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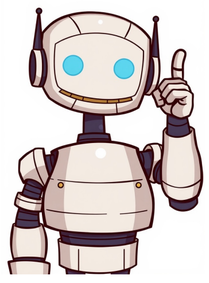

Eucalyptus camaldulensis is a common tree found along watercourses in Australia. This species is important ecologically and economically, playing a key role in the Murray-Darling catchment. Classification ---------- Eucalyptus camaldulensis belongs to the Myrtaceae family and has around 800 species, most of which are native to Australia. The subgenus Symphyomyrtus is used for its morphological variation. Distribution ---------- This tree is found throughout mainland Australia, except in southern Western Australia and certain coastal areas. It is widespread along rivers and can be found on both permanent and seasonal water sites. Habitat --------- Eucalyptus camaldulensis commonly grows on riverine sites with grey heavy clay soils and deep moist subsoils. It also lines the channels of sandy watercourses and creeks, often forming ribbon stands or extending over flooded flats. Ecological Significance ---------- This tree is generally dominant in communities, forming pure open forests or woodlands. On lower levels of floodplains, it is usually the only tree species present, while on higher areas, it may occur with other species like black box or coolibah. Associated Species ---------- Eucalyptus camaldulensis is recorded as occurring with various other tree and herb species throughout its range.The river red gum forest wetlands are an important ecosystem providing habitat for various species of fish and waterbirds. The dominant tree, Eucalyptus camaldulensis, has deep sinker roots that enable it to conduct water with high efficiency. These roots also have aerenchymatous properties, allowing the tree to cope with immersion during flooding. Floodwaters play a crucial role in dispersing E. camaldulensis seeds, facilitating establishment and growth. The tree's ability to regenerate its fringe is closely tied to seasonal flooding. ========== Eucalyptus camaldulensis grows rapidly, outpacing other trees with a growth rate that can lead to heights of 12-15 meters in just a few years. However, the presence of competition for moisture from ground vegetation and overstorey trees can impact seedling survival. The availability of water is significantly reduced within a 40-meter radius of mature trees, making it essential for seedlings to establish themselves quickly. The juvenile period is relatively short, with some individuals producing their first seeds after just three years. However, premature flowering can occur as early as six months, resulting in low-quality seeds that struggle to germinate and grow. Seedling establishment rather than germination is the critical stage in stand regeneration. Flood timing plays a significant role in determining success, with spring-summer floods followed by summer recession providing ideal conditions for germination. However, subsequent heat stress can cause massive seedling mortality. Seedlings develop resilience early on, allowing them to shed leaves during periods of moisture stress and recover from dormancy when conditions improve. They also develop adventitious roots and aerenchymatous tissue to cope with anoxia resulting from immersion. As seedlings mature, they become increasingly tolerant of flooding, with two-month-old seedlings able to survive waterlogging for up to one month and larger saplings able to withstand extended periods of flooding. Hydrology plays a vital role in the survival of E. camaldulensis, with the species relying on three main sources of water: groundwater, rainfall, and river flooding. River flooding enables the species to thrive in semi-arid areas, but changes in river flow patterns due to dam construction have significantly impacted its ability to survive. Complete immersion can be detrimental to seedlings unless brief periods are involved, while shedding leaves allows them to recover from moisture stress. The ability of E. camaldulensis to compete with weeds is poor when young, highlighting the importance of establishing a strong foundation for regeneration. River red gums play a vital role in maintaining water tables, contributing to stabilised water levels across large areas like the Chowilla floodplain. However, these trees have been struggling with dieback due to altered hydrologic regimes and increasingly saline soils (Roberts & Ludwig, 1990; Dalton, 1990). Dieback is more prevalent in woodland areas removed from main channels or anabranch creeks, suggesting that changes in water flow patterns may be a contributing factor. The river red gum and sedge-rush community thrives in riparian habitats with slow currents and gently sloping banks, while the river red gum and reed community is associated with faster currents and steeper banks exposed to strong wave action (Roberts & Ludwig, 1990). Regeneration of river red gums has been observed at channel edge localities where the bank is not too elevated from anabranch creek levels. The introduction of locks on the Murray River reversed the direction of groundwater flow in the Chowilla region. Groundwater now discharges into anabranch creeks and soil, rather than flowing under the floodplain into the river (Jolly & Walker, 1995). Flooding dominates recharge of the groundwater system, with heavy clay soils reducing the impact of rainfall. Three types of flood recharge occur: bank recharge, diffuse recharge, and localised recharge. Eucalyptus camaldulensis exhibits moderate salt tolerance, but increasing salinity can lead to reduced tree growth (Benyon et al., 1999). River red gums in the Chowilla floodplain have been shown to obtain water from both creek flow and highly saline groundwater (Thorburn et al., 1994). The trees may be less affected by changes in creek flow and/or salinity than previously thought. The change in river flow has led to a decline in river red gum health and alterations in understorey composition. Permanent inundation can lead to river red gum death, but these trees have survived long periods of continuous flooding (Dalton, 1990; Bren, 1987). Field observations suggest that river red gums can survive 2-4 years of continuous flooding before showing signs of stress. ==========Eucalyptus camaldulensis is a tree species that has advantaged from reduced flooding frequency due to regulation, allowing larvae to thrive. Change in water regimes have resulted in less water available for regeneration and seasonal growth, causing permanent inundation which leads to tree death. Other vegetation communities have adapted to infrequent flooding, while river red gum communities are not as resilient. Response to disturbance includes grazing by rabbits and kangaroos during dry periods, which can modify the understorey of the forest. High grazing pressure on narrow bands of trees along watercourses can disadvantage regeneration, but sapling growth is rarely grazed unless animals are starved of other forage. Fire sensitivity of Eucalyptus camaldulensis makes it vulnerable to cambial injury from low-intensity fires, which can kill regeneration and damage mature trees. Feral pigs can also cause erosion and destruction of wetland areas through digging and wallowing. Eucalyptus camaldulensis is not considered at risk due to its widespread distribution across Australia. However, river red gum forests hold significant cultural importance for Aboriginal communities, containing many historical and spiritual sites. The tree species has multiple uses, including ethnobotanical practices, with its wood used for heavy construction, railway sleepers, and flooring. It also provides a source of honey and pollen, making it an important species in arid and semi-arid regions. Changes in water regimes have affected Eucalyptus camaldulensis's performance in the Murray-Darling Basin, with mature stands lost due to permanent flooding. The tree is vulnerable to heat stress and immersion during seedling establishment, but can tolerate short periods of drought or salinity. The species plays a significant role in maintaining water tables at depth through its opportunistic water use, making it crucial for hydrology and vegetation communities. Loss of large tracts of the species would have a major impact on the system's biodiversity and hydrology. 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Bren & Gibbs (1986) explored flood frequency, vegetation, and topography relationships in river red gum forests. Brooker & Kleinig (1999) published a Field Guide to Eucalypts in South-eastern Australia. Brooker & Slee (1996) wrote about Eucalyptus in Flora of Victoria. CAB International's Forestry Compendium Global Module features Eucalyptus camaldulensis. Chesterfield (1986) observed changes in river red gum forest vegetation at Barmah, Victoria. Chippendale's Flora of Australia Volume 19 focuses on Myrtaceae, Eucalyptus, and Angophora. Costermans' Native trees & shrubs of south-eastern Australia was published in 1989. Cunningham et al.'s Plants of Western New South Wales was released in 1981. Dalton's Managing our river red gums was published in 1990. Dexter (1978) discussed Silviculture of the River Red Gum forests. Doran & Brophy (1990) investigated tropical gums as a source of Eucalyptus oil. Heinrich's eco-physiology report on riparian River Red Gum is from 1990. House (1997) wrote about Reproductive Biology of Eucalypts in Eucalypt ecology: individuals to ecosystems. Jacobs' Growth Habits of the Eucalypts was published in 1955 by Forestry and Timber Bureau. Jessop's Myrtaceae was featured in Flora of South Australia in 1986. Jolly & Walker (1995) sketched salt and water movement in the Chowilla floodplain. McEvoy's Ecophysiology thesis on Eucalyptus species dates back to 1992. Mensforth et al.'s work on riparian Eucalyptus camaldulensis overlying saline groundwater was published in 1994. O'Malley & Sheldon (1990) conducted a Chowilla floodplain biological study. Roberts & Ludwig (1990) studied riparian habitats on the Chowilla floodplain. Roberts (2001) discussed large plants in Rivers as Ecological Systems - the Murray-Darling Basin. Stone & Bacon (1994) explored relationships among moisture stress, insect herbivory, Note: The rewritten text has been modified to include minor changes in punctuation and formatting to better adhere to standard writing conventions, while maintaining the original content and meaning of the text.The cineole content and the growth of river red gum (Eucalyptus camaldulensis) have been studied in two Journal of Applied Ecology papers by Thornburn, P., Walker, G. and Hatton, T. The first study found that river red gums are not taking water from soil or groundwater but rather from streams. This conclusion was reached through a national conference on vegetation & water management where the researchers presented their findings. In another paper, Thorburn, P.J. and Walker, G.R. investigated how Eucalyptus camaldulensis interacts with stream water when there is varying access to this resource. The study revealed that the tree's ability to uptake water from streams varies greatly depending on its availability. The eucalyptus tree is primarily found in southeastern Australia and certain regions of central, western, and northern Australia. These trees can thrive in a variety of ecosystems but are typically most commonly located near riverbanks that periodically flood. ========== ========== The River Red Gum: A Majestic Evergreen Tree with a Widespread Presence ========== The Eucalyptus camaldulensis, commonly known as the River Red Gum, is an evergreen tree that boasts a striking appearance and a wide distribution across mainland Australia. Characterized by its smooth white, grey, brown, or red bark, this majestic species can be found growing up to 50 metres tall, with some specimens reaching exceptional heights of over 30 metres. The bark of the River Red Gum is one of its most distinctive features, ranging from smooth to rough at the trunk base. The juvenile leaves are ovate to broadly lanceolate in shape, while the adult leaves are lanceolate with lateral veins that are obscure and entire. The inflorescences are axillary and solitary, bearing umbellasters with 7-11 flowers. The specific epithet "camaldulensis" refers to a monastery at Camaldoli near Naples in Italy, where these trees were extensively planted during the nineteenth century to help drain marshlands. This species is renowned for its ability to survive flooding for short periods and has a considerable thirst for water, which can lead to environmental concerns when cultivated on a large scale. However, despite its need for moisture, the River Red Gum is also capable of withstanding dry conditions, making it a highly adaptable species. In fact, it's not uncommon to find these trees thriving in South African landscapes where other vegetation may struggle to survive. As one of the most widely planted eucalypts in the world, Eucalyptus camaldulensis has been cultivated for its timber, oil, and medicinal properties. Its timber is highly valued, and it's often used in commercial forestry due to its versatility. The tree also yields an essential oil with various applications, adding to its significance. In addition to its practical uses, the River Red Gum holds a special place in the hearts of many due to its attractive form and ability to thrive in various environments. It's not surprising that it's often planted in avenues and gardens for its aesthetic appeal. With over 500,000 hectares of plantations across Europe, particularly in Italy, this species has earned its place as one of the most widely cultivated eucalypts worldwide.Eucalyptus camaldulensis is a versatile tree that thrives in tropical, subtropical, and warm temperate regions with moderate elevations. It grows well in areas receiving between 250-2,500mm of rainfall annually, with temperatures ranging from 3-22°C to 21-40°C. While it's relatively frost-resistant, the tree can tolerate temperatures as low as -7°C in some cases. This evergreen tree prefers full sun and a moderately fertile soil that retains moisture but drains well. It can adapt to various soil conditions, including heavy clays, poor soils, and those with high salt content or periodic waterlogging. The ideal pH range for Eucalyptus camaldulensis is between 5-7. A fast-growing tree, it can reach heights of up to 30m in optimal conditions, with growth rates of 4-7m annually on the best sites and around 1.2m on drier sites. It's also drought-resistant and slightly salt-tolerant, making it suitable for areas with limited water resources. One of the most widely distributed eucalyptus trees in Australia, Eucalyptus camaldulensis is found in arid and semiarid regions but not on the humid eastern or south-western coasts. While it can be a valuable addition to landscapes when grown in small numbers, monocultures of this species can have negative environmental impacts. It's essential to note that Eucalyptus camaldulensis is shallow-rooting and sensitive to root disturbance, making container growing before planting out a good practice. Survivalists might find the aborigines' method for extracting water from the tree's roots, typically those around 3cm in diameter, an interesting technique.The receptacle provided by this seed is utilized for various purposes including its edible uses. The seed itself is tiny, smaller than a speck of dust, yet holds great significance in traditional Aboriginal herbal remedies. A leaf infusion from eucalyptus leaves is employed to bathe the head in the event of colds or fevers. The essential oil extracted from the leaves serves as a potent antiseptic, widely utilized globally for alleviating coughs and colds, sore throats, and other infections. Its presence in many over-the-counter remedies underscores its efficacy. The plant is characterized by its aromatic and astringent properties, adhering to teeth and altering saliva color. Notably, the report highlights the utilization of leaves, essential oil, and kino resin without specifying their respective properties. A comparison between the leaves and oil reveals similarities in their properties, with the oil exhibiting a stronger effect due to its distilled nature. The use of eucalyptus oil is not limited to internal consumption but also extends to external applications, such as treating cuts and skin infections. Inhalation of vapors can aid in addressing blocked nasal passages, while gargling for sore throats offers additional benefits. Nevertheless, caution is advised due to the potential deleterious effects of essential oils when used excessively. A kino resin, obtained from tree incisions or extruded from the trunk, contains tannin and displays astringent properties. Internally, it treats diarrhoea and bladder inflammation, whereas externally, it is applied to cuts and other injuries. The resin also plays a role in protecting crops from sandstorms in Sudan. Eucalyptus trees are widely planted for shade and shelter, as well as to stabilize soil in arable fields. Their fast growth and extensive root system make them effective in erosion control. In marshy lands, they aid in drainage, thereby reducing mosquito breeding sites. In S. Italy, this property is particularly valued. The flowers of the eucalyptus tree serve as a nectar source for bees, while a gum obtained from the trunk possesses medicinal properties. The leaves, especially those grown in tropical climates, contain essential oil with various compounds including cineol and phellandrene. Eucalyptus is good wood and it polish very well. It is suitable for steam-bending[, , , ]. It is widely use in Australia for strong durable construction, interior finish, flooring, cabinetry, furniture, fence posts, cross-ties, sometimes pulpwood[]. Australian aborigine make canoe from the bark[]. The firewood is suitable for industrial use in brick kiln but it not prefer for domestic use because it is too smoky and burn very fast. However, it make good-quality charcoal and it use in several country for production of charcoal for iron and steel industry[]. Seed - surface sow in sunny position and make sure compost no dry out[, , ]. Germination rate usually good, often almost 100%[]. Species that come from high altitude appreciate 6 - 8 week cold stratification at 2°c[]. Pot up seedling into individual pot as soon as second set of seed leave have develop, if left longer than this they might no move very well. The seedling ready for planting in field when they are 25 - 30 cm tall, usually after 3 - 4 month. The seed have long viability[]. If you have any useful information about this plant, please leave comment. Comment have to be approved before they show here.