Still Creek Catchment Master Plan: Condition Report 2009

Surveys conducted and reported by: Still Creek Catchment Landcare Group

Purpose

The Still Creek Catchment Landcare Group was formed in 2008 and identified that one of the immediate tasks was to establish a better knowledge basis for making decisions about the catchment. Previous work was collated and new surveys were carried out by the Group to provide data.

The purpose of this report is to summarise this information and provide recommendations to maintain and improve the catchment. This will be used by the Group as the basis for annual plans for actions to protect and maintain the catchment. The data will also serve as a baseline for future comparisons.

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Note: Appendices can be found at our download site http://www.stillcreeklandcare.com.au/downloads.php

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Catchment Description

Outflow
The catchment waters flow into Berowra Creek at Crosslands and thence into the Hawkesbury River, which is used for oyster farming, recreational fishing, swimming and other activities. Gradual siltation of Berowra Creek has been observed for some decades.

Area
The catchment area is 1800Ha and includes Still Creek and the tributaries: Halls Ck, George Hall Ck and Charltons Ck. Ref Appendix 5 for the catchment map and Appendix 6 for the property street numbers.. This area is comprised of approximately:

- 65% private property (approximately 400 residences), council properties and roads, centred mainly on the ridges but covering all creek head waters
- 32% Berowra Regional Park, administered by DECC, centred mainly around the creeks downstream
- 3% Fagan Park with bushland and mowed grass areas

Approximately 50% of the area has native tree cover, centred mainly on the creeks.

Geology
The ridge tops along much of Crosslands, Knights, Arcadia and Bay Roads are clay soils based on Wianamatta Shales. These flat, rich soils are suitable for farming. The lower strata are mostly Hawkesbury Sandstone with steeper, rougher, low nutrient soils. Much of this remains undeveloped bushland.

Threatened Species
The catchment contains the following threatened species:
10 Animals including the Powerful Owl and the Red Crowned Toadlet: refer to Appendix 9. The Landcare Group survey was confined to vegetation and water quality.
7 Plants: refer to Appendix 10.

Bushland Corridors
There are important corridors between bushland in the Catchment and other major bushland areas. These allow vital movement of flora and fauna. Clearing of land in these corridors has reduced their effectiveness. The clearing has been heaviest on the ridges. The following are the main corridors which could link with adjacent catchments. On the east and south-east, the bushland is continuous.

- North: Bay Rd high value with ~20 Properties (ref 1)
- West: George Hall Ck medium value ~10 properties (ref 1)
- North-west: Arcadia Rd medium value ~13 properties (ref 1)
- South: Charltons Ck low value ~14 properties
- South-west: Still Ck low value ~17 properties

The focus for corridor improvement should be to the west via George Hall Ck and north across Bay Rd, although the latter is a large area. The Arcadia Rd corridor would require significant work to restore in both Still Ck catchment and the adjacent catchment.

Bushland Properties
There are ~26 core (those with a large percentage of the area native bush) bushland properties, with the largest concentration on Bay Rd. There are a total of ~80 bushland edge properties with the following distribution: 13 Bay & Arcadia Rds, 10 Geelans Rd, 24 Smalls & Mansfield Rds, 16 Radnor Rd, and 15 Karalee & Crosslands Rds.
Thus there are just over 100 properties which have significant bushland areas remaining and are a sub-group of major importance in the catchment.

Creek Properties
Creek properties are defined as those properties directly across or bordering a designated creek or tributary. They are an important sub-group in the catchment. However, it is important to note that all properties in the catchment affect the creeks and this needs to be emphasised to all residents.
There are a total of ~116 properties on creeks in the catchment with the distribution as follows: 23 downstream of Mansfield Rd and 25 up stream, 13 George Hall Ck, 20 on Halls Ck, 12 on the north-western tributary and 23 on Charltons Ck.

Vegetation Survey Results

Refer to Appendix 1 for the summary map of all vegetation results. Refer to Appendix 2 for the raw data. Refer to Appendix 3 for the procedure used and for the various codes and species listings. Refer to Appendix 7 for the HSC map of vegetation types in the catchment and Appendix 8 for the HSC roadside weed map.

Roadside surveys:
50% have some native trees and 10% have mainly native grasses and bushes (i.e. 90% have mown grass or weeds or exotic plants).
Front of property surveys (inspected from the roadside): 70% have some native trees and 10% have mainly native grasses and bushes. There is a strong paradigm that an attractive property is one which is mowed as an open paddock or between the native trees. This needs to be changed to see well-maintained native grasses and shrubs as more attractive and not as “scrub” to be removed.

Ridge to ridge and creek line surveys:
At the head-water properties: 60% mainly native trees and 30% native grasses and bushes
Further downstream properties: 99% native trees and 80% native grasses and bushes
In the regional park, even further downstream, there were instances of weeds in the creeks, in some areas very dense, but otherwise, all vegetation was native.
Some specific areas for attention were highlighted in the surveys.

Vegetation Summary
The catchment vegetation is in comparatively good condition, particularly in those areas away from human habitation. There is little of the native bushland remaining along the roadsides and at the front of most properties. However, at the rear of approximately 50%

of properties and down to the creeks, good bushland remains and is worth protecting. There were plenty of examples of continuous weed encroachment into native areas. In the areas downstream from habitation, there are weeds in the creeks and at other isolated locations.
There was great variation in the treatment of creeks on properties. In some cases, native vegetation lined the banks well and considerable effort had gone into removing weeds washed down. In other cases, horses grazed across the watercourse resulting in significant erosion.
It was clear that people value native trees, but that many people saw the native grassed areas and some shrubs as "scrub" to be tidied by clearing. This mindset needs to be changed.

Water Test Results

Refer to Appendix 4 for the water test results and summaries. Refer to Appendix 3 for the water test procedure.

The waters are far from pristine, but are in fairly good condition and relatively lightly polluted, based on the 36 tests carried out in 2009. The major sources of pollution in the area are likely to be land clearing, sewage, livestock and domestic animals, fertilisers and detergents. There are a few nurseries and greenhouses in the area.

At the Mansfield Rd site, the results of tests have been compared with some HSC testing to show similar values. The majority of tests, 30, have been taken at the three nominated Streamwatch sites, while a further 6 have been taken at less accessible locations for comparison. Further work needs to be conducted to quantify water quality at upstream locations and potentially identify pollution sources.

No E Coli was detected.
pH was 7 to 8, with no excursions outside ANZECC guidelines for lowland rivers.
Turbidity was very low.

Nutrients as measured by available phosphate levels exceeded guidelines 17% of the time. The excursions occurred mainly in the months of April to June and were at all three sites. In general, the levels were half way between pristine and highly polluted.

Salinity, as measured by electrical conductivity was high on 83% of samples, however did not reach a level resulting in likely destruction of biota. Still Ck at Mansfield Rd was significantly higher than for Charltons Ck and downstream at the exit from the catchment at Crosslands.

Dissolved oxygen was outside the guidelines for 6% of tests, with these being just downstream of dams. Further work is necessary to identify the effect of time of sampling during the day.
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Main Threats to the Catchment

Loss of corridors connecting the catchment to neighbouring catchments and connecting native habitats within the catchment due to:

- Clearing of properties of native trees and more particularly the understorey
- Clearing of roadsides of native trees and more particularly the understorey

Loss of bushland and thus loss of biodiversity due to:

- Clearing of native trees and more particularly the understorey
- Clearing of leaves and dead wood, which is habitat
- Encroachment of non-natives and weeds from the edge properties
- New invasive weeds

Deterioration of the waterways due to:

- Poor management of the riparian zones: weeds, grazing and removal of native vegetation
- Nutrients from poor control and management of sewage systems and effluent from livestock and domestic animals
- Phosphates and salts in detergents and fertilisers

Recommended Actions

Maintain and improve **corridors** within the catchment and to neighbouring catchments by:

- Publicising the importance of native bushland corridors to link isolated habitats
- Engaging, educating and assisting people with high value corridor properties to improve awareness, understanding and commitment to:
    - Minimise further understory clearing on properties and roadsides
    - Encourage the replanting of understorey natives and leaving leaves and dead wood for habitat
    - Control weeds
    - Encourage planting of native species instead of exotics

Maintain and improve the **core bushland** within the catchment (taking into account the need for bushfire protection requirements) by:

- Publicising the importance of bushland and the understorey
- Identifying and eliminating new weeds
- Engaging, educating and assisting people with selected core or edge bushland properties to improve awareness, understanding and commitment to:
    - Minimise further understory clearing on properties and roadsides
    - Encourage the replanting of understorey natives and leaving leaves and dead wood for habitat
    - Control weeds
    - Encourage planting of native species instead of exotics

Maintain and improve the **waterways** within the catchment by:

- Publicising the importance of waterways and good practices
- Engaging, educating and assisting all people in the catchment the importance of good practices on:
    - Sewage management
    - Low phosphorous detergents
    - Minimising fertiliser usage
    - Livestock and domestic animal waste management
- Engaging, educating and assisting people on creek lines the importance of good practices on:
    - Weeds around creeks
    - Creek line access to livestock and domestic animals
    - Riparian zone buffers

Conclusions

The catchment is in a good condition, with significant native vegetation areas remaining and the water of good quality. The catchment is worth preserving and protecting.

However, there are threats to vegetation corridors, bushland areas and the waterways. There are regions in the west and the south with little native vegetation remaining and the native understorey replaced with mown or unmown non-native grass. This loss continues almost daily. The mindset of regarding mown grass as attractive, with or without native trees, needs to be changed to one of valuing the native understorey as attractive.

There are also regions of weeds in the bushland area, particularly around creeks, mainly due to being washed down from upstream properties and roadsides.

There is a need to educate people to the problems that they can cause and the opportunities that exist to ameliorate or avoid them. This can be done by means of providing relatively simple guidelines to people in caring for their properties and the catchment. It can also be done by demonstrating to people how things can change by means of specific visible improvement projects.

Finally, engaging people in this sort of activity can be a means of building a heightened sense of community with people working together on common goals.

References

1. Fauna Corridors And Vegetation Links In Hornsby Shire May 1994 (for HSC)
2. Streamwatch Manual and Website www.streamwatch.org.au
3. Water Quality Report 2007/8 Hornsby Shire Council
4. Hornsby Shire Council GIS Data