



Shorebird Habitat Restoration in the Hunter Estuary

2019 Report to HBOC Committee

Since 2003, members of Hunter Bird Observers Club (HBOC) have maintained a constant volunteer effort with various restoration works in the Hunter Estuary. These projects all focus on shorebird habitat and the project sites have been chosen for their strategic importance to the birds. Project sites exist at Stockton Sandspit, Ash Island (Milham Pond, Phoenix Flats, Wader West, Wader Pond and Swan Pond) and a collection of remote sites (Smith Island, Sandy Island, Fullerton Cove Beach and Dyke Pond #4) within the estuary.

This report aims to highlight the successes of our efforts over the 2019 year and also discuss some of the challenges for the future.

Currently the combined projects cover over 150 hectares of the Hunter Wetlands National Park and since early 2003, just over 9,960 hours of volunteer effort has been accrued in these endeavours. The combined volunteer effort in 2019 across all the projects amounted to 433 hours of willing contribution. We will surely break the 10,000 mark before another twelve months has elapsed.

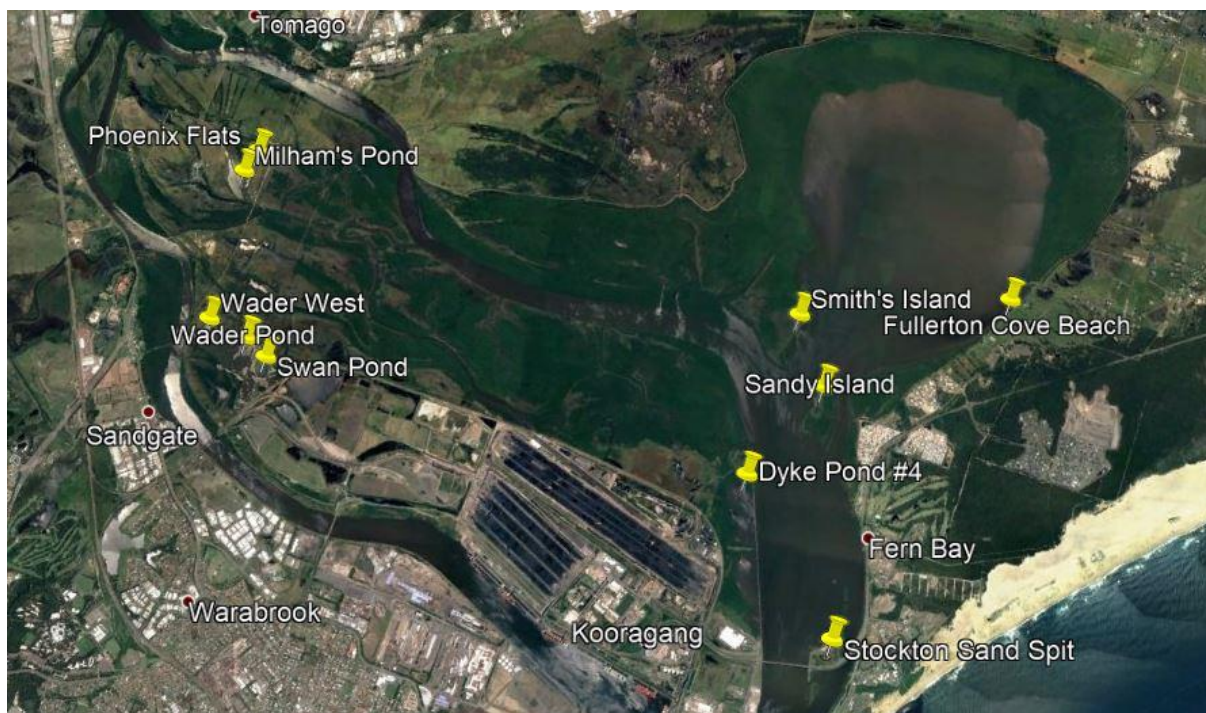


Figure 1. Restoration of shorebird habitats at strategic sites over the breadth of the Hunter Wetlands National Park

Mangrove Licence

Much of the volunteer work carried out involves removing mangrove seedlings that invade beaches and saltmarsh areas within the sites. To do this, permission from National Parks and Wildlife Service and also Department of Primary Industries is required. A permit (PN17-379) under Part 7 of the Fisheries Management Act 1994 allows *“harm to marine vegetation associated with wader bird habitat management, Hunter Wetlands National Park”*. These permits are issued for three-year periods only and this current permit is in force until 30th December 2020.



Figure 2. Removing mangrove seedlings by hand is the most efficient method when working within saltmarsh areas.

Remote Sites

(Smith Island, Sandy Island, Fullerton Cove Beach and Dyke Pond #4)

Previously reported as Threatened Species Recovery Fund (TSRF 06) project, this area of endeavour continues to be serviced as an ongoing volunteer program since the funded component of this project was successfully completed in June 2018.

Recruitment of mangrove seedlings since 2018 in all the remote sites has been, by any standard, very low and the follow-up sweeps over all beaches and saltmarsh have been easily completed. The majority of these sweeps were conducted across three consecutive days at the end of February that coincided with favourable low tides. All the nominated areas on Smith Island (two beaches plus large saltmarsh), Sandy Island (one beach plus small saltmarsh) and Fullerton Cove Beach were cleared of mangrove seedlings. The effort over the large saltmarsh (15ha) on Smith Island was completed with great efficiency by a team of volunteers from Hunter Local Land Services.

Regular monitoring at high tides of these sites continues with kayak access to the island sites and walking access to Fullerton Cove Beach. The beaches on Smith Island and at Fullerton Cove have shown good improvement in occupancy by shorebirds roosting over the high tides. The constant surveillance of the saltmarsh, since July 2017, on Smith Island has recorded numerous periods of activity by wading type birds but as yet no shorebirds have been captured by the camera.



Figure 3. The previously felled mature mangroves continue to break down. The expansive openness of the saltmarsh is restored and beckons shorebirds to come and enjoy.

Ash Island

(Milham Pond, Phoenix Flats, Wader West, Wader Pond and Swan Pond)

The main focus over the Ash Island sites is the treatment of mangrove seedlings. Since all the primary felling of the trees several years ago it is solely the detailed picking of each subsequent season's seedlings that form the bulk of the work. The combined aggregate of almost 114 hectares was covered this year in the very reasonable time of just under 70 hours. This represents another below average yearly effort and anything under 100 hours is completely sustainable by volunteers.



Figure 4. A lonely looking mangrove seedling out on a dry Wader Pond.

Site Works at Area E

Just one day on site at the end of January ensured that our component of Area E (98.49 ha) was clear of mangroves. The majority of the seedlings (count of 70) were found around the twin points that face each other across Swan Pond. These points continue to be influenced by mature mangrove trees (West Point) and re-sprouts from old stumps due to nil tidal water covering them (East Point). With only 4 seedlings found along Wader Creek and absolute zero on Wader West, the majority of the time was spent just walking over the territory proving it clear of seedlings.

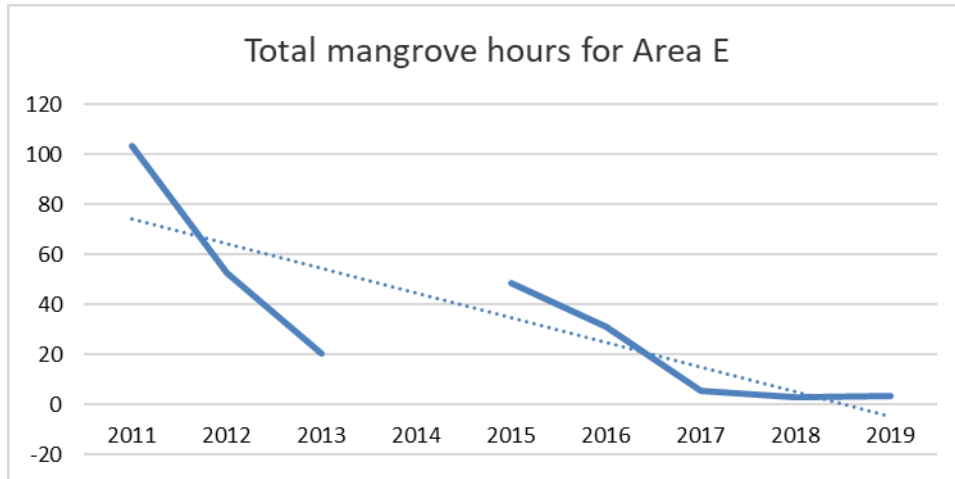


Figure 5. The effort required in Area E on Ash Island has been minimal since 2017.



Figure 6. Stumps of mangroves not being flooded by tides can result in re-sprouts.

Site Works at Milham Pond/Phoenix Flats

As per our schedule, our gaze turned to Milham Pond in March and after three solid days the task was almost complete. Seedlings were hardly found in any great density but were distributed across all areas in greater numbers than the previous year. Despite that, the level of recruitment was not presenting such an enormous task at all. Just one day in April was all that was needed to complete the sweeps across both Milham Pond and Phoenix Flats and it was a nice feeling to have finished within the allotted schedule and to be able go home early on that day. Two weeks later, a final inspection-walk back over all the areas proved that the job was done for another year.

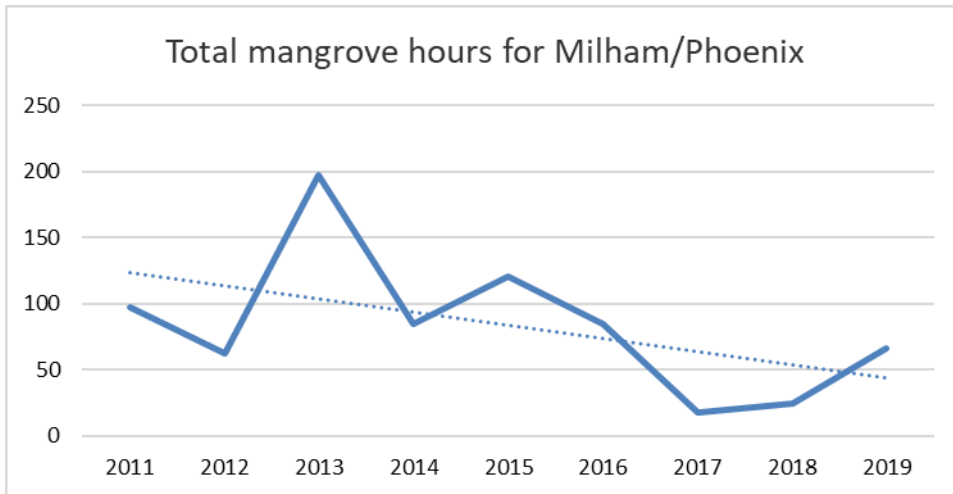


Figure 7. After two exceedingly low years, the increased effort required in 2019 still remains at a sustainable level.



Figure 8. The work at Milham Pond starts at the highest end of the system. The finish line is far away in the distance.

Each year the recruitment of mangrove seedlings and saltmarsh vegetation is measured in an attempt to monitor the success of the project. Three established quadrats measuring 10m x 10m are cleared of mangrove seedlings and a count is recorded.

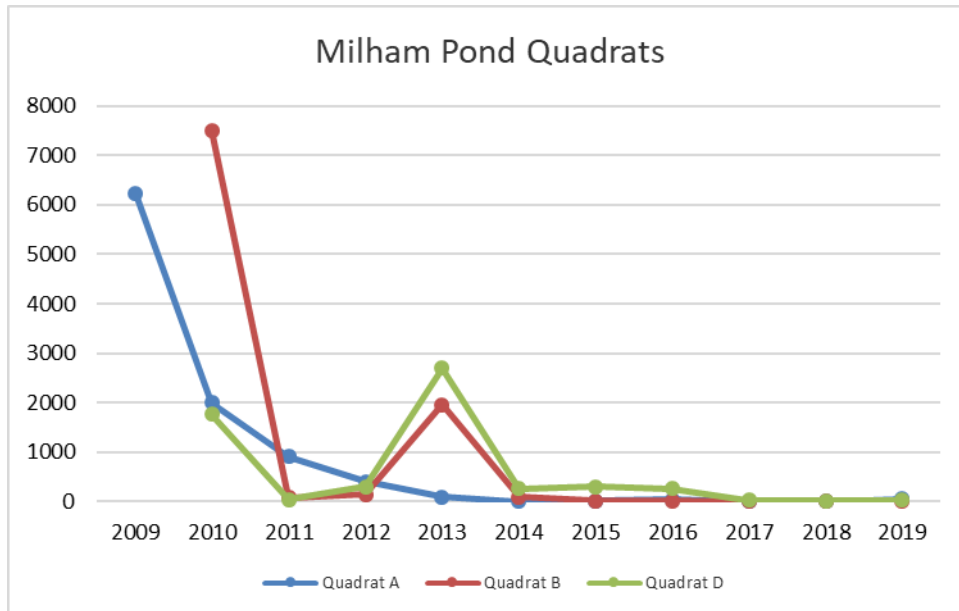


Figure 9. Seedling numbers encountered within the quadrats continue at minimal rates since 2014.

Since the spike in 2013 it appears that the various control measures designed to limit the number of mangrove seeds entering the Milham Pond system are having a positive effect. Casting an eye over the place in March 2019, it was obvious that generally the entire site was more heavily infested with mangrove seedlings compared to the previous year. Two of the quadrats confirmed this with scores that matched 2017 and 2016 respectively.

At the other end of the spectrum, measures of saltmarsh recruitment continue to increase slowly. Within the measuring area of Quadrat D, the establishment of Streaked Arrow Grass (*Triglochin striata*) (1.5%) and the Salt Couch (*Sporobolus virginicus*) (97.5%) continues to take up the vast majority of the space. The remaining 1% being the mangrove seedlings.

Outside the quadrats, the spread of saltmarsh along all the edges of Milham Pond continues to increase and saltmarsh vegetation continues to fill out an area near the confluence of the major streams. This cannot be accurately measured but by comparing recent and previous photos it is quite apparent.



Figure 10. Twelve months after the primary clearing of mangroves, salt couch was barely covering this quadrat.



Figure 11. Salt couch has progressed out to an additional 13m beyond the quadrat now.

Stockton Sandspit

This site is the most visible to the general public and probably one of the most visited. Restoration work at this site takes on several facets but the underlying focus is that of maintaining a shorebird roost. The volunteer effort here over the past twelve months amounted to 246 hours on this 4ha site.



Figure 12. The Great Saltmarsh is a feature of Stockton Sandspit.



Figure 13. Dedicated volunteers restoring the marsh on Golden Plover Point.

Mangroves

Since 2002, when the primary treatment of the invading mangroves was carried out, follow-up seedling removal has taken place. Generally, this activity takes place over a low-tide period and for some time now has not presented much of a challenge at all.

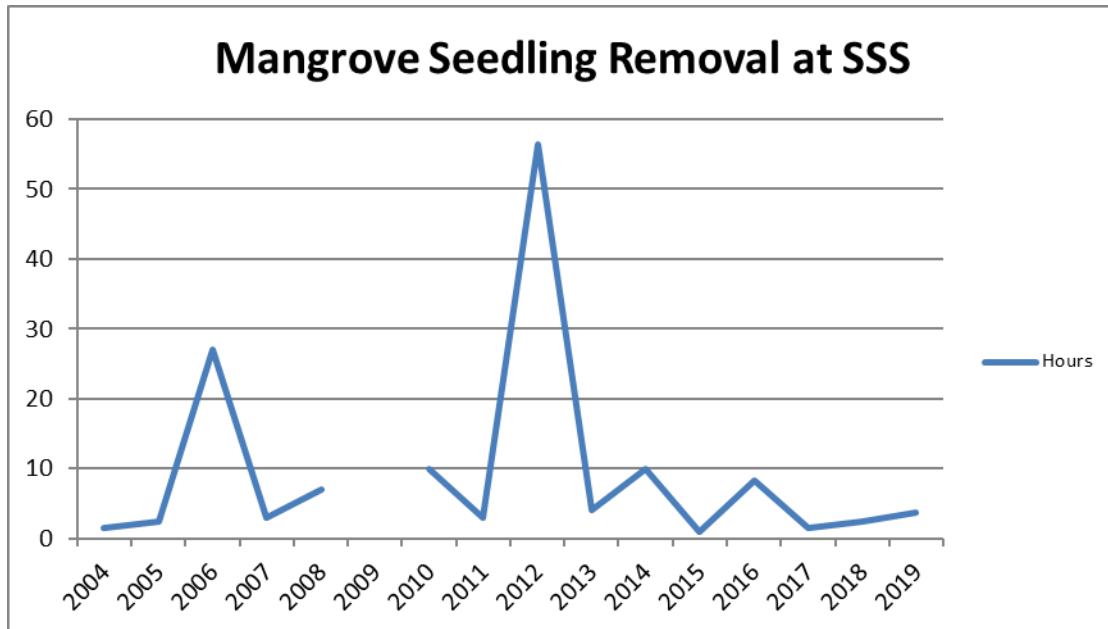


Figure 14. Seven years now, each with less than 10 hours effort.

Such a day presented itself in late January and over the course of a few hours, the entire area was swept systematically for mangrove seedlings. Once completed, other weeds were targeted on Big Island and the Shelly area.



Figure 15. Mostly this year's seedlings occurred in a narrow band along the beach.

Clean Up Australia Day

Another relatively easy challenge was this year's Clean Up which required only a small but dedicated crew of HBOC volunteers to collect the rubbish and marine debris.



Figure 16. Searching every corner for rubbish; mostly plastic of course!



Figure 17. All done by smoko!

The Roost

The main focus at Stockton Sandspit is the shorebird roost and its ability to provide a safe place for shorebirds to sleep and loaf. The roost is a complex of habitats including shallow tidal waters, saltmarsh, saltmarsh grassy margins and open shelly sand. All these elements are addressed each year to give choice to the various shorebirds.

This year's effort commenced in late May with a sweep for exotic plants (weeds) over Golden Plover Point and along the edge of The Scrape. Weeds treated included buffalo grass, rag weed, marram grass, ice plant, hebertretia, saltbush, spike rush, bitou bush, galenia, telegraph weed and evening primrose. A few late mangrove seedlings that had appeared around the Lagoon margins were also dealt with. Across six days during the months of June and July, the Great Winter Effort was carried out and successfully completed. Shelly sand was exposed once again on Big Island and an area we call The Shelly.



Figure 18. The area of exposed shelly sand is gradually decreasing.

This is the most labour-intensive component of all the work that the volunteers face but the actual area cleared this year was a decrease from previous years. It has become apparent over the last couple of seasons that the process of plants invading the sand has been slowly winning despite our best efforts to beat it back. This is seen particularly so on Big Island where the impossible-to-weed Penny Wort (*hydrocotyle bonariensis*) and Beach Spinifex (*Spinifex sericeus*) has spread over 40% of the non-saltmarsh area. This has been aided by the increasing tidal influence (at least 60% coverage on king tides) over Big Island.

Exposing shelly sand out on The Shelly no longer presents itself as a completely viable option either. Over the past few years the invasion of couch grass has affected a growing amount of the treated area and this couch is impossible to address by hand weeding. As a result, the usefulness of these areas as potential shelly sand is diminished.



Figure 19. Combination of beach spinifex and penny wort has conspired against our efforts on Big Island.

A strategy for the future has emerged however. It is still within our reach to prepare a reasonable proportion of Big Island and margins of The Shelly as we have done in the past. Also, a section of The Shelly (about 25% of the original area) that lies adjacent to the margins can be sustainably treated for the time being. All the grass affected areas now should be regularly cleared of woody weeds and tall grasses such as Marram and Rhodes Grass. The relentless process of plant invasion is prevailing and reducing the area we can influence.

From time to time it becomes obvious that the established native shrubs planted adjacent to the saltmarshes begin to invade the grassy margins. This poses a threat to the shorebird roost as the advancing shrubs reduce the openness of the roost and birds become less comfortable. The need to weed native shrubs and to seriously prune some back was addressed again during August and September with the able help of a group of TAFE students on one occasion and some International Student Volunteers on another. Additional work was undertaken treating some large sneaky lantana discovered within the shrubbery and removing buffalo grass from the saltmarsh margins of Big Island.



Figure 20. Students from TAFE practicing some weeding techniques.

Ground Nesting Birds

Our ground-nesting birds continued to have very poor breeding success during 2019 and as the amount of available open sand continues to reduce this is hardly a surprising result.

Red-capped Plover breeding appeared to be strong at Stockton Sandpit from 2007 through to 2013. This does coincide with the re-grading work that was carried out to allow the expansion of saltmarsh. Initially this work resulted in a vast amount of open sand ideal for nesting sites but as the invasion of saltmarsh within the tidal affected zone and the incursion of couch within those areas above it, the opportunities for nesting have diminished. The frequency of finding Red-capped Plover at Stockton Sandpit at any time of the year has also greatly reduced; the place in general doesn't suit them too well at all.

With regards the "resident pair" of Pied Oystercatcher it is more difficult to understand what is affecting their lives. The pair continue to jealously guard their territory throughout the year and copulation is witnessed from time to time but this has not resulted in a nesting attempt here since 2017. The last successful breeding attempt was in 2014. Other threats to these birds such as human disturbance and terrestrial predators remain of course, but not at any discernible increase at all.



Figure 21. The resident pair of Pied Oystercatchers resting after warding-off another would-be interloper.

Acknowledgements

These estuary projects continue to succeed because of the input of many people with a common interest in estuary health and shorebird habitat restoration.

All the works planning and implementation are the result of enduring partnerships that provide the organisational structure to make it all happen. The contributions of NSW National Parks and Wildlife Service, Hunter Local Land Services (formerly Kooragang Wetlands Rehabilitation Project) and Hunter Bird Observers Club are ceaseless and much appreciated.

Many thanks to all those individuals that have volunteered their time and effort in the field and gone home with a feeling of achievement and some sense of the issues confronting our shorebirds. Your efforts are certainly appreciated by those dear creatures that require safe roosting opportunities.

Thanks particularly to those cheerful and willing members of Hunter Bird Observers Club who volunteered their time and energy and made up the core effort throughout the year. Thanks also to those volunteers from Hunter Local Land Services and Conservation Volunteers Australia for dropping in to help out plus those TAFE students who incorporate the estuary in the practical application of their studies.

Particular acknowledgement is due to Boyd Carney (NPWS) for his constant availability and interest in the estuary. The in-kind service provided by NPWS through his support has proved to be crucial at times.

Tom Clarke (Project Coordinator HBOC)

December 2019



HBOC volunteer dates (restoration projects) 2020						
Date	Tide (at Stockton Bridge)	Site	Activity	Meet	Comments	
Monday 6th January		Ash Island - Area E	Remove mangrove seedlings	07:00 Wagtail Way		
Sunday 1st March	Low at 07:47	Stockton Sands pit	Clean Up Australia Day	08:00 Stockton Sands pit		
Sunday 15th March	Low at 08:24	Sandy Island + Fullerton Beach	Remove mangrove seedlings	07:00 Fern Bay boat ramp	Access by kayak or similar	
Monday 16th March	Low at 09:36	Ash Island - Milham Pond	Remove mangrove seedlings	08:00 Milham Road	between The Lane and City Farm	
Sunday 29th March	Low at 06:38	Smith Island	Remove mangrove seedlings	07:00 Fern Bay boat ramp	Access by kayak or similar	
Monday 30th March	Low at 07:25	Ash Island - Milham Pond	Remove mangrove seedlings	07:00 Neville's Nook	no access available from Ramsar Road	
Monday 20th April	Low at 13:18	Stockton Sands pit	Remove mangrove seedlings	10:00 Stockton Sands pit		
Monday 4th May	Low at 12:03	Stockton Sands pit	Clearing shelly sand	09:00 Stockton Sands pit		
Monday 18th May	Low at 11:51	Stockton Sands pit	Clearing shelly sand	09:00 Stockton Sands pit		
Monday 1st June	Low at 10:37	Stockton Sands pit	Clearing shelly sand	08:00 Stockton Sands pit		
Monday 15th June	Low at 10:14	Stockton Sands pit	Marsh sweeps	07:00 Stockton Sands pit		
Monday 29th June	Low at 09:09	Stockton Sands pit	Marsh sweeps	07:00 Stockton Sands pit	heading for a low high tide	
Monday 13th July	Low at 08:26	Stockton Sands pit	Marsh sweeps	07:00 Stockton Sands pit	heading for a low high tide	