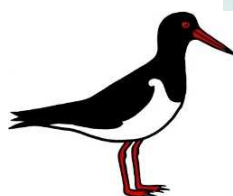




Office of
Environment & Heritage
NSW National Parks & Wildlife Service



SHOREBIRD RECOVERY NEWSLETTER south coast *Sharing the shoreline*



2015/16 Season

The Season in Shorebirds

It's been another challenging yet fulfilling season for all stakeholders in shorebird recovery on the south coast. From fox control to beach wardening, nest protection, chick sightings, school workshops, film nights, shorebird books and beach stalls!

The Enhanced Fox Control Projects, funded by the **Local Land Services & Crown Lands** has enabled us to start early season baiting and conduct over 60 nights of strategic & reactive shooting and trapping across most land tenures. This has provided broader, landscape based fox control to support the regular baiting programs undertaken by NPWS on reserve. The enhanced program continues into 2016/17 and we continue to aim for breathing space from fox populations at critical cycles in the shorebird breeding season.

The Threatened Shorebird Community and Schools Education Project, funded by the **NSW Environmental Trust**, has been a huge success across all facets of the project. A total of 1632 individuals have been directly involved in the project activities with many flow on exposures created through the dissemination of promotional materials.

These initiatives have certainly assisted breeding rates of south coast shorebirds this nesting season. However it is the efforts of volunteer shorebird wardens who can take the most credit for ongoing shorebird population recovery. **Over 3300 volunteer hours** were contributed towards shorebird recovery activities during the 15/16 season.

Hooded Plovers on the South Coast have fledged 9 chicks from the 14 breeding pairs and 28 nesting attempts that were monitored.

Pied Oystercatchers also fledged 17 chicks from the 26 breeding pairs and 32 nesting attempts that were monitored. From more sporadic observations on estuarine islands, there is potential for additional fledglings of Pied Oystercatchers.

The saddest story of the 2015/16 season is of the poor success experienced by **Little Terns**. No breeding success was observed from South Coast colonies.



Pied Oystercatchers mating at Shoalhaven river entrance (Thomas Kaar)

Hooded Plovers

Given the drenched spring experienced on the south coast this season, Hooded Plover breeding patterns followed that of last year, with poor success from early nesting and only one fledgling recorded by Christmas time.



But despite the tourist season, they kept at it and between 14 breeding pairs a total of 9 fledglings were recorded by the end of March 2016 – not a bad summer session. An additional 2 pairs were suspected of nesting but ravens and survey frequency prevented confirmation of this. 40 *adult birds* is a safe estimate of the current Hooded Plover population on the south coast region of NSW.

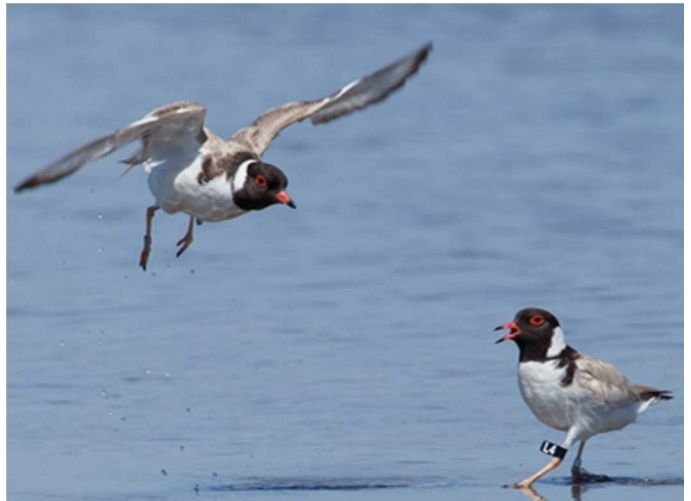
This year marked a considerable milestone for the NSW population with an (re)expansion of their breeding distribution. In recent years, individual birds have been sighted north of Jervis Bay at Culburra and Shoalhaven Heads. This year the reported sighting of Hoodies (L4 + D3) at **Hammerhead** beach lead to the discovery of a 3 egg nest and new distribution of breeding territory for the population!

In a sickening twist of fate, the nest was subject to inundation from Christmas tides just hours before hatching – luckily shorebird recovery volunteers were on the scene and managed to salvage two of the three eggs and replace them in a faux scrape some meters from its original location. Returning the next day, volunteers were astonished to discover the eggs had hatched, one chick dying from exposure but the other alive and chaperoned closely by the new parents! But just days later, L4 & D3 were spotted and photographed at Lake Wollumboola – the new chick had been lost, with local ravens the most likely culprits.

Hooded Plovers holding territory on Wreck Bay land were monitored by Booderee National Park Rangers. At the start of December, a 2 egg nest was found at **Caves Beach** north. The pair (M9 + C7) were watched closely with assistance from shorebird volunteers but the nest was lost during the Christmas period to foxes or ravens. M9 + C7



Hammerhead Hoodie chick (Thomas Kaar)



L4 + D3 at Lake Wollumboola (Dimitris Bertzeletos)

re-nested by January 19th and were again incubating 2 eggs. This time the nest was further south along Caves beach and within disturbance range of recreational beach traffic. A fence was set up to assist the incubation. Only one chick was observed to hatch and by February 29th it was observed flying.

Bherwerre Beach was surveyed regularly throughout the season by volunteers from the Bay and Basin area. Only one Hooded Plover nest was discovered (both parents unbanded) throughout the season but many more attempts are likely to have occurred. The unbanded pair were nevertheless successful with their chick fledging on March 7th. Hooded Plover pairs K1 + N5 and E6 + C8 were suspected of breeding but no nesting attempts were recorded from these birds.

Large numbers of Ravens were a regular feature of Bherwerre with one particular count reaching more than 50 birds. It is suspected that other pairs of Hoodies had nesting attempts this season but predation of nests may have prevented them from being observed by surveying volunteers.

One of the birds that nested on **Cudmirrah** last season (C8) was occasionally seen on the beach early in the season but then disappeared. Towards summer, C8 was seen more regularly on Bherwerre Beach, often in the company of E6 but no distinct nesting behaviour was observed.

At **Berrara**, a new pairing between N2 & K3 displayed early signs of territorial behaviour and were often seen as far south as Mermaid pools or even just south of Berrara creek. N2's partner from last season (C4) was not sighted during this nesting season. The new pair (N2 + K3) got busy and by mid-September, volunteers had found a 3 egg nest well positioned on the dune incline. Plenty of storm debris on the beach face provided great habitat for the pair but volunteers had to intervene when an unknown local began collecting and burning it in bonfires in an attempted

Hooded Plover breeding activity in the NSW South Coast Region - 2015/16 breeding season

Site	Pr	Nest attempt	Eggs	Chicks	Fledge	Fate of Eggs	Fate of chicks
Hammerhead	L4/D3	1	3	1	0	In	RP
Caves Beach	C7/M9	1	2	0		Ue	
		2	2	1	1	Ue	FI
Bherwerre Beach	ub/ub	1	2	1	1	Ue	FI
	K1/N5	susp.					
	E6/C8	susp.					
Berrara	N2/K3	1	3	3	1		FL + Uc
		2	3	0			
Inyadda Beach	D5/L7	1	2	0		Fx	
		2	3	0		RP	
Conjola Beach	A9/B0	#1	3	0		Ab (HI)	
Buckleys Beach	J2/B8	1	3	0		NV	
		2	2				
Narrawallee Inlet	M0/J0	1	3	3	0		AP
		2	3	0		RP	
		3	2	2	0		HI
		4	2	2	1		FI + Uc
Bommie Beach	A8/C9	1	3	0		Gn	
Rennies Beach		#2	3	0		Fx	
Racecourse Beach	J1/D4	susp.					
Point NE/Nth Wairo	M5/A4	1	1			RP	
		2#	3	3	3		FI
Lake Tabourie	E8/C5	#1	3	0		HI	
		#2	2	2	1		FI + Uc
Termeil Beach	M2/E2	1	2	0		RP	
		2#	3	2	0	NV + H	Fx
		3	1	0		RP	
Avenue beach	H3/ub	1	3	0		RP	
Murramarang Beach		2#	3	0		Ab	
Dawsons Beach	K0/H7	susp.					
Island beach		1	3	0		RP	
Dawsons Beach		2	3	2	1	H	FI + Uc
	14	28	68	21	9		

Abbreviations H = hatched Ab = abandoned FI = fledged Fx = fox predation In = inundation U(e/c) = unknown egg or chick loss RP = raven predation HI = human interference # = nest caged Gn = goanna predation NV = not viable AP = avian predator			
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'clean up'. Luckily our pleas to leave the habitat untouched were heard by the community and by October 10th, the first 3 hoodies chicks of the season hatched. Despite the great habitat the driftwood provided, Ravens were often seen surveying the beach and soon the 3 chicks were reduced to just 1. By November 12th, this chick had fledged and was banded (X6) on November 24th.

Given the early season success of N2 + K3, additional nesting attempts were expected. It wasn't too long after X6 was sighted at Bherwerre, when volunteers discovered a well camouflaged 2 egg nest amongst the pumice and spinifex at the southern end of Berrara beach. N2 was up to old tricks – she had nested among similar conditions on Monument Beach last season. However the nest quickly disappeared (most likely to ravens) on Christmas eve.

At Bendalong/Manyana, resident Hooded Plover pair (D5 + L7) were habitually observed at the northern end of **Inyadda beach** throughout spring. Weekend beach traffic continually disturbed the pair and they became more regularly sighted at the southern end, near Manyana. But in late November a 3 egg nest was reported at the northern beach entrance – literally at the bottom of the access ramp. Volunteers erected a fence knowing completely well that the birds couldn't possibly incubate with the regular foot and dog traffic. Despite this, the pair sat on the nest through some sweltering late November heat and despite their efforts, the eggs vanished and were replaced by fox prints.

The Inyadda pair were watched closely but showed no interest in rushing a second attempt. Sporadic observations up and down the beach made it difficult to survey for nests and as Christmas approached, the bailer twine and tomato stakes were all but packed away for next season. Amazingly, among hordes of summer beach goers, a 3 egg nest was discovered in the pair's favourite spot at the south end of Inyadda on December 23rd. A large area was fenced immediately so a cage not deemed necessary. Unfortunately within a week the nest had disappeared - this time no prints were visible around the nest, so ravens were suspected as the predators.

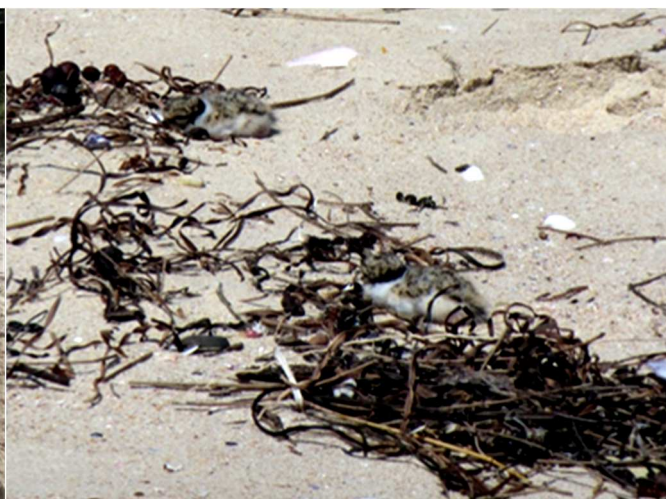
Manyana Beach was surveyed occasionally throughout the season but the birds that nested there last season (A9 + E1) were not sighted. Further south, across the lake entrance on **Conjola beach**, A9 was sighted sporadically with another (younger) Hooded Plover, B0. In early November, volunteers received reports of a Hoodie nest on Conjola but by the time staff & volunteers attended the site, an empty scrape was the only evidence of any Hooded Plover activity. The site was monitored closely and soon enough B0 + A9 returned and laid 3 eggs. The nest was caged immediately and the site fenced but due to the narrow nature of the beach, the fencing radius was rather small. Due to the isolation of Conjola beach, it is a popular place for off leash dog walking (although it is not designated off leash). Three and a half weeks into the incubation of the nest, A9 + B0 abandoned their eggs. It is thought that the



*Top to Bottom:
Berrara shorebird volunteers Pam, Ronnie & Sue. (Tedder), N2 + K3
roosting in their favourite spot at Berrara creek (P. McGilvery), Berrara
fledgling X6 (Tedder) and Conjola pair, B0 + A9 (C. Dove)*



Volunteer Dominique Toldi, sand bagging the Buckleys nest (Tedder)



Narrawallee chicks survive another close call (Tedder)

abandonment was the result of human and dog activity in this narrow section of beach. A9 +B0 were not seen on the beach or together for the rest of the season.

Similar to recent breeding seasons, two pairs of Hooded Plovers nested on **Buckleys beach** in 2015/16. Despite being plagued by inundation and raven predation in past years, J2 + B8 again chose to nest in the northern corner of the beach, up against Buckleys rocks. On October 26 a 3 egg nest was found and due to the raven predation history at the site, the nest was caged. Sand bags were also placed in front of the nest to prevent potential inundation. The pair (J2 + B8) sat patiently throughout the incubation and volunteers watched in anticipation but the birds just kept sitting. Six weeks into incubation, the eggs were removed due to unviability. Soon after removing the eggs, decent scrapes were observed further along the beach. By January 11, another 3 egg nest was found in the same area and caged from raven predation. Once again the pair (J2 + B8) sat through the incubation period without being disturbed. On the second of February, the eggs had disappeared. Considering the lack of evidence or tracks it is suspected that the eggs had hatched but the chicks quickly lost.

At the southern end of Buckleys beach, on **Narrawallee Spit**, resident Hoodie pair M0 + J0 were among the first birds of the season to begin nesting. They were also the most prolific this season with 4 nesting attempts between September and March. Their first nesting attempt commenced in late September from which they hatched 3 chicks. For a few weeks, the chicks were regularly observed by volunteers and staff before gradually disappearing altogether by November 5th. Ravens were often seen flying over the spit and occasionally resting on the old jetty piers. M0 + J0 nested for a second time, this time a little way up the beach, but less than a week later their 3 egg nest was lost almost immediately to ravens. M0 + J0 appeared to learn from this experience and returned to nest on the spit for their 3rd attempt, where shelter from sea rocket and driftwood was numerous. Having commenced

on December 10th, they would have to endure the considerable disturbance expected during the Christmas/New Year period within Narrawallee Inlet. Sure enough, the Inlet was extremely popular with many people and dogs venturing across the water to the spit and nesting area. Extra vigilance from the local volunteer managed to keep the birds incubating and even hatch their eggs. But the human disturbance continued and within days of hatching, M0 + J0 had vanished from the spit; indicating the loss of the new chicks. Having endured the busiest period of the summer holidays, M0 + J0 returned to nest for the fourth time on January 25th. This time they chose an exceptional place to nest – beneath and among sea rocket on the spit. Despite this safe place and reduced holiday crowds, some locals continued to disturb the area with dogs and horses. But towards the end of February, 2 new chicks hatched and stayed well hidden among debris & rocket on the spit. As these chicks were the last of the season for the south coast, staff and volunteers paid special attention to any activity on the spit and amazingly vehicles, dogs and horse continued to illegally enter the site. By the 18th of March, only one chick remained and the family were using more of the beach to forage and escape threats on the spit. Over Easter the chick was of fledgling age but not yet sighted in flight.

Ulladulla hoodies (A8 +C9), famous for enduring hordes of people and dogs, continued to nest between **Rennies and Bommie beaches** in 2015/16. Perhaps A8 + C9 were learning to avoid these threats and their first 3 egg nest was discovered on September 10th, located behind permanent fencing and high in the Bommie beach dunes! Reminiscent of a Victorian style nest, the birds flew on and off the nest which made it very difficult to detect in the first instance as there were no tracks indicating its location. The pair were happily out of harm's way and the eggs were due to hatch, but on October 10th volunteers discovered an empty nest with goanna tracks leading to the site.

A8 + C9 were not sighted for some time until prints and scrapes started appearing on Rennies beach. The concentration of this activity at the south end of the beach led to regular nest surveys by staff and volunteers but the scrapes continued to have a perplexing lack of eggs. On one such survey, beach goers alerted staff to Hooded Plovers at the north end of the beach and sure enough, a 3 egg nest was discovered. Due to dog and raven presence, the nest was caged and received regularly monitoring from the Rennies Beach look out directly above the nest site. Unfortunately, just when the eggs were due to hatch, the cage was disturbed by a dog or fox and two eggs were missing from the nest. Interestingly, the birds remained in the vicinity for a few days before disappearing altogether with the remaining egg left abandoned in the nest.

Across the rock platform towards **Racecourse Beach**, resident Hooded Plover pair (J1 + D4) were scraping and present in their usual territory as early as August and fencing was erected to inform dog walkers that the breeding season had begun. But ravens continued to be a huge challenge at the site and were even observed chasing brooding Hoodies from scrapes to check for eggs! As a result, no nesting was recorded from J1 + D4 but it is suspected any attempts were lost immediately to Ravens.

The huge expanse of sand that is **Wairo Beach** was the most productive Hooded Plover breeding site on the south coast this season, with 4 chicks fledging from two breeding pairs. At North Wairo, A4 + M5 settled into a territory near the creek wash out and a 1 egg nest was discovered by volunteers on September 15th. But returning to cage and fence the area, volunteers learned that the nest had already been lost to Ravens. 5 weeks later, staff and volunteers discovered an incomplete clutch within the creek washout and because of past raven predation, the nest was caged and fenced immediately. Progress monitoring during the next visit confirmed a completed clutch of 3 eggs and incubating Hoodies. This nest proceeded without major disturbance and 3 chicks emerged from the creek in late November. Despite the occasional quad bike and unattended dog, the 3 chicks avoided predation whilst staff and volunteers watched on in anticipation until all three birds fledged in early January.

At the southern end of Wairo beach at the entrance of **Lake Tabourie**, resident Hoodies E8 + C5 were present in their usually territory and a fence was erected in anticipation of a nest. On October 20th, the first egg was found with the rest of the clutch following within a week. This nest was also caged to protect the eggs from foxes and ravens. Despite the very public nesting location at Tabourie, E8 + C5 appeared undeterred and the incubation was proceeding well until human prints leading to the nest indicted some potential disturbance and indeed 1 egg was missing from the clutch. A week later the vandals returned and the rest of the eggs were stolen. A disappointing result as this site, where strong community engagement is undertaken by local volunteers.



Top to bottom:
Racecourse pair (J1 + D4) struggled to escape the attention of Ravens and despite strong displays, no nests were recorded (C. Dove)
Volunteer Chris Brandis cages the second Wairo nest (Tedder)
Three Hooded Plover fledglings from Wairo beach (C. Brandis)

Luckily, E8 + C5 got right back to business and within 10 days, on November 18, the first egg of a new nest was laid. Once again, this would mean that the eggs were due to hatch at the start of the Christmas holidays. Sure enough, two tiny chicks hatched from the nest and were observed at the lake entrance briefly before making their way north along Wairo beach. This was welcome behaviour as literally hundreds of people flocked to the sand from the nearby tourist park over Christmas. By New Years eve, one chick was confirmed missing. Tracking the enduring Hoodie family proved difficult on the long stretch of Wairo beach, and they were sighted as far as 2km north of the lake entrance. Staff and volunteers continued to survey and watch the birds in different sections of the beach. By January 22nd the remaining chick was confirmed as fledged which is the second successful breeding attempt by E8 & C5 in as many years. In an attempt to band the fledglings of both the Nth Wairo and Tabourie Hooded Plovers, staff and volunteers waded the lake entrance in mid- February and were met by 9 Hooded Plovers; 2 unbanded adults, 2 unbanded fledglings and 5 flagged adults. With such a large group of Hoodies, capture of the fledglings was challenging. Eventually, an unbanded adult was caught, banded and flagged (J7) before the weather closed in.

The resident Hooded Plover pair (M2 + E2) normally breeding around Willinga lake were not present in their usually territory by early spring. Surveys of surrounding beaches revealed tracks and scrapes of the birds on **Termeil beach**, where they were habitually sighted for the majority of the 2015/16 season. Committed volunteers made the effort to conduct regular surveys of Termeil beach and on October 18th the first egg of a 2 egg nest was laid. Returning days later with the intention to cage the eggs, staff and volunteers discovered an empty scrape with raven tracks indicating the culprit. M2 + E2 were not sighted for over 2 weeks and then on November 26th, a 2 egg nest was found and caged the following day. A progress visit on November 29 revealed a third egg had been added to the clutch and the birds were incubating the nest. As the incubation period proceeded, illegal trail bike activity dominated the list of threats which also included foxes, sea eagles and whistling kites. But by the time 2 of the 3 eggs hatched on December 28, the trail bike activity appeared to cease. Both chicks were sighted on a daily basis until January 4th when only one could be seen. One week later, the remaining chick was lost with heavy fox traffic observed in the sand. Once again, M2 + E2 vanished from Termeil beach until tracks and scrapes were noted again towards the end of January. On the 25th of January a 1 egg nest was found on the beach but when staff and volunteers returned 3 days later to install a cage the nest was empty and raven tracks littered the area. A disappointing end to an otherwise promising season for M2 + E2.

In the **Bawley Point & Kioloa** area, unbanded Hooded Plovers were watched from as early as July when it was



Top: Lake Tabourie entrance fencing & Hoodie chicks (David Swarts)
Bottom: Meroo volunteer Marg Hamon carries the Hooded Plover nest cage along Termeil beach (Maggie Mance)

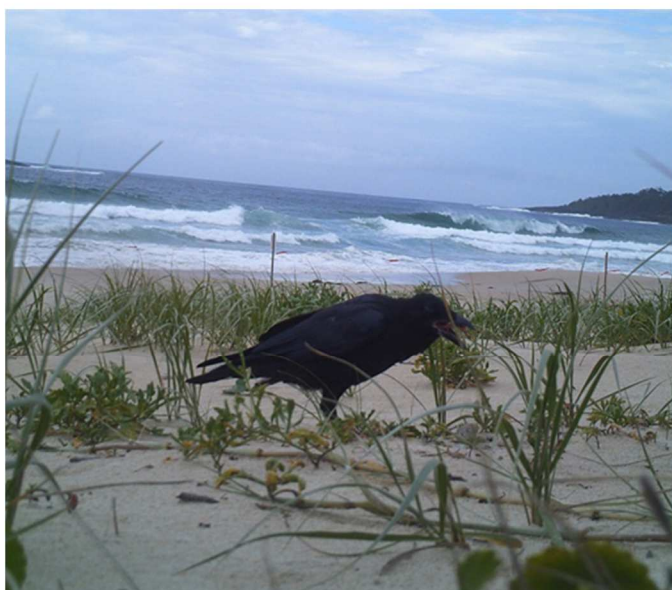
noted that one bird had a significant leg injury. The bird was monitored closely but no foreign material was present. The bird was also feeding and flying well so no intervention was initiated. Hooded Plover pair (H3 + Ub) and now solo bird (K0) were sighted regularly between Murramarang, Bullpup, Racecourse and Shell beaches. The love triangle observed between these three birds in 2014/15 appeared to have been settled and K0 was regularly sighted alone before disappearing altogether in mid-spring. Meanwhile, H3 + Ub were monitored closely by volunteers and despite much anticipation no nesting was recorded until October 31st when a 3 egg nest was discovered on Avenue beach, Kioloa. This nest was well placed on the dune toe amongst spinifex runners so despite the known raven presence, the nest was not caged. Instead, a motion operated camera was installed close by to capture any threats or predators in action. Unfortunately on November 12th, ravens took the eggs and were captured on camera.

Despite the loss of the Avenue beach nest, H3 + Ub were sighted soon after and within 2 weeks a new 3 egg nest was found at the entrance to Swan Lake on Murramarang beach. Staff and volunteers installed fencing and a nest cage on November 27th. Because of the nest cage and hard work by volunteers to raise awareness about the nest among dog walkers, there were no major disturbances during the incubation period throughout December. But just before the eggs were due to hatch, a young male Hooded Plover (B0) was observed at Bullpup beach with H3. The unbanded bird who nested with H3 was nowhere to be seen and the Murramarang beach nest was subsequently abandoned. The confusing nature of these behavioural and 'partner swapping' observations suggests the precariousness of breeding within the isolated population of Hooded Plovers on the NSW south coast.

The most southern breeding pair (H7 + L5) of the south coast, were observed in August on **Dawsons beach**, Mur-

ramarang National Park. During a September monitoring visit, heavy scraping indicated potential nesting was about to occur but a return visit in early October presented no tracks or sign of the birds. Then on November 8th, a 3 egg Hooded Plover nest was reported on Island beach. When staff attended to fence the area on November 11th, the scrape was completely barren with distinct raven disturbance evident. No Hooded Plovers were sighted. Monitoring of Island and Dawson beaches was continued by volunteers into December. In one of the final twists of the 2015/16 season, volunteers identified the Dawson's birds as H7 + K0 (not L5). Of course, this explained K0's disappearance from Kioloa beaches in mid-spring but could not clarify the whereabouts of L5. Eventually a 2 egg nest was found on Dawsons beach on December 8th. Despite targeted beach baiting, evidence of foxes remained in the sand throughout summer. On Boxing Day the 2 eggs were confirmed as hatched although the chicks were not sighted until New Years eve. Holiday traffic, ravens, magpies and foxes continued to cause potential threat to the chicks but storm debris and sea rocket provided the perfect shelter. During this period however, one of the chicks appeared to injure its leg. Wet weather and high surf prevented volunteers from monitoring the progress of these chicks until January 9th, when it was confirmed that the injured chick had been lost. The surviving chick was checked on by staff and volunteers throughout January before being observed in flight on February 9th.

In 2015/16, Hooded Plovers nested on the south coast between Hammerhead Point, Jervis Bay National Park and Dawsons Beach Murramarang National Park, fledging a total of 9 chicks from the 14 breeding pairs and 28 nesting attempts that were monitored.



Above: Bawley/Kioloa volunteers Marg, Maggie, Robyn & Robin finish Hooded Plover fencing and caging on Murramarang beach (Tedder).
Left: Raven takes the Avenue beach Hooded Plover nest. (Nest cam)

Little Terns



Significantly less Little Terns returned to the south coast this season after considerable numbers in 2014/15. The small numbers of Little Terns that were breeding on south coast sand bars in 2015/16 were subject to severe predation by foxes and unknown birds of prey. No fledglings were recorded from south coast nesting colonies.

An August East Coast Low (ECL) resulted in the breaching of coastal lake sand bars up and down the south coast region. This had a dramatic impact on coastal geomorphology and a distinct reduction in Little Tern breeding habitat. For example, at **Shoalhaven Heads** the concentrated precipitation resulted in the flooding of nearby residential area and Shoalhaven City Council was forced to manually open the bar with excavators to reduce flooding damage. This resulted in a deep channel opening of the Shoalhaven River which remained open until March 2016. Little Terns were occasionally sighted at Shoalhaven Heads but no breeding behaviour was recorded.

Lake Wollumboola was also influenced by the ECL but the sand bar opened naturally due to the swelling volume in the lake. Unlike the Shoalhaven River bar, Lake Wollumboola closed naturally in late September and sand began re-accumulating across the bar forming extensive nesting habitat. This event activated a mass spawning of prawns in the lake which provided recreational fishermen with a bumper season resulting in regular disturbance of the bar areas between November and March.

Little Terns were present at **Lake Wollumboola** from as early as October 15th. Numbers of birds gradually increased and were estimated between 60-80 birds but most of which were not in breeding plumage. String fencing was erected by volunteers on November 14th in anticipation of nesting and to reduce disturbance to the area by prawners and fisherman. However the regular disturbance would have unsettled the birds and the first nest was not laid at Lake Wollumboola until December 4th. However, a day later the eggs were gone. The lack of predatory tracks in the sand indicated that the mysterious avian predator which decimated the Wollumboola colony in 2014/15 had returned in 2015/16 for second helpings.

Despite the presence of up to 20-30 breeding Little Terns, two new nests were not discovered until the 23rd of December. Within a day these nests were also lost to an unidentified predator. The nests were caged with wide gauged mesh to prevent these predations but egg loss continued despite this effort. Staff and volunteers installed a motion detection camera on a Little Tern nest in early January in an attempt to capture the unknown avian predator in action. Unfortunately, the nest was abandoned some days later with a sign of any disturbance. Five more nests were subsequently laid on the Wollumboola bar which were caged by volunteers in early January. As dreaded, all nests were lost by January 7th to the unidentified predator. Later in January, the number of Little Terns present at the site increased to over 100 birds, including fledglings from other colonies further south, but no additional nesting was recorded at Lake Wollumboola.

Little Tern breeding activity on the NSW South Coast Regions—2015/16 season

Site	Pairs	Nests	Eggs	Chicks	Fledglings	Main Fate
Lake Wollumboola	8	10	14	0	0	AP
Lake Conjola	52	73	123	8	0	Fx
Grand Total	60	83	137	8	0	

Abbreviations
 Fl = fledged In = inundated AP = avian predation Fx = fox predation Ab = abandoned SB = sand buried



Little Tern incubating at Lake Wollumboola (nest cam)



NPWS staff setting the camera trap (Narelle Wright)

The ECL did not cause dramatic morphological changes to the **Lake Conjola** sand spit but gouged a large volume of sand from the existing channel. This sand was deposited in the surf zone and if anything, contributed to reduced surf energy on the shore of the spit. The northern tip of the sand spit was relatively low lying and had significant potential for inundation but this never eventuated during the summer.

Little Terns were fishing and courting at Lake Conjola from mid-October. By the end of November, approximately 30 birds were counted within the lake and by December 7th the first nest was found on the spit. Because of the fox activity experienced at Conjola throughout spring, the worst was feared for an establishing Little Tern colony. Trapping and shooting continued in December and while fox tracks remained present to the south of the site, more Little Tern nests began appearing on the spit without disturbance. By December 17th, there were 27 nests across the spit and dunes, with a total of 40 eggs. Fair weather prevailed and the colony continued to grow despite the ongoing presence of fox tracks on the beach to the south. On Christmas eve, 44 active nests were counted with a total of 76 eggs. As holiday makers arrived in hordes from Boxing Day onwards, the majority of people respected the signage and stayed clear of the colony area. The lake entrance provided the perfect barrier for dog walkers to remain on the northern side of the lake. During this period, one or two nests were abandoned and some were possibly subject to predation by Silver gulls but otherwise the colony remained undisturbed.

On New Years Day the colony peaked at 52 active nests containing 88 eggs and 5 chicks. But on the 2nd and 3rd of January, wet weather and southerly winds prevented nest surveys. Holiday makers were also restricted to their tents and caravans. This rare opportunity of an empty beach was too irresistible; the smells and sounds of hatching eggs drew immediate interest from nearby foxes. By January 4th, fox tracks littered the spit; the colony was reduced to 22 nests containing only 37 eggs and 2 chicks. Contractors were called in as an emergency response and a fox was removed from the colony on the evening of January 5th. Despite the removal of this animal, fox tracks continued to be observed within the fenced area and by January 7th all remaining nests were lost to fox predation.

Little Terns remained active at the site but in somewhat fewer numbers. Re-nesting began as soon as January 11th and fox tracks became absent from the site. But staff and volunteers took no chances and caged up to 10 separate Little Tern nests which were now appearing across the spit and dunes in a dispersed nature.

By January 14th, 30 new eggs had been laid in 21 nests. More adverse weather prevented surveys on January 16th and the next day many of the caged nests were found abandoned and /or covered by sand. By January 18th, fox tracks and scats were again predominant in the nesting

area with predation reducing the remaining colony to 9 nests of 17 eggs. Over the next few days, fox activity continued at the site and the remaining Little Terns gradually abandoned the spit. By January 26th there were no Terns present on the spit at all. A devastating and frustrating end to the Little Tern breeding season at Conjola.

Little Terns didn't nest at Burrill Lake or Lake Tabourie this season, although birds were sighted around the lake entrances.

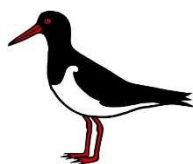
In total, the south coast region recorded only 60 breeding pairs incubating 83 nests containing 137 eggs. This is only a third of the numbers of Little Terns recorded in 2014/15. Of the birds that did attempt to breed, foxes and avian predators were the main cause of egg and chick losses.



Top & middle: Little Tern feeding one of the few chicks that evaded foxes this season and another fishing from the lake (C. Dove).
Bottom: Conjola volunteer Col Ashford, collecting nesting data from the Conjola colony on a classic December morning (Tedder)

Pied Oystercatchers

Twenty six breeding pairs of endangered Pied Oystercatchers were monitored on the south coast, between Lake Illawarra and Batemans Bay in 2015/16. In addition, it is suspected an additional 4 pairs were breeding but constraints to monitoring these birds could not confirm any nesting attempts. A total of 17 Pied Oystercatchers fledged during the 2015/16 breeding season.



The usual hot spots such as the Shoalhaven & Crookhaven Rivers, St Georges Basin, Lake Conjola and Batemans Bay experienced good numbers and breeding success by Pied Oystercatchers. New birds also arrived on the coast and formed new breeding territories on the sand spits at Crooked River, Gerroa and Lake Tabourie.

Volunteers monitored Pied Oystercatchers at the entrance of **Lake Illawarra** and the birds showed early season behaviour that indicated nesting could occur on the island close to the Warilla embankment. But no nests were recorded and the birds became less frequent at the site.

At the start of September, eggs were reported on the sand spit of the Crooked River, **Gerroa**. The eggs turned out to belong to a pair of Red Capped Plovers, but during the site inspection staff and volunteers noticed a pair of Pied Oystercatchers displaying territorial behaviour. One of the birds was flagged KW which had been banded near Wilsons Prom, Victoria in 2012. The only other records of KW was at Cullendulla, Batemans bay in 2013.

By early October, the pair began scraping on the spit and at the end of the month, the birds were incubating 2 eggs. Staff and volunteer erected string and electric fences to protect the nest from foot traffic and foxes. This was the first record of Pied Oystercatchers nesting in this catchment!

Strangely, these eggs were abandoned about 2 weeks into the incubation period. It was suspected that a rival pair of Oystercatchers caused KW & partner to defend their territory and the eggs were subsequently abandoned. Staff removed the eggs and on November 27th, the Gerroa birds were again sitting on 2 eggs. The excitement of the new nest was dampened by the fact that it would be due to hatch between Christmas and New Year – the busiest week of the year on any beach!

Luckily, the response from the community and visitors to the area was overwhelmingly respectful. On December 26th one chick hatched from the nest and the remaining egg was deemed not viable. Staff and volunteers dragged driftwood and debris out to the spit to provide shelter for the chick. The annual growth of sea rocket also provided plenty of hiding places. Volunteers watched the birds religiously and were treated to feeding displays as KW & partner returned from up-stream mud flats with bivalves & crustaceans. As the school holidays progressed, the birds became more confident among the crowds and were often seen between the feet of beach goers and young families. By the end of the month the chick had grown significantly and by February 11th observed in flight. An amazing result for these first time nesters in Gerroa!

It was hoped that the deep river mouth channel created at Shoalhaven Heads by the East Coast Low would assist the two pairs of breeding Pied Oystercatchers at the site. With **Comerong Island** undergoing significant fox baiting and shooting and the river channel providing the perfect barrier to restrict dog walkers, it was thought that a relatively threat free environment could be created for the birds. The first nest was found on the Island by Nowra field staff during baiting activities on September 23rd but a subsequent visit from staff revealed the loss of this nest to the tide or surf.

By October 11th, volunteers sighted Pied Oystercatchers sitting in the dunes from the northern side of the Shoalhaven river entrance.



Early morning on the Crooked River spit, Pied Oystercatcher and chick find a quiet moment before the madness begins. (Sally Leonard)

Pied Oystercatcher breeding activity in the NSW South Coast Region — 2015/16 season

Site	Pair #	Nest attempt	Eggs	Chicks	Fledge	Fate of Eggs	Fate of chicks
Lake Illawarra	1	susp.					
Crooked River, Gerroa	1	1	2	0		Ab	
		2	2	1	1	NV	FI
Shoalhaven Heads/ Comerong Island	1	1	2	0		In	
		2	2	0		Fx	
		3	2	2	1	H	FI + Fx
	2	1	2	0		Fx	
		2	2	0		NV	
Crookhaven Breakwall	1	1	2	0		Ue	
Lake Wollumboola	1	1	2	0		Fx	
Green island Jervis bay	1	1	2	2	0	H	AP
	2	1	2	0		Ue	
Longbeach South	1	1	2	2	1	H	FI + Uc
Bherwerre beach	1	1	2	2	1	H	FI + Uc
Oakly Island, St Georges Basin	1	1	1	1	1	H	FI
	2	1	1	1	1	H	FI
Garden Island	1	1	1	1			Uc
Sepulchre Island	1	1	1	1			Uc
Berrara Beach	1	1	2	0		In	
		2	2	2	2	H	FI
Lake Conjola Islands	1	1	1	1	1	H	FI
	2	2	1	1	1	H	FI
Lake Conjola Dunes	1	1	2	0		Fx	
	2	1	2	0		Fx	
		2	1	0		Fx	
Narrawallee Inlet	1	1	2	2	0		Fx + AP
		2	2	2	1		FI + Uc
Burril Lake Bottlo	1	Susp.					
Burril Lake Rackham	1	Susp.					
Burril Lake Peninsula	1	1	2	2	2	FI	FI
	2	1	2	0		Ue	
Tabourie	1	1	2	2	0	H	Uc
Island Beach, MMNP	1	1	1	0		HI	
Durras Lake	1	Susp.					
Durras Lake entrance	1	1	2	1	0	H + NV	Uc
Budd Island, Cyde River	1	1	2	2	2	H	FI
Batemans Bay Marina	1	1	3	2	2	H + Ue	FI
	26	32	63	33	17		

Abbreviations

H = hatched
In = inundation

Fx = fox predation
Ab = abandoned

NV = not viable
FI = fledged

HI = human interference
U(e/c) = unknown egg or chick loss

Staff headed out to Comerong Island to fence the area on October 14th and found 2 eggs in the nest, presumably from the Shoalhaven Heads #2 pair. As staff ventured further around to the beach, the Shoalhaven Heads #1 pair were also found incubating 1 egg. No fence was erected as all the gear had been used on the first nest. Staff noted the location and continued to the southern end of Comerong Island where another pair of Pied Oystercatchers were suspected of nesting. Here, a 2 egg nest was found nestled among flowering pigface on the Crookhaven River breakwall. Being a popular fishing spot, temporary signage was installed but access to the breakwall could not be restricted.

Unfortunately on October 26, when staff returned to Comerong Island to continue fox baiting, all three nests had been taken, presumably by foxes. Considering the optimism about removing foxes from the Island while the river entrance was still open, this was particularly disappointing news. Contractors continued spotlighting the beaches and private property on Comerong Island, and baiting continued until the end of November.

On November 17th, the #1 pair were found sitting on 2 eggs on the **Shoalhaven Heads** side of the river. Just days later, the #2 pair also laid 2 eggs on the Comerong Island side of the river entrance. This time staff and volunteers took no chances and erected string and electric fences around both of these nests. In typical fashion, the threats kept appearing for these birds. Over on Comerong Island, the fox activity continued and contractors unsuccessfully attempted a week of trapping prior to the expected hatching date. However by the time the hatching date passed, the birds continued sitting – eventually, the eggs were removed on December 30th and deemed not viable.

At Shoalhaven Heads, November king tides threatened the nest which required an epic effort by staff and volunteers to raise the eggs with sand bags. This was undertaken just in time to prevent them from being washed away. Both eggs hatched on December 18th and volunteers placed debris out as shelters for the young chicks. However within 10 days one of the chicks was presumably lost to a fox. The remaining chick was taken into nearby vegetation and kept there by the #1 pair until it was about 4 weeks old. The birds then returned to river mouth sand flats where they nested, and made good use of the shelters made by volunteers. The Shoalhaven Heads chick had fledged by January 24th.

The Pied Oystercatcher pair that nested at **Lake Wollumboola** last season have been regularly observed in the lake and are presumed permanent residents by local volunteers. This season, the pair were only observed to make one nesting attempt with a 1 egg nest discovered by a volunteer on November 12th. Unfortunately, by the time staff arrived the next day to fence the area, the egg had already been taken by a fox. The birds were observed in the area



Top: Crookhaven Breakwall nest (Tedder)

Middle: NPWS staff & shorebird volunteer Nicole Ison construct chick shelter (Sally Leonard)

Bottom: Shoalhaven Heads Pies got attached to their sand bag throne (Nicole Ison)

throughout the remainder of the season but no further nesting behaviour was observed.

Following the success of Pied Oystercatcher breeding at the **Beecroft Weapons Range** in 2014/15, local volunteers were enthusiastic for nesting to begin. They didn't have to wait too long as the first shorebird nest of the 2015/16

season was found on **Green Island** on September 5th. These 2 eggs were also the first to hatch but when volunteers returned to check up on the chicks on October 10th, there was no sign of any Pies on the island at all. However, on the same day, four Pied Oystercatchers were sighted on Cabbage Tree beach and another two in Carrama Inlet. At first it was thought that the Carrama Inlet birds were the Green Island pair, taking their chicks to safety among the mangroves – but they were never sighted again. It was also theorised that the Green Island chicks had been taken by the local sea eagles or ravens. Or had these other Pied Oystercatchers moved in to take this precious island territory?

A second nesting by Pied Oystercatchers on Green Island revealed that indeed another pair of birds may have taken the territory. During the October 23rd monitoring visit in which the 2 egg nest was found, volunteers noticed new and different behaviour to suggest the birds were a different pair to the original nesters. Unfortunately, these eggs were lost to an unknown avian predator. No further nesting was recorded on Green Island during the 2015/16 season.

Still within the Beecroft Weapons Range and just around the corner at **South Long Beach**, the resident Pied Oystercatcher pair began scraping in their usual spot in early October. By September 23rd, 2 eggs were laid in the nest and Beecroft Rangers erected fencing and signage around site. The incubation proceed without any major disturbances and on October 23rd, two tiny chicks hatched from the eggs. Sadly, one of these chicks quickly disappeared to unknown causes and by October 24th only one chick remained. The remaining chick was watched closely by local volunteers and Beecroft staff until it was observed in flight on December 4th and declared fledged.

Pied Oystercatchers are often seen in large numbers on **Bherwerre beach**, Booderee National Park. The largest groups were are many as 22 birds. Flagged birds sighted on Bherwerre between February 2015 and March 2016 included; 6L, L9, XD, VE, and JZ. In 2015/16 only one pair of Pied Oystercatchers were observed to be breeding on Bherwerre beach. The two eggs nest was found by volunteers on

November 30th. Two weeks later, volunteers returned to find 2 young chicks had hatched from the nest. By January 24th, one of these chicks reached fledging age but the fate of the second chick remains unknown.

Monitoring of islands in the **St Georges Basin** was conducted entirely by volunteers in 2015/16. Garden, Sepulchre & Oaky Islands all provided breeding territory for pairs of Pied Oystercatchers. On **Oaky island**, two pairs were present (one bird flagged L6) and suspected on nesting as early as September. By October 24th, two chicks were observed, presumably chick from each pair. In mid-November all four adults birds were observed, and two White Bellied Sea Eagles (WBSE). Fortunately a monitoring visit by volunteers at the end of November confirmed the chicks were a still alive and confirmed as having fledged.

There was no activity of Pied Oystercatchers on **Sepulchre Island** throughout the entirety of spring. But on December 1st, a pair of Oystercatchers and a 1 egg nest was found. By December 20th, one chick was observed. Due to monitoring constraints, the fate of this chick is unknown but a fledgling has since been sighted on the nearby mainland.

The logistics of island monitoring also provided a fragmented picture of Pied Oystercatcher breeding on **Garden Island**. A breeding pair was observed on December 1st but no birds were sighted again during a subsequent visit on December 18th. However on December 20th, two adults and one chick were observed, estimated to be approximately 3 weeks old. This was the last time the chick was sighted, although fledglings have been seen in the area and nearby Bherwerre beach.

After a successful season in 2014/15, the Pied Oystercatchers at **Berrara Creek** returned to their usual spot on the southern embankment as early as September. However, the morphology of the creek had changed significantly due to the August ECL and on the 13th of September the first egg was laid on a vulnerable sand bed just meters from the high tide. Volunteers fenced the area and a second egg was laid on September 15th. A week later, high surf combined with



The Berrara Creek Pied Oystercatcher family (Chris Grounds)

large tides to create threatening conditions for this nest. Volunteers braved the creek crossing and raised the nest, setting it back up the embankment a little. But waves running up into the creek washed the eggs away. Luckily this Oystercatcher pair seemed determined to breed again at Berrara, and on October 5th a new nest was found just below the Hooded Plover nest on Berrara beach. This 2 egg nest avoided predation and disturbance by dog walkers and hatched 2 chicks on November 5th. Local volunteers coordinated regular beach wardening and ushered these chicks slowly towards fledging age. Despite the odd encounter with dog walkers and a particularly lucky escape from the talons of a White Bellied Sea Eagle, both chicks fledged on December 12th.

Nerindillah lake was occasionally surveyed in spring but Pied Oystercatchers never returned to breed in the area during the 2015/16 season. Further south at **Lake Conjola** four pairs of Pied Oystercatchers were monitored in various stages of breeding attempts. In the dunes near Lake Conjola entrance, the first 2 egg nest was laid on September 7th. Staff and volunteers erected signage and fencing around the dunes and by September 16th, a second pair of Oystercatchers laid another 2 egg nest within 20m of the first. Despite sightings of fox tracks in the area, these nests remained undisturbed. However, it is suspected that noises and smells of the eggs hatching on October 6th led to the loss of the first nest to foxes. It was only a matter of time before the second nest was found by and also lost to foxes on October 19th. Volunteers and staff regularly surveyed the lake entrance dunes and no further nesting was detected until mid-November when a 1 egg nest was surprisingly found to the south of the preferred nesting site. Unfortunately, this nest was also lost to foxes within a week.

Survey of islands within the lake revealed another two pairs of Pied Oystercatchers were breeding throughout spring. On October 30th, the two pairs were identified with a chick each, although the nest was never observed. Electrical infrastructure works to Chinamans Island potentially threatened

these chicks in November but works were postponed until the both chicks had fledged by mid-December.

At **Narrawallee Inlet**, Pied Oystercatchers assumed their usual territory on the entrance spit as early as September. The birds were first observed sitting on September 22nd and a few days later, 2 eggs were confirmed in the scrape. The spit was in good condition with plenty of debris left by the August ECL and sea rocket slowly establishing, providing plenty of good shelter and habitat. Two tiny chicks hatched from this nest on November 21st and were observed frequently for about a week before disappearing. One chick was taken by foxes from the dunes which caused the remaining birds to retreat back to the exposed spit. Here it is presumed the second chick was taken by a bird of prey; both Sea Eagles and Whistling Kites were frequently observed over the spit. A re-nesting attempt by these birds commenced within a fortnight and volunteers discovered a 2 eggs nest on November 16th. These eggs hatched two healthy chicks on December 14th and volunteers and staff cringed at the thought of impending holiday activity on the spit. When Christmas arrived, chick wardening was a daily task, especially with the nearby Hooded Plovers nesting too. The Pied Oystercatchers headed north away from the spit and beach goers, but still struggled to evade threats completely. Staff and volunteers watched in horror during one particular occasion when a beach jogger came within inches of the crouching Pied chicks. The adults gave the jogger a hammering from above, who continued one the wiser. While both chicks survived this encounter, one of the chicks disappeared later to unknown causes. Luckily the remaining chick went on to fledge and was observed in flight for the first time on February 6th.

Up to four pairs of Pied Oystercatchers were suspected of breeding within **Burrill Lake** during the 2015/16 season. The usual haunts were checked regularly by volunteers including; Burrill entrance spit, Rackham crescent, the salt marsh behind the bottle and the private peninsula and lagoon behind Casuarina close. It was on this peninsula where volunteers surveyed using kayaks, and found two pairs of



Burrill Lake Pied Oystercatchers (Peter Lymbery)

Pied Oystercatcher with nests. On September 18th, flagged Pied (L9) and partner were observed incubating a 2 egg nest. Further south across the peninsula lagoon, another pair of Pies, one flagged 3D, also had a 2 egg nest. A subsequent survey visit on October 13th recorded the loss of this nest to known causes, however the nest of L9 and partner had hatched two chicks! By November 19th both these chicks were confirmed as fledged. Monitoring of the two pairs at Rackham crescent and behind the bottlo continued throughout the season but no nesting was recorded.

The **Lake Tabourie** entrance was opened by machines before the nesting season began in August. Hooded Plovers nested on the northern side of the entrance and for the first time in many years, Pied Oystercatchers nested on the southern side of the entrance. The 2 egg nest was discovered by volunteers on October 28th. Fencing and signage was erected due to the vicinity of the nest near public beach accesses. Regular monitoring by volunteers ensured no major disturbances to this nesting attempt and on December 2nd, two chicks hatched from the eggs. The new parents appeared unsure where to take their chicks and on one occasion, volunteers had to intervene to reunite one of the chicks with the family which had become separated. The very next day, one chick was completely missing. The remaining family was later sighted further up in the lake and then later back at the entrance. On December 6th, the remaining chick was found dead with no marks or tracks to indicate its fate. No further nesting was observed by this pair of Oystercatchers at Lake Tabourie.

The next known nesting by Pied Oystercatchers to the south, was on **Island Beach**, Murramarang National Park. A pair were observed scraping in the Island beach dunes as early as August, when staff were walking to Dawson beach to monitor Hooded Plovers. The behaviour of these Pied Oystercatchers induced closer monitoring by staff and eventually a 1 egg nest was recorded on September 28th. The area had signage installed but was subject to significant human disturbance over the October long weekend. When staff checked the site the following week, the egg had been lost. The Island beach pair were regularly observed for the remainder of the season, also frequently Pretty beach to feed, but no further nesting was recorded.

At **Durras Lake**, staff and volunteers were optimistic of a successful breeding season after a fox den was fumigated in the entrance dunes on September 9th. The resident Pied Oystercatchers were watched closely by the local volunteer and a definite scarcity of fox tracks confirmed the fumigation was successful. On September 27th the first egg of a 2 egg nest was laid in the usual spot to the south of the lake entrance. When fox tracks began reappearing, the local volunteer trialled the use of strategically placed human hair as a scent deterrent. This seemed to work and by October 10th one of the egg hatched a healthy chick. The other egg did not hatch and was deemed not viable. The lone Oystercatcher chick was chaperoned closely by the adult birds for

over 3 weeks without any obvious threats. However, on November 3rd the local volunteer unexpectedly confirmed that the chick had been lost to unknown causes.

On Friday October 23rd, staff and volunteers used a boat to survey the Durras Lake shores for additional pairs of nesting Pied Oystercatchers. One pair were observed scraping not far from the entrance channel and staff undertook some targeted fox baiting in the vicinity as a result. When volunteers returned to check on the birds in subsequent weeks, no nesting was recorded and the birds could not be sighted.

The resident Pied Oystercatchers of **Batemans Bay Marina** live in one of the most urban shorebird habitats on the south coast. Before the nesting season commenced, Eurobodalla Council staff constructed nesting habitat within the marina breakwall in an attempt to encourage nesting away from fishers and dog walkers in the area. While the gallant effort was undoubtedly appreciated by the local Pied Oystercatchers, they chose to nest amongst the mangrove seedlings instead. Local volunteers were the first to report the nest on September 6th, which was the only 3 egg Pied clutch laid on the south coast this season. Fencing and signage was in-



Top: NPWS & volunteers survey Durras Lake for Pied Oystercatchers (Tedder)

Bottom: Bateman Bay Marina chicks (John Perkins)

stalled but within a week, one of the eggs went missing. Tracks in the area indicated a variety of potential predators including humans, dogs, foxes and cats. Due to the constraints to fox control at the site, it was decided an electric fence should be installed. The fence was erected and remained operational for about 2 weeks before large tides inundated the fence charger. Despite this set back, the remaining (uncharged) fence structure appeared to deter over curious visitors from entering the area. By mid-October two healthy Pied chicks had hatched from the marina eggs. The nearby mangrove saplings and creek area provided the perfect shelter. Staff and volunteers held their breath in disbelief that such an urban site as the Marina could potentially secure breeding success. Sure enough, on November 30th the two chicks were observed in flight! An incredible outcome for this highly public site.

Previously managed by the Far South Coast Region, the **Clyde River** west of the Princes highway provided excellent breeding opportunities for Pied Oystercatchers in 2015/16. Encouragement from local oyster farmers has resulted in prevention to erosion of a favoured Pied Oystercatchers site near Budd Island. Oyster farmer/shorebird volunteer and marine science students from Ulladulla High School reconstructed the site using sand bags on August 25th. The resident Oystercatchers were sighted in the area within two weeks of these works being completed. In early October, two eggs were laid in the constructed nest and the incubation proceeded without disturbance. At the start of November two healthy Pied chicks hatched from the eggs. The nearby mangroves and oyster lease debris provided the perfect feeding and sheltering habitat. Whilst the chicks were of fledging age by late December, the birds were not sighted in flight until January 11th. Two fledglings each for the Clyde River and Marina Pied Oystercatchers.

Interestingly, oyster farmer volunteers reported that another three pairs of Pied Oystercatchers could be breeding further up-stream in the Clyde river. These reports justify

the 15 Pieds that were sighted together at Cullendulla in March.

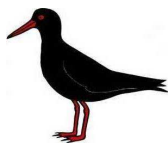
In total, the twenty six pairs of Pied Oystercatchers monitored on the south coast incubated 32 nests. A total of 63 eggs were laid, hatching 33 chicks. From these chicks, a total of 17 chicks were fledged.



Top to bottom: Ulladulla High marine science students, volunteers & LLS staff reinforce Budd Island Pied Oystercatcher nesting site (J. Riethmuller); Budd Island Pied fledglings (Paul Gatenby); Cullendulla Pied Oystercatchers (Tedder).

Sooty Oystercatchers

Surveys of Sooty Oystercatchers nesting on south coast islands was conducted late in the season. This is the result of a combination of factors including sea conditions and staff availability.



Staff surveyed the islands on December 4th, which is past peak breeding season for south coast Sooties. Several empty scrapes were found among the 16 pairs counted on **Brush Island**. Only one pair displayed behaviour indicative of nearby chick(s). Near other scrapes, empty egg shells were the only evidence of any breeding. Any predation is likely to have occurred by the local Swamp Harrier.

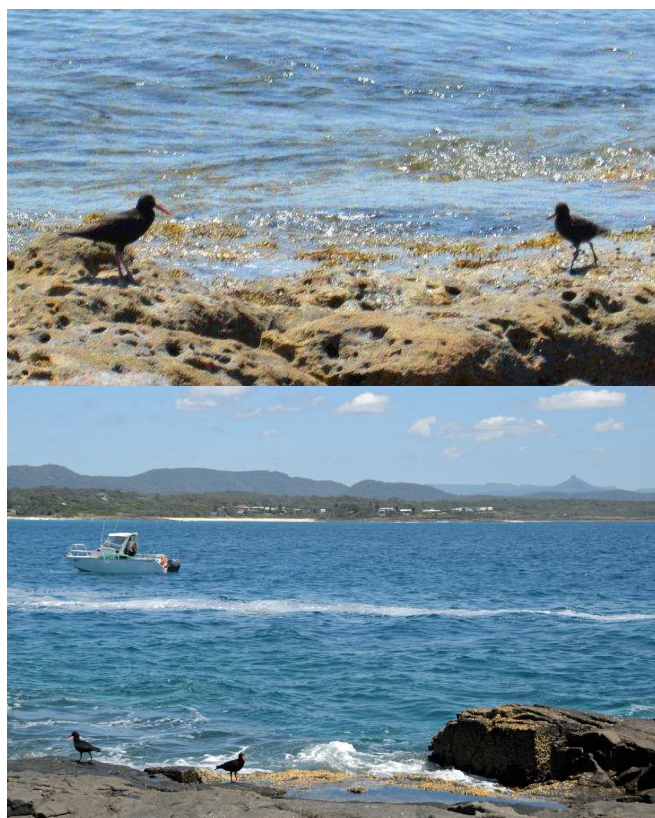
A total of 9 pairs were counted during a quick lap of **Belowla Island** but rough sea surfaces prevented any attempt at a safe landing. **Grasshopper and Wasp Island** were also surveyed from the boat and minimal activity was observed apart from 2 solitary pairs sighted on Grasshopper. On the **Tollgate Islands**, a total of four active nests, with seven eggs were discovered between five Sooty Oystercatcher pairs. A subsequent survey of the Tollgate islands on January 21st revealed that most of these eggs had suffered predation from birds of prey and only the one chick remained to fledge.

Snapper Island was also surveyed during the December 4th outing. Only one pairs of Sooties was sighted and no active nests were found.

The mainland Sooty Oystercatcher nests surveyed in 2014/15 were also monitored this season by volunteers and staff at Beecroft Weapons Range. On **Bhindijine beach**, Beecroft staff first recorded a 2 egg Sooty nest on October 23rd. Returning to survey the site on December 4th, staff found an empty nest but did not observe any chicks. Just days later, volunteers captured a photo of one of the chicks which is since suspected of having fledged.

The Pied Oystercatchers on **Green Island** also shared their territory with nesting Sooty Oystercatchers. On October 24th volunteers reported these Sooties were now incubating 2 eggs. Towards the end of November volunteers expected chicks to emerge from the nest but they were never sighted. In fact it wasn't until January 20th that one Green Island Sooty fledgling was sighted.

NPWS hope to improve the regularity of monitoring Sooty Oystercatchers in 2016/17.



Top: Sooty chick at Bhindijine Beach (Les Lawrenson)
Bottom: Brush Island Sooty Oystercatchers (Mike Jarman)

Sooty Oystercatcher breeding activity in the NSW South Coast Region — 2015/16 season

Site	# pairs	Nests	Eggs	Chicks	Fledglings	Main fate
Brush Is	16	0	0	1		unknown
Belowla Is	9	0	0	0		unknown
Grasshopper Is	2	0	0	0		unknown
Wasp Is	0					unknown
Tollgate Is'	5	4	7	1	1	
Snapper Is	1	0	0	0		unknown
Green Is	1	1	2	1	1	
Bhindijine Beach	1	1	2	1	1	
total	35	6	9	4	3	

Threatened Shorebirds Community and Schools Education Project Grant



This NSW Environmental Trust funded project has been successful in connecting constituents with threatened shorebirds and their habitat. Through increased understanding of bird lifecycles and breeding behaviour, the vulnerability of threatened shorebirds has been communicated across a range of educational mediums and events. This has assisted beach users and dog walkers to better understand how their actions can have a dramatic impact on the success or failure of these breeding shorebirds.

Eight community presentations were delivered between August and November 2015. With the commencement of nesting on beaches in this period, these events were timely in bringing the Shorebird Recovery Program (SRP) and shorebird breeding behaviour into the limelight. These talks provided opportunities for positive discussions and face to face Q&A with community members. They also provided a platform to promote the grant funded program; summer activities, murals and schools book components during which the Shorebird Recovery Coordinator noted positive attitudes of growing interest and ownership.

An innovative series of nesting site and creative art workshops were held across 6 local schools in Term 4, 2015. These highly interactive sessions connected students with their local shorebirds and their habitat, reinforcing key messages of the SRP. High quality artwork and writing was produced by students and contractors, and is currently being edited for release as a shorebird book for children in June 2016.

Shorebird focussed kid's activities and evening film nights were hosted across numerous holiday parks to raise awareness and influence beach behaviour amongst summer visitors to the region. The kid's activities were an overwhelming success. The presentation/film nights were more challenging; with issues associated with the booking of tourist venues and lower attendances.

Shorebird education stalls were held across 10 market day events along the south coast between October 2015 and January 2016. These market stalls were very effective in engaging people in SRP conversations and messages. Education stalls held at 10 beach nesting sites provided fantastic SRP visibility during the summer school holidays yet people appeared less interested in being engaged in conversation at these stalls.

Shorebird nest wardening, conducted across 10 active sites throughout January 2016, proved an efficient and effective form of shorebird education and SRP awareness. The opportunity of engaging with dog walkers and beach users within eyesight of the birds and their breeding and nest protection behaviour was invaluable.

To date, 1 out of 6 shorebird murals have been completed, with overwhelming enthusiasm and interest from the communities involved. 5 remaining murals are on track to be designed and completed by June 2016.

A total of 1632 constituents have been directly engaged in the program through the project activities and events.

A new round of NSW Environmental Trust education grants have opened for expressions of interest in March 2016 and the SRP will continue to bid for this valuable funding to assist the reduction in human disturbances to threatened shorebird nesting sites and habitat.



Shorebird Recovery staff and beach goers at Culburra (Tedder) ; Currarong shorebird mural by volunteer artist Robyn Gibson (Tedder)

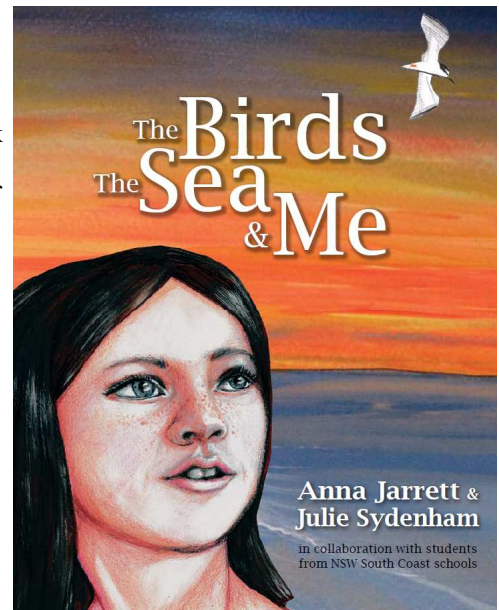
The Shorebird Book Project

As part of the community and schools education grant, the Shorebirds Book Project was created in collaboration with local schools to encourage students to share the shoreline with south coast shorebirds. Through a series of guided beach visits and creative arts workshops, primary and secondary students were invited into the world of endangered shorebirds to learn how they can help to care for them. The relationships established will hopefully lead to ongoing collaborations with south coast schools in the Shorebird Recovery Program.

A massive thanks go out to the students and volunteers who contributed time and energy towards this project. The experiences facilitated by volunteers during school site visits, created the inspiration and awareness required for students to contribute art and writing works towards the production.

Creative extraordinaires, Anna Jarret & Jules Sydenham have crafted these works into a story about Rikki and her dad, who show us how we can live together with threatened shorebirds and help them maintain a healthy population. The book will serve as an engaging and valuable education resource for many years to come.

The book is currently in the final stages of completion before 200 copies will be distributed to the schools and stakeholders involved in the project. The Shorebird Recovery Program will coordinate presale orders of the book for any other parties who may be interested in acquiring a copy of this fantastic resource.



Left to right: St Marys Milton students at Lake Conjola with Anna and Col; Little Tern by Zachary Floyd (Culburra PS); Abalone shell by Lilli Stiff Marr (Sussex PS); Pied Oystercatcher and chick by Ella Dee Sim (Culburra PS).

Ongoing Fox Control at shorebird sites



Despite the significant fox challenges faced by threatened shorebirds this season, ongoing funding from the Local Land Services & Crown Lands will enabled us to continue early season baiting and conduct over 60 nights of strategic & reactive shooting and trapping in the 2016/17 season.

This continuation will enable us to apply lessons learned in behavioural and tracking experiences to improve the program efficacy and hopefully reduce fox predation at threatened shorebird nesting sites.

Shorebirds in Holiday Havens 2015/16

Thanks to ongoing sponsorship from the Shoalhaven Holiday Haven Tourist Parks, the Shorebird Recovery Program was able to engage holiday makers throughout January. This complimented the work undertaken in the Environmental Trust project and included over 8 event days of morning beach stalls and afternoon bag painting activities. Around 400 people were reached through these events. A massive thanks go out to Holiday Havens for their ongoing support!



Sharing knowledge & Youth engagement

This year the Shorebird Recovery Program was successful in gaining support from NPWS Volunteering & Participation Unit (VPU) for a project aiming to support and share knowledge between existing volunteers; and improve resilience & diversity in the volunteer pool through the engagement of younger people in the program.



In December 2015, the project ran SOS Crew training sessions for university students interested in assisting as volunteers in the shorebird program. It is hoped that increasing the volunteer pool with younger people from diverse backgrounds, will improve the resilience & sustainability of the shorebird program. Plus, greater interest and dissemination of key Shorebird Program messages (by young people, to young people) will initiate the required cultural changes in beach use across the community.

Additionally, the VPU funding allows sustained support & capacity building of existing volunteers. The funding will provide suitable field equipment such as binoculars, volunteer shirts, sunscreen and first aid kits for beach monitoring activities. The funding has allowed the hosting of an end of season debrief including Changeologist, Les Robinson, to facilitate the sharing of experiences, and building the technical & emotional capacity of volunteers in preparation for upcoming seasons.



Left to right: SOS Crew volunteers, Jackson & Monica with more experienced volunteers Col & Dom (Tedder).
Shorebird Recovery staff and Ulladulla High Students during Plover Appreciation Day, 2015 (Dom Toldi).

Engaging the coastal community: from surfers to marine debris

The Shorebird Recovery program established a number of valuable relationships with coastal community users and NGOs in 2015/16.

In October, the program teamed up with Ulladulla Boardriders Club and South Coast Surfrider Foundation to run the **Shred4Shorebirds** event at Rennies Beach.

In January, the program joined forces with the Clean Coast Collective and AKWA Surf to screen the **Trash Tribe** film about marine debris on the Australian coastline.

Given the everyday contact which surfers enjoy with the birds and the ongoing challenges Pied Oystercatchers experience with phantom fishing line, it is hoped these events mark the beginning of ongoing relationships with these important coastal stakeholders.




South Coast Shorebird Recovery Program

Registered Volunteers 2015/16



Photo: Charles Dove

Durras / Batemans Bay	<u>John Perkins</u> Meryl Hannan Paul Gatenby	St Georges Basin / Bherwerre	<u>Stan Brown</u> + Susan Garside-Brown Karen + Brett Davis Barbara Liddle Robyn Hill + Doug Hargrave Wendy Hartman Dean Pickering Martin Schulze
Bawley / Kioloa	<u>Marg Hamon</u> (Bawley) <u>Robin Berkhout</u> (Kioloa) Maggie Mance Steve Berkhout Sybille + Don Davidson Eve Jenkins Robyn McTavish Debbie Andrews Cecelia Bradley Helen + John Nelson	North Jervis Bay	<u>Wendi Johnson</u> + Michael Jones Diana Lindsay Les Lawrenson Anne Norton
Tabourie	<u>David Swarts</u> Kaye Milsom Joan Lonergan Cathy Stapleton Natasha Pritchard	Wollumboola	<u>Frances Bray</u> Michael Abramowitz Thomas Kaar Narelle Wright Rick + Elly Kyoptke Matt Jones
Burrill / Racecourse	<u>Chris Brandis</u> Bob Rusk Peter Lymbery	Shoalhaven Heads	<u>Nicole Ison</u> Rex Worrell Peter Ward Teena, Joseph & Harri Bronzino Pat Tedder
Rennies	<u>Ken + Kay Smith</u> Barbara + John Smith Matt Korvin	Gerroa	<u>Sally Leonard</u> Kim Leonard Alexandra Northam Barbara Haase
Narrawallee	<u>Dominique Toldi</u> Jackson Rutter Monica Roso Terrie Gardner	Windang	<u>Paul Nesbitt</u> Sharon Coleman
Conjola	<u>Col Ashford</u> + Maureen Deigan Carol Hodgetts Charles Dove Sandra Dodimead	<div style="border: 1px solid black; padding: 10px;"> <p>Thank-you all for your efforts in shorebird protection and awareness in 2015/16!</p> <p>Your combined contributions of over 3300 volunteer hours provides invaluable life support and beach presence at shorebird nesting sites.</p> <p>See you on the beach in seasons to come! </p> <p>Simon Tedder 2015/16 Shorebird Recovery Coordinator</p> </div>	
Inyadda	<u>Terry</u> + Carol <u>McBride</u>		
Berrara / Cudmirrah	<u>Mike</u> + Rose <u>Clear</u> Margaret Webber Maree Menzies Sue Tolley + Ronnie Kroon Pam McGilvery + Anne Finlayson Brett + Deb Stevenson		



THANK-YOU

to all staff and volunteers

