



catchment series

The Condamine Catchment

The Condamine catchment is a major agricultural zone west of the Great Dividing Range in southern Queensland. It covers an area of 24 434 km² and is part of the Darling Downs.

Prior to European settlement there were at least eight indigenous communities in the area, which would gather in the Bunya Mountains north of Dalby, for festivals every three years, from May to November, for the bunya nut harvest.

The Darling Downs was named after Governor Darling, when the explorer Allan Cunningham passed through the area in 1827. Cunningham found large areas of grasslands and open woodlands on a flat to gently undulating landscape.

Early settlers established large grazing enterprises in the area during the 1840s. Closer settlement was encouraged after Queensland became a State in 1859 and legislation was passed to subdivide larger pastoral holdings for agricultural use. In the early 1900s, there was a massive expansion in the region's agricultural economy. Cropping industries expanded as well as dairying. In 1937 there were more than 6500 dairy farms on the Darling Downs, which had dwindled to about 250 farms by 2003.

Local government areas in the Condamine catchment are Warwick, Cambooya, Chinchilla, Clifton, Crows Nest, Jondaryan, Millmerran, Rosalie, Pittsworth, Wambo, Dalby Town and Toowoomba City. Toowoomba (population 90 000) is the largest inland city in Queensland.

Climate

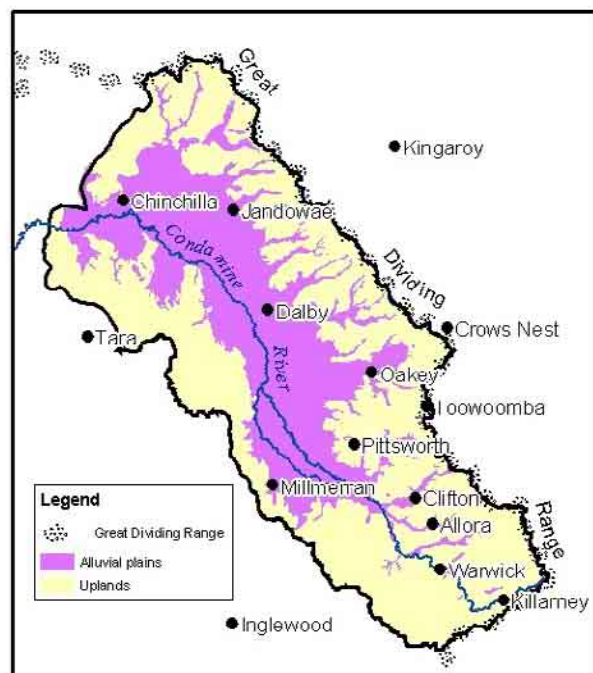
The Darling Downs has a highly variable sub-tropical climate. Annual average rainfall varies from 955 mm at Toowoomba to 682 mm at Chinchilla and is summer dominant. A strong rain shadow exists on the eastern Downs, in the lee of the Great Dividing Range. Average temperatures range from a minimum of 3° in July to a January maximum of 30°. Low-lying areas are subject to frequent and severe frosts in winter.

Landforms and drainage

The area is dominated by the Great Dividing Range (Main Range Volcanics) in the east, which resulted from volcanic activity about 19-23 million years ago.

The highest peak is Mt Superbus to the east of Warwick, with an elevation of 1375 m.

The Condamine catchment is the headwater of the Murray-Darling Basin. Most creeks flow away from the Great Dividing Range through undulating basaltic landscapes and valley systems that widen as they approach the Condamine River, spreading their flows across the extensive floodplain.



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Geology, mining and energy

Coal deposits occur in a geological unit called the Walloon Coal Measures. Various mines have existed from near Killarney to Acland. Coal mines are currently active at Millmerran, Acland and Wilkie Creek, and others are proposed. Coal seam methane is also extracted in the area. Basalt rock from the Main Range Volcanics is quarried for road, railway and other construction. Electricity is generated at Millmerran and a new power station at Kogan Creek near Chinchilla is under construction.

Soils and vegetation

The most common soils are the black, brown, grey, or red Vertosols (cracking clays), which are renowned for high fertility. These are formed on basalt, some sandstones and in the alluvia. Red non-cracking clay soils (Ferrosols) occur in the east on basalt. Scattered throughout the catchment are patches of shallow to deep, sandy, gravelly and loamy soils formed on sandstone. Their low fertility and moisture holding capacity render them mostly unsuitable for cropping, but they are useful for forestry and grazing of native or improved pastures.

Mountain coolibah, narrow-leaved ironbark and silver leaf ironbark are common on the basalt hills. Patches of brigalow/belah, poplar box, ironbark, bullock and cypress pine are associated with different soil types in areas of sandstone.

Land use

The climate and fertile soils allow for the growth of crops in both winter (wheat, barley, oats, chick peas) and summer (sorghum, sunflower, maize, cotton and mung beans). Vegetable and horticultural crops are also grown. Irrigation is practised where suitable water supplies occur. Both cattle and sheep are grazed. Intensive animal production includes feedlots, piggeries and poultry farms. Urban expansion has caused conflict over the protection of Good Quality Agricultural Land.

Water resources

Water underpins significant agricultural production in the catchment. Groundwater is a major source of reliable supply, while surface water access is of an opportunistic nature. On floodplains, farmers 'harvest' water during flood flows and store it in ring tanks for later use. Drought conditions and some land management practices put severe stress on water supplies and water quality. Water resource planning and management are focused on sustaining present levels of irrigation production, more efficient water use practices and moves towards high value production. Leslie Dam, west of Warwick, provides water to the city, and to irrigators via the Condamine River.

Environmental issues

Biodiversity: The extensive use of the area for agriculture has resulted in the loss of much of the original vegetation (<30% remains). Despite this, over 500 species of native vertebrate animals are found in the catchment.

Erosion: Farming practices adopted early in the last century were conducive to erosion by water. The problem had become so serious, that 16 000 ha of cultivation had been abandoned by 1950.

Today, large areas of cropping land have changed from a pattern of unprotected, seriously eroded rectangular paddocks to contour layouts in the uplands and strip cropping on the floodplain. Fallow management practices have greatly improved, with considerably more stubble kept on the soil surface. Much of the steep land on upper valley slopes has been retired from cultivation. However continued vigilance is required to keep erosion at bay.

Salinity: Salinity has been an issue on the Darling Downs for more than 50 years, and remains a concern. The majority of outbreaks are confined to an arc from Warwick to Oakey to Bell, following the boundary between basalts and underlying sandstones. Most outbreaks are small (<10 ha), and are readily rehabilitated through good land management practices.

Water quality: Good quality water is essential for human consumption, agricultural production and aquatic ecosystem health. The key water quality issues include:

- the frequent detection of a number of the common pesticides used in cropping areas
- high sediment and nutrient loads in runoff from cropping, grazing, urban and intensive animal industries
- accelerated bank and gully erosion in some parts of the catchment.

Implementing better management practices has resulted in improvements in water quality over the past 30 years. Contour banks and minimum tillage farming have significantly reduced erosion rates from cropping lands. Endosulfan, once detected in the majority of the river network, is no longer detected in the river, due to changed management practices. Research programs are continuing to develop better practices to minimise impacts on water quality.

Pest plants and animals: Land use, soil type and climate influence the distribution of pests. The weed lippia is prevalent on the clay soils of the floodplain. Minor outbreaks of parthenium are common. Pigs, wild dogs, foxes and rabbits are also a problem.

Further information

Under the National Action Plan for Salinity and Water Quality, the Condamine Alliance <www.condaminecatchment.com.au> has developed a plan to protect the natural resource assets of the catchment.

Information in this fact sheet has been sourced from the Department of Natural Resources and Water 1999 publication *Central Darling Downs Land Management Manual* and the DPIF publication *Farming in the Darling Downs region* (1995). ■