

Of Birds and Bees, G

Golf Courses as flora and fauna habitat

"Golf courses are wildlife habitats. Wetlands, roughs, trees, and wildflowers, all of these support wildlife. In fact, historically, animals helped to make the game what it is, rabbit scrapes formed targets and sand-pit burrows created by sheep later became sand bunkers." Dr James Beard, 1982

Golf courses are located over a wide range of landscapes from rainforest to deserts, mountain slopes to seaside. The landscape setting is an integral part of the golfer's appreciation of a golf course and of the enjoyment of playing the game. The diversity in settings from 'natural' to 'manicured' courses and the differing challenges encountered on each is the principal reason why golfers enjoy travelling and playing a range of course types.

Each golf course should be designed to exploit its natural features to the fullest and have its own distinctive character and appeal. Often in order to integrate the golf features, modifications or 'enhancements' to the landscape occur. The designer may introduce trees, shrubs, grasses, waterbodies, earth shaping, topographical features and other elements within the landscape to impact on the play of the course. The range of possible design permutations is endless for any given layout. The course layout and landscape setting should complement each other so that in time they are always considered as one.

The creation of a new golf course is often a mix of favourable and adverse impacts. On degraded sites the creation of new 'natural' landscapes can enhance habitat opportunities and reintroduce indigenous species, both flora and fauna. In more natural settings it is the responsibility of the designer to route the course so as to preserve and integrate the key ecological areas. Some impacts may occur in other less pristine areas within the course, but often these are offset over time as new habitats are created with added bio-diversity.

The current focus in golf course design and management is increasingly towards natural solutions and a more ecologically sensitive landscape. This is reflected in our newer courses, such as the Moonah and Ocean courses at The National; The Links at Kennedy Bay; Lakelands and The Glades on the Gold Coast. These generally having an abundance of native grasses, wetlands or heath compared to a number of earlier resort courses. This approach is also reflected on many club courses throughout Australia where native grasses, wetlands and heath are being selectively introduced even on traditional 'parkland' style courses. The impetus for this is coming from golf course architects, course superintendents, club members and the community in general.

Historically, the early British courses were dominated by nature. The increase in earthmoving capacity, the necessity to use more difficult sites and improved maintenance equipment encouraged the evolution of the more manicured course leading to the 'Augusta dream' with its large television exposure.

Fortunately now a greater environmental awareness, together with an increased world wide exposure on television of the British Open links courses, along with our own courses featuring distinctive Australian landscapes and a desire for more site specific course character is allowing the natural element to regain the significance it once had.

Golf courses occupy around 5% of the urban area of our major capital cities. As open space with a range of habitats they provide an integral link with parks, reserves, waterways and other open space to form the urban green belt corridors. These corridors obviously most benefit the more mobile species such as birds and insects. In less developed areas kangaroos, gliders, koalas and other mammals, reptiles, amphibians and marsupials regularly use golf courses to reside, graze or pass through as part of their local territory.

As golf courses occupy large areas, often with half of it as non maintained rough, they are often the custodians of nationally rare and endangered species and locally rare fauna or remnant vegetation. Examples of this custodianship include:

- > *Pimelea spicata* - a small shrub listed as endangered with the approximately 500 plants at Camden Golf Club representing the largest known community of the species. The Club fences off 4.5 hectares of its land to exclude access.
- > Orange Bellied Parrot (*Neophema chrysogaster*) - an endangered species with less than 200 birds in the wild that has the Queenscliff Golf Club as a significant habitat in its annual migratory cycle.
- > Golden Sun Moth (*Synemon plana*) - an endangered species due to its known survival only in a short Wallaby Grass (*Danthonia carphoides* and *D. auriculata*) community. The majority of its life is spent as larvae under the ground eating the roots of the grass. It generally dies after one day above ground in which the male must find a mate and the female lay her eggs. The layout and landscaping at the new nine holes at Royal Canberra was modified to retain this community undisturbed. No potential course runoff or shading was permitted as this could alter the grassland which is integral to the moths sensitive life cycle. The ecologist regarded the golf course as a more compatible land use than the prior horse agistment regime.
- > *Pultanaea dentata* (a small groundcover) and two large remnant Snow gums (*Eucalyptus pauciflora*) located at Kingston Heath Golf Club. Both are site indigenous species now rare in urbanized SE Melbourne.

Australian golf courses are therefore critical habitats for diverse species ranging from the large and visually significant to small almost obscure plants and animals. Similar findings occur on golf

Grass and Trees

by Jamie Dawson

courses throughout the world as ecological studies increase.

All golf courses, be they old or new can make a greater and more positive contribution to the environment. Many are near to their potential - others have more significant opportunities available to increase natural flora and fauna habitats that can be successfully integrated into the strategy and character of the course.

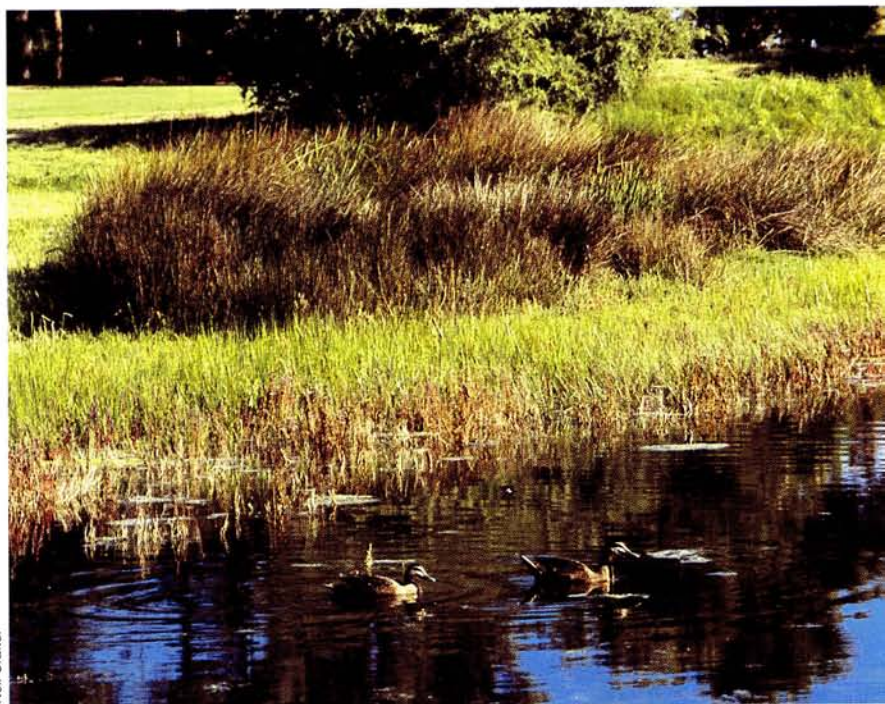
Beneficial measures to assist the course habitat and bio-diversity at existing and planned golf courses are diverse and numerous. A range of strategies would include:

- > Specialist ecological review to identify key indigenous ecosystems followed by a pro-active design or management program to protect or enhance habitats.
- > Add positively to the local gene pool by using local provenance seed or cuttings.
- > Additional shrub and groundcover plantings, especially in wooded parkland courses, to provide a varied vegetation strata that encourages more diverse bird and other fauna habitat and feeding opportunities. Natural woodlands have a range of openings, tree densities and spacings that yield patterns of sunlight and shadow, and mix of colour, vegetation and shape. Plant with irregular and waving margins that flow with and take into account the topography.
- > Incorporate macrophytes into wetlands to aid nutrient stripping and habitat.
- > Create buffer zones with lower maintenance or access regimes to protect core habitat areas.
- > Ensure actions that may alter the hydrological regime such as irrigation coverage, bore or effluent water, trenching, vegetation removal, and dam construction are evaluated for their broader environmental impacts
- > Utilize 'out of play' zones as natural planting, or regeneration zones that despite initial establishment costs generally result in lower recurrent maintenance costs. In time they may develop as valuable wildlife sanctuaries providing cover, food and nesting habitat.
- > Integrated Plant and Pest Management strategies for environmental responsiveness, efficiency, cost benefits and less reliance on chemicals.
- > Revive degraded zones to enhance the area's ecosystem
- > Prepare Vegetation Management Plans to provide staged improvements to the course landscape and importantly develop age class diversity to ensure long term health and appropriate species selection.
- > Retain dead trees with hollow cores where no safety hazard exists to provide nesting sites for birds, gliders, possums and even frogs and bats.

- > Sharp foliated shrubs such as grevillea often protect small birds from predatory cats and larger birds.
- > Involve keen ecologically minded community groups to assist club members and staff on worthwhile regeneration or maintenance programs.
- > Integrate wildlife movement corridors through the course with links to surrounding parks and open space, even if not fully continuous.
- > Utilize climatically adapted turf species.
- > Integrate with natural landforms to reduce earthworks and retain natural watersheds
- > Control feral animals and woody weeds and selectively reduce low habitat potential exotic vegetation

Every golf course is unique. Established golf courses have many opportunities to enhance their natural appeal, character and habitat, as can be seen in the case study at Glenelg Golf Club. New courses on sensitive sites, through carefully considered design and construction - such as the following case studies at The Links at Kennedy Bay and the new Links at The National - can positively contribute to the long term sustainable management of our natural environment. ■

**Remnant
vegetation
provides habitat
for wildlife at
Glenelg Golf
Club in Adelaide.**



Neil Crafter