Ash Island Saltmarsh and Shorebird Habitat Restoration Project

Project Report 2013

Introduction

Ash Island is a significant component of the Hunter Wetlands National Park, located within the Hunter Estuary and mostly bounded by the North and South Arms of the Hunter River. Saltmarsh restoration and shorebird habitat restoration on Ash Island have been a focus for volunteers from Hunter Bird Observers Club since 2005 and together with wonderful support from other organisations have achieved great results.

The effort from volunteers these days mostly consists of hand removing mangrove seedlings that have invaded designated areas of interest over the previous year. The year 2013 marks the third year of follow-up treatment over all the designated areas (see Appendix A – Work Areas).

Licence to do work

A permit, Number P10-2071, issued under Part 7 of the Fisheries Management Act 1994 was secured in November 2010 for *"mangrove removal for shorebird habitat at Ash Island ".* The permit was issued by NSW Department of Industry and Investment (I&I) and was valid until **5th November 2013**.

This permit allowed for the removal of mangroves from several areas of Ash Island including shorebird habitat of interest at Milham Pond, Phoenix Flats, Swan Pond, Wader Pond and Wader West.

A renewal of Permit P10-2071 or issue of a new permit is vital to continue our restoration works at Ash Island and should include all areas of current interest plus Teal Waters.

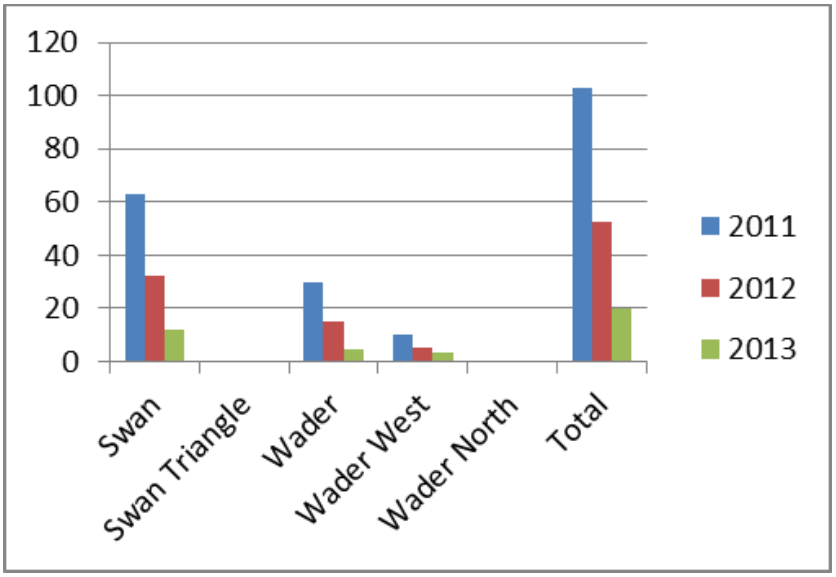
Site Works at Area E

Mangrove seedling removal at Swan Pond began on 18th January with a good 4 hour effort covering 70% of Section 1. A subsequent visit on 1st February completed Section 1 and all the other sections (2 through to 6) in a leisurely 8 hours. The majority of the mangrove seedling lay in the channel areas and only isolated individuals dotted the more open spaces of Swan Pond.

Wading slowly about Swan Pond is absolutely delightful and progress is punctuated with close encounters of flushed eels, fish, shrimp, stilt, sandpiper, avocet, teal and occasional chat. It is a magic place.

Work on Wader Pond took place on 22nd February where 99% of the ground was covered. A small triangular patch was deliberately left as demolition work on the old power lines was taking place there. The next visit on 8th March completed this as well as all the awesome Wader West area.

This place is at its best during dusk and dawn. Again these areas were completed in record time and plans of carrying out additional volunteer work in Area E were being considered for later in the year. A spare day could be put to good use removing *Juncus acutus* and other environmental weeds.



The effort to remove mangrove seedlings in Area E is completely sustainable and easily managed by a couple of volunteers each year.

Site Works at Phoenix Flats

Having quickly completed the follow-up treatment on Wader West it was easily decided to knock over Phoenix Flats on the same day. After a moderate 4 hours this area was also completed and resembled a similar effort from the previous year. The challenge of clearing Milham Pond would now be the focus and as we were clearly ahead of schedule the team was looking forward to making the most of the head start.

Site Works at Milham Pond

An initial inspection of Milham Pond indicated that the mangrove seedling recruitment here was much heavier than other sites on Ash Island and that the effort would be substantial. However, with an early start to the follow-up treatment it was hoped that all would be completed by the planned schedule of June. This would enable the team to make a timely start on other volunteer work at Stockton Sandspit that needs to be done during winter.

The first day of work was on 15th March and the traditional “volunteer areas” were targeted. By the end of work on that day a miserly 5% of Section V1 had been completed. The area around Midway Fence (southern limit of Section V1) proved to be very heavily infested with the majority of the mangrove seedlings hidden within the grassy margins of the mud flat.

The next three visits were enhanced by the presence of a team of bush regenerators (Trees In Newcastle) carrying out *Juncus acutus* control work under contract to Wetland Care Australia.

The contractors were directed to utilise any spare time helping out with mangrove removal and this was gladly accepted. With this additional help Section V1 was completed (total 24 hours) and Section V3 was almost (90%) completed by 19th

April. One more volunteer effort in April completed Section V3 with a total of 35 hours.

It was sobering to note that the total effort at this stage was equal to the previous year's entire effort. A quick calculation predicted an effort of more than double the previous year. A more intense inspection revealed that Sections V2 and D were in a similar condition to that of Section V1 with very heavy infestations within the grassy margins. Both of these sections now posed a real challenge and it would be highly likely that a return in August (after a June effort at Stockton Sandspit) was needed to be scheduled in.

The April visits continued with Section V2 taking 13 hours to complete.

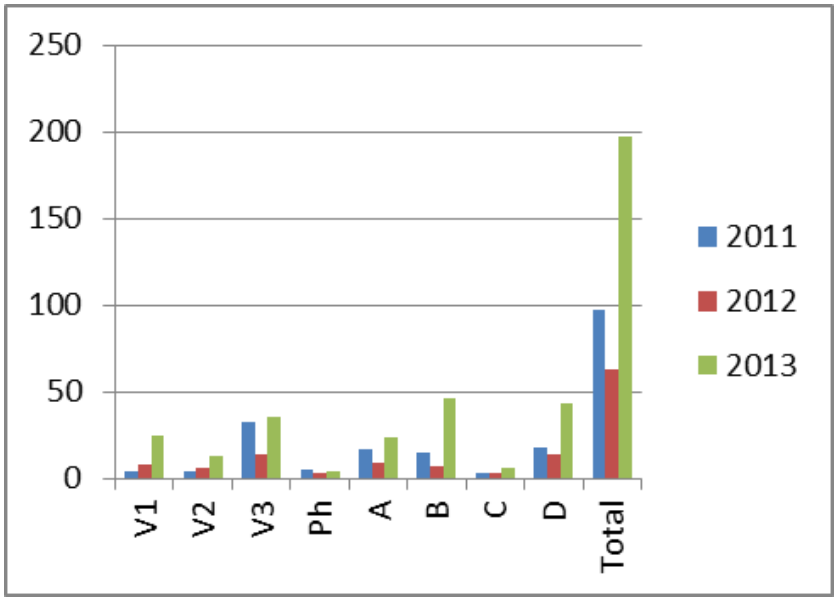
With gritty determination Section D then was targeted and after 4 visits during May this section was deemed 80% complete. While most of the seedlings were frustratingly located within the grassy margins, it was noted that a substantial proportion of those standing on the mud flat were in fairly firm clay-based substrate. The idea of dealing with these using brush cutters was discussed and agreed that more efficient use of our time could be made here.

Our last visit before the Stockton Sandspit break was on 7th June when a 3 hour effort accounted for the brush-cutting over a favourable period of low tide. This more efficient method is certainly superior on firm conditions however once the going gets less firm it requires considerable physical effort carrying the machine to individual plants. These soft mud areas still need to be addressed using hand remove techniques.

Back at Milham Pond on 2nd August and after a 6.5 hour effort this difficult Section D was finally complete. After a total of 43.5 hours we were happy to see the last of it

Looking ahead to complete the remainder of Milham Pond it was evident that nothing but hard slog was required so all efforts were made to knock over as much as possible during August. A further 5 visits slowly accounted for Section B (60%) while Sections A and C were completed. With the aid of some timely assistance from a team of Conservation Volunteers, Section A was completed after a total of 24 hours. Meanwhile Section C took 6 hours (over 2 visits) to complete.

Another offer of help utilising Conservation Volunteers was gladly accepted in September to complete Section B. This section proved to be a slightly greater challenge than Section D taking a total of 46.5 hours to complete.

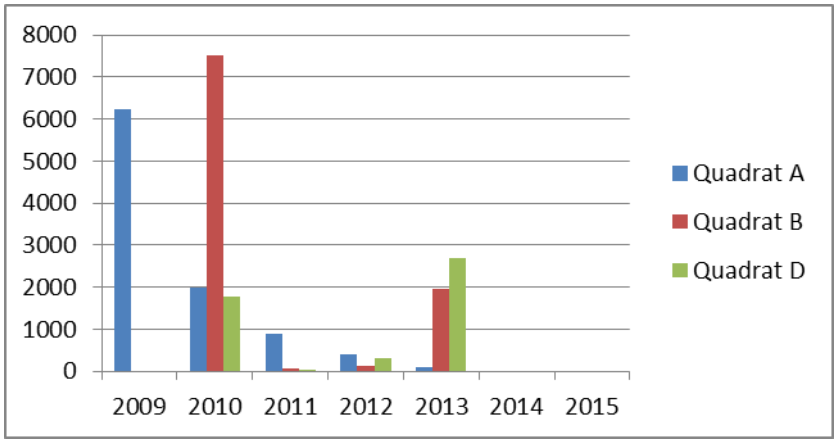


Finally on 13th September, exhausted but thankful the 2013 mangrove effort had ended, it was apparent that this level of commitment is not sustainable by a couple of volunteers. By comparison with the Area E sites and Phoenix Flats, the Milham Pond site had been a great challenge. Any thoughts of previously planned additional volunteer works were now dropped for this year.

The 'on-site and working' effort approaching 200 hours is estimated at around $12,000 for contractor hire to achieve the same result. Thought needs to be given to securing funds to cover a sizeable component of this each year.

Monitoring at Milham Pond

Each year the recruitment of mangrove seedlings and saltmarsh vegetation is measured in an attempt to monitor the success of the project. Three established quradrats measuring 20m x 20m are cleared of mangrove seedlings and a count is recorded.



Not counting the first 2 years when mature mangroves remained within the system, it appeared that the rate of recruitment was abating. At least, it was thought, that some low and sustainable level had been achieved. It was immediately clear by the 2013 figures that a greater challenge to remove all the seedlings lay ahead.

An inspection of each section also highlighted some additional interesting aspects.

Section A showed patchy recruitment with seedlings sprouting in areas associated with mangrove timber previously stacked during the initial chainsaw work in 2009 or within the vigorous regrowth of Austral Seablite *Suaeda australis*. The low seedling count of Quadrat A was consistent with the bareness of the ground away from these areas.

Section B and C showed more evenly distributed recruitment with denser patches associated with stacked timber and only slightly affected grassy margins.

Section D showed an even but sparse distribution over its vast mud flat where much smaller stacks of previous seedlings only exist and an extreme density of seedlings within the grassy margins.

The difference between those areas with remaining timber lying about and those with little at all is striking. It is supposed that where no or little structure exists to hinder the progress of mangrove seeds washing up with the tide, that the seeds will continue to move further and into the grassy margins. Perhaps a trial utilising some of this timber should be planned for next year in some selected hot spots.

With regards the re-establishment of saltmarsh vegetation there is continuing good news.

At the confluence of the major streams a patch of *Suaeda australis* continues to florish (2013 image on right).

Within the measuring area of Quadrat D the establishment of *Triglochin striata* appears to have remained as per the previous year at about 2.5% of the quadrat while the *Sporobolus virginicus* is spreading with an estimated 82.5% coverage. Previous estimates for *Sporobolus virginicus* have been 55% in 2011 and 70% in 2012. Note also the heavy infestation of mangrove seedlings within the grass.

Mangrove Propagule Exclusion Devises (MPEDs) at Milham Pond

To help protect the large investment made each year in removing mangrove seedlings, several MPEDs have been installed at key locations. The purpose of the MPEDs is to restrict the flow of mangrove seeds without affecting fish passage; this is a condition of the Permit issued by I&I. As soon as possible after the new season's seed starts appearing these MPEDs are checked for deterioration and new mesh replaced if necessary.

Additional to these structures a floating boom was installed in early December 2012. Due to the timing of the boom's installation it was never envisaged that it would have any great influence on the 2012 season's mangrove seeds but its performance would be monitored through to spring 2013 and any adjustments deemed necessary could be made.

Seed was first discovered in early August where it was apparent that a few seeds were found in any place checked as the seedling removal effort resumed. Not wanting to place total dependency on the boom it was agreed to set new MPEDs as soon as the next convenient low tide. The following week an inspection over the high tide confirmed that seeds were finding a path around the boom. The east end of the boom clearly needed to be positioned well into the grassy margin to prevent seeds slipping past the end.

A week later (over low tide) the boom was repositioned by NPWS field staff with the end well within the grassy margin.

Also it was time to fix the original MPEDs and this simple task never takes too long.

Another week later the predicted evening tide was 1.97m and a site inspection was organised to watch the boom in these near extreme conditions. Unfortunately the boom had broken from its anchor point as the D-shackle failed under the pressure of the tide. Once again the boom had to be repositioned and by the end of August it was finally secured.

There are still doubts about the functioning of the boom and any inspection during incoming tide reveals a fierce undertow current that sucks seed below the boom curtain. Standing 40 metres upstream and in the main channel of the creek it is possible to see mangrove seeds passing your legs.

At this stage we are hoping for a low seed yielding season followed by reduced mangrove seedlings for next year's volunteer effort.

Acknowledgements

The Ash Island Saltmarsh and Shorebird Habitat Restoration Project continues to be run as a partnership of several organisations with a common interest in estuary restoration. Each organisation has a vital role and the project is blessed by people passionate and willing to get involved, contribute knowledge and lend support.

Hunter Bird Observers Club (HBOC) takes responsibility for project design, works planning and implementation of site works and the volunteer effort. Kooragang Wetlands Rehabilitation Project (KWRP) is responsible for some of the administration since this project lies completely within the KWRP lease. NSW National Parks and Wildlife Service (NPWS) are the ultimate land managers and provide assistance to site works and project governance.

The assistance of Wetland Care Australia (WCA) providing resources in terms of on ground works is very much appreciated as is the involvement of Conservation Volunteers.

Thanks to the efforts of the TIN bush regeneration crew in giving the Milham Pond work a good kick-start and to the NPWS field staff for their contributions and interest.

Special mention goes to Boyd Carney (NPWS) and Juliana Ford (HBOC) for continuing to provide much needed assistance and encouragement as well as putting in some ‘hard yards’ on the mud flats when it counted.

Tom Clarke

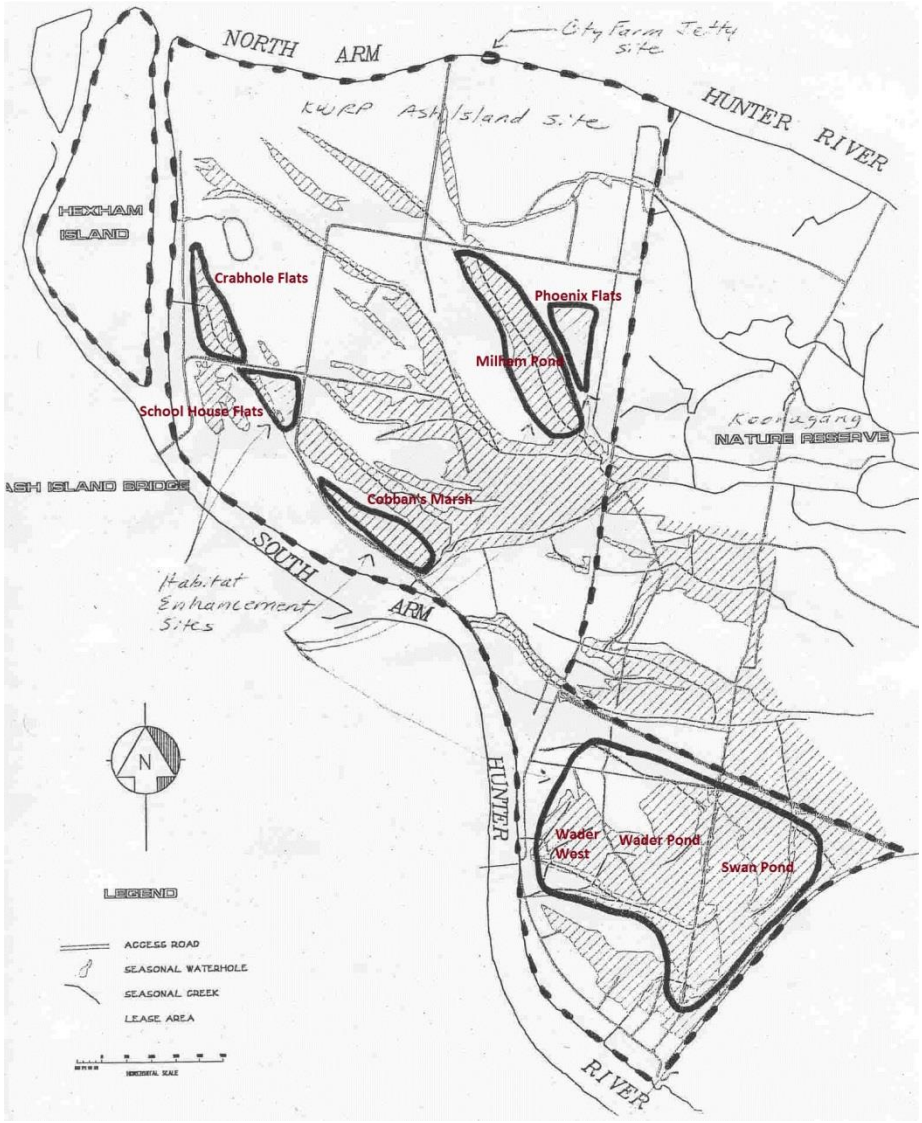
Project Coordinator HBOC

December 2013.

Site supervisors inspecting the mangrove seedlings prior to removal by human carers.

Appendix A - Work Areas

An attachment to (expired) Permit P10-2071 describes the areas of interest marked in bold outline.



Milham Pond and Phoenix Flats are located in the north, bounded by Milham Road and Ramsar Road. For the purposes of managing the site works, Milham Pond has been divided into several discrete work areas easily discerned by workers on the ground by using natural features of the landscape such as creeks and the odd redundant fence. For detailed descriptions of these areas refer to *Milham Pond Saltmarsh and Shorebird Habitat Restoration Project – 2010 Report.*

Area E sites are in the south bounded by Bell Frog Track, Hunter River and the export coal terminal railway lines. Swan Pond and Wader Pond are separated by Wagtail Way while Wader West is that area west of the power lines and east of Ramsar Road.

Three additional sites, Crabhole Flats, Schoolhouse Flats and Cobbans Marsh are also nominated but these enjoy little focus from HBOC volunteers.