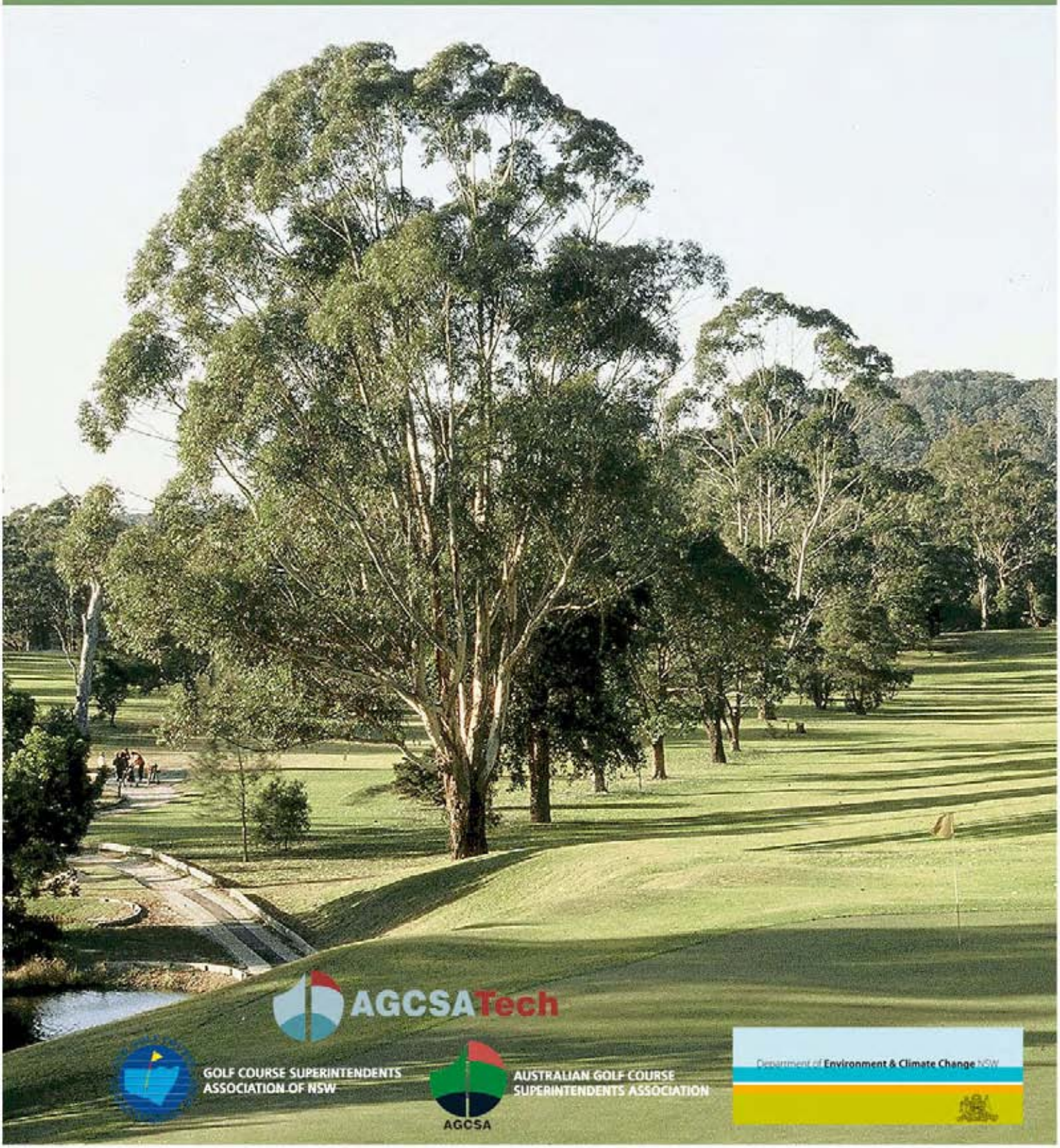
our environment it's a living thing

Improving the Environmental Management of New South Wales Golf Courses



AGCSATech

GOLF COURSE SUPERINTENDENTS ASSOCIATION OF NSW

AGCSA

AUSTRALIAN GOLF COURSE SUPERINTENDENTS ASSOCIATION

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Contents

INTRODUCTION

This educational reference manual has been produced by the Australian Golf Course Superintendents Association (AGCSA) and the NSW Department of Environment and Climate Change (DECC) with funding from the Urban Stormwater Education Program through the Stormwater Trust. The Urban Stormwater Education Program aims to educate the community, industry, local councils and other stakeholders about ways to reduce urban stormwater pollution. It is a key component of the Urban Stormwater Program and the NSW Government's Waterways Package, which address the issues of water quality management and water pollution.

The turf industry is an industry which was identified by the Urban Stormwater Education Program as one with the potential to impact negatively on urban stormwater. Golf courses are a key sector of the turf industry with approximately 450 golf courses in NSW. If managed well, golf courses can provide many environmental benefits such as stripping urban stormwater of contaminants and nutrients and providing native wildlife corridors in congested urban environments. If managed badly however, golf courses can be sources of nutrient and chemical run-off causing pollution of waterways and can lead to the degradation of indigenous flora and fauna habitats.

In 2000 the Australian Golf Course Superintendents Association indicated a desire to educate its members on improving environmental management practices on golf courses. A project was developed with the Association to write an educational reference manual and to conduct a number of training workshops around NSW. The manual and workshops would address the key environmental issues for golf course management such as water management, pesticides and fertiliser management and other related practices.

This education manual is based on a manual developed by the AGCSA and the Queensland Environmental Protection Agency in 2001. It has been adapted for the NSW context by the NSW DECC with the permission of the Queensland Environmental Protection Agency.

The second part of the education project consisted of four training workshops which were conducted in July 2002 at Camden Lakeside Golf and Country Club, Long Reef Golf Club, Nelson Bay Golf Club and Coffs Harbour Golf Club. These training workshops were conducted by the AGCSA and the NSW DECC with input from local councils and industry experts.

The AGCSA and the DECC hope that golf course superintendents and their staff will be able to implement better environmental management practices on their courses as a result of this two-pronged information and training project.

SECTION ONE

The Environmental Principles for Golf Courses

SECTION 1: Establishing the Environmental Principles for Golf Courses

KEY CONCEPTS

The governing bodies of golf and golf course designers have recognised the importance of designing, constructing and managing golf courses in an environmentally sustainable manner. Golf courses can provide significant benefits to the environment if constructed and managed using best management practices. They can also result in water pollution, pesticide spills and the destruction of native vegetation if managed poorly. This chapter outlines the key issues and provides an overview of best environmental management practices.

Golf is growing as a recreational pastime and sport and in certain areas of Australia, golf course resorts are a key feature of tourist locations. In recent years an increasing number of publications (overseas and in Australia) have stressed the importance of good environmental management of golf courses. This chapter provides an overview of best environmental management practices found in some key publications available to golf course superintendents and staff. These practices are detailed in full in the following chapters, which focus on key issues such as water and pesticide management.

Summary of key environmental principles and practices from recent publications

Construction or re-construction of golf courses is the first step to sound environmental management. The document, *Golf Courses — Benefits to the Community and Environment*, produced by the Society of Australian Golf Course Architects highlights ten key benefits of golf courses.

The benefits are:

i. they provide wildlife sanctuaries;
ii. they preserve open space and remnant vegetation in urban environments;
iii. they protect topsoil from degradation;
iv. they protect water resources;
v. they rehabilitate degraded landscapes;
vi. they promote physical and mental well-being;
vii. they promote indigenous flora and fauna;
viii. they improve air quality and moderate temperature;
ix. they utilise and treat water resources such as sewage, stormwater and urban runoff;
x. they beautify the environment and provide community education on environmental issues.

The Environmental Strategy for Australian Golf Courses (1998) identified the key environmental issues from an Australian perspective, provided information, promoted awareness of golf clubs as environmental assets and developed national guidelines for the environmental management of golf courses. Key management practices are outlined in the following one page summary:

ENVIRONMENTAL STRATEGY FOR AUSTRALIAN GOLF COURSES (AGU)

The strategies in this document can be summarised under the following categories:

AIR

- Minimise the use of ozone-depleting substances.

EDUCATION

- Develop links with community and environmental groups to raise the awareness of golf courses.
- Provide environmental training to golf course maintenance staff.

ENERGY

- Carry out energy conservation in buildings, equipment, machinery, vehicles and irrigation systems.

HERITAGE

- Identify and protect heritage items and places.

MANAGEMENT

- Prepare a course-specific environmental management plan.
- Assess the environmental state of the golf course by introducing and developing monitoring programs.

PESTICIDES

- Develop a management plan for the safe use and storage of pesticides.

SOIL

- Assess the environmental state of the golf course through soil monitoring programs.
- Carry out conservation and amelioration of degraded soils.
- Control pollution during construction activities.
- Test and dispose of contaminated soils appropriately.

VEGETATION

- Protect and rehabilitate remnant native vegetation.
- Use local native plant species.

WASTE

- Reduce, reuse and recycle waste.

WATER

- Use water-saving devices and techniques.
- Consider the pollution potential when choosing fertilisers, pesticides, soil ameliorants and irrigation water sources.

WILDLIFE

- Use wildlife-compatible habitat design in roughs and non-play areas to encourage the wildlife corridors concept.
- Create new wildlife habitat areas.

Another resource was developed in the USA by a group of leading golf and environmental organisations. The set of principles (1996) they wrote aim to produce environmental excellence in:

- golf course planning and siting
- design
- construction
- maintenance
- facility operations.

The set of principles is comprehensive and should be read in full if possible. The following key areas are worth highlighting in relation to eco-efficiency principles and practices:

Planning and siting

- Work closely with community groups and regulatory/permitting bodies.
- Undertake a detailed site analysis to determine potential environmental impacts.
- Take environmentally sensitive areas into account.
- Restore or enhance environmentally sensitive areas .
- Avoid unsuitable or sensitive sites (e.g. wetlands, habitats for threatened species, sensitive aquatic habitats)
- Aim to increase and enhance the range of indigenous Australian plants
- Use golf course development as a means of restoring or rehabilitating previously degraded sites.

Design

- Identify existing ecosystems and use these in the overall design.
- Retain native vegetation or replant it where appropriate in non-play areas.
- Use design to emphasise irrigation, drainage and retention systems that provide water conservation, protect water quality and ensure efficient water use.

- Implement water reuse (wastewater) strategies wherever they are economically feasible and environmentally and agronomically acceptable.
- Create buffer zones to protect high-quality surface waters and environmentally sensitive areas.
- Design the course with sustainable maintenance in mind. (The design should incorporate integrated plant management and resource conservation strategies that are environmentally responsible, efficient and cost-effective.)
- Use design to enhance and protect special environmental resource areas.

Construction

- Use qualified and experienced contractors.
- Develop and implement strategies to effectively control sediment, minimise loss of topsoil, protect water resources and reduce disruption to wildlife, plant species and designated environmental resource areas.
- Ensure only VENM (Virgin Excavated Natural Material) is used for fill.
- Schedule construction and turf establishment to allow for the most efficient progress of works.
- Engage a qualified course superintendent/project manager early in the design and construction process to integrate sustainable maintenance practices in the development, maintenance and operation of the course.

Maintenance

- Provide plant protection and nutrition.
- Employ integrated pest management strategies.
- Store and handle pesticides and fertilisers safely according to environmental regulations.
- Use nutrient products (e.g. slow release fertilisers) and practices that reduce the potential for contamination of ground and surface waters.
- Test and monitor soil conditions.
- Allow only trained personnel to apply plant protection chemicals.
- Use facilities to inform golfers about course chemical application.

Water use

- For areas in play, use plant materials that are well adapted to local environmental conditions, can be efficiently managed, and provide the desired playing surface.
- Use naturalised or specialised drought-tolerant plants wherever possible.
- Plan irrigation programs to meet plant water use requirements to avoid over-watering. Introduce technology that provides efficient water use. Inspect systems regularly.
- Use effluent water wherever appropriate (in accordance with the requirements of regulatory and advisory bodies as well as the water supplier).
- Manage water use effectively to prevent unnecessary depletion of local water resources.

Waste management

- If clippings are collected, compost them.
- Dispose of chemical rinsates appropriately and according to regulations.
- Dispose of chemical containers appropriately (i.e. triple rinse, then contact the drumMUSTER program. Ring 6230 6712 or email: drummuster@drummuster.com.au).
- Recycle or dispose of other wastes such as used motor oil, batteries etc according to local regulations.
- Reduce waste by purchasing goods with minimal packaging.

Wildlife management

- Protect and expand habitats of beneficial wildlife species.
- Manage habitats to maintain healthy populations of wildlife and aquatic species.
- Manage species that build up into pest numbers and damage turf areas through non-harmful control methods (e.g. noisemakers, repellents and trapping and removal).

Facility operations

- Use facilities to conduct an environmental assessment in order to develop and implement an overall environmental policy.
- Maintain records to document progress.
- Use facilities to adopt practices and technologies that conserve natural resources including water and energy.
- Develop programs of recycling, reuse and waste reduction.
- Urge facilities to join programs that foster effective environmental management and policies.
- Use facilities proactively to educate golfers, neighbours and the general public about golf course environmental policies and practices.

What golf course management, staff and golfers can do

Those who play golf, as well as superintendents, their staff and club management, have a responsibility to ensure that golf courses are managed sustainably and that they are in keeping with their local environment.

The topics outlined in this chapter could be used by the golf course management, superintendent, staff and golfers to develop a site-specific environmental management strategy and a plan. An environmental management plan (EMP) may be developed with the assistance of an expert consultant. However, by using the expertise of the local community, various government and non-government agencies as well as the golfers, the superintendent and staff can quite readily develop one themselves. As outlined in the *Environmental Strategy for Australian Golf Courses*, an EMP was developed for Toukley Golf Club on the NSW Central Coast, with the assistance of a variety of agencies, including the local community. The development, implementation and on-going modification of an EMP is a useful education tool for both the golf course staff and for the community groups involved. It can improve environmental practices in a relatively cost-efficient and interactive way.

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