



Concrete has been placed in-stream in an attempt to stabilise a head-cut.



In the rural setting there are scatter or patchy willows with few native trees, the channel has incised.



Cleared catchment with few native trees and scatter willows and poplars.



Stable bedrock controlled stream in the upper catchment, openly grazed with scattered willows.



Flow Direction



The channel is mostly devoid of woody vegetation and there is unrestricted grazing.



Significant weed infestation adjacent to urban areas.



Wodonga Urban Landcare Network

Wodonga Regional Waterway Action Plan

Castle Creek Condition Summary



Sources: Esri, HERE, DeLorme, USGS, IntraMap, INCREMENTAL P, MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

WODONGA REGIONAL WATERWAY ACTION PLAN

Castle Creek:

Values:

- *Aesthetics* – Parklands along the Lower and Mid Reaches.
- *Recreational Activities* – Bike riding, walking.

Value	Upper Reach	Mid Reach	Lower Reach
Aesthetics		✓	✓
Recreational Activities		✓	✓

Threats:

- *Stock Access* – confined to the Upper and Mid Reach, is damaging the integrity of the banks and contributing to local erosion and sediment inputs.
- *Increased Bed Instability and Bank Erosion* – associated with landuse (e.g. cleared and urban catchment) and stock access and a lack of riparian vegetation in the Upper and Mid Reach.
- *Exotic Flora* – is outcompeting existing native vegetation, preventing natural recruitment, invading the channel and altering the natural stream and riparian ecology.
- *Urban Development* – has the potential to increase the amount of runoff that enters Castle Creek resulting in more flow and flashier flow events.
- *Loss of Large Woody Habitat* – leads to channel and riparian habitat loss, reduction in stream roughness and bed diversity.

Priority Management Actions:

- *Stock Access Management and Revegetation* – Manage stock access to Castle Creek to enhance the condition of vegetation, improve the condition of banks, reduce physical pugging and sedimentation, and to improve water quality. Install offshore watering points where stock will lose access to water after fencing.
- *Increased Bed Instability and Bank Erosion Management*– Undertake a stability analysis of Castle Creek to determine the extent of active deepening. Review the condition of the informal rock chute at the downstream end / confluence with Huon Creek. This may lead to the design and construction of rock chutes to manage the deepening or rock beaching and/or revegetation to manage bank erosion.
- *Exotic Flora Management* – Undertake exotic flora management activities with the aim to eradicate seeding woody weeds. Implement a recurrent work program to monitor and control regrowth of woody weeds within Castle Creek. Target other highly invasive weed species including blackberry. Priority areas: 1) Yarralumla Drive to House Creek, 2) Ward Morrison to Yarralumla Drive, 3) Consult with landholders in the remainder of the Mid Reach and Upper Reach.
- *Revegetation Following Weed Management* – Undertake revegetation along Castle Creek to improve bank stability and the habitat and aesthetic value following the removal of weeds. Assist in the revegetation and management of Riparian Reserve (WREN Precinct A Site 5A).
- *Urban Development Planning* – Runoff from future developments should be managed through the implementation of water sensitive urban design techniques such as the construction of retention basins/wetlands so that peak flows do not exceed the pre-developed conditions
- *Stakeholder Engagement* – Discuss land management practices/improvement opportunities with relevant manager/authority including rubbish dumping, weed control methods, garden escapes and avoiding planting invasive garden specimens close to the waterway.



Threat	Upper Reach	Mid Reach	Lower Reach
Stock Access	✓	✓	
Increased Bed Instability & Bank Erosion	✓	✓	✓
Exotic Flora	✓	✓	✓
Urban Development		✓	✓
Degraded Riparian Vegetation	✓	✓	✓
Loss of Large Woody Habitat	✓	✓	✓

Action	Upper Reach	Mid Reach	Lower Reach
Stock Access Management	✓	✓	
Bed Instability and Bank Erosion Management	✓	✓	✓
Exotic Flora Management	✓	✓	✓
Revegetation Following Weed Management	✓	✓	✓
Urban Development Planning		✓	
Stakeholder Engagement		✓	✓

