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An integrated catchment management plan toward  
restoration: sustainable farming with a future focus  
in the Mangaone West

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## Abstract

Land cover change and land use management practices have caused environmental degradation of the Mangaone West catchment. A catchment management plan is needed to address the degradation. An integrated method was used to improve the likelihood of plan success. ArcMap and biophysical sampling were used to provide a knowledge base of current catchment conditions. Considerable environmental sampling was carried out, including MCI and QMCI indices, nutrient sampling of nitrogen and phosphorous, sediment assessment methods, riparian assessment and erosion assessment. A catchment meeting was held to form a consensus plan goal and view. The goal of ‘sustainable farming in the Mangaone West, with a future focus’ was established. The river styles framework and a traditional integrated catchment management plan framework were reviewed. Components for plan success were reviewed and integrated into the proposed plan. The catchment sampling found significant degradation with regard to its geomorphology, riparian margin and water quality. Erosion and connectivity of the upper catchment hillslopes and waterways is a significant issue. Much of the catchment is lacking a riparian margin. A combined plan is proposed, using a mixture of the river styles framework and traditional development structure. Best management practices need to be adopted by all landowners and riparian margins require significant restoration. Hillslopes of the upper catchment require stabilisation, and problematic willows in the lower catchment need to be removed. The local community needs to be involved throughout the plan implementation in order to maximise its success. With the proposed plan utilised, the Mangaone West could be restored to a sustainable environment.

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