

# Environment and Sustainability in the Mildura Region



*There are many organisations and Government departments based in the Mildura region who focus on the environment and sustainability.*

## Murray Darling Freshwater Research Centre

The Murray Darling Freshwater Research Centre (MDFRC) is a multi-disciplinary research centre with capacity across three broad areas; nutrient cycles, biology and ecology. In the area of nutrient cycles, the MDFRC has an established National Association of Testing Authorities accredited chemical laboratory to underpin both water quality and nutrient cycling research projects and assessments of water quality that are routinely undertaken for a diverse clientele. The MDFRC also supports a microbiological laboratory that supports research on the major drivers of nutrient cycles in aquatic ecosystems.

The MDFRC also has significant biological expertise particularly in the areas of and macro- and micro-invertebrate taxonomy. The Centre's invertebrate taxonomy laboratory maintains an invertebrate reference collection (spanning approximately 30 years). The Centre has also developed the capacity to identify fish larvae.

The MDFRC also undertakes research on diverse aspects of freshwater ecology, including; environmental flows in rivers and wetlands; the effects of salinity; wetland acidification, rehabilitation, microbial, fish and invertebrate ecology.

The multi-disciplinary expertise within the MDFRC enables it to provide a service to governments and the corporate sector and has a proven track record in dealing with water management issues both locally and nationally. MDFRC research and technical staff are all professionally trained in the collecting, processing and analysis of valid and representative samples.

The MDFRC has developed a strong teaching role and capacity, ranging from support for PhD and Honours degrees through to an extensive program of school events. The partnership with La Trobe University provides exciting opportunities to develop this capability.

The Murray Darling Freshwater Research Centre is ideally located for accessing the main water assets of the lower Murray-Darling Basin, their research into freshwater ecology informs management of the key environmental values of the region and builds on global freshwater knowledge. The knowledge MDFRC generates gives a scientific underpinning to resource management and industry decisions around use of the rivers and floodplains in this region.

The MDFRC employs approximately 60 staff in Mildura and Wodonga.

[www.mdfrc.org.au](http://www.mdfrc.org.au)

## National Centre for Sustainability

The National Centre for Sustainability (NCS) is a collaboration of several educational institutions. It provides educational leadership and works in partnership with industry, government and the community to undertake program delivery, resource development, project work and applied research, to support the development of sustainable practices.

The National Centre for Sustainability - Sunraysia operates from the Mildura and Swan Hill campuses of Sunraysia Institute of TAFE. It works with local stakeholders, community and government agencies to achieve sustainability gains in land and water management across the Sunraysia region. To achieve this, the Centre identifies potential sustainability gains, initiates sustainability projects, engages community partners, enhances the capacity of partners, implements physical change and provides project management.

The NCS also undertakes behavioural change programs through grants in areas such as rural leadership, indigenous training and sustainable building and gardening projects.

[www.ncsustainability.com.au](http://www.ncsustainability.com.au)

## Mallee Sustainable Farming Inc.

Mallee Sustainable Farming Inc. (MSF) delivers research and extension services for low rainfall dryland farmers. The organisation encompasses the Mallee region of South Eastern Australia which stretches across three states - from Hay (NSW) in the east to Murray Bridge (SA) in the west and Walpeup (Vic) in the south.

MSF produces a range of informative printed and electronic material such as FarmTalk Fact Sheets, MSF Annual Results Compendium and newsletters. It also conducts field days, crop walks and other events; as well as carrying out a range of trials and demonstrations.

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Membership of MSF provides a strong network of farmers facing similar issues who can provide valuable feedback and support. Membership is available to both individuals and organisations, with associate memberships also offered at a reduced rate.

MSF was established in 1997 to investigate and assist farmers implement technological advances. Since then, profitability of dryland farming in the Mallee has increased significantly as have environmental and social gains.

Collaborative project work undertaken by MSF enables farmers, researchers, extensionists and agribusiness to improve their knowledge and skill in farming.

MSF projects have identified and promoted sustainable farming practices that align with the Mallee CMAs regional catchment strategy (RCS). MSF has shown that cropping systems that implement no-till cropping practices continually crop with no bare fallow and retain crop residues and are increasing productivity and sustainability.

MSF projects have researched and developed cropping systems contributing to the Mallee CMA Regional Catchment Strategy by:

- Reducing the threat of wind erosion by utilising minimum tillage cropping technology and maintaining ground cover by retaining crop residues.
- Improving the physical, chemical and biological health of Mallee soils.
- Reducing the threat of dryland salinity by minimising ground water recharge through higher water use in continuous cropping systems.

The research expertise of both state and federal government agencies are utilised by MSF to meet the goal of finding the best options for long term farm sustainability by undertaking projects that aim to improve productivity and profitability of mallee dryland farming systems. Research partners include CSIRO, NSW Department of Primary Industries, Victorian Department of Primary Industries, Primary Industries and Resources South Australia, Lower Murray Darling CMA, Mallee CMA, South Australian Murray Darling, Basin NRM Board.

Dryland farming in the Mallee tri-state regions includes the cropping of a wide variety of cereals and pulse crops. They include barley, wheat, triticale, vetch, lupins and canola. Livestock that form a part of many farms operations include sheep for their wool products and lambs for their quality meat. Beef cattle are also present on some farms and goats have become a growing commodity in recent years.

A number of challenges face farmers throughout the MSF region into the future. These include the impacts of climate change on farm profitability such as less water availability during the seasons of winter and spring, the rise in the cost of farming inputs such as fertiliser and fuel, the falling numbers of farmers in the Mallee area and the increasing competitiveness of gaining funds in the government and private sectors to invest in research and extension in the region.

Issues addressed utilising Mallee Sustainable Farming Inc. project resources include:

- Productivity of medic pastures
- Assessment of soil microbial activity in low rainfall mallee soils
- Profitable crop rotations
- Soil water management options and potential risk for recharge
- Identification of sub-soil constraints through EM Mapping and management options for Mallee soils
- Crop nutrition and targeted input options
- Fallow management and erosion risk potential
- Production responses of sheep and pastures at different stocking rates
- Biodiversity and farming

[www.msfp.org.au](http://www.msfp.org.au)

## Department of Primary Industries - Victoria

Aiding existing and emerging industries is the Department of Primary Industries. The DPI places a high priority on world-class science by conducting innovative, practical and focused research servicing the needs of Victoria's primary and energy industries. The DPI fund important research, development, demonstration, commercialisation and practice change that would not occur sufficiently if left entirely to the market. Their innovation programs seek to provide various benefits, notably:

- Improving primary industry productivity, reducing environmental impacts and animal welfare
- Developing new food export markets
- Improving knowledge of the State's geology
- Reducing greenhouse emissions and water use
- Facilitating bio-security and market access

Innovation in science and practice is a major focus of the DPI's work. Most of this work is done by areas of the department's Agriculture and Fisheries Group, primarily through the:

- Office of Science Technology and Commercialisation
- Future Farming Systems Research Division
- Biosciences Research Division

The Department is also establishing a new Biosciences Research Centre that will be a joint initiative of the Government of Victoria, through DPI, and La Trobe University. The initiative is envisaged to be a world-class centre for agricultural biosciences research. The centre will accommodate up to 400 staff, including scientists and support staff.

[www.dpi.vic.gov.au](http://www.dpi.vic.gov.au)

## NSW Department of Primary Industries

The NSW Department of Primary Industries (NSW DPI) at Dareton services horticultural producers in the Lower Murray Darling region of the state. Research is primarily directed at improving the sustainability of citrus production.

NSW DPI is located in the major fruit growing area that forms part of the Sunraysia irrigation region of New South Wales and Victoria.

The NSW DPI is in the Coomealla irrigation area, 3km from Dareton and 10km from Wentworth. The NSW DPI, Dareton is 243ha in area, and about one-third of this area has soils suitable for horticulture.

- The main horticultural industries have been dried vine fruit and citrus.
- Minor crops include avocados, stone fruit and pistachios.
- Major developments are occurring in the winegrape and vegetable industries.

Jointly funded by NSW DPI and industry, research has focused on the improvement of fruit size and quality to assist export development programs and the development of new varieties and rootstocks to address current and future market requirements.

Work is directed at gaining a better understanding of the impact of seasonal conditions on fruit development and the identification of key growth stages for manipulating crop load and enhancing fruit size, quality and post-harvest shelf-life.

NSW DPI at Dareton has a national coordination role in citrus variety research with trial sites located at Dareton and in the Riverina in NSW, as well as in Western Australia, South Australia, and Queensland.

The national program for screening and evaluation of new citrus rootstocks is also centred at Dareton in an industry funded program involving NSW DPI, Commonwealth Scientific and Industrial Research Organisation, The South Australian Research and Development Institute, and the Queensland Department of Primary Industries & Fisheries.

[www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au)

## Department of Sustainability & Environment - Victoria

The focus of the Department of Sustainability and Environment is to manage land, fire, water and biodiversity, to protect our natural resources for the benefit of future generations.

The programs that the Department of Sustainability and Environment oversees are aimed towards:

- Ensuring a safe, reliable and sustainable supply of water for irrigators, urban uses and the environment
- Protecting communities and the environment through fire management
- Enhancing the values of Victoria's parks and forests
- Investing in improved land and catchment management
- Protecting biodiversity and the associated ecosystem services
- Encouraging sustainable practices in homes, businesses and communities
- Providing quality property administration services and information

Many of these programs are delivered locally through partners of the Department of Sustainability and Environment such as Lower Murray Water, the Mallee Catchment Authority and Parks Victoria. The Department of Sustainability and Environment is also responsible for intergovernmental issues such as Victoria's commitments to the management of the Murray Darling Basin.

The Department of Sustainability and Environment has a common desire to improve the stewardship of our natural resources. In this, we can be guided by the relationship that indigenous peoples have with their traditional lands and water.

The Corporate Plan of the Department of Sustainability and Environment provides an outline of priorities and helps frame short-term efforts to meet the long-term objective of sustaining the land and water that provides for wellbeing of Victorians now and into the future.

DSE is committed to the public sector values of responsiveness, integrity, impartiality, accountability, respect, leadership and the promotion of human right.

[www.dse.vic.gov.au](http://www.dse.vic.gov.au)

## Parks Victoria

Parks Victoria is the custodian of a diverse estate of significant parks in Victoria. There are approximately 3.96 million hectares of parks and reserves covering about 17 per cent of Victoria and visited by 76 million visitors a year. More than one million hectares are in the Mallee region.

Through effective environmental and visitor management, Parks Victoria is dedicated to preserving the natural and heritage values of the parks, bays, and waterways, including full protection of sensitive areas.

### Healthy Parks Healthy People

Parks Victoria is also focussing on the contribution our parks and waterways make to healthy and liveable communities.

Healthy Parks expresses our commitment to a parks and waterway system that is resilient, protects biodiversity and is actively managed to resist threats such as weeds and pests. Healthy Parks deliver clean water, clean air and sequester carbon and remain healthy for generations to come.

Healthy People expresses the central role our natural environment plays in the health and wellbeing of individuals and our community.

### Excellence in Environmental Management

Parks Victoria's people are well qualified to address the challenges involved in balancing protection of our natural heritage with the needs of visitors. Integrated environmental policy, planning and research functions have been established to ensure that standards of excellence and efficiency are achieved.

### Our Parks are in Safe Hands

Parks Victoria employs staff across the State in a wide range of roles. Most are professionals with formal qualifications in park and reserve management, environmental management and recreation. This highly skilled and experienced team includes over 400 rangers based in parks, bays, and waterways supported by specialists in business systems, financial management, planning and marketing.

All are totally committed to their role of protecting the State's natural and cultural heritage, and to developing an understanding and appreciation of this heritage by park visitors and the Victorian community.

### The Mallee Region

Parks Victoria manages more than a million hectares of national parks in Victoria's Mallee region, and these adjoin similar areas in South Australian and New South Wales.

*Victoria's Mallee region has more than one million hectares of National Parks.*

These parks are extremely important for nature conservation because of their relatively undisturbed state and tremendous variety of biodiversity. They feature wide open spaces, magnificent sunsets, abundant spring wildflowers interesting cultural history.

Autumn, winter and spring are the best times to visit. The main picnic and camping areas are generally accessible in 2WD vehicles, and 4WD opportunities abound.

### **Hattah- Kulkyn National Park and Murray-Kulkyn Regional Parks Victoria**

This park features the merging of rolling Mallee dunes with the Murray River and a series of intermittent lakes protected under an international agreement (the RAMSAR Convention Treaty) for protection of wetlands.

There is a Visitor Information Centre, a Nature Drive and a self-guided Nature Walk, as well as opportunities for lakeside camping, canoeing, walking, picnicking or just relaxing.

The cultural history of the park is rich. For thousands of years indigenous people have been sustained by Murray River's floodplain system rich waters and woodlands. During flood periods, they camped on mounds that formed islands in the high water, moving from place to place in canoes constructed from the bark of River Red Gums. Indigenous people also built weirs to trap fish in times of high water. Mussels were a staple diet for the river tribes while the shells provided utensils like spoons, scrapers and knives.

Early European settlers soon followed the inland watercourses, and indigenous people's lifestyles were severely affected. Sheep and cattle grazing, wood cutting, paddle boats and river trade have impacted severely on the parks. But nature is strong and management strives to restore the balance.

### **Wyperfeld National Park**

Wyperfeld is Victoria's third largest national park and Australia's first Mallee National Park. Celebrating 100 years as a reserve in 2009 the park protects 356,800 ha of Mallee country. Emus and Western Grey Kangaroos can be seen grazing at dawn and dusk in the usually dry lake beds and creeks.

Camping with basic facilities is available in the northern section at Casurina Campground, via Patchewollock or Underbool. Wonga Campground in the south, approached from Rainbow and Yaapeet, has a Visitor Information Centre, self-guided trails (including the Tyakil Nature Walk) and a scenic Nature Drive.

The Indigenous Wotjobaluk people regularly travelled along Outlet Creek visiting lakes and swamps. European settlers followed the same route to establish pastoral runs from the 1860s on.

Pressure from the naturalists inspired the government to reserve 3,900 hectares in 1909 and Wyperfeld National Park was proclaimed in 1921.

### **Big Desert Wilderness Park**

One of the most remote and least disturbed areas in Victoria, this park protects 142,300 ha of the Mallee. Vehicles are not permitted, but the park can be explored on foot from the neighbouring tracks. Bushwalkers must be experienced and self-reliant. 4WD access through the Big Desert outside the Wilderness Park is via the Murrayville Track.

### **Murray Sunset National Parks Victoria**

Murray Sunset National Park is in north-west Victoria, between Mildura and Renmark, about 550km from Melbourne and 400km from Adelaide. The park protects 633,000 hectares of Mallee woodlands, pink salt lakes and River Red Gums.

Aboriginal people lived in the area for thousands of years. Shell middens, hearths and scar trees found throughout the park reveal much about the lifestyle and rich culture of the people. Local food resources include fish, freshwater mussels, reptiles, kangaroos, quondong fruits and Nardoo, a freshwater fern.

Stock grazing in the "Sunset Country" dates back as far as the 1860s. Remnants of the pastoral era such as the shearers' quarters and Mopoke Hut can be discovered. Pest plant and animal eradication and revegetation works are restoring area affected by stock grazing and rabbits.

### **Kings Billabong Wildlife Reserve**

Kings Billabong is part of the Murray River floodplain which is dry for most of the year. Occasionally it floods and at these times fish, plants, seeds and other wetland foods are spread throughout the area, attracting wildlife.

Local Aboriginal people enjoyed the Billabong's rich life-supporting wetland food supply. Shell middens (kitchen hearths), burials and sacred trees indicate a lifestyle celebrated on these banks for centuries.

Kings Billabong took its name from Captain James King, who navigated the Murray River and its tributaries in the late 19th Century. The Chaffey brothers, supported by Alfred Deakin established nearby Mildura (originally a sheep station) as a suitable location for Australia's first irrigation settlement.

The reserve was logged until the 1950s to supply fuel for steam-powered paddle boats and pumps. There were also cattle grazing, cultivation and dried fruit rack sites in the reserve until 1989.

[www.parkweb.vic.gov.au](http://www.parkweb.vic.gov.au)

## Mallee Catchment Management Authority

The Mallee Catchment Management Authority (CMA) is the peak body for the delivery of natural resource programs in the Mallee.

*The Mallee Catchment Management Authority is the largest catchment area in the state, covering 3.9 million hectares.*

The Mallee CMA was established by the Victorian Government in 1997, under the Catchment and Land Protection Act 1994. The primary responsibility of the Mallee CMA is to ensure that natural resources in the region are managed in an integrated and ecologically sustainable way. It prepares a Regional Catchment Strategy and co-ordinates and monitors its implementation, while also advising the Victorian and Australian governments on regional natural resource management priorities.

The Mallee CMA region covers 3.9 million hectares - about one fifth of Victoria. It is the largest catchment area in the state and runs along the Murray River from Swan Hill to the South Australian border, and south to the vast dryland cereal and wheat crops of the Wimmera.

The Mallee CMA's project responsibilities include the management of:

- Waterways
- Water quality
- Biodiversity (including vegetation restoration and threatened species recovery)
- Floodplains
- Regional drainage
- Salinity
- Pest plants and animals
- Soil health

The Mallee CMA is also responsible for Landcare support and funding co-ordination, community involvement and education, a regional response to climate change, cultural heritage, and for monitoring and reporting on the health of the catchment.

[www.malleecma.vic.gov.au](http://www.malleecma.vic.gov.au)

## Lower Murray Darling Catchment Management Authority

The Lower Murray Darling Catchment Management Authority (LMD CMA) delivers funding from the New South Wales and Australian Governments, and other sources to help Lower Murray Darling catchment land managers improve and restore the natural resources of the catchment.

The LMD CMA is a statutory organisation established by the New South Wales Government in 2004 under the "Catchment Management Authorities Act 2003". It is overseen by a community-based Board.

The Lower Murray Darling Catchment Action Plan (CAP) has been developed in consultation with government agencies, local government, industry and the catchment communities to provide a targeted approach to managing the catchment in a way that will:

- Administer the Native Vegetation Act
- Improve riverine health
- Protect biodiversity
- Identify and encourage best practice soil and land management
- Support/encourage the role of the community in natural resource management and sustainable farming systems; and
- Provide support to the quadruple bottom line - environment, economic, social and cultural values.

The CAP uses a targeted approach to managing natural resource management issues - regional outcomes, riverine health, salinity, vegetation and soils. The use of targets allows specific actions to be funded and undertaken. A comprehensive monitoring and auditing program measures progress toward achievement of these targets.

Three key areas of operation:

- 1 Engagement of the whole community in the implementation of the CAP.
- 2 Developing strategic partnerships in the development, funding and delivery of projects to deliver the CAP.
- 3 Delivery of Property Vegetation Plan and consent services in relation to native vegetation.

[www.lmd.cma.nsw.gov.au](http://www.lmd.cma.nsw.gov.au)