

Grazing in wetlands

GUIDELINES FOR GRAZING IN THE
GWYDIR WETLANDS AND MACQUARIE MARSHES

SECTION ONE

Importance of grazing guidelines

Ecosystems in the Gwydir Wetlands and Macquarie Marshes are under pressure from decreased water inflows and increasing climate variability. As a result, managing the impacts of grazing is expected to become more important for the long-term health and productivity of these areas.

The *Guidelines* aim to give practical advice on how grazing in these important ecological areas can be managed to provide for sustainable grazing enterprises.

The *Guidelines* provide recommendations to landholders. Recommendations are based on the knowledge of graziers who were extensively consulted, and on published knowledge and the experience of scientists, traditional owners and natural resource practitioners (private and government).

The published science behind the *Guidelines* is supportive of a number of long recognised grazing management practices. These wetland systems are extremely productive and can support large diverse ecological communities. The available knowledge also shows the fragile nature of these wetlands and the importance of sound management practices for maximising the potential for the retention of these wetlands for future generations.



Macquarie Marshes (David Heap, DECC)

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Ultimately, landholders have to make management decisions on how they graze. The role of these *Guidelines* is to provide useful ideas to help graziers tailor business decisions to current and future challenges facing them in the wetlands.

Building the guidelines

To ensure the information in this document is practical, graziers in these areas were asked to participate in a survey to identify their key issues and current management practices. To build on this knowledge, scientific research was reviewed, and the ideas of private industry, traditional owners and government were gathered. This information was used to develop a series of recommendations that focus on:

- the behaviour of different plant communities;
- the impact of grazing on plant communities;
- the use of alternate watering points;
- the use of fire; and
- climate change.

Many landholders are actively managing for profitable and ecologically sustainable grazing in the Gwydir Wetlands and Macquarie Marshes. However, it is recognised that there has been very little long-term research into grazing management systems and the impact of these systems on wetlands. This limits the scope of information available to graziers and the detail of recommendations that can be made.

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How to use these guidelines

The *Guidelines* have been designed as a series of seven sections that enable the reader to review different information in the context of the larger series. The information presented in each section is not to be used in isolation from each of the other sections that form the *Guidelines for grazing in the Gwydir Wetlands and Macquarie Marshes*.

Recommended management actions

The aim of these guidelines is to help landholders examine grazing management ideas suitable for the Gwydir Wetlands and Macquarie Marshes. In these wetlands, agriculture accounts for the majority of activity and grazing is considered the most important agricultural activity to many landholders in these areas. The management of grazing livestock is:

- one of the few things that individual graziers can influence; and
- one of the few issues affecting wetlands that can be addressed at a local scale.

Grazing practices need to continually adapt to a changing climate and ongoing water management because the impact of grazing becomes more important where wetlands are stressed (e.g. due to reduced flooding). Stressed wetlands are more vulnerable to long-term damage from short-term grazing decisions.

Information specific to the Gwydir Wetlands and Macquarie Marshes has been gathered, but the principles broadly apply to the grazing systems of other semi-arid wetlands in NSW.

Grazing for these wetlands

The endpoint of good grazing management in these iconic wetland areas should be threefold:

1. Healthy wetlands with a patchwork of well-functioning plant and animal communities, such as reed beds, grassy meadows and wooded areas;
2. Profitable enterprises for graziers; and a
3. Balanced lifestyle, combining work, family, social and community commitments.

Principles for grazing

Some fundamental grazing management principles that can help achieve these outcomes in wetlands are:

- Adaptable grazing management that can respond rapidly to changing conditions and issues.
- Vegetation condition should be one of the main drivers of stocking decisions, regardless of the stocking strategy used.
- There needs to be a match between stocking rates (animal demand) to carrying capacity (pasture supply) to avoid overgrazing.

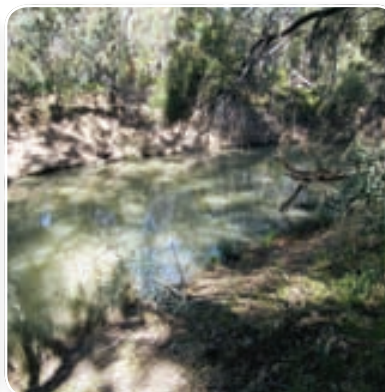
Recommendations for grazing

Graziers should consider:

- total grazing pressure (i.e. combined impacts of livestock, feral animals and native herbivores) when planning the stocking rate to use;
- stocking rates based on the response of the most grazing sensitive parts of the ecosystem within a paddock;
- maximising groundcover of desirable species;
- the timing and location of stock to maximise establishment of native species, maintain or increase the wetland seed-bank and minimise soil pugging;



Bora Channel (NSW DPI)



Macquarie River (NSW DPI)

- paddocks that contain a mix of open and shady areas for stock shelter, and fence paddocks according to different vegetation communities when looking at alternative paddock designs;
- burning practices. Burning wetlands for grazing management is not recommended, but if burning is required in tall reed beds, then graziers should use cool winter burns when the soil is moist; and
- using stock water sources other than flooded wetland areas, billabongs or channels to help maximise pasture utilisation (e.g. pipe and trough systems).

Resources for more information

Many additional resources are available from a range of sources and contain information specific to the Gwydir Wetlands, Macquarie Marshes and to grazing in these and other wetland areas. NSW DPI does not necessarily endorse all opinions or ideas found in these resources. Further resources are:

NSW Department of Primary Industries:
www.dpi.nsw.gov.au

NSW Department of Environment and Climate Change:
www.environment.nsw.gov.au

NSW Department of Water and Energy:
www.dwe.nsw.gov.au

Border Rivers-Gwydir Catchment Management Authority:
www.brg.cma.nsw.gov.au

Central West Catchment Management Authority:
www.cw.cma.nsw.gov.au

Livestock Health and Pest Authority
(formally the NSW RLPB):
www.rlpb.org.au

Desert Knowledge CRC Water Smart Program:
www.desertknowledgecrc.com.au/watersmart

Commonwealth Scientific and Industrial Research Organisation (CSIRO)
www.csiro.au

Hotspots Fire Project
www.hotspotsfireproject.org.au

Nature Conservation Council of NSW Bushfire Program
www.nccsw.org.au/bushfires

Southeast Queensland Fire and Biodiversity Consortium
www.fireandbiodiversity.org.au

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Grazing cattle (NSW DPI)



Cumbungi (NSW DPI)



Burning reed bed (Darren Shelley, DECC)

Grazing in wetlands

Guide to the common and scientific names of plants found in the *Guidelines*

This section lists the common names and scientific names of different plants referred to in the *Guidelines for grazing in the Gwydir Wetlands and Macquarie Marshes*.

Common Name (*Scientific Name*)

Aster Daisy (*Aster subulatus*)

Bathurst Burr (*Xanthium spinosum*)

Black Roly-poly (*Sclerolaena muricata*)

Bladder Saltbush (*Atriplex vesicaria*)

Blown Grass (*Lachnagrostis filiformis*)

Boggabri (*Amaranthus mitchellii*)

Box Grass (*Paspalidium constrictum*)

Brown Beetle Grass (*Leptochloa fusca*)

Burr Medic (*Medicago polymorpha*)

Climbing Saltbush (*Einadia nutans*)

Common Couch (*Cynodon dactylon*)

Common Nardoo (*Marsilea drummondii*)

Common Reed (*Phragmites australis*)

Common Water Milfoil (*Myriophyllum papillosum*)

Cumbungi (*Typha domingensis*)

Curly Mitchell Grass (*Astrelba lappacea*)

Curly Windmill Grass (*Enteropogon acicularis*)

Dirty Dora (*Cyperus difformis*)

Dock (*Rumex tenax*)

Flat Spike-sedge (*Eleocharis plana*)

Floating Pondweed (*Potamogeton tricarinatus*)

Jerry-Jerry (*Ammania multiflora*)

Knotweeds (*Persicaria species*)

Lignum (*Muehlenbeckia florulenta*)

Lippia (*Phyla canescens*)

Marsh Club-rush (*Bolboschoenus fluviatilis*)

Nardoo (*Marsilea drummondii*)

Native Millet (*Panicum decompositum*)

Noogoora Burr (*Xanthium occidentale*)

Pigweed (*Portulaca oleracea*)

Princes Plume (*Persicaria orientalis*)

Queensland Bluegrass (*Dicanthium sericeum*)

Ribbed Spike-sedge (*Eleocharis plana*)

Ribbon Weed (*Vallisneria spiralis*)

River Red Gum (*Eucalyptus camaldulensis*)

Ruby Saltbush (*Enchylaena tomentosa*)

Saltbush (*Atriplex vesicaria* spp. *macrocytidia*)

Sesbania Pea (*Sesbania cannabina*)

Silky Brown Top (*Eulalia aurea*)

Soft Roly-poly (*Salsola kali*)

Spear (or Black) Thistle (*Cirsium vulgare*)

Spike Sedges (*Eleocharis* spp.)

Starfruit (*Damasonium minus*)

Swamp Buttercup (*Ranunculus undosus*)

Tall Spike-sedge (*Eleocharis sphacelata*)



Blown Grass (NSW DPI)



Starfruit (NSW DPI)



Curly Mitchell Grass (NSW DPI)

Variegated Thistle (*Silybum marianum*)
Warrego Summer Grass (*Paspalidium jubiflorum*)
Water Couch (*Paspalum distichum*)
Water Hyacinth (*Eichhornia crassipes*)
Water Milfoil (*Myriophyllum papillosum*)
Water Primrose (*Ludwigia peploides*)
Waterwort (*Elatine gratioloides*)
Weeping Lovegrass (*Eragrostis parviflora*)
Wheat Grass (*Elymus* sp.)
Willow Primrose (*Ludwigia octovalvis*)
Windmill Grass (*Chloris truncata*)
Woollybutt (*Eragrostis eripoda*)

References

The *Guidelines for grazing in the Gwydir Wetlands and Macquarie Marshes* rely on extensive published material. This information has been used to identify, support and highlight the current understanding of grazing management in the Gwydir Wetlands and Macquarie Marshes. NSW DPI does not necessarily endorse all opinions or ideas contained within these references.

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The electronic resources used for the development of these *Guidelines* were:

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Bureau of Meteorology: www.bom.gov.au

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Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing – May 2009. This information is not to be used in isolation from other information developed as part of the *Guidelines for grazing in the Gwydir Wetlands and Macquarie Marshes*.

Advances in knowledge since the publication of these *Guidelines*, means that users must ensure that information upon which they rely for management decisions is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent advisor.



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