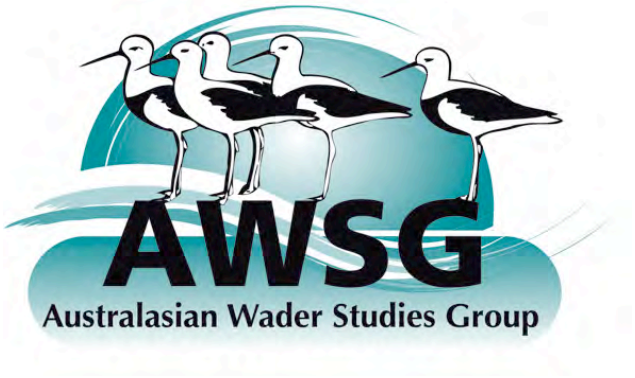
7th Australasian Shorebird Conference

Hobart, Tasmania, AUSTRALIA
4 – 6 September 2009



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Conference program and abstracts of keynotes, oral and poster presentations
(alphabetical listing based on senior author)

Conference program

Friday 4 September

09:00 - 17:00 AWSG Committee meeting [members and invited attendees only]
13:00 - 17:00 Tasmanian Coastal Workshop

18:00 - 20:00 Early registration and Shorebird Conference Icebreaker [University Club]

Saturday 5 September

08:00 - 09:00 Registration

09:00 - 09:10 Opening, welcome, announcements
09:10 - 09:40 Keynote - Ken Gosbell: The Coorong – A Decade of Decay.
09:40 - 10:00 Clive Minton: Thirty years of counts in Corner Inlet-what is causing decreases in wader populations?
10:00 - 10:20 Jo Oldland: Shorebirds 2020 National Shorebird Monitoring Project – update and future directions.

10:20 - 11:00 Morning Tea

11:00 - 11:20 Rob Clemens et al.: The search for Australian shorebird population trends: data requirements, summary of recent work, and early indications of what can be learned from the growing Australian shorebird dataset.
11:20 - 11:40 Richard Fuller et al.: When volunteers count: Shorebird monitoring in Moreton Bay.
11:40 - 12:00 Jason Searle et al.: Monitoring of human disturbance at bird roosts, Horseshoe Bay area, South Stradbroke Island 2008/2009.

12:00 - 13:20 Lunch

13:20 - 13:40 Ashley Herrod et al.: Shorebird monitoring and mapping in the Port Phillip Bay (western shoreline) and Bellarine Peninsula Ramsar site.
13:40 - 14:00 Maureen Christie et al.: Site faithfulness of Ruddy Turnstone *Arenaria interpres* in the southeast of South Australia.
14:00 - 14:20 Danny Rogers et al.: Are tidal flat reclamations reducing shorebird numbers in the East Asian – Australasian flyway?
14:20 - 14:40 Adrian Riegan: Report of the first shorebird survey of the Mundok area in the DPR Korea by Miranda Naturalists' Trust, April 2009.
14:40 - 15:00 Keith Woodley: Observations of a pair of breeding bar-tailed godwits *Limosa lapponica baueri* on the Yukon-Kuskokwim delta, Alaska.

15:00 - 15:40 Afternoon Tea

15:40 - 16:00 Paul Finn and Carla Catterall: Choice of feeding sites by eastern curlews (*Numenius madagascariensis*) on their non-breeding grounds.
16:00 - 16:20 Phil Straw: Migratory shorebirds - managing for their future.
16:20 - 16:40

18:30 - 19:00 Pre-dinner drinks [University Club, at individual's own expense]
19:00 - 22:00 Conference Dinner [University Club]

Sunday 6 September

08:30 - 09:00 Registration

09:00 - 09:30 Keynote - Mike Weston: The importance of the human element in shorebird conservation research.
09:30 - 09:50 Peter Dann et al.: Research and management of hooded plovers on Phillip Island (1992-2009).
09:50 - 10:10 Grainne Maguire: Lessons learned from managing hooded plovers in Victoria.

10:10 - 11:00 Morning Tea

11:00 - 11:20 Roz Jessop et al.: Natal dispersal of hooded plovers at Phillip Island, Victoria, Australia.
11:20 - 11:40 Ben Arthur et al.: An assessment of the potential for competition between co-existing hooded and red-capped plovers in a changing habitat.
11:40 - 12:00 Alan Fletcher and Mike Newman: Long-term observations of the Australian pied oystercatcher in southeast Tasmania 1964-2009.

12:00 - 13:20 Lunch

13:20 - 13:40 Mike Newman: Australian pied oystercatcher – Battling against the odds in South-east Tasmania.
13:40 - 14:00 Eric Woehler and Priscilla Park: Status and trends of beach-nesting birds in Tasmania.
14:00 - 14:20 Jodie Dunn: The South Coast Shorebird Recovery Program.
14:20 - 14:40 Lucy Aplin: Ecological hypotheses for the evolution of sexual bill dimorphism in shorebirds: Diet divergence, sooty oystercatchers and a comparative analysis of the Charadriiformes.
14:40 - 15:00 Kim O'Riley and Simone Warner: Targeted surveillance of avian influenza virus within wild bird populations in Victoria.

15:00 - 15:40 Siriya Sripanomyom [TBC]: Necessary non-breeding habitats for shorebirds in the inner Gulf of Thailand: the first landscape level study of the country.
15:40 - 16:00 Alice Ewing [TBC]: Survival of several species of migratory shorebirds that visit north-western Australia.
16:00 - 16:20
16:20 - 16:30 Close

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Ecological hypotheses for the evolution of sexual bill dimorphism in shorebirds: Diet divergence, sooty oystercatchers, and a comparative analysis of the Charadriiformes

Lucy Aplin
School of Biology, Australian National University, Canberra ACT 2600

In birds, most cases of sexual dimorphism have evolved through sexual selection. However ecological selection can also act to cause sexual dimorphism. When it does so it may adapt the sexes to different niches. Differences in bill morphology can more convincingly exclude sexual selection hypotheses, particularly when linked to ecological evidence. My study investigated the evolution of sexual bill dimorphism in shorebirds. I first asked how sexual bill dimorphism affects the foraging ecology of the Sooty oystercatcher *Haematopus fuliginosus*. I then conducted a comparative analysis of the Charadriiformes to look for correlations between dimorphism and life history. Results showed that sooty oystercatchers have the greatest bill divergence in the Haematopodidae, and also exhibit significant intersexual dietary divergence. When this and other information was fed into the comparative analysis it indicated that sexual bill dimorphism in Charadriiformes is correlated with traits that are linked to ecological selection, including spatial segregation and differential migration.

An assessment of the potential for competition between co-existing hooded and red-capped plovers in a changing habitat

Benjamin Arthur, Eric Woehler and Mark Hindell
School of Zoology, University of Tasmania

Hooded (*Thinornis rubricollis*) and red-capped plovers (*Charadrius ruficapillus*) are experiencing population decreases and displacement of individuals from human disturbance. When natural systems are altered by such human actions, inter-species dynamics change and competition can become an important ecological pressure. This study investigated the potential for inter-specific competition between co-existing breeding hooded and red-capped plovers. The use of two potentially limiting resources, food and breeding habitat was examined spatially and temporally and agonistic encounters were quantified. Foraging was separated spatially, but not temporally, between the species. The spatial distribution of nests along the beach varied, with hooded plover nests regularly distributed while red-capped plover nests were clumped. Habitat alteration from human disturbance increases the potential for inter-specific competition for foraging and nesting habitats, with the more aggressive hooded plovers having a competitive advantage. These results suggest that unless competition is minimised by reducing disturbance, areas where red-capped plovers breed independent of hooded plovers should be a focus of future conservation efforts.

POSTER: Long-term trends in resident shorebirds in Australia

Lainie Berry and Birgita Hansen*
Birds Australia, Suite 2-05, Green Building, 60 Leicester St, Carlton, Victoria, 3053
*Department of Sustainability and Environment, Victoria

Recent analyses of long-term shorebird count data have shown declines in some migratory species in key coastal areas, and in both migratory and resident species in inland wetlands of Australia. We examined population trends of resident shorebird species in key coastal sites using count data from 1981 to 2008.

Site faithfulness of ruddy turnstone *Arenaria interpres* in the southeast of South Australia

Maureen Christie[1], Rosalind Jessop[2] and Heather Gibbs[3]
[1]Carpenter Rocks, South Australia 5291
[2]RMB 4009, Cowes Victoria 3922
[3]PO Box 2110, Lygon St North, East Brunswick VIC 3057

The site faithfulness of ruddy turnstone *Arenaria interpres* found along the coastline of southeast South Australia was analysed from flag sightings made between November 2004 and August 2008. 775 field visits were made and 722 flags read. Most adult (2+) and second-year birds remained site faithful, with at least 95% of adults (2+) and 82% of second-year birds remaining at the same site throughout the austral summer. Over 88% of adults returned to the same site the following year. First-year birds were more mobile, with between 47% and 84% remaining at their flagging site throughout the austral winter. Movements of first-year birds appeared to be in response to the availability of food in the local area, but may also have been influenced by the absence of the dominant adults from more favoured feeding areas during the winter. Protection of roost sites and feeding areas is needed to ensure all the habitat requirements of these international migrants are met. Further research on the impacts of climate change needs undertaking.

The search for Australian shorebird population trends: data requirements, summary of recent work, and early indications of what can be learned from the growing Australian shorebird dataset

Rob Clemens, Jo Oldland, and Angie Haslem
Birds Australia, Suite 2-05, Green Building, 60 Leicester St, Carlton, Victoria 3053

A power analysis was conducted to determine the sampling requirements to detect Australian shorebird population trends. Specifically, we investigated the relative effect on power of shorebird abundance (at sites), inter-annual count variation within sites, and the number of shorebird areas surveyed. This analysis revealed that the number of shorebird areas surveyed determined the power to detect national population trends. Further, a trend of either a 50% change over 5 years, or a 30% change over 10 years could be identified if a species was present in at least 35 independent sites, monitored annually. A total of 150 sites were initially selected in order to monitor the trends of 28 migratory and ten resident shorebird species, most of which were visited this past summer. This presentation will report on the power analysis, the amendments needed to the initial list of 150 sites, and other challenges regarding the data required to meet objectives. We also provide a brief overview of recent work on population trends in Australia from a variety of sources, which often continue to show population declines in migratory species. Finally, the increasing surveys from throughout the country are enabling us to report on some interesting changes in shorebirds populations. Here we report on one example: the reductions in shorebirds found at inland wetlands of southern Australia.

Research and management of hooded plovers *Thinornis rubricollis* on Phillip Island, Victoria, 1992-2009

Peter Dann, Bob Baird, Jarvis Weston, Jon Fallaw and Roz Jessop
Phillip Island Nature Park, PO Box 97, Cowes, Phillip Island, Victoria 3922, Australia

The hooded plover *Thinornis rubricollis* population on Phillip Island in Victoria has been closely monitored and actively managed for the past 17 years (1992 and 2009). In the initial phase of the study, it was found that hatching success (17%) was very low and predation/disturbance from foxes, dogs, humans and sheep were identified as anthropogenic causes of hatching failure. Strategies to address these were implemented and a study to examine the use of predator exclosures at nests was commenced. Predator exclosures resulted in a marked increase in hatching success but did not result in overall improvements in breeding productivity. Following the implementation of a variety of management strategies, the annual number of breeding attempts on the Island increased threefold, the number of beaches used for breeding doubled, the number of adults recorded in the September/November counts tripled and the annual number of fledged chicks increased substantially. The role of various management techniques in achieving this increasing breeding population will be discussed.

The South Coast Shorebird Recovery Program

Jodie Dunn
Department of Environment and Climate Change NSW

DECC initiated the South Coast Shorebird Recovery Program in 2000 to protect, manage and ultimately recover four species of threatened shorebirds on the south coast of NSW. Through a combination of regular surveys and monitoring, nest protection (fox control, cages, fencing and signage) and community education (local volunteers, leaflets, talks and media) the program has contributed to significant increases in the Endangered little tern population in NSW and successfully halted the decrease in the Endangered hooded plover population. The 'Hoodie' is now confined to the south coast after experiencing a significant range reduction in the last century, with only approximately 50 individuals remaining in NSW. The Vulnerable pied and sooty oystercatcher populations also benefit from this program. Lessons from the past decade of management will be discussed along with plans for the future of the program.

Survival of several species of migratory shorebirds that visit north-western Australia

Alice Ewing
Department of Zoology, University of Melbourne

With observed decreases in shorebird populations worldwide and increased pressures due to destruction or loss of important staging sites, this study aims to analyse survival rates in several key migratory shorebird species in the East Asian-Australasian Flyway (EAAF), with a focus on those that spend the non-breeding season in Roebuck Bay, near Broome, north-western Australia. With recent population decreases recorded in Roebuck Bay, monitoring survival rate estimates is essential, as population growth in long-lived species can be influenced by small changes in adult survival rates. Mark-resight data, from engraved leg-flag observations, will be used to estimate survival rates of several species. With excellent recovery rates from flag resightings, in-depth comparisons among and within species will be undertaken. Armed with more accurate survival rate estimates, this study will consider the possible effects of known events throughout the flyway and give stronger support for conservation measures of migratory shorebird populations.

Choice of feeding sites by eastern curlews (*Numenius madagascariensis*) on their non-breeding grounds

Paul Finn and Carla Catterall
Environmental Futures Centre and Griffith School of Environment
Griffith University, Brisbane, QLD, Australia

Migratory shorebirds on their non-breeding grounds primarily utilise habitat for its foraging potential. We tested whether foraging success can predict the distribution of eastern curlews on their non-breeding grounds in Moreton Bay, Australia. Prey organisms and foraging success were assessed at 11 sites (tidal flats 23-97ha in area). Curlew density varied widely among the 11 flats, and stratified observations of feeding and habitat use by focal birds yielded 831 three-minute records. Biomass intake rate explained 57% of the variation in curlew density on the 11 flats, and was a far better predictor of curlew density than either feeding or success rates. Good quality feeding flats were characterized by high biomass intake rates, high substrate penetrability and high curlew density, but there was little intra-specific aggression at these sites. We conclude that the curlews choose feeding sites in their non-breeding range directly on the basis of the food supply.

Long-term observations of the Australian pied oystercatcher in southeast Tasmania 1964-2009

Alan Fletcher, 115 Clarence St, Bellerive Tas 7018
Mike Newman, 7 Glenurie Close, Woodville NSW 2321

Systematic counting of Australian pied oystercatcher numbers in the Derwent Estuary Pittwater area by David Thomas commenced in 1964 and has been continued to the present time by members of Birds Tasmania. During the last two decades, oystercatcher numbers in the Ralphs Bay area have increased approximately threefold. The increase was most dramatic at Lauderdale where non-breeding flocks accumulate. One of the advantages of Lauderdale to oystercatchers is the availability of two roost options, an increasingly important attribute in view of increasing sea levels and storm driven tidal surges. The oystercatchers have also increased their range in the Derwent Estuary, now foraging, roosting and breeding in areas upstream of the Tasman Bridge where they were formerly absent. Over the same period changes have been noted in nest site selection by the oystercatchers. During the 1970s most sites were at the edge of the beach that provided excellent visibility. A number of factors, including changes in the beach structure, increasing inundation at high tide, and disturbance by recreational beach use, have caused the oystercatchers to move to sites behind the fore dune even among trees. In adopting these sites the oystercatchers have made compromises such as trading off clutch losses by inundation with increased difficulty in feeding runners and increased risk of predation. However the transition to an expanded range of sites has allowed more oystercatchers from the non-breeding flocks to establish territories. Our observations confirm the Australian pied oystercatcher to be a highly innovative species which has been able to rapidly adapt and exploit new foraging and breeding opportunities at a time when it is facing increasing threats from development and recreational use of its prime habitat.

When volunteers count: Shorebird monitoring in Moreton Bay

Richard A. Fuller[1], Howard B. Wilson[1], Bruce E. Kendall[1],
Hugh P. Possingham[1] and the Queensland Wader Study Group[2]
[1]Spatial Ecology Lab, University of Queensland, St Lucia, Qld 4072
[2]PO Box 1483, Carindale, Qld 4152

Moreton Bay supports 40,000+ over-summering shorebirds. The annual abundance never remains exactly the same, but how large must a change be before we should worry? Analysing 16 years of QWSG count data, we built models distinguishing long-term decreases from normal year-to-year fluctuations caused by environmental variability. We also incorporated the inevitable reality that even the best counts are imprecise across such a large site. The results were dramatic. Eight species had decreased and four had increased. However, our power to determine whether these constituted long term trends likely to continue into the future was rather low. Two urgent tasks arise. First, determine whether these changes are local to Australia, or being driven by problems elsewhere in the flyway. Second, decide which local management actions might prevent further decreases and be appropriate given current uncertainty. Management depends on estimating costs and potential benefits, not waiting for a definitive statistical conclusion about decreases.

The Coorong – A Decade of Decay

Ken Gosbell, Paul Wainwright, Maureen Christie and Rob Clemens
AWSG, 17 Banksia Court, Heathmont VIC 3135

In the 1980s, the Coorong was ranked among the top 10 sites for waders in Australia and, together with Lakes Alexandrina and Albert, is currently listed as a Wetland of International Importance under the Ramsar Convention. While it had a peak of almost 250,000 waders in the early 1980s, the number of migratory birds counted has decreased dramatically over the last decade. However, it still remains a site of International Importance for five species. The most numerous species are red-necked stint *Calidris ruficollis*, curlew sandpiper *C. ferruginea*, sharp-tailed sandpiper *C. acuminata*, banded stilt *Cladorrhynchus leucocephalus* and pied oystercatcher *Haematopus longirostris*.

The Coorong has been the subject of a number of changes to habitat, both man-made and natural over the last 150 years that has influenced its use by all waterbirds. The drought that has prevailed in southeastern Australia over the last eight years has had a significant impact on the habitat of the lower Murray system, including the Coorong. The results of this have been extensive changes in the water quality in the Coorong and surrounding lakes and wetlands that have resulted in changes in species use, distribution and numbers. This paper describes a population monitoring program and other shorebird monitoring programs that have been undertaken each summer since February 2000, and outlines the trends both in numbers and key species and their distribution within this large coastal system. These trends are compared with other long-term counts in southeastern Australia and their relevance to the East Asian-Australasian Flyway is discussed.

The Coorong remains an important wetland for resident and migratory shorebirds, and several other species such as terns. The use of the southern lake by the largest flock of Banded Stilt ever recorded is a paradox that is discussed. The future of the Coorong is linked with such important issues as Adelaide's water supply, improving Murray River water flows, neutralising acid sulphate soils and salinity problems in the farming areas of the southeast of South Australia. The implications of reverting Lake Alexandrina to a non-fresh lake are also discussed. It is shown that the need to improve the Coorong system is urgent if this listed wetland is to be preserved in accordance with the principles of Ramsar.

Shorebird monitoring and mapping in the Port Phillip Bay (western shoreline) and Bellarine Peninsula Ramsar site

Ashley Herrod[1], Rob Clemens[1], Jo Oldland[1] and John Newman[2]
[1]Birds Australia, Suite 2-05, 60 Leicester Street, Carlton, Victoria 3053
[2] Geelong Field Naturalists Club Inc., PO Box 1047, Geelong, Victoria 3220

The Port Phillip Bay and Bellarine Peninsula Ramsar Site is of international importance for several shorebird species, including curlew sandpiper, red-necked stint and sharp-tailed sandpiper. In 2008, the site supported more than 40,000 shorebirds of 33 species. Shorebird counts have been conducted within the Ramsar Site on a voluntary basis for some 28 years by groups such as Geelong Field Naturalists Club, Victorian Wader Studies Group, Australasian Wader Studies Group, and Bird Observation and Conservation Australia. Reducing variation among annual shorebird counts has been identified by Birds Australia as a requirement for determining population trends for shorebird species. For selected shorebird areas in the Ramsar Site during 2009, summer shorebird counts were increased from two to five and coverage of count areas was increased, to investigate the effects on reducing count variation. Mapping of shorebird roosting and foraging habitat is being conducted for selected shorebird areas at high resolution, to better understand the areas used by shorebirds. Count data for shorebirds collected over the past 28 years and held at Birds Australia is being reviewed for population trends. Preliminary results will be presented from the work currently being carried out.

Natal dispersal of hooded plover *Thinornis rubricollis* **at Phillip Island, Victoria, Australia**

Rosalind Jessop, Peter Dann, Richard Dakin, Jarvis Weston and Jon Fallaw
Phillip Island Nature Park, PO Box 97, Cowes Victoria 3922 Australia

We looked at natal dispersal of 96 hooded plover *Thinornis rubricollis* chicks hatched on Phillip Island between March 1993 and March 2009. All chicks were uniquely colour flagged the week before fledging. Sixty four percent have been sighted one or more times between one month and nine years after flagging and 24% recorded breeding on Phillip Island. Two birds have been reported breeding away from Phillip Island and an additional 20% of birds have been re-sighted on Phillip Island but not recorded breeding. 91% stayed on Phillip Island and 3% went west (Mornington Peninsula - approx. 44 km and Breamlea - 90km) and 6% east along the Gippsland coast as far as Venus Bay near Inverloch (48km). Of the birds found nesting on Phillip Island, 43% bred for the first time in the year following fledging and 39% in the second season. The remainder recorded in subsequent years. Further opportunities for recruitment to Phillip Island and the likelihood of natal dispersal in the future is discussed.

Lessons learned from managing hooded plovers in Victoria

Grainne Maguire
Birds Australia, Suite 2-05, 60 Leicester Street, Carlton, Victoria 3053

Poor breeding success, largely stemming from human-related pressures, is leading to the decrease of resident shorebirds along our coasts. For the past three years, a federally-funded project, '*Promoting coexistence between recreationists and beach-nesting birds*' has used the hooded plover in Victoria as a case study to investigate best practice management for resident shorebirds. Over three consecutive breeding seasons (2006-2009), the breeding history of 90 pairs of hooded plovers has been monitored. At each site, the presence and intensity of threats were also recorded per visit, enabling a standardized comparison of the effectiveness of managements among sites. Management strategies included fencing nesting sites, signage, nest progress updates, visitor education and artificial chick shelters. Results indicate that heavily threatened breeding sites that are managed have similar fledging success to isolated or inaccessible sites (not requiring management), and where sites that are heavily threatened go unmanaged, there is nil breeding success.

POSTER: Shorebird monitoring and management within the Great Barrier Reef World Heritage Area, and Queensland's State marine and national parks – Queensland Parks and Wildlife Service (Department of Environment and Resource Management).

Andrew McDougall
Queensland Parks and Wildlife Service,
Department of Environment and Resource Management
PO Box 3130 Red Hill, North Rockhampton 4701

The Queensland Parks and Wildlife Service manages three state marine parks, and five Ramsar areas in Queensland, and in partnership with the Great Barrier Reef Marine Park Authority, manages marine areas and island national parks within the Great Barrier Reef World Heritage Area. Shorebird management is prescribed through marine park zoning, island camping closures, shorebird management strategies and as a subset of a broader Coastal Bird Monitoring Strategy for the Great Barrier Reef World Heritage Area. Monitoring is carried out by departmental staff and volunteers through these strategies and by bird groups provided with appropriate departmental transport to otherwise inaccessible locations. Data collection is standardised through the department's coastal bird atlas and Wetlands Information Classification System. Shorebird data are shared with bird organisations. The development of strategies and the training of staff are facilitated through a network of individual shorebird experts and organisations.

Thirty years of counts in Corner Inlet – What is causing decreases in wader populations?

Clive Minton[1], Peter Dann[2], Susan Taylor[3], Alice Ewing[4], Peter Anton[5]
[1]Victorian Wader Study Group, 165 Dalgetty Road, Beaumaris Victoria 3193
[2]Phillip Island Nature Park, PO Box 97, Cowes Victoria 3922 Australia
[4]Department of Zoology, University of Melbourne

This presentation gives the results of the analysis of 29 years of summer and winter wader count data from the Corner Inlet complex, South Gippsland, Victoria. This area has the highest population and greatest diversity of waders in the southern half of Australia. Summer totals varied between 24,624 and 44,001, whilst winter counts ranged from 2,336 to 10,019. The number of wader species recorded in summer was usually 20 to 22, but 25 species were found overall. An average of 84% of the population in summer was in the Nooramunga National Park section (East Corner Inlet), with 76% there in winter. Migratory wader species dominated summer populations (97%), but this was reduced to 79% in winter. The population of many species has decreased over the survey period, a few have shown no overall change (though some have had marked fluctuations) and one species has increased (sooty oystercatcher at c.5.6% per year). Decreases have not been linear in most cases: rather there have been major step-like changes, taking place at different times for different species (between 1993 and 2002). The total reduction has been of more than 40% in nine species – eastern curlew (43%), grey plover (54%), great knot (62%), red knot (64%), common greenshank (68%), ruddy turnstone (69%), curlew sandpiper (76%), greater sand plover (82%) and lesser sand plover (97%). In contrast red-necked stint, sharp-tailed sandpiper, whimbrel, sanderling and pied oystercatcher populations have not decreased. There appear to have been no changes in the Corner Inlet complex to account for these population decreases. It is considered that the most likely cause is loss of habitat in the staging areas in the Yellow Sea, leading to birds breeding less successfully and/or surviving less well than previously.

POSTER: Hooded plover breeding success in the absence of foxes – a Kangaroo Island study

T. Mooney, C. Baxter, H. Achurch and M. Berris
SA Department for Environment and Heritage

Hooded plover, *Thinornis rubricollis*, is listed as Near Threatened on the IUCN Red List (2008), with the eastern population of this resident shorebird thought to be decreasing. Previous studies have shown that human related disturbance causes disruption in breeding, suggesting that increased coastal development is likely to affect hooded plover recruitment and population viability, if not carefully managed. Foxes, dogs and potentially gulls predate nests. Kangaroo Island currently supports around 180 adult hooded plover and the absence of foxes makes this large island off the coast of South Australia a significant refuge for this species. Up to 23 nesting pairs were monitored in the 2007/08 and 2008/09 breeding seasons. Breeding success was considerably higher than that reported in Victorian studies, although results varied among the three study areas. Causes of nest failure were often difficult to determine but included storm tides, static recreational activities and avian predators.

Australian pied oystercatcher – battling against the odds in southeast Tasmania

Mike Newman
7 Glenurie Close, Woodville NSW 2321

In 1991, I predicted a crash in the size of the southeast Tasmanian population of Australian pied oystercatchers. Subsequent events have proved the prediction completely wrong and oystercatcher numbers have increased, despite the escalating impact of numerous factors that would be expected to affect the species adversely. The southeast Tasmania oystercatcher population is largely non-migratory, with breeding adults forming monogamous pairs most of which remain in the vicinity of their territories throughout the year. Non-breeding birds accumulate in the many sheltered bays of the Derwent Estuary and Pittwater area of which Lauderdale is the most important. The non-breeding birds move around the area until they finally acquire a breeding territory, usually within 10km of their natal site. This mostly occurs at an age at least two years above breeding maturity, which is consistent with a population where breeding territory availability is limiting. The 1991 prediction was made on the basis of measurements of breeding productivity, and the mortality/survival rates both of non-breeding birds and territorial adults. Possible reasons for the failure of the 1991 population trend prediction are discussed. A recent adaptation of the oystercatchers to exploit improvement in the environmental quality of the area appears to have allowed new territories to be established, negating at least temporarily the assumption that breeding territory availability is limiting. Difficulties in predicting future trends in the oystercatcher population associated with the impact of significant changes like increases in sea level and the proposed Lauderdale Quay development are discussed.

Shorebirds 2020 National Shorebird Monitoring Project – update and future directions

Jo Oldland, Birds Australia, Suite 2-05, 60 Leicester Street, Carlton, Victoria 3053

The *Shorebirds 2020* Program started in 2007 to reinvigorate the volunteer-led national Population Monitoring Program started by the AWSG in 1981. *Shorebirds 2020* is supported by Birds Australia and the AWSG, through funding from the Australian Government's Caring for our Country and WWF-Australia. The program is designed to collect robust data on shorebird populations in a manner that will allow us to more clearly identify how shorebird populations in Australia are changing and why, and to share this information with those charged with conserving and managing shorebirds and their habitats.

The long-term desired outcomes of the program are:

- Improved conservation and management of shorebirds & their habitats
- Improved understanding of the impact of changes in habitat and site management on shorebirds
- A practical model for community-based shorebird monitoring suitable for use in East Asia
- An increase in the number of skilled shorebird counters active in Australia
- An increase in the number of regularly monitored shorebird sites
- An improved knowledge of shorebird population trends

This presentation will review progress of the project over the last two years towards achieving each of these outcomes and what we have planned for the future.

Report of the first Shorebird Survey of the Mundok area in the DPR Korea by Miranda Naturalists' Trust, April 2009

Adrian Riegen
213 Forest Hill Rd, Waiatarua, Waitakere 0612 New Zealand, and
Miranda Naturalists' Trust, 283 East Coast Rd, RD 3, Pokeno 2473 New Zealand

The first shorebird survey undertaken in the DPRK by the Miranda Naturalists' Trust of New Zealand along with members of the Korean Natural Environment Conservation Fund was conducted at the Mundok Migratory Birds Wetland Reserve in Mundok County, between 26 and 29 April 2009. Three shorebird roost sites were counted along 20km of coast. A total of 6,345 shorebirds of 22 species were counted. Three shorebirds species, bar-tailed godwit, Eurasian curlew and far-eastern curlew occurred in internationally important numbers. At least 51 individual shorebirds were identified by their colour bands and flags from a range of sites in New Zealand, Australia, China and Alaska.

Targeted surveillance of avian influenza virus within wild bird populations in Victoria

Kim O'Riley and Simone Warner
Department of Primary Industries
475 Mickleham Rd, Attwood, Victoria

Avian Influenza (AI) is of worldwide significance due to the widespread infection of production and wild birds. All birds are believed to be susceptible to AI, but migratory waterfowl and other aquatic birds can carry the virus without disease symptoms. Given the migratory nature of birds, and the reservoir of AIV that these populations represent, we sought to identify and understand the range of AIV genotypes circulating in Victoria. Targeted surveillance of wild birds and ducks has been conducted for the last six years in collaboration with the VWSG. To date, a total of almost 11,000 samples have been collected from wild birds and Anseriformes, and these have been screened for all AIV subtypes using laboratory tests. This talk will provide details of our optimised testing and storage procedures, and our surveillance results.

Are tidal flat reclamations reducing shorebird numbers in the East Asian – Australasian flyway?

Danny Rogers[1], Nial Moores[2], Ken Gosbell[3] and Chris Hassell[4]
[1]AWSG and Arthur Rylah Institute of Environmental Research
[2]Birds Korea and Newcastle University
[3]Australasian Wader Studies Group
[4]AWSG and Global Flyways Network

Shorebird biologists have long been concerned by the rate at which natural tidal flats are being converted to land (so-called 'reclamation' projects) around the coast of Yellow Sea. Major decreases in shorebird numbers have been predicted as a result, but reclamation proponents have argued that when tidal flats are lost, migratory shorebirds will simply be displaced to other sites. The Saemangeum Shorebird Monitoring Project was designed to assess the effects on shorebirds of the reclamation of Saemangeum (the single most important staging site for shorebirds in the East Asian – Australasian Flyway). Systematic counts in Saemangeum and adjacent estuaries during northwards migration from 2006 to 2008 demonstrated that shorebird numbers plummeted in the Saemangeum following closure of the sea-wall in 2006. A Korea-wide survey in 2008 indicated that very few of the birds lost from Saemangeum succeeded in finding alternative staging sites elsewhere in South Korea, and decreases in non-breeding populations were predicted as a result. We also monitored shorebird numbers in north-western Australia to test these predictions. Numbers of several species decreased in a way consistent with these predictions, in the case of great knot indicating that the loss Saemangeum had killed over 20% of the world population. Moreover, we detected decreases in nearly all migratory species occurring regularly on the coast of north-western Australia, even in species which do not occur regularly at Saemangeum but are dependent on less well publicized regions of the Yellow Sea coast. For some species the decreases were alarming in their scale: for example along the pristine Eighty-mile Beach, numbers of four species (bar-tailed godwit, curlew sandpiper, greater sand plover and terek sandpiper) were less than 50% of the numbers counted in 1999 and 2001. We conclude that decreases in shorebird numbers as a result of tidal flat reclamations are not a mere theoretical prediction: our shorebird populations have been decreasing for many years, and they are decreasing now. If reclamations continue at their present rate, it will soon be necessary to list some formerly common species as Vulnerable or Endangered, and some uncommon species may even become extinct.

Monitoring of Human Disturbance at Bird Roosts, Horseshoe Bay Area, South Stradbroke Island 2008/2009

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Monitoring of human disturbance to shorebirds and seabirds was undertaken by Gold Coast City Council and Terry Dillon of the QWSG on the northern tip of South Stradbroke Island between October 2008 and January 2009. This was combined with a monitoring program to determine the extent and breeding success of the little tern population. The little tern is a migratory seabird listed as Endangered under the Qld Nature Conservation Act 1992. South Stradbroke Island is currently the only known nesting location for the little tern in Moreton Bay, where it nests in the summer months between September and January. Horseshoe Bay is utilised as a high tide roost and low tide feeding area by up to 16 species of migratory birds, and is one of the most important roosting and feeding areas for eastern curlew and lesser and greater sand plovers within Moreton Bay during the summer months. During the monitoring period, a total number of 1,828 recreational users were recorded using the area on the weekends, equivalent to an average of 108 users per day. Disturbance to shorebirds and seabirds in Horseshoe Bay was high, with 105 disturbance events recorded from a potential 478 (average 6 and 28 per day, consecutively). The vast majority of these disturbances were due to human interference, both intentional and unintentional. Only three disturbance events were recorded in the little tern nesting area. Little tern breeding success was low, with an estimated 60% hatchling rate and 20-25% fledging rate. The main impacts to the breeding population of little terns on South Stradbroke Island was related to extreme weather conditions such as rain, hail, strong and persistent winds, flooding and inundation of nests and smothering due to sand drift.

POSTER: Protecting Orielton Lagoon

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Orielton Lagoon has come under pressure from adjacent, expanding urban development in Midway Point and Sorell in southeast Tasmania. This pressure includes an increasing level of disturbance and damage to bird resting and feeding areas from dog walking, trail bike use, roaming dogs, domestic and feral cats. Urban storm water outfalls, weeds and abandoned machinery are also issues that need addressing. This NRM-funded project brought together key stakeholders to address the increased disturbance of the lagoon. Over 4 kilometres of fence-line was erected on both sides of Orielton Lagoon in Sorell and Midway Point. The fences cross several tenures of land and were placed to maximise protection of habitat. Information about the lagoon was provided to the local community via information signs, brochures, letter-box drops and direct contact. Weed mapping and control also occurred.

Necessary non-breeding habitats for shorebirds in the inner Gulf of Thailand: the first landscape level study of the country

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The inner Gulf of Thailand is the single most important shorebirds habitat in the country. However, little ecological information is known about shorebirds in the area. Migratory shorebirds were surveyed at 20 sites during October 2006 – April 2007 and related to landscape characteristics in a 2 km radius. Shorebird habitats were divided into 2 categories based on significant habitat variables ($p < 0.01$); one included a high number of salt-pans and another included a high number of aquaculture. High species richness, abundance and diversity sites significantly related with proportion of the landscape occupied by mudflat and salt-pans, and interaction between them, as well as very low level of fragmentation, slightly large patches, more irregular patch shapes and less patch size variability. Consequently, salt-pans are the keystone structure of landscape supporting shorebirds in the area and being as a sensible conservation tool proving of resource sharing between local communities and shorebirds.

Migratory shorebirds – managing for their future

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Migratory species are nowhere of more concern than in the East Asian-Australasian Flyway. Recent work has identified areas of massive loss of habitat and other threats to shorebirds in the Yellow Sea region, a trend still continuing. Though, at this stage, it cannot be said that Australia is contributing significantly to the decrease in the numbers of shorebirds in the Flyway there have been some substantial decreases in local populations. Some of these, such as the Hunter River Estuary and the Coorong, have been well documented, although the causes not so well. Recent work including the Shorebirds 2020 program, are helping to pull together data, where it is available, to show trends at specific sites in more detail (Clemens in prep). The Commonwealth Government has begun to review Commonwealth laws, such as the EPBC Act, which provides teeth to international bi-lateral agreements and international conventions and help to protect important shorebird habitat in Australia from the impacts of development.

POSTER: Shore and habitat conservation in Torres Strait

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Torres Strait Islands are well recognised as providing roosting, foraging and nesting habitat for shorebirds. More than 50% the shorebird/wader species known from Australia have been recorded in the Torres Straits. Migratory species use the islands' mangrove, mudflats, sand-flats and rocky shore habitats as fuelling stations during their Australasian travels while resident species use the foreshore and islets for nesting. Pressures on migratory bird nesting habitats in Asia is well documented, and additional threats such as climate change, feral dogs and uncontrolled egg harvesting threaten the shorebird populations in the islands. Two recent projects have focused on the management of habitats and long term conservation of cultural and biodiversity in the Torres Strait. One supported by Torres Strait Regional Authority, provided environmental planning advice for areas of biodiversity value. The second, funded through the Federal Indigenous Protected Area Program and TSRA aimed to provide a management plan for an area of cultural and environmental heritage. As part of these studies an assessment of habitat was completed for each island (inhabited islands) with an indication of known or potentially occurring species. These projects, although in their infancy provide an opportunity, as part of a broader management program, to provide research and education of biodiversity to the local communities. The participation and ownership of these projects by local communities will contribute to the long-term conservation of shorebirds in these key areas.

The importance of the human element in shorebird conservation research

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Shorebird conservation research not only includes the identification of critical shorebird resources such as important habitat, and the operation of particular threats, but also involves research that directly guides management. Such research usually either focuses on: 1) humans, because a number of conservation issues such as disturbance, centre on human activity patterns and 2) management solutions, where particular management options are tested for their effectiveness. This talk focuses on a number of case studies to illustrate applied shorebird conservation research, and to demonstrate its utility in informing management, particularly of humans. The first case study is Cheetham Wetlands, near Melbourne, where a short study of human intrusions into this off-limits area shows a distinct spatial pattern that enables predictions to be made of impacts associated with future housing developments. Additional study revealed that local school-aged children (the main 'intruders') were almost entirely unaware of the wetlands, and sand pads identified the main access points to the wetlands. The second case study is off-leash dog-walking, which creates significant disturbance in shorebird habitat. A study of dog-walkers revealed that there is hope for improved compliance, mostly by creating suitable social norms. A third account derives from a study into flush distances of shorebirds in relation to human approaches. This study unravels some of the principles at work with respect to disturbance of shorebirds, and offers a scientific approach to the designation of buffers. All case studies are Victorian, and may not necessarily apply in other areas, or in other circumstances. I argue that considering the human element and applying the same scientific processes as we would to understanding shorebird ecology, will assist the attainment of better management for many shorebirds.

Status and trends of beach-nesting birds in Tasmania

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Long-term monitoring and dedicated surveys of nesting populations of plovers, oystercatchers and terns have obtained data on the distribution, abundance and trends in nesting populations around the Tasmanian coastline. The best-studied species is the hooded plover *Thinornis rubricollis*, whose breeding population has decreased by more than 20% statewide since the initial surveys in the early 1980s. Similar decreases are expected for breeding populations for red-capped plovers *Charadrius ruficapillus*, due to their similar habitat needs. South-east Tasmania holds almost 10% of the estimated Australian population of pied oystercatchers *Haematopus longirostris*, while the far northwest of Tasmania holds more than 15% of the Australian population. Breeding populations of fairy tern *Sterna nereis* and little tern *S. albifrons* have decreased rapidly, with fewer than 250 pairs of fairy terns currently known to breed in Tasmania. Fewer than 10 pairs of little terns are now known from Tasmania. An increasing spectrum and intensity of anthropogenic threats is adversely affecting beach-nesting birds in Tasmania. Loss of coastal habitat from human construction, destruction of nests, eggs and chicks by four-wheel drives, quad bikes, other vehicles and horses, predation by cats and dogs, and human disturbance during the summer nesting season are all contributing to the decreases in breeding populations. Many of Tasmania's beaches have been identified as particularly prone to predicted sea-level rises, compounding the existing pressures on breeding birds. Unless and until strong conservation measures are established and enforced, there is the very real prospect of losing most of Tasmania's beach-nesting birds in the next 25 to 50 years.

Observations of a pair of breeding bar-tailed godwits *Limosa lapponica baueri* on the Yukon-Kuskokwim Delta, Alaska

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A population of bar-tailed godwits *Limosa lapponica baueri* breed in western and northern Alaska, and migrate to non-breeding grounds in New Zealand and eastern Australia. They are the most abundant tundra breeding species occurring in New Zealand. While there is significant literature on the breeding biology of this species, there are still considerable gaps. In May-June 2008, observations were made at Old Chevak, Alaska during which one pair was monitored continuously for three weeks. During this time they laid a complete clutch that was subsequently depredated, and then completed a second clutch that hatched successfully. This is the first confirmation for this species of re-nesting by the same pair.

Can we better educate local councils that manage shorebird habitat?

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A disconnect exists between the advance of information achieved through shorebird research and the point at which local government decisions affecting shorebird habitat are made. The loss of shorebird habitat in Australia and New Zealand has often been referred to as "the death by a thousand cuts", as in the main no single development decision destroys a shorebird habitat as much as a collection of such decisions. If you are a shorebird scientist making discoveries in your field research, how can you transfer your ground-breaking information to the people who should know about it at local government level? The answer is usually that you don't. You just publish your work and hope that someone reads it. If you are an environmental scientist working in the local council on the coast, you have a legal duty of care imposed upon you from the federal level to ensure that shorebird habitat is not compromised by council activities or planning approvals. Your degree course didn't prepare you for the intricacies of shorebird needs. How can you make informed decisions about the conservation of shorebird habitat when you barely recognise it, and have no detail to support an argument in the face of a development application? Furthermore, if you are a council development assessor, how can you expect to understand anything about shorebird needs? My objective in presenting this paper is to initiate discussion about how to close the gap, and to make suggestions, based on my own experiences, about how we as an interest group can do better.

POSTER: Monitoring human activity at Buckley's Hole sandbar: Moreton Bay's most disturbed wader roost

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The sandbar roost at Buckley's Hole on Bribie Island supports up to 1500 shorebirds of 11 species. Bribie Island also attracts many visitors to its wide sandy beaches. This conflict makes the sandbar the most heavily disturbed roost in Moreton Bay. QWSG monitored disturbance at Buckley's Hole sandbar during March 2009. Disturbance and wader behaviour was recorded daily for 1.5h either side of the daytime high tide. There was an average of 1.7 disturbances each tide during the month. On sunny weekends when the high tide was >2.0m, this increased to an average of 3.7 disturbances. Wader numbers were highest on the spring high tides. Approaches by off-leash dogs usually caused the birds to fly and leave the roost. Enforcement of the local council laws prohibiting dogs in the area would greatly reduce the frequency of disturbance flights. Public education may also help, but the majority of disturbances were probably made by visitors.

POSTER: Port Botany Expansion Shorebird Monitoring Project: the first year

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and
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Birds Australia's Shorebird Monitoring Project began in May 2008 in conjunction with the expansion of Port Botany. This development also includes investment to enhance the existing shorebird habitat adjacent to the port. Before the expansion, decreasing population trends had been recorded for shorebird species at the site. Daily surveys are being carried out to monitor shorebird abundance and behavioural responses to the construction activity and other sources of disturbance. In the project's first year, 11 migratory and five resident shorebird species were recorded, with some species continuing to decrease, others maintaining their pre-construction status and some species actually exploiting conditions on the construction site to their advantage. Observations of construction-related disturbances to the shorebirds present have been minimal, but for species displaying decreases in abundance, their absence may be indicative of a greater sensitivity to the disruption. Monitoring will continue until the completion of construction (August 2010), with observations over the upcoming summer season to document the uptake of the new habitat by returning migratory populations.