THE VICTORIAN *FLORA AND FAUNA GUARANTEE ACT*: FLAGSHIP LEGISLATION FOR INVERTEBRATE CONSERVATION

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Current knowledge of Australian invertebrates is very limited and there is a desperate need to rectify this. Some of the existing legislation regarding invertebrate conservation is based on the incorrect premise that collecting is the major threatening process and that its control is the main way to conserve invertebrates. Such legislation seriously inhibits the attainment of knowledge that collecting facilitates. In Victoria, the *Flora and Fauna Guarantee Act* 1988 has greatly benefited invertebrate conservation through increased funding for surveys and research. More importantly, the Act has made government agencies more aware of their responsibilities and increased public awareness and participation in invertebrate conservation programs. □*Invertebrate, conservation, legislation, flagship, Victoria, Australia.*

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Until recently, invertebrates have not been seriously considered as worthy of conservation. There are many reasons for this, including a relatively poor understanding of our native invertebrate fauna. Moreover, invertebrates have a severe public image problem — at best, they are maligned and misunderstood: at worst, totally ignored. These perceptions exist in educational institutions, the general public and conservation agencies. A concerted effort is needed to redress this 'persona non grata' status.

Historically, wildlife protection legislation has not aided the invertebrate conservation cause and, in many cases, it has been misleading and often detrimental. Deficiencies in protective legislation in Australia have centred on the protection of individual specimens rather than habitat protection, control of threatening processes, and the conservation of rare and endangered species (Rawlinson, 1981).

Legislation that promotes the protection of specimens is often based on the false assumption that collecting is the major threatening process (Yen & Butcher, 1994). The actual effects of collecting, however, are minor compared with the effects of alteration and destruction of habitats. The value of protecting invertebrate species and not their habitats is, at the very least, dubious.

In most cases, 'protection' is not synonymous with conservation, and often not effective. The priorities for species known to be at risk should be appropriate recovery plans that include legal protection; identification and alleviation of the causes of decline; and public education and involvement. Most effort for invertebrate conservation needs to be directed at the habitat level rather than at the single species level. Even passive habitat protection, such as establishment of reserves — while an important first step — might be inadequate unless there is active management to reduce the causes of decline (Warren, 1992).

The question is then: Can protective legislation be of benefit to the conservation of invertebrates? It is our opinion that the Flora and Fauna Guarantee legislation passed by the Victorian Government in 1988 has the potential to be extremely beneficial, particularly in terms of promoting of invertebrate conservation awareness and actually achieving on-ground improvements. The Flora and Fauna Guarantee should not be viewed just as legislation, but more as an approach to conservation.

SIGNIFICANT NEW FEATURES OF THE *FLORA AND FAUNA GUARANTEE ACT*

The *Flora and Fauna Guarantee Act* (hereafter FFG Act) aims to guarantee that Victoria's flora and fauna can survive, flourish and retain their potential for evolutionary

development in the wild.

The significant feature of the FFG Act compared with past or existing wildlife legislation is that it can allow for the protection of habitat. It allows for the recognition of ecological communities as entities able to be protected.

It has long been recognised that there are too many invertebrate taxa for a single species approach to invertebrate conservation to be successful for most species. Funding is generally limited and therefore prohibitive of this approach. The most widely accepted or touted method for conserving invertebrates is to protect their habitat (New, 1984).

The protection of ecological communities is an approach to invertebrate conservation that has perhaps been underestimated. By conserving a community of organisms there is an umbrella affect that guarantees the inclusion of a greater variety of taxa, including unknown taxa. This then is truly a preventative approach for ensuring the continued survival of species and the conservation of biodiversity.

Another approach is to prevent or at least reduce the direct and indirect impacts of potentially threatening processes (PTPs) on invertebrate habitat. The identification of PTPs and the implementation of management practices aimed at removing or reducing these threats is a key way of conserving flora and fauna, including invertebrates.

Before the advent of the FFG Act, wildlife protection in Victoria was controlled by the *Wildlife Act* 1975. The potential to list invertebrates for protection under the *Wildlife Act* did exist. This, however, was extremely difficult to do. For example a number of attempts were made to list the invertebrates from the IUCN Red Data Book (Wells et al., 1983), but these were all unsuccessful. Once any species of fauna is listed under the FFG Act, it is automatically protected under the *Wildlife Act*.

A problem with many types of legislation is that they have not allowed for valid research into appropriate management requirements of protected taxa. The FFG Act is not prohibitive of research because bona fide researchers are able to obtain permits to work on listed taxa and add their findings to the information base.

The final significant new feature of the Act is the emphasis on public participation. Active involvement of land owners and members of the general public is encouraged because conservation is not restricted to nature reserves. The ultimate success of the FFG Act, and other relevant conservation legislation, will depend on public involvement. In this, the potential of the FFG Act to significantly enhance understanding of invertebrate conservation is considerable.

KEY COMPONENTS OF THE ACT

NOMINATION PROCESS (LISTING — DELISTING)

The FFG Act aims to guarantee the survival of the State's flora and fauna through a process of listing of threatened species, communities, and PTPs. The FFG Act covers all native taxa: the only exceptions being those specifically excluded such as human disease organisms. Any taxon or community or PTP may be nominated for listing by any individual or organisation.

Once a nomination is made, the Scientific Advisory Committee (SAC) considers the validity of the nomination based only on scientific evidence, and a preliminary recommendation is advertised widely in the print media. After a period for public comment, the SAC considers any additional scientific information provided in submissions. A final recommendation is made to the Minister as to whether or not the nomination should be listed.

Listing is the process by which nominated items can be added or removed from Schedules of the FFG Act. It should be noted that the Minister has the ultimate power to accept or reject any recommendation made by the SAC.

Delisting is the process whereby listed taxa and communities that are subsequently found to be no longer under threat — or PTPs that no longer pose a threat — are recommended to be removed from the Schedules. The process is basically the same as for listing with any individual or organisation being able to nominate an item for delisting.

SCIENTIFIC ADVISORY COMMITTEE

The FFG Act established an independent SAC, which is made up of seven government and non-government scientists with expertise covering a range of relevant disciplines. It is the SAC's responsibility to advise the Minister for Natural Resources of nominations for listing, and on other relevant conservation issues when requested to do so by the Minister. The SAC is appointed by, and only answerable to, the Minister.

ROLE OF THE MINISTER

The principal role of the Minister with regard to the FFG Act is to give the final approval or

disapproval for the listing of an item. So far all the recommendations made by the SAC have been accepted by the Minister.

THE DEPARTMENT

Although the Department of Conservation and Natural Resources (DCNR) is the agency responsible for enforcing the legislation, other public authorities are required to have regard for the objectives of the FFG Act. The main improvement associated with this, in terms of invertebrate conservation, is that DCNR is required to include invertebrates as part of its charter.

ACTION STATEMENTS

Action statements are perhaps the most crucial part of the FFG Act, in that they focus attention on what needs to be done, and outline management requirements. DCNR has to prepare an action statement for all listed items, and should consider socio-economic factors as well as scientific evidence. Any interested groups can request to be involved in the preparation of the action statement. When an action statement is prepared it gives guidance to both the general public and conservation staff for action priorities. Action statements are written as public documents that are designed for both land managers and the general public.

An action statement provides a summary of the current available information on the listed item; identifies areas where more information is required; outlines action required to obtain this information; identifies the necessary people who should be involved in this process; and finally specifies recommended management actions based on all the relevant information obtained. Action statements are reviewed so that additional information can be considered as it comes to light, and to assess the succes of management recommendations that have been implemented.

A common misunderstanding surrounding the FFG Act is the confusion between the listing process and subsequent management. The SAC only considers nature conservation issues when assessing the eligibility of a nomination for listing. Management of listed items, including socio-economic issues, is the responsibility of DCNR and other land managers.

CRITICAL HABITAT

The FFG Act allows for determination of critical habitat for listed items, although it is not mandatory. DCNR broadly defines critical habitat to include areas considered necessary to the survival and recovery of the taxon or community. The inclusion of areas that cannot currently support a population of the taxon or community may also be necessary.

INTERIM CONSERVATION ORDERS

An Interim Conservation Order (ICO) is a mechanism by which immediate and comprehensive protection can be enforced. An ICO may only be made by the Minister after appropriate socio-economic factors have been taken into consideration. Should loss of income or some other damaging effect occur as a result of the ICO then compensation is payable. Before an ICO may be enforced a critical habitat must be determined.

ICOs are intended to be used as a last resort. The fact that none have been made indicates the successful implementation of the FFG Act, with its emphasis on education and cooperation, rather than strict legal controls.

THE STRATEGY

The FFG Act required the preparation of a Strategy that sets out how the objectives for flora and fauna conservation and management are to be achieved. A draft Strategy was released in 1992 for public comment (Department of Conservation and Environment, 1992).

CONSEQUENCES FOR INVERTEBRATE CONSERVATION

ATTITUDES AND RESPONSIBILITIES

There are two important positive impacts the FFG Act has had on DCNR. Firstly, as mentioned earlier, invertebrates can now be recognised as wildlife and perforce have to be included in the main charter of DCNR. This did not happen until 1990, when the FFG Act was actually empowered in Regulations.

Secondly, DCNR is now committed to collecting information on vertebrates, plants and invertebrates together. The importance of invertebrates in the big picture is beginning to be realised.

A drawback to the relatively sudden inclusion of invertebrates on the conservation agenda in Victoria is that there is a severe shortage of staff with invertebrate training in DCNR who actually work on invertebrate-related issues. The consequence of this is that when relevant conservation work regarding invertebrates is required, it often has to be contracted out.

PUBLIC PARTICIPATION

The FFG Act has been designed to encourage public participation. Opportunities for the public to become involved in the process are present in the processes of nominating and delisting. During the preparation of action statements, all relevant land owners likely to be affected should be consulted. Community involvement is also solicited where the FFG Act allows for public comment. The following FFG Act activities are all subject to public comment: preliminary recommendations for listing; management plans; conditions of ICOs; and any subsequent compensation arrangements

The Eltham Copper Butterfly (*Paralucia pyrodiscus lucida*) rose to prominence as a conservation issue in the outer Melbourne suburb of Eltham in the late 1980s (New, 1991). The butterfly had been found in the Eltham area since 1938, but had undergone a steady decline and was believed to have become locally extinct. In 1987 a number of colonies were found and conservationists called for protection. A considerable publicity campaign and fundraising effort ultimately resulted in the purchase of a small area of private land, previously destined for subdivision. These activities, along with policy initiatives, resulted in the protection of key habitat areas for the butterfly (Ahern, 1993).

Continued enthusiasm for the protection of this small butterfly exists with the 'Friends of the Eltham Copper Butterfly Group', which participates in monitoring the population of butterflies in the Eltham area. The Land for Wildlife scheme, a DCNR initiative, is also involved with land holders in the Eltham area who believe that they have butterfly habitat on their property (Ahern, 1993).

The Giant Gippsland Earthworm (*Megascolides australis*) is one of the world's largest earthworms and is restricted to a relatively small area in South Gippsland (Yen et al., 1990). It is listed in the IUCN Red Data book as Vulnerable (Wells et al., 1983). This relatively unattractive invertebrate has received considerable attention from local communities in the Bass River Valley. The local Shire has been supportive of research on the worm and sponsored an exhibit at the Coal Creek Historical Park. There is also an annual festival named after the worm which takes place in Korumburra (Yen, 1993). Land for Wildlife has been successful in encouraging local land owners to participate in the conservation of the species by producing a pamphlet that outlined how to recognise and protect the worm's habitat (Van Praagh, 1991; Yen, 1993).

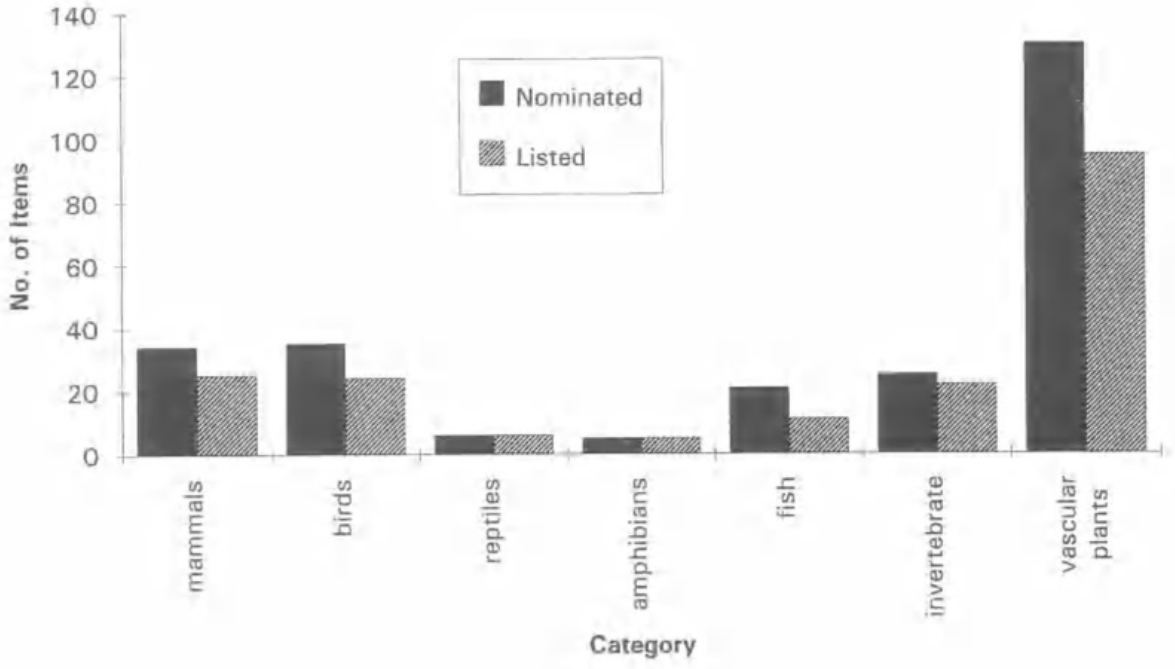

FIG. 1. Breakdown of nominations and listed taxa according to major taxonomic categories.

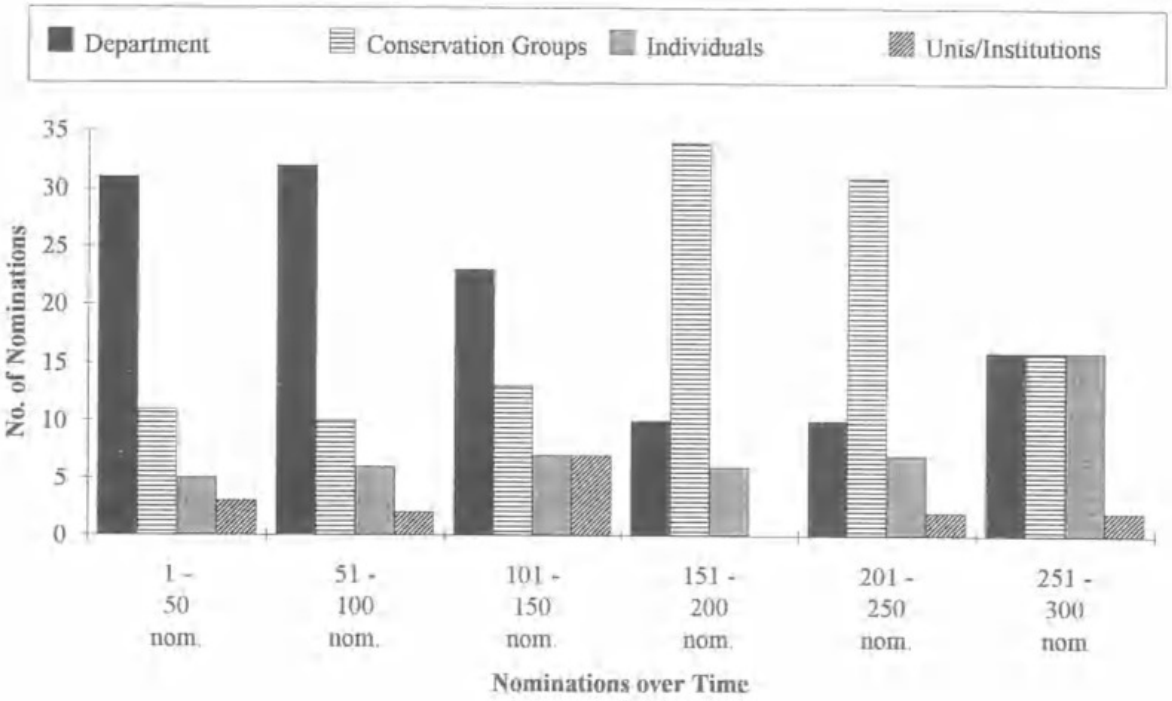

FIG. 2. Breakdown of nominations, in 50 unit blocks, made under the *Flora and Fauna Guarantee Act* by various organisations.

From this example, it is evident that cooperation with land owners is the preferable to imposing strict legal controls on them. Furthermore, the public interest in the Giant Gippsland Earthworm indicates that it is not necessary to have an attractive species as a flagship taxon for invertebrate conservation.

An invertebrate community known as Butterfly Community No. 1 on Mt Piper in Victoria has also received considerable support from the local community and council (Jelinek et al., 1994).

MISCONCEPTIONS ABOUT THE FFG ACT

One of the problems encountered in the FFG Act is that people try to stop development at a particular site by basing the nomination around the site. However a site cannot be listed unless it contains a threatened taxon or community. An example of this can be seen from the nomination and subsequent rejection of the Altona Skipper Butterfly (*Hesperilla flavescens flavescens*). Many lepidopterists considered the butterfly to be of significant conservation value, but through the nomination process it became evident that the butterfly was more widespread than originally believed (Crosby, 1990), and the only site threatened was Altona. A further attempt was made to protect the local population at Altona by proposing a site-based nomination for special consideration: this was also rejected (SAC, 1991a,b).

ACHIEVEMENTS

So far a total of 321 nominations have been received by the SAC. Of the nominated items, the majority have been accepted with only 46 being ineligible or invalid. Many of the taxa listed have been vascular plants and the only delisted taxon was also a vascular plant (Table 1).

When the nominations and listed taxa are broken down into taxonomic groupings, the number of invertebrates listed is encouraging, and comparable to that of the major vertebrate groups (Fig. 1).

Apparently, invertebrates protected in other States have mainly been collectable, attractive insects such as butterflies and jewel beetles. With Victorian invertebrates, 20 non-marine and two marine taxa, and one non-marine and one marine community have been listed under the FFG Act. Action statements for the listed invertebrates have either been published or are in preparation.

Only a few of the listed taxa are butterflies, none of which are highly prized as collectable

TABLE 1. Numbers of nominations received and assessed by the Scientific Advisory Committee, Flora and Fauna Guarantee.

	Taxa	Communities	Potentially Threatening Processes
No. of Nominations	265	34	22
No. of Listed	191	14	12
No. of Ineligible	16	8	2
No. of Delisted	1	0	0
No. of Invalid	13	7	0

TABLE 2. Invertebrates listed under the *Flora and Fauna Guarantee Act* 1988.

TAXA
bull ant *Mymecia* sp.17
Small Brown Azure Butterfly *Ogyris otanes*
Large Ant-blue Butterfly *Acrodipsas brisbanensis*
Small Ant-blue Butterfly *A. myrmecophila*
Eltham Copper Butterfly *Paralucia pyrodiscus lucida*
Hemiphlebia Damselfly *Hemiphlebia mirabilis*
Giant Gippsland Earthworm *Megascolides australis*
marine opisthobranch *Rhodope* genus
marine opisthobranch *Platydoris galbana*
freshwater amphipoda *Austrogammarus australis*
Orbost Crayfish *Euastacus diversus*
Otway Stonefly *Eusthenia nothofagi*
caddisfly *Archaeophylax canarus*
stonefly *Riekoperla. isosceles*
stonefly *R. intermedia*
Mt Donna Buang Wingless Stonefly *R. darlingtoni*
Alpine Stonefly *Thaumatoperla flaveola*
stonefly *T. alpina*
planarian *Spathula tryssa*
Warragul Burrowing Crayfish *Engaeus sternalis*
Mallacoota Burrowing Crayfish *E. mallacoota*
Narracan Burrowing Crayfish *E. phyllocercus*
COMMUNITIES
San Remo Marine Community
Butterfly Community No.1

items (Table 2). The remainder of the listed invertebrates are not collectable species in terms of desirability.

Overall, the highest number of nominations has come from DCNR and conservation groups (Fig. 2). An interesting point is that universities are not nominating many items, which is perhaps unexpected and of concern. Individuals are nominating more items over time, perhaps reflecting an increasing awareness of the FFG Act.

CONCLUSION

The *Flora and Fauna Guarantee Act* should be viewed as flagship legislation for native flora and fauna, especially for taxa that are usually omitted from the conservation agenda. As with most legislation, the FFG Act is not perfect, but it can be used to successfully wave the flag for invertebrate conservation in a number of ways. The most important are the recognition of invertebrates as wildlife and the raising of public awareness of them. The success of conservation of invertebrates in Victoria will ultimately depend on community support for the FFG Act. The results so far are very encouraging.

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