of popular imagination such as spiders,



*Rod Hobson catching dragonflies
Sawpit Gully Road*

centipedes, earthworms, slugs and snails, insects and so on. Whilst quite a number are detrimental, most are either benign or actually beneficial to human beings. Ants, for example, are major predators of other insect pests and are also extremely good bioindicators of environmental health. Cotton fields with a high population of spiders, for instance, have been found to require reduced applications of insecticides. A healthy population of dragonflies and damselflies is widely accepted as an indication of healthy waterways and wetlands. Butterflies, moths, bees and beetles are extremely important as pollinators of plants including commercial crops. Others such as crustaceans and molluscs are of great economic importance

as human food items. Examples are endless. It was with these considerations in mind that it was decided by the CotL to embark on this invertebrate survey in order to assess the variety and health of some orders of invertebrates within the western Lockyer area. In addition, while the vertebrates and higher plants of the area are now relatively well known, knowledge of the invertebrates is still scant.

For this survey it was decided to concentrate on three orders of the more common invertebrates, all of three of which were insects. These were the Lepidoptera (butterflies and moths), Odonata (dragonflies and damselflies) and Orthoptera (grasshoppers, locusts and katydids). Other invertebrate fauna was also documented during the survey period as incidental records, but were not targeted specifically. Despite the extremely dry conditions, which had severe effects on the results of the Odonata survey, moths and butterflies as well as the orthopterans were well represented, as reference to the survey results will confirm.



The Meadow Argus was a frequent find during the survey



Satin Azure butterfly *Ogyris amaryllis*

Of particular interest was the finding of a good population of the Satin Azure butterfly *Ogyris amaryllis* at Rockmount. This butterfly is known by the nominate species *Ogyris amaryllis amaryllis* and the western subspecies *Ogyris amaryllis meridionalis*. The nominate species is coastal to subcoastal and the area of overlap of these two butterflies has long been known to be in the longitudes of the Lockyer Valley. Unfortunately, only two populations of these butterflies were ever known from the Lockyer, from the University of Queensland campus and an area of bullock

behind the Helidon Spa Park. Neither of these populations has been sighted for many years and it was thought that the butterfly might have been extinct in the area. It was not known exactly which subspecies was represented in this area either but it now appears from specimens taken during this survey that it is the western subspecies *meridionalis*. This is a major find that was facilitated by the generous grant from the Lockyer Valley Regional Council and the enthusiasm of CotL committee and members. Wesley Jenkinson intends to carry out more investigation on the distribution of this butterfly in the Lockyer Valley in the upcoming spring and summer.

The Lockyer Valley is an important region of great agricultural significance. It also still retains significant areas of intact bushland and some zoologically important wetlands. These wetlands, in particular, are now very well known within the bird watching community and are regularly visited by local, interstate and overseas birdwatchers. This obviously brings economic advantages to local tourist-orientated industries, as well as enhancing the area in the eyes of the ornithological community. The health of these wetlands and of their bird, fish, aquatic mammals, reptiles and frogs depends ultimately on a healthy and viable aquatic invertebrate community. Hence one of the target groups of this survey was the dragonflies and damselflies. These are top order predators in both their aquatic larval and terrestrial adult stages and a healthy dragonfly/damselfly population indicates a healthy aquatic ecosystem. These insects will remain a focal point of further work by the CotL.



Wes Jenkinson catching butterflies



A male Blue Skimmer dragonfly
Orthetrum caledonicum

Other insect groups that it is proposed to target in the future include those that not only have a vital ecological role, but are also of economic importance to the area. These include ants, especially as the serious pest species, the Fire Ant has already been recorded in the Lockyer Valley. The other group of economic importance is the dung beetles, both introduced and native species. Pasture pollution by cattle dung is a serious ecological and economic problem, as is the spread of Bush Fly and Buffalo Fly, which utilise cow dung for breeding. The introduction of African species of

dung beetle by the CSIRO to ameliorate this problem has been a very successful programme in biological control. It is the CotL's intention to conduct a survey of dung beetle diversity in the western Lockyer, with an associated workshop for interested landowners in the upcoming spring/summer of 2014.

Conclusion

Through the Community Environmental Grants of the Lockyer Valley Regional Council and the enthusiasm of members of the CotL, landowners and interest groups, we have now built up a database of both vertebrate and invertebrate fauna, plants and fungi of the western Lockyer that would be as comprehensive as any such database anywhere in Queensland. Through submission of reports such as this, this information becomes readily available to Council. It is hoped that the Citizens of the Lockyer and the Lockyer Valley Regional Council can work together to continue to build on this database in to the future.

Credits: Photo of Satin Azure butterfly by Wes Jenkinson.

All other photos by Robert Ashdown

Permission is given for the Lockyer Valley Regional Council to reprint all photos appearing in this report.