Water Management Planning
Report Series

Assessment of Freshwater Ecosystem Values

in the

Boobyalla River catchment:

Guidance for Water Management

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Water Resources Division
Department of Primary Industries and Water

Tasmania
Explore the possibilities

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The Department of Primary Industries and Water (DPIW)

The Department of Primary Industries and Water provides leadership in the sustainable management and development of Tasmania's natural resources. The Mission of the Department is to support Tasmania's development by ensuring effective management of our natural resources.

The Water Resources Division provides a focus for water management and water development in Tasmania through a diverse range of functions, including implementing the *Water Management Act 1999*, the Water Development Plan for Tasmania and the National Water Initiative; design of policy and regulatory frameworks to ensure sustainable use of surface water and groundwater resources; monitoring, assessment and reporting on the condition of the State's freshwater resources; and facilitating water infrastructure development projects.

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1 Introduction

1.1 Background

Providing water to meet the needs of aquatic ecosystems is a key component of the management of water resources.

In general, Tasmanian unregulated rivers and streams are managed to provide a flow regime that meets the needs of the entire aquatic ecosystem, rather than discrete elements of the ecosystem such as a fish species. The natural flow regime is taken as the best guide to the flow requirements of the entire aquatic ecosystem, and hence the management of flow is based on maintaining or mimicking key flow components of the natural regime.

Tasmania has made a significant financial and scientific investment in developing the Conservation of Freshwater Ecosystem Values Framework, which allows the assessment and identification of freshwater ecosystem values specific to individual catchments.

Whilst broadly aiming to meet the flow requirements of the entire ecosystem, flow management in Tasmania can now be undertaken utilising information on specific freshwater ecosystem values, and integrating the flow requirements of these values within the broader ecosystem context.

The purpose of this assessment is to identify priority freshwater ecosystem values in the Boobyalla River catchment, and provide guidance to the management of water resources in the catchment.

1.2 The Boobyalla River Catchment

The Boobyalla River catchment is located north of Winnaleah in the Northeast of Tasmania and has an area of 298km². The Boobyalla River is 43km long and begins in the Southern foothills of Mount Horror, which stands at 676m, runs past Mount Cameron standing at 561m before discharging into Ringarooma Bay.

From its source, the Boobyalla River flows through sandstone and mudstone sediments. From the confluence with Campbell Creek to the coast, the river flows over quaternary silacious marine sands and clays. This area is poorly drained with numerous intermittent lakes and small creeks scattered throughout. The riparian zone is dominated by white gum (*E.viminalis*), swamp gum (*E.ovata*) and black peppermint with an understory of yacca (*X.australis*), honeysuckle (*B.marginata*) and brackenfern.

Much of the land use in the upper catchment is dominated by forestry plantations, mainly that of pine, but a significant area to the South-East has been cleared for cropping and grazing. The majority of the mid-reaches of the catchment are used for forestry or are set aside for parks and reserves. In the lower reaches, most of the land has been cleared for either grazing or cropping, depending on water availability.

There are currently 62 water licenses for irrigation within the catchment, with a total allocation of 3,974ML. Of these licenses 54 are for storage purposes from the period 1st May to 31st October, the remaining 8 permit the direct taking of water from the river between the 1st November to 30th April.

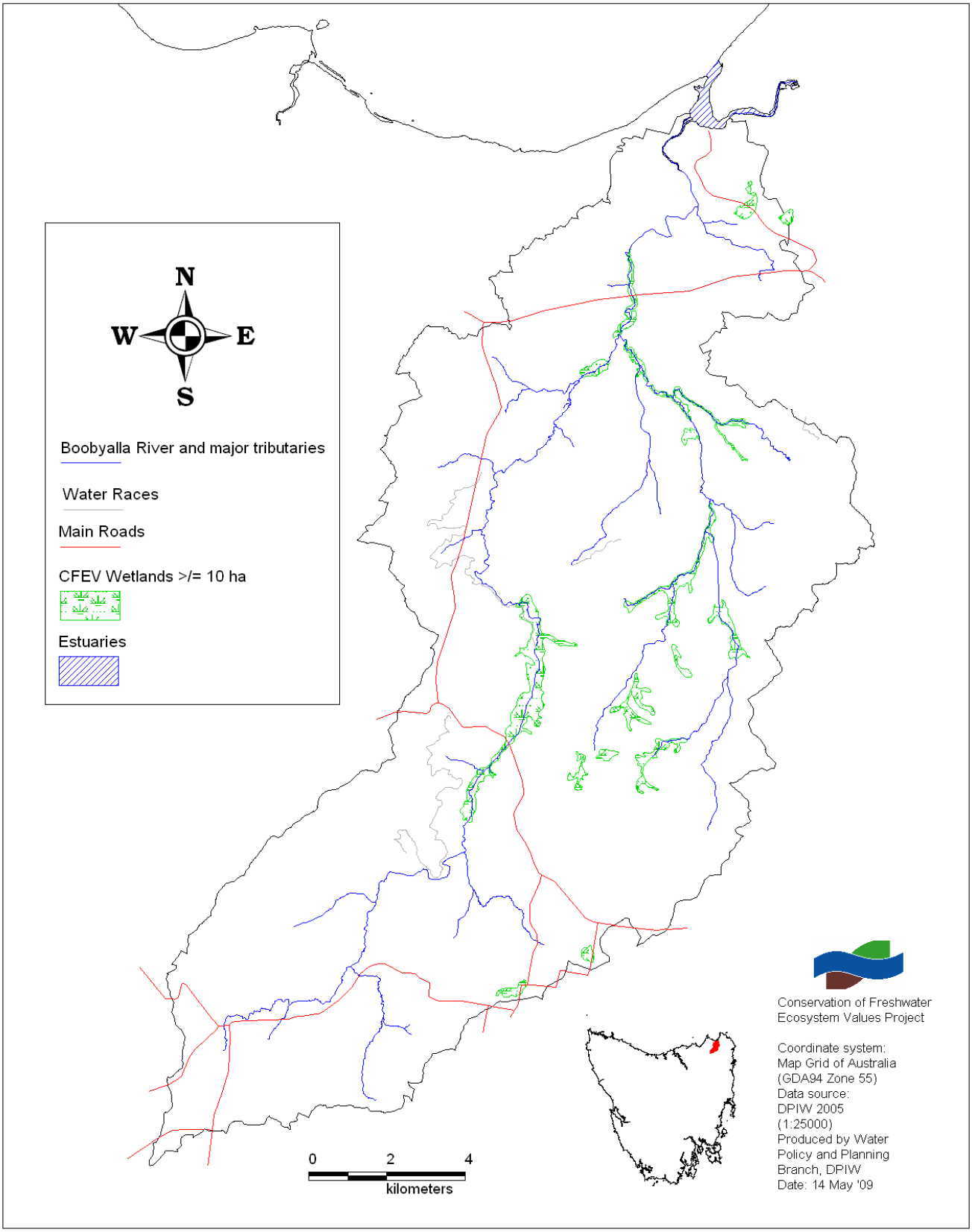

Figure 1 Surface water drainage in the Boobyalla River catchment, wetlands greater or equal to 10 ha, stream gauging station and subcatchment areas. CFEV, © State of Tasmania and the LIST.

1.3 Conservation of Freshwater Ecosystems Values Framework

Freshwater ecosystem values in the Boobyalla River catchment were assessed using the Conservation of Freshwater Ecosystems Values (CFEV) Framework (CFEV, 2005).

The CFEV Framework (Figure 2) was developed in order to rate the conservation value and management priority of all mapped examples of freshwater ecosystems in Tasmania. The Framework uses a systematic approach based on Naturalness*, Representativeness*, and Distinctiveness*, and a set of data which identify the natural biophysical character and condition of the ecosystems in a standardised way.

The CFEV Framework provides an assessment of the relative conservation value of an ecosystem unit, based on the relative rarity of its features and their condition. The Framework also provides data on the natural features and condition of single or multiple ecosystem units. These data are used for a variety of purposes, including reporting, resource planning, and environmental impact assessment.

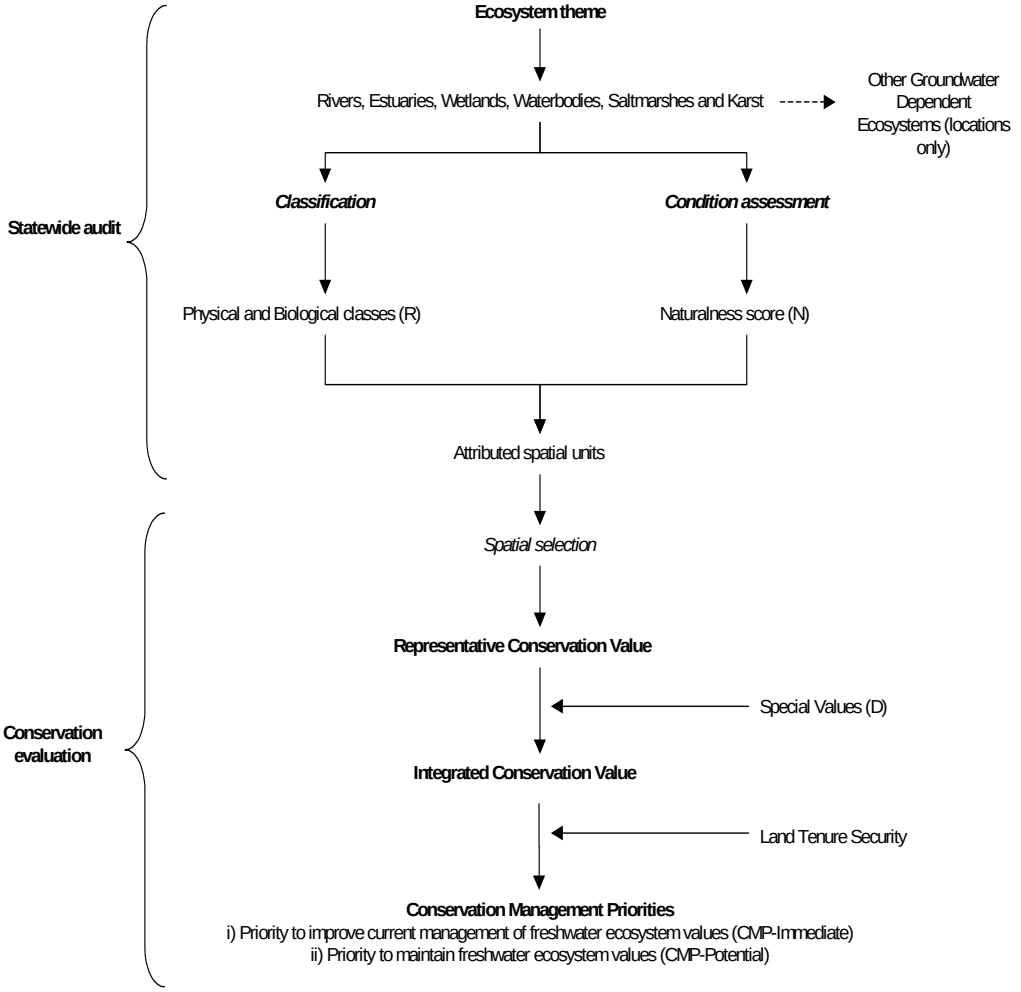

Figure 2. Assessment of Tasmanian freshwater-dependent ecosystems under the CFEV Framework, based on the state-wide audit and conservation evaluation (DPIW, in prep.).

*see Glossary for definition of these words or terms.

Through a comprehensive state-wide audit, the CFEV Framework has identified the natural characteristics and current condition of freshwater ecosystems in Tasmania. A biophysical classification of each ecosystem unit, based on pre European settlement natural features, provides the Representativeness aspect, which is defined as the degree to which each ecosystem unit is representative of the class to which it has been assigned. An assessment of change from pre European or "natural" reference condition provides the Naturalness aspect.

Through the classification, a suite of associated biophysical classes* is described for each ecosystem unit. The CFEV Framework determines a representative biophysical class* for each identified ecosystem spatial-unit (e.g. river sections and water-bodies). The representative biophysical class is the ecological class or group that is used when considering the value of an ecosystem spatial-unit during the conservation evaluation.

The representative biophysical class is determined from the relative rarity of the different biological and physical classes identified in each spatial unit from the state-wide audit (with rarity partly contributing to the Distinctiveness aspect). The representative biophysical class may be a native fish assemblage, tree assemblage, crayfish assemblage, macro-invertebrate assemblage, or type of geomorphology. In wetlands, the representative biophysical class may also be a frog assemblage or a representative vegetation type.

Using the rarity of the representative biophysical class and the Naturalness of each spatial unit, a spatial selection algorithm ranks all of the spatial units in each ecosystem type, to indicate the relative importance or Representative Conservation Value* of each spatial unit (Figure 2).

To ensure that specific unique and important values are captured in the conservation evaluation, an assessment of Special (Freshwater) Values[1*] is also included (the second part of the Distinctiveness aspect). Each Special Value has a priority-based rating, which is added to the Representative Conservation Value* to produce an Integrated Conservation Value* (Figure 2).

Some types of land tenure are considered to provide greater protection for freshwater dependent ecosystem values than others. A ranking based on the type of land tenure security is added to provide the conservation management priorities* (Figure 2).

The results of the audit and conservation evaluation are used to identify conservation values and rank the conservation management priorities of freshwater ecosystems across the state. Conservation management priorities may be 'Immediate', indicating areas where immediate management actions are required to ensure the protection of significant conservation values, or 'Potential', indicating areas that need to be considered where future developments or changes to land or water management are proposed.

It should be acknowledged that the CFEV Framework employs a wide variety of data sources, of varying resolution. The assessment data for many sites is derived from complex models, and as a result care should be taken when using specific variables at specific locations. Any results with important management implications should be corroborated by on-ground surveys. The strength of the CFEV data lies with its comprehensive coverage of Tasmania, which allows broad scale comparisons, summaries, and the combination of complicated data sets into readily interpreted indices.

For further information on the CFEV Framework and how the different values are derived, see the references given in the "Further Information" section on page 13.

*see Glossary for definition of these words or terms.

2 Ecosystem Values in the Boobyalla River Catchment

2.1 Assessment of Freshwater Ecosystem Values in the catchment

The purpose of this assessment of freshwater ecosystem values in the Boobyalla River catchment is to provide guidance to the management of water resources. The assessment is based on Integrated Conservation Value, because it provides an indication of the freshwater ecosystem values (including the different biophysical classes and special values) that need to be considered in any future development of the catchment's water resources.

Integrated Conservation Value for the Boobyalla River catchment is presented in Figure 3. Areas of high and very high Integrated Conservation Value include most of the main trunk of the river and a small number of wetlands and water bodies in the lower and mid reaches of the catchment.

Summary information indicating the contribution of each of the drivers leading to the low, medium, high and very high Integrated Conservation Value in the Boobyalla River catchment were extracted from the CFEV database and are presented in Table 1. The main biophysical classes identified in the catchment are shown in Table 1, Table 2.

The areas assessed in the Boobyalla River catchment are river sections and wetlands of high to very high Integrated Conservation Value that are in or near the main river and tributaries, and that are most likely to be impacted by any future flow modification in the catchment. Most headwater streams that are likely to retain their natural flow, and are not likely to be impacted by future water extraction unless they have significant sized dams on them.

One of the drivers of conservation value is the condition or Naturalness of the catchment, which is presented in Figure 4. The majority of the Boobyalla River catchment is in a very good, natural condition. However, there are small areas of poorer condition and naturalness in the lower and upper reaches of the catchment. The generally high level of Naturalness combined with highly representative and/or rare representative biophysical classes and Special Values has generated the high Integrated Conservation Values identified in the lower and mid-reaches of the catchment (Figure 3). A more detailed discussion of reprehensive biophysical classes and Special Values in the catchment is given on the following pages.

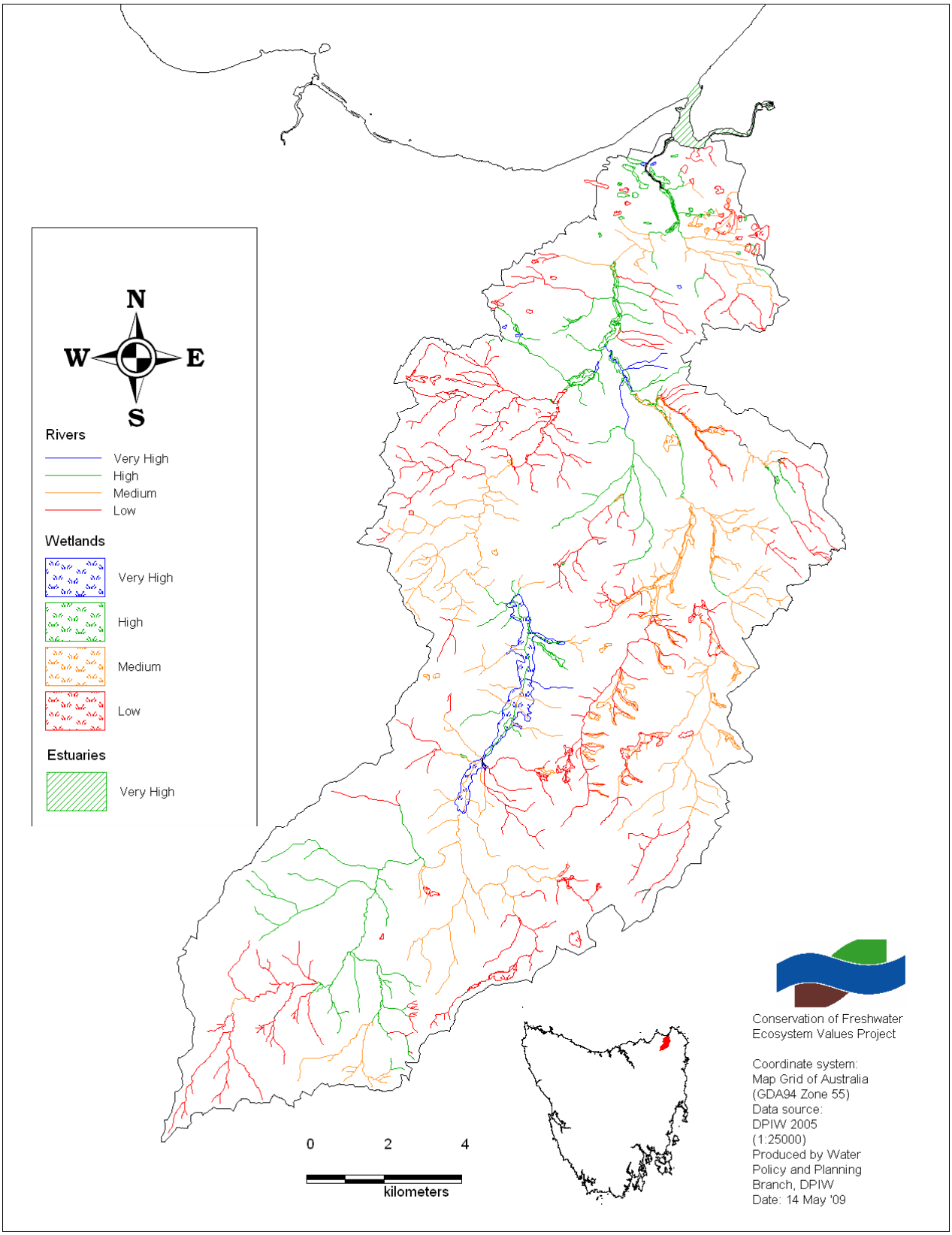

Figure 3 The Boobyalla River catchment, subcatchments and Integrated Conservation Value according to the CFEV database. CFEV, ©State of Tasmania and the LIST, © State of Tasmania.

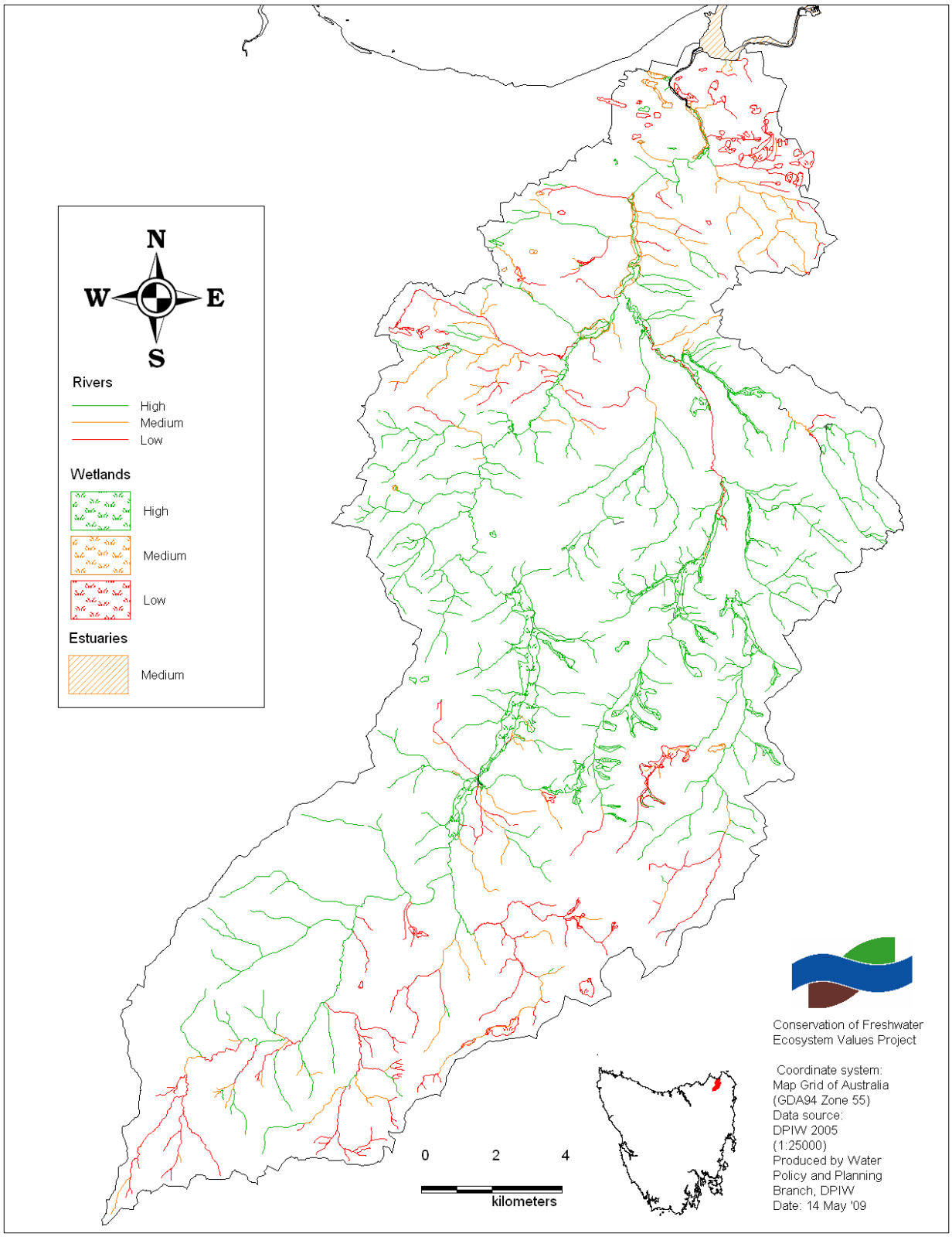

Figure 4 Naturalness or condition of freshwater ecosystems in the Boobyalla River catchment according to the CFEV database.

Location	Integrated Conservation Value (%of whole catchment)	Representative Conservation Value (%of whole catchment)	Naturalness (%of whole catchment)	Important biophysical classes on high RCV rivers, wetlands and waterbodies. (class code in brackets)	Special values	Status
Boobyalla River Catchment	Rivers Low 43% Medium 35% High 21% Very High 1% Wetlands Low 26% Medium 31% High 16% Very High 27%	Rivers Low47% Medium 39% High 14% Wetlands High 28% Medium 34% Low 38%	Rivers Low 23% Medium 15% High 62% Wetlands Low 22% Medium 11% High 67%	Tree assemblage (T4, T5, T8, T9, T12) Fish assemblage (F3, F9, F35, F42, F44) Geomorphology (G10) *Melaleuca ericifolia* forest (DV-ME) Wetland geomorphology (WLP1, WLP2, WLP20) Estuary biophysical type: Large Mesotidal river estuaries located along the north coast (Es14)	*Eucalyptus ovata*	Outstanding
					Giant Freshwater Crayfish	Undifferentiated
					Green and Gold Frog	Undifferentiated
					Platypus	Non-outstanding
					Bar-Tailed Godwit	Outstanding
					Caspian Tern	Outstanding
					Fairy Tern	Outstanding
					Little Tern	Outstanding
					Gristle Fern	Non-outstanding
					Melaleuca ericifolia	Outstanding
					Short Paperpark Swamp	Non-outstanding
					Swamp Violet	Outstanding
					Whitebait	Outstanding
					White-Bellied Sea Eagle	Non-outstanding

Table 1. Summary table showing the drivers of the freshwater ecosystem units with medium to very high Integrated Conservation Value in the Boobyalla River catchment. Naturalness refers to the condition of the ecosystem, or modification compared to pre European conditions. Representative Conservation Value is a measure of relative importance of ecosystem units based on the rarity of their representative biophysical class and condition. In some cases the drivers can have multiple classifications because river sections and wetland ecosystems with different drivers are grouped together to form the summary of drivers in each subcatchment. Refer to Table 2 for biophysical class codes.

2.2 Representative Biophysical Classes and Special Values

The classification of areas of high and very high Integrated Conservation Value in the Boobyalla River catchment is based on a combination of the condition of freshwater ecosystems discussed earlier combined with the presence of highly representative floral and faunal assemblages and special values that have been identified in the catchment. Highly representative floral and faunal assemblages and geomorphic environments are listed in Table 1 and shown in Figure 5. Figure 5 shows the areas with A (or high) rated Representative Conservation Value and the biophysical classes that led to that high rating. The biophysical classes include different types riparian tree assemblage (green), native fish assemblages (red and orange) and unique channel and wetland structure (pink and purple).

2.2.1 Fish Assemblages

The fish assemblage predicted to occur in the Boobyalla River catchment is largely based on the typical assemblage of river sections and waterbodies along the north-east coast of Tasmania (F13).The assemblage includes short-finned and long-finned eels *(Anguilla australis* and *A. reinhardtii),* spotted galaxias *(Galaxias truttaceus),* pouched and short-headed lampreys *(Geotria* and *Mordacia),* Australian mudfish *(Neochanna cleaveri),* freshwater flathead *(Pseudaphritis urvillii)* and blackfish *(Gadopsis marmoratus)* and Jollytail *(Galaxias maculatus)* (Table 1 and 2).

In the mid-catchment the presence of rare or threatened species such as the dwarf galaxiid *(Galaxiella pusilla)* and the Australian grayling *(Prototroctes maraena)* would further justify the high ICV. Amphibian species, such as the Green and Gold Frog *(Litoria raniformis)* whose habitat has been identified within the coastal wetlands of the catchment, are identified as Special Values within the catchment and contribute to the resulting high ICV.

2.2.2 Riparian Tree Assemblages

The representative tree assemblages predicted to occur along river sections in middle parts of the catchment are described as a combination of coastal dry forests and wet scrub mosaics (of eastern and north-eastern Tasmania) (T4), and dry forests, wet sclerophyll and scrub mosaics (found on the sand plains of the far north-eastern Tasmania and along the coastal strip from Forth to Burnie) (T5). Species found in here in the mid-reaches of the catchment are also represented in the Huon Valley (T8 and T9) which are also described as dry sclerophyll and tall wet eucalypt forests and scrubs. The species here include *Acacia dealbata, Acacia melanoxylon* and *Eucalyptus ovata.*

In the upper parts of the catchment, dry sclerophyll and wet tall wet eucalyptus forest and scrubs are present in addition to the two forest types described above (T8 and T9).

2.2.3 Crayfish

Crayfish are identified as the important biophysical class in small streams adjacent to the main river and its tributaries in the mid and upper catchment. The only crayfish species in this catchment is the Giant Freshwater crayfish (*Astacopsis gouldi*).

2.2.4 Geomorphic features

Representative stream sections on north-east dry granite and granitic sediments (G10) have been identified in the catchment. There are also a large number of smaller wetlands, predominantly in the lower reaches of the catchment which fall into one of three wetland classes (WLP1, WLP2 and WLP20). The ICV of these wetlands varies from Low to Very High, the largest region of Very High ICV lies in the middle of the catchment, where the river runs through low-land sclerophyll woodland in a natural and undeveloped area.

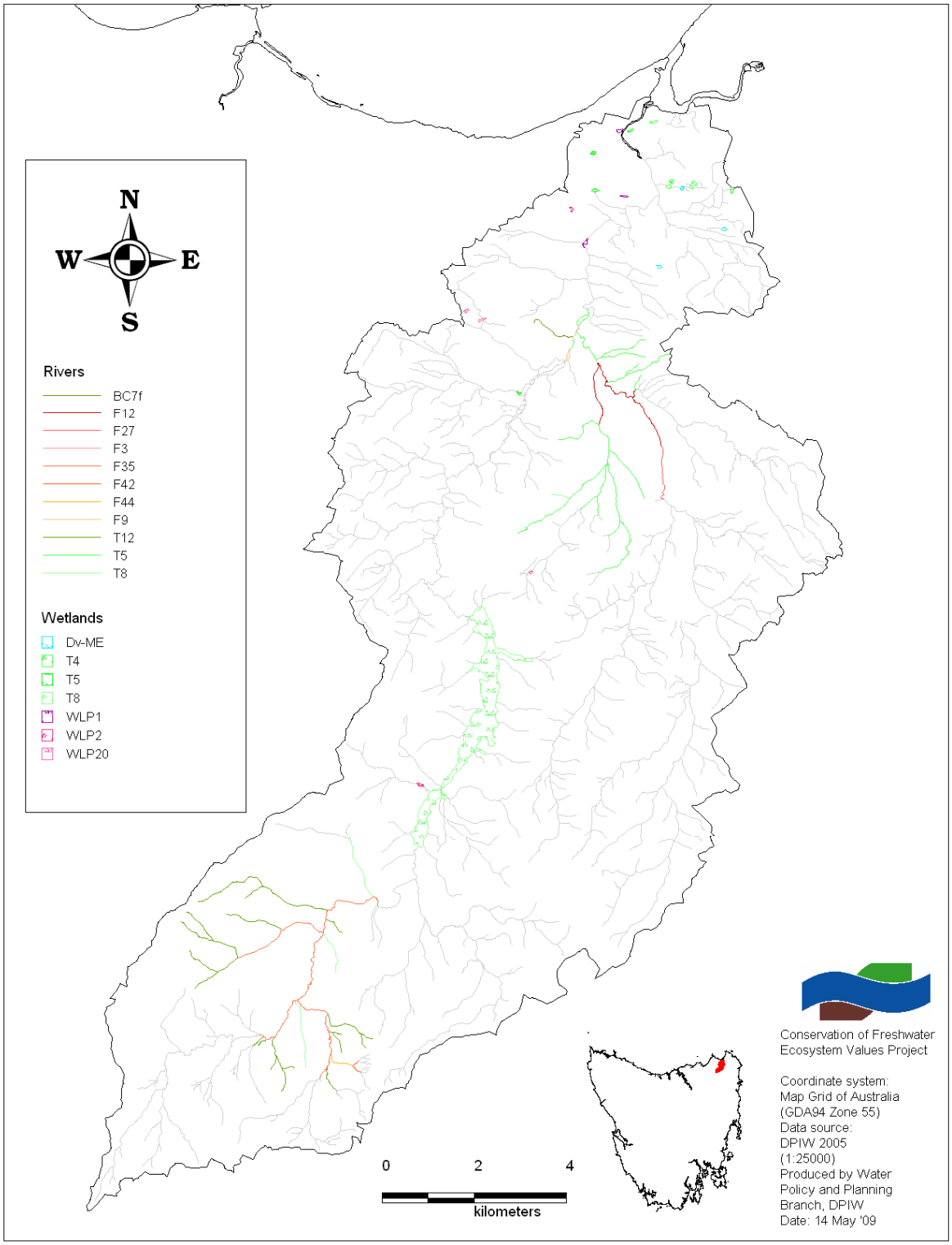

Figure 5 Primary biophysical classes for river sections and wetlands with high RCV ratings according to the CFEV database.

2.2.5 Special Values

Special values are vulnerable, threatened or endangered species or communities that have been identified in a river section or ecosystem.

A number of outstanding special values have been identified in the Boobyalla River catchment which have also contributed to the high and very high conservation value rating, including the, the Short Paperpark Swamp (*Sporobolus virginicus*) and *Melaleuca ericifolia* swamp and forest communities (Table 1).

Many parts of the upper catchment have sites of exceptional floral and faunal diversity, which contain species such as the gristle fern (*Blechnum cartilagineum*), harsh groundfern (*Hypolepis muelleri*), marginal herbfield/grassland (*Blechnum cartilagineum*) and a Hydrobiid snail *Beddomeia tasmanica* and abundant macroinvertebrate species.

Flora of special value, but classified as non-outstanding special value include short paperbark swamp forest and priority riparian floral communities. Fauna of non-outstanding special value ranking include the White-bellied sea-eagle, Green and Golden Frog and Platypus.

Ringarooma Bay as an important bird site has been identified as an outstanding special value. The Bay contains a number of threatened coastal bird species including the Fairy tern (*Sterna neris*), Little tern (*Sternula albifrons*) and White Bellied Sea Eagle (*Haliaeetus leucogaster).* These bird species use freshwater ecosystems to provide habitats for nesting and for a reliable food supply.

Table 2 Common biophysical classes in the Boobyalla River catchment, including class codes, class descriptions and species compositions.

Class Code	Class Description	Species Composition
BC7f	Depauperate form of assemblages found headwater first order streams characteristic of the north-east and eastern-central parts of the state, in streams at low altitude (<800 m AHD).	Indicator taxa (EPTC groups): Elmidae A, *Notalina bifaria*, *Tasmanophlebia* sp.AV1, *Taschorema asmanum*, *Triplectides similis*, *Nousia* sp. AV8, *Agapetus* sp. AV1.
Dv-ME	*Melaleuca ericifolia* forest	
F3	Assemblage found in coastal streams and water bodies in the north-eastern part of the state	*Anguilla australis, Galaxias truttaceus, Geotria australis & Mordacia mordax, Prototroctes maraena, Neochanna cleaveri, Pseudaphritis urvillii, Gadopsis marmoratus, Anguilla reinhardtii, Galaxias maculatus, Retropinna tasmanica, Galaxiella pusilla*
F9	Assemblage associated with coastal streams and Water bodies in the north-east.	*Anguilla australis, Galaxias truttaceus, Geotria australis & Mordacia mordax, Prototroctes maraena, Neochanna cleaveri, Pseudaphritis urvillii, Gadopsis marmoratus, Anguilla reinhardtii, Nannoperca australis, Galaxias maculatus, Retropinna tasmanica, Galaxiella pusilla*
F12	Assemblage found in river sections and Water bodies along the north-east coast of Tasmania.	*Anguilla australis, Galaxias truttaceus, Geotria australis & Mordacia mordax, Prototroctes maraena, Neochanna cleaveri, Pseudaphritis urvillii, Gadopsis marmoratus, Anguilla reinhardtii, Galaxias maculatus, Retropinna tasmanica*
F27	Fish assemblages found in inland river sections and water bodies near the coast in the north-east region of the state, from east of the Tamar River to Georges Bay.	*Anguilla australis, Galaxias truttaceus, Geotria & Mordacia, Prototroctes maraena, Neochanna cleaveri, Pseudaphritis urvillii, Gadopsis marmoratus, Anguilla reinhardtii*
F35	Inland rivers sections in the north-east region of the state, from east of the Tamar River to Georges Bay	*Anguilla australis, Galaxias truttaceus, Geotria & Mordacia, Prototroctes maraena, Gadopsis marmoratus, Anguilla reinhardtii*
F42	An assemblage with a limited distribution, in a few s rivers sections, inland east of the Tamar River	*Anguilla australis, Galaxias truttaceus, Gadopsis marmoratus, Anguilla reinhardtii*
F44	An assemblage with a limited distribution, in a few s rivers sections, inland east of the Tamar River	*Anguilla australis, Galaxias truttaceus, Gadopsis marmoratus, Anguilla reinhardtii, Galaxias maculatus*
T4	Coastal dry forests and wet scrub mosaics of eastern and north-eastern Tasmania.	*Acacia dealbata, Acacia mearnsii, Acacia melanoxylon, Allocasuarina littoralis, Allocasuarina verticillata, Banksia marginata, Bursaria spinosa, Casuarina monilifera, Dodonaea viscosa, Eucalyptus amygdalina, Eucalyptus globulus subsp., Eucalyptus ovata, Eucalyptus viminalis, Exocarpos cupressiformis, Leptospermum glaucescens, Leptospermum laevigatum, Leptospermum scoparium var., Melaleuca ericifolia, Melaleuca squarrosa, Pomaderris elliptica, Pomaderris pilifera*
T5	Dry forests wet sclerophyll and scrub mosaics found on the Furneaux Group of islands, the sand plains of the far north-eastern T mainland and along thecoastal strip from Forth to Burnie.	*Acacia dealbata, Acacia melanoxylon, Allocasuarina littoralis, Allocasuarina verticillata, Banksia marginata, Bursaria spinosa, Casuarina monilifera, Eucalyptus amygdalina, Eucalyptus obliqua, Eucalyptus ovata, Eucalyptus viminalis, Exocarpos cupressiformis, Leptospermum glaucescens, Leptospermum scoparium var., Melaleuca ericifolia, Melaleuca squarrosa, Pomaderris elliptica, Pomaderris pilifera, Zieria arborescens.*
T8	Dry sclerophyll forests, tall wet eucalypt forests and scrubs. This assemblage has two disjunct occurrences, being found in the lowland hinterlands of north-eastern Tasmania and on the drier hill slopes in the Huon valley	*Acacia dealbata, Acacia mearnsii, Acacia melanoxylon, Allocasuarina littoralis,Allocasuarina verticillata, Banksia marginata, Bursaria spinosa, Eucalyptus amygdalina, Eucalyptus obliqua, Eucalyptus ovata, Eucalyptus regnans, Eucalyptus viminalis, Exocarpos cupressiformis, Leptospermum lanigerum, Leptospermum scoparium var., Melaleuca ericifolia, Melaleuca squarrosa, Monotoca glauca, Notelaea ligustrina, Olearia argophylla, Pittosporum bicolor,Pomaderris apetala, Pomaderris elliptica, Pomaderris pilifera, Zieria arborescens*
T12	Mosaics of wet sclerophyll, damp sclerophyll and dry sclerophyll in northern and north-eastern Tasmania.	*Acacia dealbata, Acacia melanoxylon, Allocasuarina littoralis, Banksia marginata, Bursaria spinosa, Eucalyptus amygdalina, Eucalyptus obliqua, Eucalyptus ovata, Eucalyptus regnans, Eucalyptus viminalis, Exocarpos cupressiformis, Leptospermum scoparium var., Melaleuca squarrosa, Notelaea ligustrina, Olearia argophylla, Pittosporum bicolor, Pomaderris apetala, Pomaderris elliptica,Pomaderris pilifera, Zieria arborescens.*
WLP-1	Wetland located east of Tyler corridor, in responsive geomorphology, 0-1 ha area, at 0-20 m elevation.	
WLP-2	Wetland located east of Tyler corridor, in responsive geomorphology, 0-1 ha area, at 20-100 m elevation.	
WLP-20	Wetland located east of Tyler corridor, in non-responsive geomorphology, 0-1 ha area, at 20-100 m elevation.	

3 Maintaining Freshwater Ecosystem Values in the Boobyalla River Catchment

Priority freshwater ecosystem values have been identified in this assessment of the Boobyalla River. Values include fish assemblages, riparian tree assemblages, geomorphic features, and vulnerable, rare or endangered species and communities including the Dwarf galaxias, Southern toadlet, threaten riparian fern species, sites of outstanding species diversity and *Melaleuca* coast swamp forest. There are also a number of threatened bird species in the Boobyalla River catchment for which the flow regime in the Great Boobyalla River provides habitat and food supply.

A key consideration in the future management of the water resources of the catchment is the continued provision of a flow regime that meets the needs of these priority freshwater ecosystem values, and thereby contributes to their maintenance.

Currently, the flow regime in the catchment is close to natural as there is relatively little water extraction. If water development occurs in the catchment, key characteristics of the natural flow regime should be maintained to ensure the priority freshwater ecosystem values are maintained.

The key components of the natural flow regime that are relevant to the identified freshwater ecosystem values, and the ecosystem more broadly include:

1. base flows that sustain ecosystem health and populations of aquatic biota, and provide refuge during dry times;
2. moderate flows (freshes) and high flows that provide reproductive cues and dispersal mechanisms for some biota, and are important for transporting material downstream and maintaining geomorphic processes;
3. inundation patterns and distribution of floodwaters to support riparian zones, floodplains and wetlands, and to maintain connectivity and exchange of resources between rivers and floodplains;
4. natural flow variability, including seasonal patterns, frequency and duration of flows, and rates of rise and fall;
5. groundwater levels critical to surface water flows;
6. freshwater inputs to support estuarine processes and habitats.

These flow components support various ecological and geomorphic patterns and processes in a broad sense, and have varying degrees of influence on the various identified freshwater ecosystem values.

4 Further Information

The following references include detailed information on some of the topics discussed within the text of this document. They are available on the Department of Primary Industries and Water web site.

CFEV (2005). Conservation of Freshwater Ecosystem Values Project database. Water Resources Division, Department of Primary Industries and Water, Hobart, Tasmania.

DIPW (2007). Auditing Tasmania's Freshwater Ecosystem Values: Conservation of Freshwater Ecosystem Values Project: Technical Report. Department of Primary Industries and Water, Hobart, Tasmania.

5 Glossary

Biophysical class: Biological and physical variables relating to freshwater dependent ecosystems were used to develop a 'biophysical classification' that is applicable at a State-wide level. For riverine ecosystems, the main biophysical classifications are for fish assemblages, geomorphic river types, aquatic plant assemblages, tree assemblages and crayfish assemblages.

CFEV project: The 'Conservation of Freshwater Ecosystem Values' project which has developed a planning and information tool (an analytical framework and database) to support the inclusion of freshwater values within a strategic framework for the management of Tasmania's freshwater resources.

Conservation Management Priority: Summary estimate of the priority for conservation management, integrating assessed conservation value, condition and land tenure security. An ecosystem can be categorised as Very High, High, Moderate or Low Conservation Management Priority.

Distinctiveness: Expressed in two ways: whether the ecosystem unit contains rare classes of ecological components (a rare biophysical class) and/or 'Special Values' (i.e. conservation values other than those selected for representativeness).

DPIW: Department of Primary Industries and Water

Integrated Conservation Value: The conservation value of an ecosystem spatial unit where the Representative Conservation Value has been combined with its Special Value rating.

Naturalness: A measure of the departure from pre European natural reference condition. This was derived for each ecosystem unit within the audit process as a single score based on a variety of sources of biophysical information.

Representativeness: This was assessed by undertaking a biophysical classification of each ecosystem based on pre European settlement natural features (e.g. fish, riparian vegetation, hydrology, etc.). It is defined as the degree to which each ecosystem is representative of the class to which it has been assigned.

Representative biophysical class: Ecological class or group that is used when considering the value of an ecosystem spatial-unit during the conservation evaluation. Determined from the relative rarity of each of the biophysical classes identified for each spatial unit.

Representative Conservation Value: Measure of relative importance of ecosystem units based on their representation of biophysical classes and condition.

Special Values: Unique or 'distinctive' conservation values other than those captured by the representativeness assessment process. These include values such as threatened flora and fauna species, threatened flora and fauna communities, priority geomorphic and limnological features and important bird sites.