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Shorebird Habitat Restoration in the Hunter Estuary

2021 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 during 2021 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, at least 10,500 hours of volunteer effort has been accrued in these endeavours. Due to an amazingly low recruitment of mangrove seeds, the combined volunteer effort in 2021 across all the projects amounted to measly 208 hours (barely 60% of that required in 2021) of willing contribution. It was very pleasing for the team to be able to finish work early.

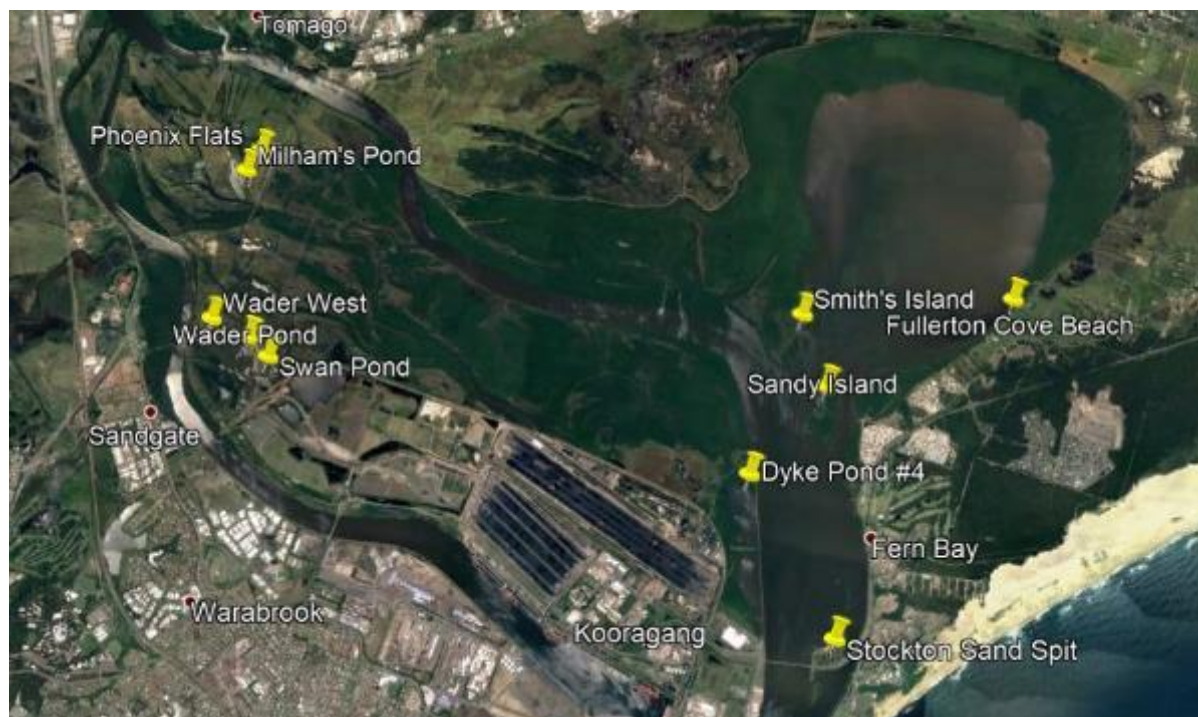


Figure 1. Restoration of shorebird habitats at strategic sites over the breadth of the Hunter Wetlands National Park

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. The current 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 five-year permit is in force until 30th June 2025.



Figure 2. Removing mangrove seedlings by hand is a most efficient method once you have located them.

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.



Figure 3. Contractors carrying out chainsaw work at Smith Island.

Recruitment of mangrove seedlings since 2018 in all the remote sites continues to be very low and the follow-up sweeps over all beaches and saltmarsh are easily completed. This was again the case in 2021 as only 18 hours (including time to access sites by kayak) was needed to complete the work.

The follow-up sweeps for 2021 were conducted across two separate days that coincided with favourable low tides. A single day in May successfully dealt with all the beaches and the great saltmarsh of Sandy Island and Smith Island. With such low recruitment rates the majority of the time is spent walking over the marsh proving it is clear of mangrove seedlings. The greatest infestations found were around the more recent areas cleared by contractors. A day of contractor chainsaw work focussed on expanding the established area and was undertaken when NPWS found some additional funds to manage it. As more funding becomes available, the plan is to keep pressing with this expansion.

A second day in June saw the Fullerton Cove Beach completely cleared of mangrove seedlings.



Figure 4. All the site supervisors at Fullerton Cove came over to give the "nod of approval"

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. Ever since the primary felling of the trees was completed several years ago it has been 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 30 hours (actual time spent removing mangrove seedlings) and matches those amazingly low-effort years of 2017 and 2018. Really easy-peasy for volunteers.

Site Works at Area E (Swan and Wader Ponds)

Just one short visit at the start of March ensured that our component of Area E (98.49 ha) was clear of mangroves. The paucity of seedlings (less than 50 all up) indicated a very low flowering season for the remnant mature trees in the system. Similar results have been the norm since 2017. A stand of three saplings that had been overlooked previously were felled at last when we remembered to bring the saw. We'll be expecting even less mangrove seedlings from now on.

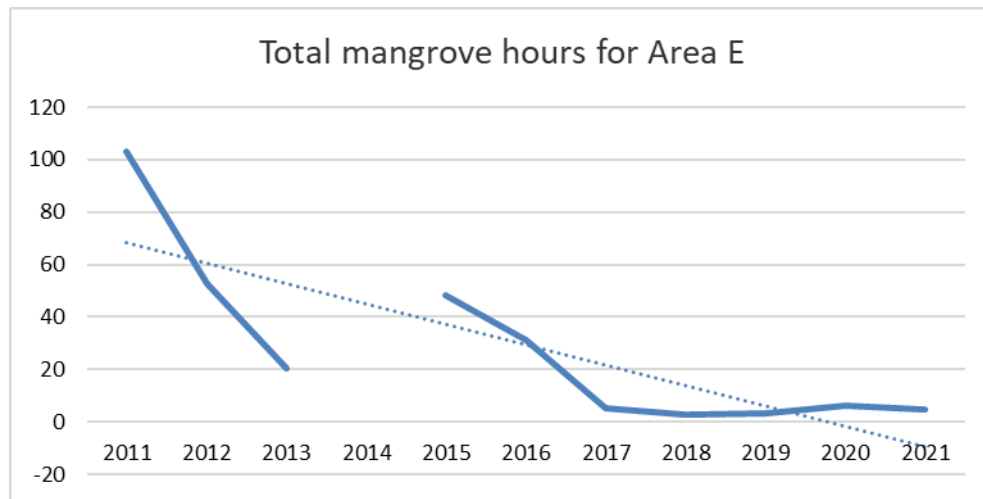


Figure 5. The effort required in Area E on Ash Island has been minimal since 2017.



Figure 6. Remembered to fell these saplings on the east side of Swan Pond.

The only mature mangroves left here now, those adjacent to Wagtail Way, have been in poor condition for a few years now and the inspection walk found no seedlings at all around the trees or even within the drip lines of the canopy. Also, many pasture weeds are appearing within the surrounding saltmarsh which may indicate a lack (possibly total lack) of tidal influence here.

Site Works at Milham Pond/Phoenix Flats

With Area E easily accounted for, a head start could be made on Milham Pond. An initial inspection-walk quickly confirmed that all areas contained only light infestations of mangrove seedlings with some isolated zones suffering from medium density infestations. These were the traditional hot spots adjacent to the booms, the two drainage points from Phoenix Flats and that section associated with the Mid-way fence. The joyous assessment that was declared, “this is going to be a breeze”, proved to be correct.



Figure 7. "Here's one!"

Two more visits in March and four in April saw the team forging ahead through to completion in very good time. As all areas cleaned up with minimal effort, the relative challenge presented to us last year was forgotten. Happy days!

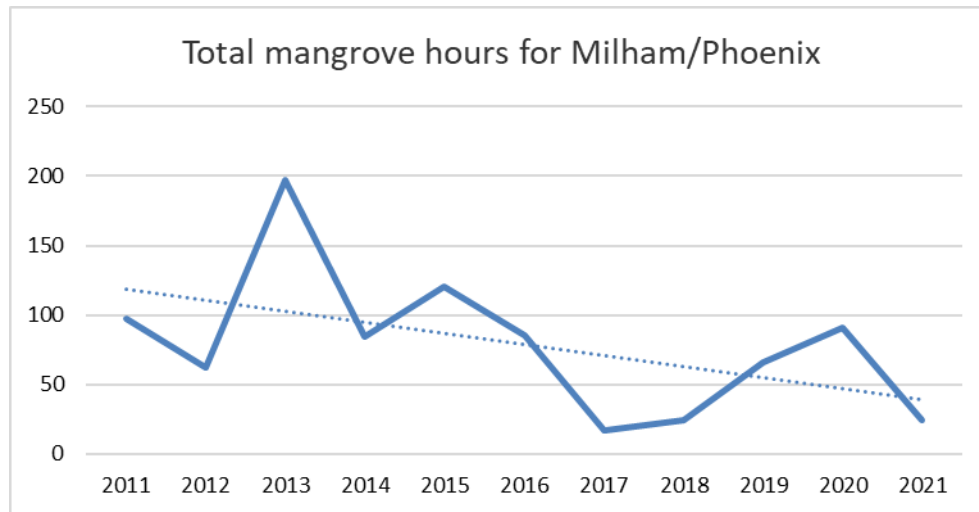


Figure 8. Less than 100 hours is regarded as sustainable for volunteers to manage; less than fifty is definitely preferred!

Each year the recruitment of mangrove seedlings and saltmarsh vegetation has been measured in an attempt to monitor the success of the project. Three established quadrats are cleared of mangrove seedlings and a count is recorded. Over the course of the last few years, it has become clear that the location of these quadrats (with exception of Quadrat D) no longer serves the intended purpose. Such is the slowly changing nature of the area's hydrology.

These days it is more apt to monitor recruitment of saltmarsh rather than mangrove seedlings. This process continues slowly but surely.

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 9. From just a couple of plants in 2009 to a great sweep now, this patch of Austral Seabligh has increased every year since mangrove removal.



Figure 10. Spot the *Suaeda australis* at the time of the initial felling of the forest.

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 a measly 85.5 hours on this 4ha site.



Figure 11. Stockton Sandspit is all about the shorebirds.

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 12. Mangrove seedling recruitment was very low in the lagoon



Figure 13. ... and with not much at all out on the beach.

Such a day was scheduled in early May and the task of sweeping the entire area proved to be minimal. The effort required almost equalled the least ever (2015) of just 1 hour. We weren't stressing out, that's for sure.

Clean Up Australia Day

This year's Clean Up Day was well attended and the crew of twelve HBOC members plus four people from Newcastle Council very efficiently tidied up the entire place. A total of 23 bags filled with litter and an estimated 2 trailer loads of larger, non-baggable items was collected in just a couple of hours. This result was clearly less than other years and it was agreed that perhaps Stockton Sandspit (maybe the estuary as a whole) was less visited by humans during the COVID-19 restrictions.



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 May (straight after that mangrove run mentioned earlier) sweeping Big Island and part of the Shelly for woody weeds and marram grass. Four visits in June completed all the marsh sweeps where the main target proved to be buffalo grass. This weed of the saltmarsh margins is slowly retreating due to our efforts. Since the cessation of our attempts to restore shelly sand (it worked well for many years but finally the grass beat us) and those parts are maintained by occasional mowing efforts carried out by NPWS, the great winter effort at Stockton Sandspit has been greatly reduced. This is a blessing in many ways for volunteers and the shorebirds don't seem to mind.



Figure 14. The area once referred to as "The shelly" is kept low through occasional mowing by NPWS.

A couple of days in July was dedicated to pushing back the advancing acacias that continue to march towards the roost. Keeping these tall shrubs at some distance from the roost helps maintain a nice wide, open space that is so important to have around a shorebird roost. Mostly, this work involves some heavy pruning of the front line of shrubs.



Off Roost

With time on our hands our attention was turned to other matters off the roost. Two days of lantana bashing within the Banksia Grove was well overdue and completely satisfying to deal with. Two fairly large patches of emptiness resulted and a back-planting effort by others is being organised to replace these weeds with native plants.



NSW TAFE visit

All work was completed before we could organise our regular yearly visit by the TAFE students studying Natural Area Restoration. Then COVID-19 restrictions came along just to muck things up. So it wasn't until October that this field day was possible. After some negotiation (LLS, NPWS, TAFE) it was agreed that the students go and play at Teal Waters on Ash Island. This area has not been part of the HBOC project but it still is regarded for its value as waterbird habitat and it was overdue in any case for some mangrove seedling treatment.



Figure 15. TAFE students attack the mangrove seedlings on Teal Waters.

A different venue to previous years but it proved to be another terrific day spent with enthusiastic students.

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 (in particular Faith, George and Rob) 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 and remind us that all is not lost.

Tom Clarke (Project Coordinator HBOC)

November 2021



Appendix A: 2022 Schedule

| HBOC volunteer dates (restoration projects) 2022 | | | | | |
|--|---------------------------|-----------------------------------|-------------------------------|---|---|
| Date | Tide (at Stockton Bridge) | Site | Activity | Meet | Comments |
| Monday 7th February | 0.72m at 08:02 | Ash Island - Area E | Remove mangrove seedlings | 08:00 Wagtail Way | Tuesday, Wednesday at Milham Pond by arrangement |
| Sunday 6th March | 1.62m at 12:07 | Stockton Sandspit | Clean Up Australia Day | 08:00 Stockton Sandspit | Watch shorebirds come in to roost after Clean Up. |
| Monday 7th March | 0.60m at 06:44 | Ash Island - Milham Pond | Remove mangrove seedlings | 08:00 Milham Road Between The Lane & City Farm) | Tuesday, Wednesday at Milham Pond by arrangement |
| Monday 21st March | 0.44m at 05:33 | Ash Island - Milham Pond | Remove mangrove seedlings | 08:00 Milham Road Between The Lane & City Farm) | Tuesday, Wednesday by arrangement as required |
| Wednesday 6th April | 0.63m at 06:04 | Ash Island - Milham Pond | Remove mangrove seedlings | 08:00 Radar Huts | Thursday, Friday by arrangement as required |
| Wednesday 20th April | 0.40m at 05:20 | Ash Island - Milham Pond | Remove mangrove seedlings | 08:00 Radar Huts | Thursday, Friday by arrangement as required |
| Wednesday 4th May | 0.57m at 04:56 | Ash Island - Milham Pond | Remove mangrove seedlings | 08:00 Radar Huts | Thursday, Friday by arrangement as required |
| Wednesday 18th May | 0.32m at 04:18 | Ash Island - Milham Pond | Remove mangrove seedlings | 08:00 Radar Huts | Thursday, Friday by arrangement as required |
| Saturday 21st May | 0.44m at 07:20 | Sandy and Smith Islands (beaches) | Remove mangrove seedlings | 08:00 Fern Bay boat ramp | Access by kayak or similar |
| Sunday 5th June | 0.63m at 06:53 | Smith Island (salt marsh) | Remove mangrove seedlings | 08:00 Fern Bay boat ramp | Access by kayak or similar |
| Monday 6th June | 0.64m at 07:33 | Stockton Sandspit | Marsh sweeps | 08:00 Stockton Sandspit | Tuesday, Wednesday by arrangement as required |
| Sunday 19th June | 0.39m at 06:57 | Fullerton Beach | Remove mangrove seedlings | 08:00 Fern Bay boat ramp | Access by kayak or similar |
| Monday 20th June | 0.46m at 07:51 | Stockton Sandspit | Marsh sweeps | 08:00 Stockton Sandspit | Tuesday, Wednesday by arrangement as required |
| Wednesday 6th July | 0.55m at 07:32 | Stockton Sandspit | Marsh sweeps | 08:00 Stockton Sandspit | Thursday, Friday by arrangement as required |
| Wednesday 20th July | 0.52m at 08:02 | Stockton Sandspit | Marsh sweeps | 08:00 Stockton Sandspit | Thursday, Friday by arrangement as required |
| Wednesday 3rd August | 0.45m at 06:05 | Stockton Sandspit | Marsh Sweeps | 08:00 Stockton Sandspit | Thursday, Friday by arrangement as required |
| To register or find out more about these HBOC volunteer activities, phone or text Tom Clarke on 0418411785 or send a message to thomas.clarke7@bigpond.com | | | | | |