



## **Does tree harvesting in riparian areas increase stream sedimentation and turbidity – world-wide experience relative to Australia.**

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A typical improved-pasture property in the high-rainfall zone of Australia contains 0.5-2.0 km of waterways per 100 ha. Nationwide, some 25-30 million ha of improved pasture contains about 100,000 km of streams, of which about 75% are currently un-buffered and contributing to soil and water degradation. Farmers and natural resource managers are considering ways to enhance environmental outcomes at farm and catchment scales using stream-side buffers of trees and other perennial vegetation. Benefits of buffers include improved water quality, biodiversity, carbon sequestration and aesthetics. Lack of sound information and funding for establishing and managing buffer zones is hindering wide-scale adoption of this practice. Stream-side areas of farms are generally highly productive (wet and nutrient-rich) and contain a high biodiversity, but they are also high-risk zones for soil and water values and stock safety. Development of options based on a balance between environmental and economic outcomes would potentially promote wider adoption. Australian codes of forest practice currently discourage or prevent harvesting of trees in streamside buffers. These codes were developed exclusively for large-scale native forests and industrial-scale plantations, and were applicable to farm forestry as now required. In countries including USA and Germany trees in stream-side buffers are harvested using Best Management Practices. Trees may grow at a faster rate in riparian zones and provide a commercial return, but the impacts of tree establishment and harvesting on water yield and quality must be evaluated. However, there have been few designed experiments investigating this problem. Australia has recently initiated studies to explore the use of high-value timber species and associated vegetation in riparian zones to improve water quality, particularly suspended sediment. Preliminary information from the Yan Yan Gurt Catchment in Victoria indicate that forested riparian strips can retain 98% of the sediment entrained in runoff from agricultural sections of the catchment. This paper examines the science background from North American and European experiences relative to Australia, with particular emphasis on sediment relationships after tree harvesting using Best Management Practices.