Hunter Bird Observers Club
Affiliated with BirdLife Australia

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Shorebird Habitat Restoration in the Hunter Estuary

2020 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 2020 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 10,300 hours of volunteer effort has been accrued in these endeavours. The combined volunteer effort in 2020 across all the projects amounted to 356 hours of willing contribution. It was very pleasing to break the 10,000-hour milestone this year; an achievement in itself.

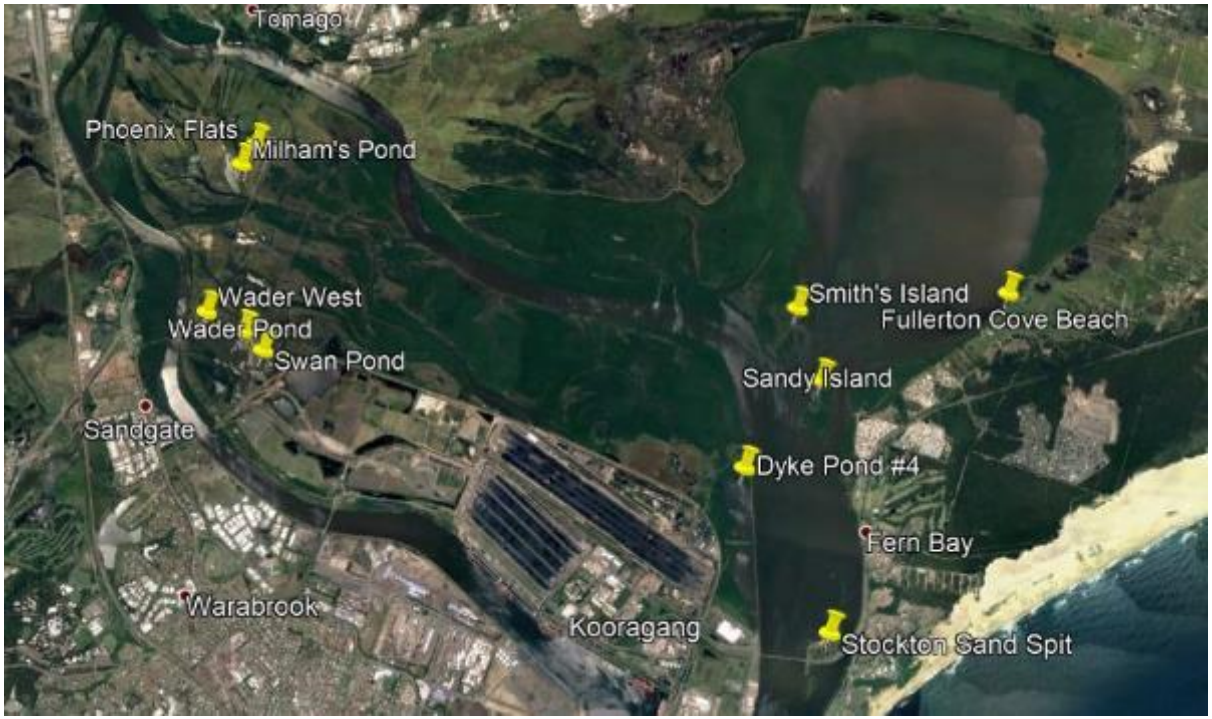

Figure 1. Restoration of shorebird habitats at strategic sites over the breadth of the Hunter Wetlands National Park

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 renewed permit (PN20-194) under Part 7 of the Fisheries Management Act 1994 allows *"harm to marine vegetation associated with mangrove management at Hunter Wetlands National Park, Hunter River, multiple sites".* This latest permit has been issued for five years and is in force until 30th June 2025.

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 follow-up sweeps for 2020 were conducted across three separate days that coincided with favourable low tides. A day in March successfully dealt with Fullerton Cove Beach, a day in April accounted for the three beaches on Sandy and Smith Islands and a day in June was spent sweeping all the saltmarsh areas previously cleared on Smith Island. It was plain to see that due to the recovering weather conditions since the breaking of the drought that mangroves continued to produce and drop seed. In fact, every month we were discovering newly deposited seeds on the various beaches.

Figure 3. Fullerton Cove Beach has improved as a shorebird roost since mangroves were removed.

Regular monitoring over the high tides at these sites continued 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 was discontinued in late August due to access issues brought about since the kayak was stolen. This needs to be rectified soon.

Figure 4. Each kayak adventure includes a rubbish run and plenty of plastic marine debris has been removed over the last year.

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 just over 90 hours (actual time spent removing mangrove seedlings) and represents an above average year for mangrove seedling recruitment. The last two years has seen a steady rise in effort required and 2020 went closer to the limits of sustainability than it has for the last four years. Anything under 100 hours has been our benchmark for volunteers to achieve.

Figure 5. A field of Salt Couch continues to develop at Milham Pond.

Site Works at Area E (Swan and Wader Ponds)

Just one day on site at the start of January ensured that our component of Area E (98.49 ha) was clear of mangroves. This represents a repeat of the 2019 experience. Again, the majority of the seedlings were found around the mature mangroves adjacent to Wagtail Way and the majority of the time was spent just walking over the territory proving it clear of seedlings. Not just the Mangrove Propagule Exclusion Device located on Fish Fry Creek but also the continuing dry spell was contributing to the lack of seedlings.

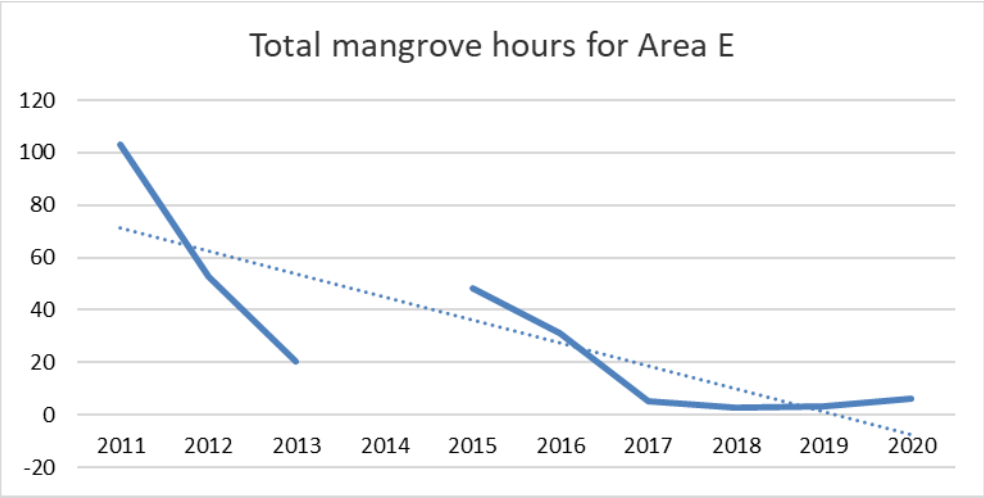

Figure 6. The effort required in Area E on Ash Island has been minimal since 2017.

Figure 7. Exceptionally dry conditions at Swan Pond resulted in the non-germination of many mangrove seeds. This was not the experience in any other site.

Site Works at Milham Pond/Phoenix Flats

As per our schedule, our gaze turned to Milham Pond in March and on the initial inspection walk, heavy recruitment of seedlings was observed resulting in an estimate of at least twice the density as last year over about two-thirds of the total area. After nine solid days it was obvious that the task was only halfway complete.

Another three days in April and virtually the entire south-west side of Milham Pond was completed as well as upstream from Neville's Nook on the north-east side. A tiring six additional days were necessary to complete from Neville's Nook downstream and including Pheonix Flats. That section was infested the worst it has been since 2016 and the areas opposite since 2013. All parts upstream of the Mid-way Fence were looking about the same as 2019, thankfully.

Later in August, a final inspection-walk and rubbish-run back over all the areas proved that the job was done for another year.

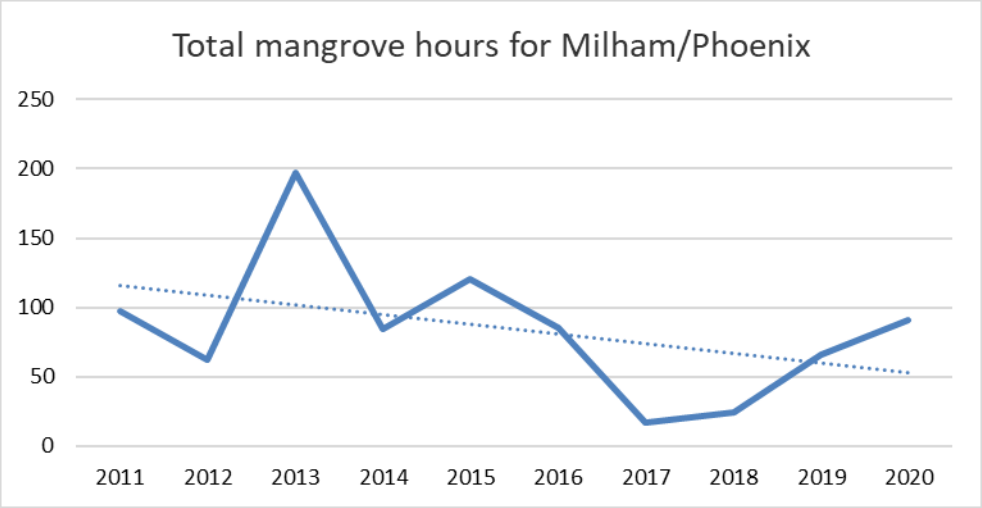

Figure 8. After two exceedingly low years, the increased effort required over the last two years remains at a sustainable level.

Figure 9. Areas upstream of the Mid-way Fence were completed in reasonably good time.

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.

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. However, casting an eye over the place in March 2020, it was obvious that generally the entire site was more heavily infested with mangrove seedlings compared to the previous year. It was clear that the quadrat scores did not confirm this and it is quite possible that the location of these quadrats no longer serves the intended purpose. Such is the slowly changing nature of the area's hydrology.

Figure 10. Generally, areas downstream of Neville's Nook were heavily infested.

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 the Salt Couch *(Sporobolus virginicus)* has now taken up all the space and crowding out the small patches of Streaked Arrow Grass *(Triglochin striata)*. These plants can be found away from the quadrat in more suitable conditions.

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 that a large increase of Austral Seablite *(Sueda australis)* has occurred.

Figure 11. Twelve months after the primary clearing of mangroves, salt couch was barely covering this quadrat.

Figure 12. Salt couch has progressed out to an additional 15m beyond the quadrat now. An increase of 2m over the last twelve months!

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 209 hours on this 4ha site.

Figure 13. Lots of shorebirds prefer Stockton Sandspit as a daytime roost.

Figure 14. Dedicated volunteers removing the new wave of mangrove seedlings.

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.

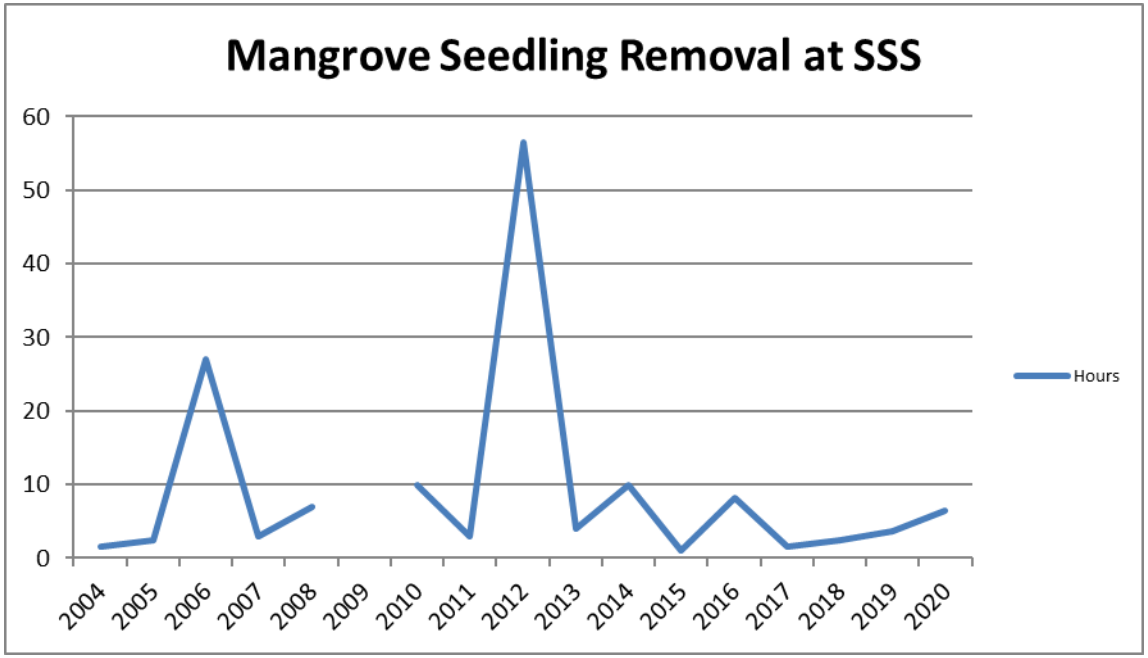

Figure 15. Eight years now, each with less than 10 hours effort.

Such a day presented itself in mid-May and over the course of a few hours, the entire area was swept systematically for mangrove seedlings. The influx was a little more than last year but well within the reach of dedicated volunteers.

Figure 16. Mostly this year's seedlings occurred around the margins of the Lagoon.

Clean Up Australia Day

Thanks to Paddy and Caryl Lightfoot, the usual Clean Up Day at Stockton Sandspit was able to go ahead. An energetic team comprising eight HBOC members and four interested people from the general public collected various rubbish items and marine debris. It was completely disturbing to find newly dumped rubbish in the car park under the bridge so soon after this great effort.

Figure 17. and then, just three weeks later!

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 to loaf. The roost is a complex of habitats including shallow tidal waters, saltmarsh, saltmarsh grassy margins and other open areas. All these elements are addressed each year to give choice to the various shorebirds.

This year's effort commenced in June with two days dealing with Big Island and getting a start on The Shelly. Three days in July completed our efforts on The Shelly and its saltmarsh margins as well as 75% of the Lagoon margins. The work in those margins is mostly about removing woody weeds and chasing Buffalo Grass that threatens to invade.

The Shelly is an area that has been gradually decreasing due to the unrelenting invasion of grasses. The task of maintaining this area as a vegetation-free zone is rapidly becoming an impossibility unfortunately. Treatment of this space in future will most likely be confined to merely keeping the vegetation as low as possible.

Another wonderful and valuable day in August was spent with an enthusiastic class of TAFE students studying natural Area Restoration. These days are always welcomed and it is just great to interact with keen, young people with a passion for the environment. The Lagoon margins work was completed as well as some timely reduction of those pesky invading acacias that threaten to march onto the roost.

Finally, in August, a day of sweeping over the marsh of Golden Plover Point restored this area for another year.

Figure 18. Keeping the marsh on Golden Plover Point free of exotic grasses.

Figure 19. The area of exposed shelly sand is gradually decreasing.

Figure 20. A different approach is required now for large sections that once were cleared of all vegetation.

Figure 21. Students from TAFE practicing some shorebird identification skills.

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.

Thanks once again 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 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. The potential disruption as a result of the Covid-19 restrictions was a challenge that was well met and the ensuing negotiations culminating in an Activity Consent for our ongoing efforts is immensely appreciated.

Tom Clarke (Project Coordinator HBOC)

November 2020

HBOC volunteer dates (restoration projects) 2021

Date	Tide (at Stockton Bridge)	Site	Activity	Meet	Comments
Monday 1st March	Low at 04:41	Ash Island - Area E	Remove mangrove seedlings	08:00 Wagtail Way	Tuesday, Wednesday at Milham Pond by arrangement
Sunday 7th March	Low at 11:10	Stockton Sandspit	Clean Up Australia Day	08:00 Stockton Sandspit	
Sunday 21st March	Low at 09:20	Sandy Island + Fullerton Beach	Remove mangrove seedlings	09:00 Fern Bay boat ramp	Access by kayak or similar
Monday 22nd March	Low at 10:35	Ash Island - Milham Pond	Remove mangrove seedlings	08:00 Milham Road Between The Lane & City Farm)	Tuesday, Wednesday by arrangement as required
Tuesday 6th April	Low at 11:06	Ash Island - Milham Pond	Remove mangrove seedlings	08:00 Neville's Nook	Wednesday, Thursday by arrangement as required
Sunday 18th April	Low at 06:50	Smith Island	Remove mangrove seedlings	07:00 Fern Bay boat ramp	Access by kayak or similar
Monday 19th April	Low at 07:48	Ash Island - Milham Pond	Remove mangrove seedlings	08:00 Neville's Nook	Tuesday, Wednesday by arrangement as required
Monday 3rd May	Low at 08:28	Ash Island - Milham Pond	Remove mangrove seedlings	08:00 Neville's Nook	Tuesday, Wednesday by arrangement as required
Monday 17th May	Low at 06:27	Ash Island - Milham Pond	Remove mangrove seedlings	08:00 Neville's Nook	Tuesday, Wednesday by arrangement as required
Monday 31st May	Low at 07:01	Stockton Sandspit	Clearing shelly sand	08:00 Stockton Sandspit	Tuesday, Wednesday by arrangement as required
Monday 21st June	Low at 11:05	Stockton Sandspit	Clearing shelly sand	08:00 Stockton Sandspit	Tuesday, Wednesday by arrangement as required
Monday 5th July	Low at 10:56	Stockton Sandspit	Marsh sweeps	08:00 Stockton Sandspit	Tuesday, Wednesday by arrangement as required
Monday 19th July	Low at 09:37	Stockton Sandspit	Marsh sweeps	08:00 Stockton Sandspit	Tuesday, Wednesday by arrangement as required
Monday 2nd August	Low at 09:14	Stockton Sandspit	Marsh Sweeps	08:00 Stockton Sandspit	Tuesday, Wednesday by arrangement as required