DEFINING WETLANDS AND IMPLEMENTATION OF A WETLANDS LOCAL ENVIRONMENTAL PLAN IN WYONG, NSW

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INTRODUCTION

As part of a review of its then draft Local Environment Plan (LEP) for wetland management, in 1994 Wyong Council commissioned the preparation of a definition of wetlands which Council officers could consistently apply in identifying wetlands of conservation value. The definition was accompanied by mapping protocols that enabled officers of Wyong Council to map wetlands within its precincts for inclusion in the LEP. This definition has been systematically applied to justify the plotting of zone boundaries of wetland areas in Wyong local government area (LGA). An amendment to the LEP incorporating the wetland boundaries (amendment no. 98) was gazetted on 10 December 1999. The definitional approach adopted is presented in detail, along with observations outlining Wyong Council’s experience in applying the wetlands definition and developing its wetland protection policies.

REVIEW OF APPROACHES TO WETLAND DEFINITION

Numerous attempts have been made, both in Australia and overseas, to define the term ‘wetland’. No generally agreed definition has yet been reached internationally, within Australia or even at State level. While most definitions agree on those general attributes that are common to most wetland types, there is no total agreement on how those attributes should be defined, or whether various marginal ecosystems should be considered to be wetlands.

Several detailed reviews of wetland definition are available (e.g. Mitsch & Gosselink, 1986; Winning, 1988; Pressey & Adam, 1995). This paper does not seek to duplicate such comprehensive reviews, but rather to provide an overview of the different approaches taken to wetland definition, specifically as they relate to the present study.

Conceptually, wetlands are generally considered to be ecosystems transitional between terrestrial ecosystems and truly aquatic and marine ecosystems (although some definitions include many aquatic and marine ecosystems - e.g. the Ramsar definition). The difficulty in definition arises when an attempt is made to differentiate between terrestrial ecosystems and wetlands, and between wetlands and aquatic & marine ecosystems (Winning, 1988).

Many ‘definitions’ of wetlands are little more than general descriptions of what a wetland is. Even definitions that are intended to have some form of legal function are little more than descriptive statements, or lack definitional rigour.

The Convention on Wetlands of International Significance (Ramsar Convention) provides an example of a descriptive approach to defining wetlands:

`Areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres. (UNESCO, 1971)`
Rather than a rigorous definition, this is effectively a general description of the types of ecosystems that the convention considers to be wetlands. The Commonwealth Government has adopted this approach to defining wetlands, with some modifications, for its wetlands policy (Commonwealth Government of Australia, 1997).

The definition adopted within the NSW Wetlands Management Policy attempts to apply some rigour but its application still requires a high degree of subjective interpretation:

Wetlands are areas that are wet for a long enough period such that the plants and animals living in them are adapted to, and often dependent on, living in wet conditions for at least part of their life cycle. For the purposes of this Policy, wetlands are defined as land that is:
- inundated with water on a temporary or permanent basis;
- inundated with water that is usually slow moving or stationary;
- inundated with water that is shallow; and
- inundated with water that may be fresh, brackish or saline.

(NSW Dept. Land & Water Conservation, 1996)

Somewhat surprisingly, Schedule 3 of the NSW Environmental Planning & Assessment Regulation 1994 adopts a similarly imprecise definition:

natural wetlands ... form a shallow waterbody (up to 2 metres deep) when inundated cyclically, intermittently or permanently with fresh, brackish or salt water, and where the inundation determines the type and productivity of the soils and the plant and animal communities.

The main wetland conservation instrument for coastal wetlands in New South Wales, State Environmental Planning Policy 14 - Coastal Wetlands (SEPP 14) does not include a definition. SEPP 14 applies to areas of land shown on a series of maps maintained under the policy. In considering amendments, deletions or additions to the maps, the Department of Urban Affairs & Planning applies the mapping criteria used for the original survey (Adam et al., 1985), giving these criteria a quasi legal status as an informal definition. However, this loose definition is open to a range of interpretations, and has required users of the policy to devise supplementary criteria in an attempt to tighten the original criteria (Winning, 1991).

Several attempts have been made in countries other than Australia to develop a tight definition for legal use. Most notable is the definition adopted by the government of the United States of America, although this definition is currently under review:

Lands transitional between terrestrial and aquatic ecosystems where the water table is usually at or near the surface, or the land is covered by shallow water. For the purposes of this classification wetlands must have one of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non soil and is saturated with water or covered by shallow water at some time during the growing season each year. (Cowardin et al., 1979)

This definition is supplemented by lists of hydrophytes and hydric soils, as well as a detailed package which describes the function and use of the definition and associated classification scheme.

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The authors are not aware of any similar attempt in Australia at a tight definition for legal use.

WETLANDS IN WYONG LGA - THE CONCEPT

Lands were considered to be suitable for inclusion in Wyong Council's wetlands LEP if they provide habitat for wetland-dependent flora and fauna. To satisfy this requirement, land must be inundated long enough and/or frequently enough to support wetland vegetation and/or complex wetland communities.

The following wetland types are covered by this concept:

(a) Swamps, marshes and wooded wetlands - land on which the vegetation is dominated by wetland plants. These may be freshwater or estuarine wetlands. These areas are readily identified by the dominant plant species. No distinction was made between wetlands supporting native plant species and those supporting introduced plant species provided the vegetation comprised wetland species.

This was based on the premise that wetlands infested by wetland 'weeds' still have wetland habitat value or have potential to be rehabilitated to recover their wetland habitat value.

(b) Ponds subject to inundation of a very long duration - topographical basins which are permanently or temporarily inundated by freshwater (at least 1 month under average conditions after filling), but which support insufficient emergent hydrophytic vegetation to be considered to be wetlands under (a). A period of inundation of greater than one month was selected as this period is considered to represent an inundation of very long duration, following US Dept. of Agriculture (1991), and is considered to be a long enough period for a complex aquatic community to develop in the pond.

Identification of such ponds by direct observation would be dependent on periodic inspections under average climatic conditions, a task that is generally impracticable. Accordingly, the definition adopted here used indirect evidence to infer this characteristic, using the depth of the pond (actual or predicted), based on the premise that a pond of the specified depth would retain water for at least 30 days under average evaporation conditions with little or no rainfall during that period. In the absence of evapotranspiration data for wetlands in the Wyong area, duration of inundation was determined as a function of pan evaporation data for the nearest recording station (Maryville). The monthly mean pan evaporation of 4.2 mm per day for Maryville was therefore used to derive the definition.

This concept is similar to many used by other authors in that it is primarily vegetation based. The perceived advantages of a vegetation based definition are:

- vegetation is relatively easily observed and 'measured' compared with other parameters, such as soil type;
- vegetation, to a large degree, expresses the varying
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definition as such areas were considered too small to be subject to the LEP.

It is important to note that a modified wetland may still satisfy the definition if it is dominated by wetland vegetation. Also, the definition makes no
 distinction between native and exotic plant species providing they are wetland
species. Thus an infestation of a weed, such as Water Hyacinth (Eichhornia
crassipes), would not exclude a wetland from the definition.

WYONG COUNCIL'S
EXPERIENCE IN APPLYING THE
DEFINITION TO DEVELOP ITS
7(g) WETLANDS CONSERVATION
ZONE

Delineation of wetland boundaries is based on an assumption that wetlands have precise, mappable boundaries. In reality, wetlands generally grade into the surrounding upland ecosystems, often over a distance of many metres (Winning et al., 2000). Further, some
wetland boundaries are not constant, and may shift seasonally or in response to long term climatic cycles. In
acknowledgment of this inherent ‘fuzziness’ of wetland boundaries, the
unavoidable imprecision in mapping of natural communities must be borne in
mind in any wetland mapping program. The wetland boundary was placed so as to
include vegetation dominated by (>=50% areal cover) wetland plants, but
exclude vegetation in which wetland plants are less abundant. Detailed
recommendations and instruction on
mapping protocols using a combination of aerial photographs, orthophotomaps and ground truthing were prepared to enable use of the definition by relatively
inexperienced officers (Winning, 1994).

More than 1,200 hectares of land has been incorporated within the new 7(g)
wetlands zoning. The actual

WETLANDS IN WYONG LGA -
THE DEFINITION

The complete wetland definition instrument adopted for wetlands in
Wyong LGA is presented in Appendix 1. The following is an extract from the
complete definition:

"Wetlands of conservation
value" comprise -
(a) land which supports
emergent vegetation
dominated by wetland
plant species which are
listed in Schedule 1; or
(b) land on which non-
esuautine water ponds
or is capable of
ponding to a depth of
0.12 metre or more,
over 70% or more of its
total surface area.

Schedule 1 of the wetland definition instrument comprises a list of vascular
wetland plant species known to occur in Wyong LGA. The listing of a plant as a
wetland species, and any qualifier applying to a species' listing, were
subjectively based on empirical knowledge of one of the authors
(Winning) of the ecology of these species in the central coastal region of
NSW. This list is quite comprehensive, but in practice an investigator needs to
be familiar with only a relatively small number of common wetland plants to
enable accurate determination of
wetlands.

Land which satisfies the above
definition but has an area of less than 1 ha was specifically excluded by the

ISSUE
Property values will decrease
Infringement upon property rights and compensation concerns
Catchments and buffer areas around the 7(g) Wetlands Management Zone should also be rezoned
Wetlands criteria go too far/do not go far enough

COMMENTS
Many land holders expressed a view during the public consultation phase that the 7(g) zone would devalue their properties and will restrict certain uses from occurring. In reality, many areas which are affected by the zoning were already constrained by other factors, such as flooding and acid sulphate soils, even though this was not necessarily reflected in the existing zoning. Most 7(g) zoned land possesses a number of significant development constraints, such as flooding, acid sulphate soils, significant flora and fauna conservation values.

A number of land owners expressed a view during the public consultation phase that the 7(g) zone represented an attempt at retrospection without compensation. While a number of others considered that the Local Environmental Plan infringed upon their ‘basic’ property rights. It is often incorrectly assumed that land ownership brings with it ‘rights’ which enable the land owner to use the land for whatever purpose they desire. Legally, there is no ‘right’ for compensation as a result of the imposition of a new environmental zoning. In addition, it should be noted, that the issue of compensation, is an extremely complex issue, as in most instances lands which are identified by the 7(g) zoning would already have restrictions imposed upon development due to other physical and environmental constraints, such as flooding. As a consequence, it is often difficult to identify the exact factor for which compensation is being sought, as environmental constraints in wetland environments often mirror underlying development constraints.

A number of land owners did not appreciate that the 7(g) Wetlands Management zone was only one component of a larger wetland management system which affects land identified by State Environmental Planning Policy No 14 – Coastal Wetlands and estuarine areas which are affected by Wyong’s Wetlands Development Control Plan (DCP). It is noted that the Wetlands DCP plays an important role in mitigating the environmental impacts of land use activities on wetland buffers and low lying floodplain and drainage lines which did not conform with the 7(g) wetland mapping criteria.

A range of criticisms were levelled at the 7(g) criteria, ranging from those who expressed the view that the criteria were too extensive in their coverage of wetland environments, while others believed that they were not extensive enough in terms of the environments that were identified by the 7(g) zoning. The 7(g) criteria were designed to identify a wide range of locally important wetlands, and included some types of wetlands, such in wet heaths and swamp forests, which are often regarded by some as not being sufficiently wet to be a wetland (many members of the public expect to see water and ducks in wetlands). Despite, the existence of such perceptions, the ecosystems which were mapped are considered to be wetlands as the level and frequency of soil inundation is the primary factor which has led to the formation of these ecological communities.

implementation of this rezoning strategy has taken many years to achieve due to the major nature of the LEP and the large number of private landowners which were affected by the rezoning proposal. It is probably useful to outline some of the more significant views which were expressed by land owners who were affected by the proposal and the general public. It is hoped that this overview of public perceptions which was encountered might also assist other
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Wetland dependent flora and fauna, a number of which are listed on the Threatened Species Conservation Act 1995, or are listed on international treaties such as the Japan Australia Migratory Bird Agreement (JAMBA) and China Australia Migratory Bird Agreement (CANBA). Wyong’s wetlands also make a significant contribution to the local landscape, where the green belts of wetland vegetation sharply contrast with intensively developed residential areas.

The wetlands that were defined by the wetlands definition have been incorporated into Council’s land use zoning scheme. These areas have been defined under a specific conservation zoning, which in Wyong LGA is termed the 7(g) Wetlands Conservation Zone. Wyong Council’s decision to pursue a specific wetlands conservation zoning was based on a perceived need to ensure that tight landuse restrictions and environmental assessment criteria are established for locally important wetland areas, many of which were not included under State Environmental Planning Policy No 14- Coastal Wetlands. In addition, many of the wetland areas that have been affected by the new wetlands zoning did not previously occur in landuse zonings which recognised the conservation importance of wetland ecosystems.

The 7(g) Wetlands Conservation Zone forms part of an integrated and overlapping wetland management system. The three tiers of this system are outlined as follows:

(i) State Environmental Planning Policy No 14 - Coastal Wetlands (wetlands of state significance);
(ii) 7(g) Conservation Zone (locally important wetlands defined by criteria);
(iii) Development Control Plan for Wetlands (contains environmental guidelines for development on wetland buffer zones, marginal wetland habitats and wet meadow environments).

These three tiers can overlap such that an area covered by the development control plan may include one or more 7(g) zoned wetlands and/or SEPP 14 wetlands, and a 7(g) zoned wetland may partially or wholly coincide with a SEPP 14 wetland.

The wetland management system allows for a flexible approach to be taken within those lands which are affected by the Wetlands Development Control Plan once an assessment has been undertaken of the particular wetland values and functions which exist on the site where development is proposed to occur. As a result of this assessment, specific recommendations are likely to be made on issues such as the width of wetland buffer zones, appropriate stocking rates for wet meadows and the retention of other wetland landscape features within the development proposal within Wetlands Development Control Plan areas.

ALTERNATIVE WETLAND POLICY MODELS

While Wyong Council chose to use a definition based approach for the purposes of justifying and defending the choice of wetland zone boundary positions, opportunities also exist for Councils to establish wetland protection policies without necessarily linking wetland mapping to land use zoning restrictions. In Wyong Council’s case mapping was necessary due to the extreme development pressures that these environments were experiencing. It was also realised that it was the most effective environmental policy option to slow the rate of wetland loss.

The incremental loss of wetland vegetation over time is not a problem that is unique to Wyong LGA but is also experienced in many other coastal LGAs in New South Wales. Wyong Council established a policy position to rezone its wetland areas because it was recognised that unless efforts were taken to define the types of environments which constituted a wetland and boundaries established for these areas, there would always be incremental development pressures on the edges of these environments, which over time would destroy these important ecosystems.

The policy choice to rezone wetlands for conservation purposes has placed Wyong Council in a better position to refuse inappropriate forms of development from occurring within wetland environments. It was recognised when the Council commenced the development of its wetland protection policies that the wetland areas which were mapped using the wetlands definition could have been implemented with alternative policy tools such as Development Control Plans or a simple Council policy. However, it was considered that these options would not have the same legal strength to defend policy decisions in the Land and Environment Court as is afforded by a Local Environmental Plan. Land use zonings are also difficult to change and hence it is more difficult to justify one-off decisions on developments which incrementally result in significant wetland losses over time, especially among those wetland areas that are not currently given any protection by State Environmental Planning Policy 14.

Based on experience in Wyong LGA, the use of regional wetland definitions is considered to have substantial potential. It is considered that the definitional approach adopted here could be readily applied to other local government areas providing the definition was modified to suit the
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APPENDIX 1 - Wetland Definition Instrument

THE DEFINITION

For the purposes of identifying critical wetland areas in Wyong LGA:

1. (1) "Wetlands of conservation value" comprise -

   (a) land which supports emergent vegetation dominated by wetland plant species which are listed in Schedule 1; or

   (b) land on which non-estuarine water ponds or is capable of ponding to a depth of 0.12 metre or more, over 70% or more of its total surface area.

2. For the purposes of clause 1 -

   "dominated by" means that 50% or more of the total foliage cover of the tallest wetland plants.

   "ponds" means that surface water stands in a closed topographical depression, and the water is removed only by percolation, evaporation or transpiration;

   "emergent" refers to plants that have growing parts above

   "furnace cover" means the proportion of the sample site occupied by the vertical projection of foliage and branches of trees or shrubs;

   "non-estuarine" refers to surface water which derives from direct precipitation, stormwater runoff or percolated groundwater, but does not include saline or near-saline water (salinity ≥ 20 ppt) associated with an estuarine lagoon or stream estuary;
"tallest stratum" means the tallest growth form of vegetation present that has an average foliage cover of 20% or greater.

SCHEDULE 1
Emergent Wetland Plants Occurring in the Wyong Area

Part 1 - Interpretation
2. Any plant species listed in this schedule is only considered to be a wetland plant insofar as it satisfies any modifier listed alongside its name in the schedule.

Part 2 - Emergent Wetland Plants

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Modifier</th>
</tr>
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<tbody>
<tr>
<td><strong>TREES</strong></td>
<td></td>
</tr>
<tr>
<td>FAMILY ARECACEAE</td>
<td></td>
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<tr>
<td>Livistona australis</td>
<td></td>
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<tr>
<td>FAMILY CASUARINACEAE</td>
<td></td>
</tr>
<tr>
<td>Casuarina glauca</td>
<td>Only as part of a mixed stand (&lt; 80% L. aust.).</td>
</tr>
<tr>
<td>FAMILY MYRTACEAE</td>
<td></td>
</tr>
<tr>
<td>Callistemon salignus</td>
<td>Only as part of a mixed stand (&lt; 80% C. salig.).</td>
</tr>
<tr>
<td>Eucalyptus robusta</td>
<td></td>
</tr>
<tr>
<td>Melaleuca biconvexa</td>
<td></td>
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<tr>
<td>Melaleuca linariifolia</td>
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<td>Melaleuca quinquenervia</td>
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<tr>
<td>Melaleuca sieberi</td>
<td></td>
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<tr>
<td>Melaleuca styphelioides</td>
<td></td>
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<tr>
<td>FAMILY VERBENACEAE</td>
<td></td>
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<tr>
<td>Avicennia marina</td>
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<tr>
<td><strong>HERBS</strong></td>
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<tr>
<td>FAMILY ALISMATACEAE</td>
<td></td>
</tr>
<tr>
<td>Alisma plantago-aquatica</td>
<td></td>
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<tr>
<td>Danthonium minus</td>
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<tr>
<td>Sagittaria graminea</td>
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<tr>
<td>Sagittaria montevidensis</td>
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<tr>
<td>FAMILY AMARANTHACEAE</td>
<td></td>
</tr>
<tr>
<td>Alternanthera denticulata</td>
<td></td>
</tr>
<tr>
<td>FAMILY APIACEAE</td>
<td></td>
</tr>
<tr>
<td>Apium prostratum</td>
<td>Only as part of a mixed stand (&lt; 50% H. bon.).</td>
</tr>
<tr>
<td>Hydrocotyle bonariensis</td>
<td></td>
</tr>
<tr>
<td>FAMILY ASTERACEAE</td>
<td></td>
</tr>
<tr>
<td>Aster subulatus</td>
<td>Only as part of a mixed stand (&lt; 50% A. sub.).</td>
</tr>
<tr>
<td>Cotula coronopifolia</td>
<td></td>
</tr>
<tr>
<td>Cotula longipes</td>
<td></td>
</tr>
<tr>
<td>Eclipta prostrata</td>
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</tr>
</tbody>
</table>
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Chorizandra cymbaria
Chorizandra sphaerocephala
Cladium procerum
Cyperus difformis
Cyperus engro-fitis
Cyperus esculentus
Cyperus laevigatus
Cyperus odoratus
Cyperus polygastachys
Eleocharis acuta
Eleocharis atricha
Eleocharis cylindrostachys
Eleocharis dietrichiana
Eleocharis gracilis
Eleocharis minuta
Eleocharis pusilla
Eleocharis phacelata
Fimbrystis ferruginea
Fimbrystis velata
Gahnia clarkei
Gahnia sieberana
Gymnoschoenus sphaerocephalus
Isopogon cerua
Isopogon flexuans
Isopogon hekerianus
Isopogon inundata
Isopogon prolifera
Lepidoperma limicola
Lepidoperma longitudinalis
Lepidoperma quadrangulatum
Leptorhina articulata
Lipocarya microcephala
Schoenoplectus litoralis
Schoenoplectus mucronatus
Schoenoplectus validus
Schoenus brevifolius
Schoenus paludosus
Tristocarpia pumila

Only as part of a mixed stand (≤ 50% C. dif.).

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Cassia arborescens
Cassia corymbosa
Cassia tora
Cassia tomentosa
Cassia spectabilis
Cassia brevipes
Cassia imbricata
Cassia oblique-triangularis
Cassia obtusifolia
Cassia orbicularis
Cassia equisetifolia
Cassia papyrifera
Cassia pennisetifolia
Cassia acida
Cassia clavigera
Cassia didymobotrya
Cassia pseudogigas
Cassia pseudofumata
Cassia procumbens
Cassia tridonta
Cassia trifoliata
Cassia versicolor
Cassia xerocarpa
Cassia ×cineraria
Cassia ×photina
Cassia ×swainsonii
Cassia ×wilsonii

Only as part of a mixed stand (≤ 50% C. dif.).
FAMILY ERIOCAULACEAE
Eriocaulon sciricosum

FAMILY GLEICHENIACEAE
Gleichenia dicarpa

FAMILY GOODENIACEAE
Goodenia paniculata
Goodenia stelligera

FAMILY HALORAGACEAE
Gonocarpus micranthus
Myriophyllum aquaticum
Myriophyllum gracile
Myriophyllum latifolium
Myriophyllum pedunculatum
Myriophyllum varifolium
Myriophyllum verrucosum

FAMILY HYDROCHORITACEAE
Ottelia ovalifolia

FAMILY JUNCACEAE
Juncus articulatus
Juncus kraussii
Juncus planifolius
Juncus polyanthemus

FAMILY JUNCAGINACEAE
Maundia triglochinoideas
Triglochin procerus
Triglochin striata

FAMILY LAMIACEAE
Lycopus australis

FAMILY LEMNACEAE
Lemma minor
Lemma trisulca
Spirodela punctata
Wolfia aquatica
Wolfia australiana

FAMILY LILIACEAE
Blandfordia grandiflora
Blandfordia nobilis
Caesia parviflora
Sowerbaea juncea

Only as part of a mixed stand (≤ 50% G. dich.).

FAMILY MENYANTHACEAE
Nymphoides geminata
Villarzia exaltata

FAMILY NYMPHAEACEAE
Nymphaea spp.

FAMILY ONAGRACEAE
Ludwigia peplus

FAMILY PHILLYDRACEAE
Philydrum lanuginosum

POACEAE
Diplachne fusca
Echinochloa crus-galli
E. telmatophila
Hemarthria uncinata
Isachne globosa
Ischaemum australe
Leersia hexandra
Paspalum distichum
Paspalum vaginatum
Phragmites australis
Pseudoraphis paradoxa
Pseudoraphis spinescens
Sporobolus virginicus

FAMILY POLYGONACEAE
Persicaria decipiens
Persicaria hydropiper
Persicaria lapathifolia
Persicaria strigos

FAMILY PONTEDIERACEAE
Eichhornia crassipes

FAMILY POTAMOGETONACEAE
Potamogeton australiensis
Potamogeton crispus
Potamogeton javanicus
Potamogeton ochreatus
Potamogeton pectinatus
Potamogeton perfoliatus
Potamogeton tricarinatus

FAMILY PRIMULACEAE
Samolus repens
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A PLANNING METHODOLOGY FOR PROTECTING SALTMARSH, MANGROVE AND SEAGRASS WETLANDS IN NEW SOUTH WALES AND VICTORIA

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ABSTRACT

A planning methodology is outlined for the integrated protection of saltmarsh, mangrove and seagrass wetlands in New South Wales and Victoria. The planning methodology consists of a number of steps supported by statewide planning and statutory policy and wetland mapping to identify and locate these important wetlands.

The planning methodology comprises protective land use and waterway zoning and development control provisions for managing new land and waterway uses and developments. Followed by the development of management plans that can manage existing land and waterway uses and developments, which may affect saltmarsh, mangrove and seagrass wetlands.

Keywords: saltmarsh, mangrove, seagrass, wetlands, planning, methodology, zoning, development, management.

INTRODUCTION

Saltmarsh, mangrove and seagrass vegetation communities are susceptible to a range of natural and anthropogenic processes that can alter their distribution and survival. These processes can be associated with new or existing land uses and development activities occurring within the catchment of the wetland or within the wetland itself. New land uses can include residential, industrial and recreational use of land while new development can include construction of roads, drains and building works.

Existing land uses can include farming activities and residential suburbia while existing development can include stormwater and sewerage treatment infrastructure, dams and road pavements. Planning and management authorities have grappled with these processes for many years. However, the tools used to deal with these processes has relied upon statutory and non statutory instruments associated with planning and conservation legislation which may deal with new land uses and developments adequately, but not necessarily existing land uses and developments.

This paper sets out to express a planning methodology that can be used by planning and management authorities to protect saltmarsh, mangrove and seagrass communities in an integrated manner. The planning methodology is not new, but needs to be clearly outlined to demonstrate that implementing such a protective planning methodology is feasible and practical. The methodology can be implemented under any legislative jurisdiction and examples of how it can be implemented in New South Wales and Victoria are provided.