

West Gippsland Catchment Management Authority



**BACKGROUND DOCUMENTS**  
**Invasive Plants and Animals Strategy**

2010 - 2015



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#### Availability

This document is also available in PDF format on the WGCMA website [www.wgcma.vic.gov.au](http://www.wgcma.vic.gov.au)

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## Document 1: Logic model for the West Gippsland Invasive Plants and Animals Strategy

The goals just noted have been translated into an overall logic for this strategy. The purpose of this logic is to show how high level outcomes are linked to detailed activities, partners and resources. The logic was developed using the following hierarchy:

- Long term outcomes –10 – 20 year timeframe
- Short term outcomes- things that can be measured over the life of the strategy
- Outputs – the concrete things produced by working on IPA management
- Activities – the day to day work
- Partners- those directly engaged in IPA work in this region, and
- Resources- the staff, funding and in-kind work invested in IPA management

Resources	Partners	Activities	Outputs	Short term outcomes (life of this strategy)	Long term outcomes
Private land owners resources spent on IPA management; DPI staff and resources; Parks Victoria staff and park management resources; DSE staff and resources invested in invasive plant and animal management; Australian government NRM programs; Local governments weeds and pest animals programs; VicRoads roadside weeds programs; Water authorities weeds programs; Melbourne Water streamside frontage program	Community members as private land owners and managers; industry members and their organisations, community-based NRM groups like Landcare and 'friends of' groups;	Community is invited to participate in reviews of IPA priorities, risk assessments for new IPA species and other activities that are part of the implementation of the IPA strategy.  Education and awareness raising is part of all IPA projects in the region.  Community is invited to take roles in IPA projects.	<b>Community participation</b> in IPA projects and works continues at levels comparable to current levels.	Community members continue to participate in the full range of IPA programs from surveillance through to on ground works.  Landcare and other similar groups continue to play coordination and leadership roles in IPA projects across the region.	The West Gippsland community is aware of invasive plants and animals in their region and continues to be motivated and actively involved in their management.
	Private land owners and managers; Community-based natural resource management groups like Landcare;  Local governments particularly their environment or PPA officers;  HVP Plantations and other forestry managers; Non-government environment organisations like Greening Australia.  ALL State government agencies who have land management responsibilities, but in particular:  Department of Primary Industries  Department of	Establish a process for identifying high-risk IPAs is documented based on risk management principles.  Surveillance programs monitor for new and emerging weeds  Regular meetings between ALL organisations within the region who are involved in managing IPAs  Regular meetings between this region and its neighbors focused on preventing new and emerging IPAs.  On ground eradication work.  Highest risk vectors are identified and actions taken to reduce the risk.	An up-to-date list of high risk species (in addition to lists of declared species)  <b>Surveillance</b> work has identified and mapped occurrences of high risk species.  Improved <b>coordination</b> of weed and pest animal management through increased community capacity and effective partnerships  The establishment of a <b>forum</b> or group to focus on preventing new weeds and pest animals from entering the region, which includes stakeholders in IPA management in <b>West Gippsland and its neighbouring CMA regions</b>  Documentation of on ground treatments to eradicate high risk IPAs  <b>Vectors</b> for new and emerging IPAs are identified and plans are developed to address them.	State action to prevent introduction of new weeds and pest animals into the region is supported.  All State Prohibited Weeds and Regionally Prohibited Weeds known to occur in 2009 are managed for eradication and therefore will not have the opportunity to set seed.  Support state action to prevent, and manage towards eradication of all new and emerging pest animals within the region.  Government authorities and agencies with land management responsibilities use the IPA strategy to guide their IPA eradication work.  Any additional IPAs (non-declared) identified as high risk for West Gippsland are targeted for eradication.	New or emerging high risk species (not restricted to 'declared' species) are prevented from establishing in the region and eradicated when they are found
		Establish a process of identifying species that should be targeted	A <b>list of species</b> that are the West Gippsland region's targets for <b>containment</b> .	Species targeted for containment in 2009 are still being managed for	Species that, for West Gippsland, are targeted for containment are

	<p>Sustainability and Environment Parks Victoria Adjoining catchment management authorities Managers of linear tracts of land including: Southern Rural Water Melbourne Water Gippsland Water South Gippsland Water VicRoads Vline SP AusNet</p>	<p>for containment is developed based on risk management principles. On ground work to eradicate isolated infestations of target species and contain and reduce the size of the parent infestations. Highest risk vectors are identified and actions taken to reduce the risk.</p>	<p><b>Action plans for containment</b> of these target species are prepared focusing on vectors as well as treating infestations. <b>Core infestations</b> of species targeted for containment have been <b>identified</b>. <b>Surveillance</b> has identified <b>satellite infestations</b> of these target species. <b>Containment</b> works that are focused on the targeted species, result in infestations either shrinking or getting no worse.</p>	<p>containment – it is recognised that containment is forever. Core infestations of these target species are being actively managed to avoid further spread. Satellite infestations of these target species are quickly identified and managed (eradicated). Government authorities and agencies use the IPA strategy to guide their work on containment target species.</p>	<p>contained and prevented from spreading across the region</p>
	<p>Identified land managers associated with the asset including both public and private land managers.</p>	<p>Local management plans, which include IPA work, are prepared by local land managers  Treatment of IPAs, using education, extension and enforcement  Areas of infestations are treated according to best practice (eg. treatment prior to seeding).  Vectors for invasion of IPAs that threaten these assets are identified.</p>	<p>In relation to priority assets: <b>Local management plans</b> that reflect biosecurity principles, particularly the need to take an integrated approach (meaning they deal with all the issues, not just IPAs, and all tenures) <b>Measures of impact</b> of IPAs on priority assets will decrease – eg. area of a species targeted for eradication, area where rabbit numbers have been reduced to below the regeneration threshold, or number of stock lost due to wild dogs. <b>Vectors</b> that promote IPA threats to these assets are addressed. <b>Community actively participates</b> (eg. Landcare group involvement) in asset treatment work.</p>	<p>High value assets are assessed for threats and determined if IPA is a priority for management Impact of target IPAs on priority assets is reduced. Assets where the IPA threat is considered lower risk, are monitored regularly and any important changes acted on. Assets where the IPA threat is unclear are assessed to fill these information gaps. As a result, the risk to these assets is clarified, and they are determined as either priorities for action now or they become part of the monitoring program for potential future action. All land managers associated with priority assets work together to address IPA threats to those assets.</p>	<p>The condition of identified high value assets in the region, under threat from IPAs, is improved or maintained</p>
		<p>Research or investigations to fill knowledge gaps.  A process to review priorities is established (governance process)</p>	<p>In relation to assets that are priorities for future action, or for research:  A system to monitor IPA threats to these assets is established.  Asset priorities are re-visited regularly as knowledge improves or information changes.</p>		

## Document 2: The asset protection prioritisation method

### 2.1 West Gippsland's assets

The DPI-DSE Guidelines for Preparing Regional Pest Plans define assets as 'the biophysical or physical elements of the environment we are trying to protect. The desire to protect these assets is due to the social, economic and environmental services which they provide.' In practice this means things like productive agricultural land, areas of remnant native vegetation, indigenous or European cultural heritage sites, threatened and endangered native species, water supply infrastructure and rivers are all examples of assets.

Important assets across West Gippsland have already been identified in documents like the region's Biodiversity Action Plans (which lists 'natural assets' for each bioregion), the West Gippsland River Health Strategy (which lists sub-catchments by environmental, social and economic value) and the West Gippsland Salinity Management Plan 2005 (which lists the assets at risk from salinity). Similarly, the CMA (in partnership with the Gippsland Integrated Natural Resources Forum, GINRF) produces a report card each year, which presents 'an assessment of the environmental condition and stewardship of 18 key natural assets' from across the region. This list (excluding those assets that are primarily found in East Gippsland) was used as a starting point for the asset priorities for the IPA Strategy.

The GINRF assets in West Gippsland used in the 2008 report card are:

- Macalister Irrigation District
- Thomson River
- Latrobe River
- Non-irrigated dairy farming (Warragul, Drouin, Leongatha, Korumburra, Mirboo North, Thorpdale and Meeniyan)
- Strzelecki Ranges
- Corner Inlet
- Wilsons Promontory
- Alpine National Park
- Gippsland Lakes
- Ninety Mile Beach

In the 2009 report two more assets were added:

- Bunurong Marine National Park
- Red Gum Plains

In this process we started with these assets and invited regional stakeholders to either clarify these assets (eg. which parts of the Thomson River) or nominate other assets that they believed should be considered under this strategy. Stakeholders consulted at this stage of the process included local government, DSE, DPI, Parks Victoria, VicRoads, Landcare, primary industry organisations, Water Authorities, and the CMA.

In all, this process identified 27 assets that were analysed further. Identifying and describing the region's assets is only the first, and perhaps the easiest, step in the prioritisation process.

## **2.2 Value and significance of these assets**

For each of the 27 assets identified, information was gathered from existing sources to describe its value to the community. This description of the asset value culminated in classifying it as being of high, very high or exceptional significance to the region. The following criteria were used to guide this estimate:

- Exceptional: the asset is nationally or internationally recognised (formally) as extremely important. This might include Ramsar listed wetlands, nationally listed vegetation communities and species or priorities under national programs. A good example of an exceptional asset is the Gippsland Lakes.
- Very High: the asset is very important at the State or regional level and may be listed as a priority for State or regional programs (though not national).
- High: the asset is important and may be noted in regional and local strategies and plans.

## **2.3 Threats from invasive plants and animals**

Step three in this process focuses on the question of the impact that invasive plants and animals have on an asset.

In this step, stakeholders and technical experts on the assets were asked to describe the invasive plants and animals that threaten the values of that asset. For the purposes of priority setting, it is necessary to estimate the ultimate impact that these threats could have on the assets concerned. It is important to understand the potential damage that an invasive plant or animal will do to an asset.

Having described the IPAs threatening an asset, stakeholders and technical experts were then asked to estimate the loss of value that would result from not working on the threats over the next 5 years. The specific question was:

Without any work on these threats over the next 5 years, how damaged (from IPAs) will this asset be in 20 years time?

The possible answers were low (0-25% loss of value), medium (26-50% loss of value), high (51-75% loss of value) or very high (76-100% loss of value).

This proved to be a challenging question for most participants, mainly because there is little objective scientific information available from which these estimates could be calculated. For the most part, estimates were made based on local knowledge and historical experience. Even so, in some cases the potential damage from one particular weed or pest animal was so great that the estimates were relatively easy to make.

## **2.4 Feasibility of managing IPA threats**

The fourth and final piece of information gathered related to the feasibility of either reducing or eliminating the threat posed by an invasive plant or animal. Feasibility questions are critical to priority setting because if it is not actually possible to address a threat to an asset (for whatever reason) then this asset should not be considered an immediate priority for on-ground action.

Three questions were used to assess feasibility. They were:

1. Is there evidence that there are effective management actions that can be taken to manage the IPA threat to THIS asset?
2. Is there a reasonable chance that the management actions required will be taken by the relevant land managers?
3. Do you expect climate change to significantly increase the IPA risks to this asset?

The objective of this set of questions was to clearly establish whether there are known and effective treatments of the IPAs threatening that asset and whether the land managers who would need to take these actions were likely to do so. The logic here is that for an asset to be a priority for on-ground action, there needs to be known and effective actions that are likely to be taken by the land managers concerned.

An additional question on how climate change is expected to affect the IPA threats to that asset was also asked. This was aimed at identifying any situations where climate change may either remove a threat (therefore lowering the need to act now) or significantly increase a threat (perhaps increasing the need for urgent action).

## 2.5 Information used throughout this process

Wherever possible objective and authoritative information sources were used throughout this process. In some cases this meant that databases managed by State programs were sourced to provide information on assets, while in other situations there was little published information available and local expert opinion was called upon. Table lists the formal information resources that were used during this process.

**Table 1. Information sources used for asset protection analysis.**

<b>Subject</b>	<b>Information source</b>
Native vegetation and threatened species	Actions for Biodiversity Conservation (ABC) database Native Vegetation Conservation Significance mapping
National Parks and reserves	Parks Victoria's Levels of Protection and Levels of Service
Rivers and waterways	West Gippsland River Health Strategy 2005 Victorian River Health Program: priorities for investment, 2010/2011 (Victorian Investment Framework)
Invasive plant and animal data	Integrated Pest Management System (IPMS) and Pest Management Information System (PMIS)



## Document 3: Expanded asset assessments

Table 2. Assets identified as high priority for immediate action.

Asset name	Why this asset is important	IPA threats to this asset	Summary
Corner Inlet including the coastal native vegetation, habitat for migratory birds (such as waders) and other native fauna, as well as marine areas and the marine biodiversity.	This area is recognised at national and international levels as being critical bird habitat. It is subject to four international agreements (eg. Ramsar) focussed on protecting the area's biodiversity. These values are reflected in the fact that Nooramunga Marine and Coastal Park and Corner Inlet Marine and Coastal Park fall within this asset. Corner Inlet has been nominated as a flagship asset in the Land and Biodiversity White Paper.	Weeds threaten the native vegetation, and therefore threaten the important fauna in the area. Weeds have the potential to completely destroy the habitat values of this area. Foxes also seriously threaten shorebirds and waders.	The exceptionally high value of this asset combined with the estimate that IPA threats (both weeds and pest animals) could be extremely damaging in the near future, make this a very high priority. Current information suggests that all of these threats can be managed.
Anderson Inlet including the fringing native vegetation and habitat for migratory birds.	This is a wetland of national importance, and part of international agreements (JAMBA and CAMBA) to protect migratory birds, in this area particularly waders.	Weeds threaten the native vegetation, and therefore threaten the important fauna in the area. Weeds have the potential to completely destroy the habitat values of this area. Foxes also seriously threaten shorebirds and waders.	A very high value area where there is a very high risk from both invasive weeds damaging important native vegetation and rabbits and foxes damaging both flora and fauna. Current information suggests that all of these threats can be managed.
Shallow Inlet including the fringing native vegetation and habitat for migratory birds.	This is a wetland of national importance, and part of international agreements (JAMBA and CAMBA) to protect migratory birds, in this area particularly waders.	Weeds threaten the native vegetation, and therefore threaten the important fauna in the area. Weeds have the potential to completely destroy the habitat values of this area. Foxes also seriously threaten shorebirds and waders.	A very high value area where there is a very high risk from both invasive weeds damaging important native vegetation and rabbits and foxes damaging both flora and fauna. Current information suggests that all of these threats can be managed.

<p>Coastal native vegetation between Wilsons Promontory and Phillip Island.</p>	<p>The vegetation communities in this coastal area are important in their own right because of their scarcity but also because they support state and nationally listed species including shearwaters, penguins, hooded plovers, and bandicoots.</p>	<p>Weed infestations degrade this native vegetation but also provide harbour for pest animals particularly rabbits and foxes. Foxes in turn, predate on the native fauna. The potential losses from treatable IPA infestations are estimated as high, primarily because of the predator pressures.</p>	<p>Value of the vegetation is very high and impact is also estimated as high to very high. Threats can be treated.</p>
<p>Ninety-mile beach dune system and adjoining public land.  This includes public land from Corner Inlet to Gippsland Lakes.</p>	<p>Critical values of this asset include JAMBA and CAMBA nominated areas, cultural heritage sites around Jack Smith Lake Wildlife Reserve, McLoughlins Beach Seaspray Coastal Reserve, Freshwater Swamp, and Woodside Beach Wildlife Reserve.</p>	<p>Weed infestations degrade this native vegetation but also provide harbour for pest animals particularly rabbits and foxes. Foxes in turn, predate on the native fauna. The potential losses from treatable IPA infestations are estimated as high, primarily because of the predator pressures.</p>	<p>Asset is very high value but the impact of IPAs on the asset values is estimated as medium. The asset should be monitored for any change.</p>
<p>Wilsons Promontory</p>	<p>A diverse, largely undisturbed ecosystem, Wilsons Promontory is a declared Biosphere Reserve under the UNESCO Man and the Environment program and is on the National Estate registry. Wilsons Promontory has been nominated as a flagship asset in the Land and Biodiversity White Paper.</p>	<p>Terrestrial weeds threaten the quality of native vegetation, while pest animals like wild dogs, cats and foxes predate on the native fauna in this area.</p>	<p>This is an exceptionally high value asset, where there are known risks from both weeds and pest animals. The asset is so important that treating these risks is critical.</p>
<p>Alpine and sub-alpine ecological communities- including 'Alpine Sphagnum Bogs and Associated Fens' ecological community. These areas are found within the Baw Baw National Park, Alpine National Park and other forested land in the northern parts of the region.</p>	<p>The sphagnum bogs and fens are listed as endangered under the EPBC Act. The EPBC listed community includes habitat for of threatened fauna including the Baw Baw Frog (also EPBC listed). The FFG Act lists 'Alpine Bog Community' and the 'Fen (Bog Pool) Community' as endangered. These communities are expected to</p>	<p>Terrestrial weeds threaten these communities and they are also at risk from trampling by invasive animals. The potential losses from IPAs are high to very high.</p>	<p>This is an exceptionally high value asset where known threats will have a severe impact. The risk these threats pose is likely to be exacerbated by climate change pressure.</p>

	provide important refuge for flora and fauna, particularly as climate change affects these areas. The Central Highlands flagship asset in the Land and Biodiversity White Paper includes much of this asset.		
Channel infrastructure in the Macalister irrigation district (MID). This channel system consists of 660 kilometres of supply channels and 490 kilometres of drainage channels. They service 53,000 ha from Lake Glenmaggie to near Sale. Approximately 33,500 ha is currently used for irrigation, and of this 90% is under pasture.	MID is the largest irrigation area south of the Great Dividing Range, supplying about 510 farms covering 33,500 hectares of farmland with irrigation water. Together with dryland farming, the MID is a major economic driver for West Gippsland.	Aquatic weeds restrict water flows through the channel system and in some cases can stop flows completely. This means that unchecked they threaten the viability of the irrigation district.  Terrestrial weeds (mainly pasture weeds) impact pasture quality and quantity, which directly impacts dairy production.	The very high value of this asset combined with the potential for aquatic weeds to have an extremely high impact on the channel system points to this asset being a priority for immediate action the strategy. This would most likely take the form of supporting Southern Rural Water to continue their weed management programs.
Upper Thomson River from the headwaters to Cowwarr Weir.	This part of the Thomson River is considered a 'Priority High Conservation Value Aquatic Ecosystems' (HCVAE) by the Australian government. The Thomson is also a heritage river denoting its importance at the State level as well.	Terrestrial weeds present a threat to this asset with the risk being both to the values on-site and those further down stream. Established weeds like willow threaten both aquatic and terrestrial native biodiversity.	This exceptionally high value asset is currently in good condition. Weeds pose a particularly high risk to that condition. It is considered a priority at local, State and national levels at least partly because of the IPA risk. They can be managed and this area is already part of State and national level projects.
Aberfeldy River	The Aberfeldy River is considered a Priority High Conservation Value Aquatic Ecosystems (HCVAE) by the Australian government (associated with the Thomson River).	Terrestrial weeds (particularly willows and blackberry) present a threat to both aquatic and terrestrial native biodiversity.	This exceptionally high value asset is currently in good condition but the weed threats to this asset are a particularly high risk. They can be managed and this area is already part of State and national level projects.

**Table 3. Assets where further information was required to determine its priority for action.**

Asset name	Why this asset is important	IPA threats to this asset	Summary
<p>Grassland and Grassy Woodlands of the Gippsland Plains, including large areas on private land. The asset occurs across public and private land including the Stratford Highway Park and the Darriman Bushland Reserves.</p>	<p>This asset includes the EPBC Act Critically Endangered ecological community of the ‘Gippsland Red Gum (<i>Eucalyptus tereticornis</i> subsp. <i>mediana</i>) Grassy Woodland and Associated Native Grassland.’ Lowland grasslands and grassy woodlands are more severely depleted than any other ecological communities in Victoria and are extremely poorly reserved.</p>	<p>These grasslands and grassy woodlands are threatened by a wide range of terrestrial weeds. Exotic grasses (pasture species like phalaris) present a major threat to the quality of these grassland communities</p>	<p>The value and level of threat to grasslands in particular, could make this asset a priority. However, much of this remnant vegetation occurs on private land and the level of recognition of the importance of these grassland communities is not high. So preliminary analysis would be required to ensure that IPA work on this asset would be adopted and supported by the community.</p>
<p>Forests of the southern slopes of the Dividing Range, including parts of Baw Baw National Park, parts of the Alpine National Park and other forest land on these southern slopes.</p>	<p>This asset covers the alpine and sub-alpine forests on the southern slopes of the Great Dividing Range. It is a mix of public and private land and features highly diverse, often pristine, alpine and sub alpine ecosystems.</p>	<p>Terrestrial weeds threaten native vegetation quality in this asset. There is limited detailed knowledge of the weeds threat and more information is needed in order to determine actions.</p>	<p>This is an exceptionally high value asset that includes some pristine ecosystems that would be severely impacted by weed invasion. Actions here would be focussed on preserving these high quality intact ecosystems.</p>
<p>Lowland forests of the Gippsland Plain. The area includes Holey Plains State Park, Won Wron reserves, and Mullungdung as well as other similar remnant native vegetation.</p>	<p>These areas are important biodiversity assets due to their size, and the connectivity they provide across the landscape. They form a major part of the Gippsland biolink highlighted in the Land and Biodiversity White Paper, and are significant habitat for West Gippsland’s large forest owls. The asset includes endangered swamp scrub EVC and vulnerable Plains Grassy Forest.  EPBC listed species include the</p>	<p>Foxes are a major threat to native fauna in this area.  Pigs in the Mullungdung are also a concern, though the extent of their impact is not fully understood.</p>	<p>This asset involves a range of different land managers (mostly public land) and their neighbours (on private land). This means that organising the many different land managers around this asset may be a challenge and will benefit from further analysis.  The feral pig problem in Mullungdung is also not well understood and should be investigated further.</p>

	white bellied sea eagle and the growling grass frog		
Western Strzelecki Ranges- includes fragmented patches of remnant native vegetation on both private and public land. Its includes Narracan, Poowong, Korumburra, Berry's Creek and Allambee areas.	Habitat for EPBC listed Giant Gippsland Earthworm. This asset includes endangered EVCs Damp Forest, Cool and Warm Temperate Rainforest as well as other vulnerable and depleted EVCs.  It also includes Mount Worth State Park and Mirboo North Regional Park.  FFG listed species include the Narracan Burrowing Cray.	Fragmentation of the vegetation across this landscape makes it particularly vulnerable to weed invasion. Terrestrial weeds threaten the remnant native vegetation, while pest animals like wild dogs, cats and foxes predate on the native fauna in this area.	Ability to organise the many different land managers across the wide spread of this asset is unclear and needs further analysis.

**Table 4. Assets that are to be monitored for future action and to maintain previous gains in IPA control.**

<b>Asset name</b>	<b>Why this asset is important</b>	<b>IPA threats to this asset</b>	<b>Explanation</b>
Gippsland Lakes based on the Ramsar wetlands site, which is approximately 60,000 hectares and includes both the lake area and associated native vegetation.	Gippsland Lakes are recognised nationally and internationally for their conservation significance. They support more than 540 native plant and 300 native animals. They are listed as a Ramsar site, and feature as a national priority in the Australian government's NRM programs. They also have very high recreation and tourism values. The Gippsland Lakes Coastal Park is also included.	Terrestrial weeds (from exotic grasses to common woody weeds) threaten to decrease the quality of the native vegetation around the Lakes, thereby also degrading the fauna habitat.	Asset is extremely high value but the threat posed by IPAs is not considered to be the biggest threat to the values of the Lakes.
Agricultural land – includes dryland and irrigated farmland across the region	Farming is a major engine of the West Gippsland economy, with the region best known for its dairy production. The region's farmers produce a large proportion of the State's dairy product, and also vegetables, fruit, beef, lamb and wool. Many regional centres around West Gippsland (Warragul, Leongatha, Korumburra, Yarram, Mirboo North, Maffra, Rosedale, Sale and many others) are strongly linked to the farming community.	Terrestrial weeds (mainly pasture weeds) impact pasture quality and quantity, which directly impacts dairy production. Foxes and wild dogs are threats during calving seasons.	This large asset is very valuable to the community and there are risks from IPAs. The level and urgency of these threats is not as high as for other assets in the region. However, it is very important that work continue in the farming areas to support communities in preserving the gains made over recent years in controlling threats like ragwort and other established weeds and pests.
Eastern Strzelecki Ranges – includes large connected areas of forest / remnant vegetation (including cool and warm temperate rainforest) across private and public land, including the Balook, Wonyip, Jeeralang, Livingston and northern	Habitat for EPBC listed species including the spot tailed quoll, and FFG listed species particularly those associated with rainforest.  Tarra Bulga National Park, Morwell National Park and Turttons Creek	Terrestrial weeds threaten the quality of native vegetation, while pest animals like wild dogs, cats and foxes predate on the native fauna in this area.	Asset is very high value but the impact of IPAs is estimated as medium. Other threats include incremental habitat loss.

Madalya locations.	Scenic Reserve also fall within this asset.		
Lake Glenmaggie on the Macalister River. The dam has a holding capacity of approximately 190,230 ML.	Lake Glenmaggie is the main water supply to the Macalister Irrigation District, which supports agricultural production from over 500 farms producing mainly dairy products and some horticulture.	Although the IPA threats to this asset are not understood at any detailed level, they are considered to be a major risk to the asset.	This is a high value asset but the risk from IPAs is not considered to be very high.
Blue Rock Dam, is located on the Tanjil River. The catchment area is 360 km <sup>2</sup> and the capacity of the reservoir is 208,000 megalitres.	The dam augments other water supplies to the Latrobe Valley for power generation, industrial, urban and private irrigation purposes as well as providing flows for environmental purposes.	Although the IPA threats to this asset are not understood at any detailed level, they are considered to be a major risk to the asset.	This is a high value asset but the risk from IPAs is not considered to be very high.
Cowwarr Weir is located at the head of Rainbow Creek, 10 kilometres west of Heyfield.	The weir allows water from Thomson River to be used to supplement Lake Glenmaggie resources for the Macalister Irrigation District. Cowwarr Weir is a popular location for canoeists.	Although the IPA threats to this asset are not understood at any detailed level, they are considered to be a major risk to the asset.	This is a high value asset but the risk from IPAs is not considered to be very high.
Lower Thomson River from confluence with the Macalister River to the Latrobe River south of Sale.	Valuable for water supply for industry and irrigation use. EVCs in the area include Box Ironbark (listed as vulnerable) and Plains Grassy Woodland, and Floodplain Riparian Woodland. There are also State listed fauna.	Weeds threaten both the flow of the Thomson River and also the riparian native vegetation.	This is considered an important river at the regional and state level however the upper reaches of the Thomson are at greater threat from IPAs.
Lower Avon River from Knob Reserve to Lake Wellington (ISC reach 19).	Main importance is the connection to the Gippsland Lakes.	Weeds are the major threat to this waterway (willow and blackberry).	This is an important river, particularly because of its connection to the Gippsland Lakes, but the risk of damage from IPAs is not as high as for other rivers.

Powlett River downstream of Lance Creek (includes Lance Creek) (ISC reach 5).	This asset includes wetlands of national significance.	Weeds are the major threat to this waterway (willow and blackberry)	This is an important river, but the risk of damage from IPAs is not as high as for other rivers.
Lower Tarwin River downstream of A Brownes Road (ISC reach 10).	Major importance derives from the connection to Anderson Inlet. Also because this asset includes wetlands of national significance.	Weeds are the major threat to this waterway (especially spartina)	This is an important river, but treatment of threats at the outlet of this river into Anderson Inlet is considered a higher priority.
Lower Tarra River downstream of South Gippsland Highway (ISC reach 33).	Major importance derives from the connection to Corner Inlet.	Weeds are the major threat to this waterway (especially spartina)	This is an important river, but treatment of threats at the outlet of this river into Corner Inlet is considered a higher priority.
Bruthen Creek and Giffard Plain from Woodside to Mcloughlin's Beach (ISC reach 36).	This asset links to Corner Inlet. High social value in lower region of the reach including boating, fishing, camping. Supply of water for potable use. Association with rare and significant wetland environments. The reach supports a range of native fish species	Weeds are the major threat to this waterway (willow and gorse)	This is an important river, but the risk of damage from IPAs is not as high as for other rivers.
Hoddle Range east and Bennison Creek (ISC reach 20). This includes Silver Creek, Poor Fellow Me Creek, Golden Creek, Old Hat Creek.	Major importance derives from the connection to Corner Inlet.	Weeds are the major threat to this waterway (boxthorn and blackberry)	This is an important river, but the risk of damage from IPAs is not as high as for other rivers.





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**West Gippsland**  
Catchment Management Authority