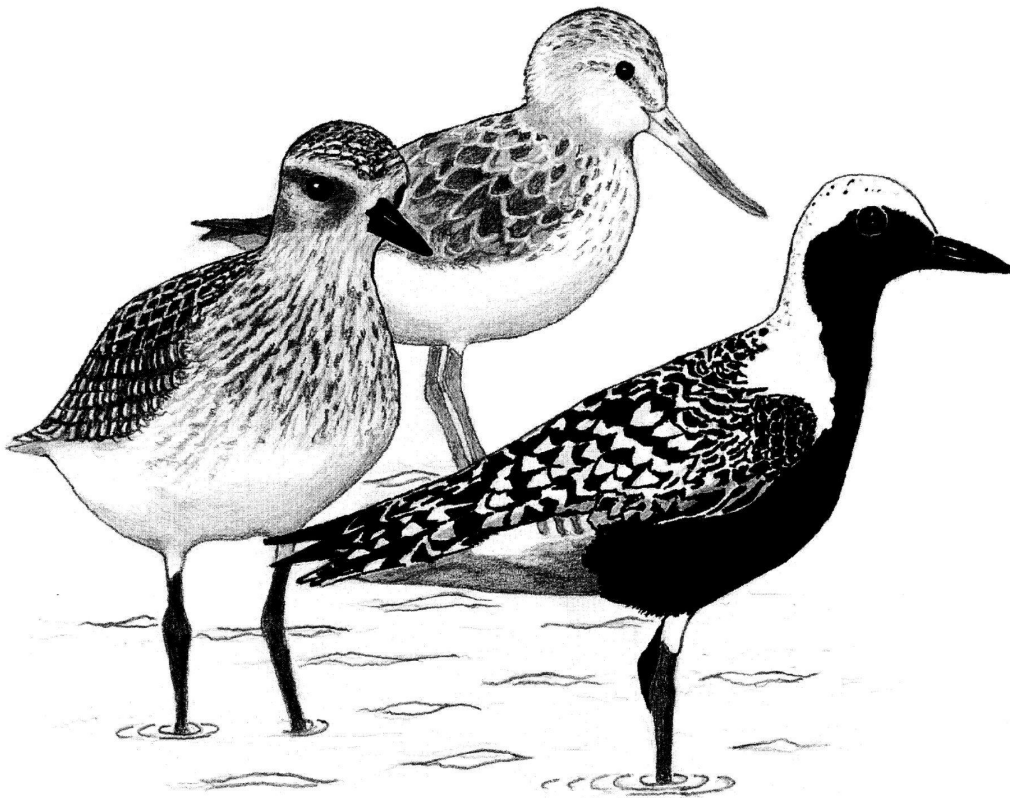


Stilt

The Journal for the East Asian-Australasian Flyway



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EDITORIAL

Greetings from New Zealand. I hope that whether you are reading this in Australasia or further afield, you are safe and well. In these difficult times, it can be the little things that help us focus on what really matters in our lives. In the southern hemisphere, those include seeing the migratory waders return. Every year, the Bar-tailed godwits (*Limosa lapponica*) arrive and feed voraciously. As they rest and feed and get stronger (and fatter) it gives hope to those of us lucky enough to observe them.



Bar-tailed godwit, *Limosa lapponica*, at Manawatu Estuary, New Zealand, 08/01/2021 (by Imogen Warren)

It is great to see such a variety of articles in this edition of *Stilt*. We have an interesting combination of species-specific articles and others focusing on shorebird sites. There is a lot of work involved in the manuscript to publication process. Our Editorial Board put in a great deal of effort to work with authors to ensure scientific quality and that the research or report is given an appropriate airing.

I would like to introduce [Assistant Professor Chi-Yeung Jimmy Choi](#), one of our Board members. Jimmy works at the School of Environmental Science and Engineering, Southern University of Science and Technology, Shenzhen, China. I have asked him to tell us a little about himself:

“I was trained as an ecologist with expertise in animal ecology and conservation biology. I first came to know about shorebirds when studying for my Masters as I investigated the wintering ecology of Dunlin (*Calidris alpina*) in Shanghai. This marked the beginning of my wandering journey, following migratory shorebirds to many coastal wetlands in mainland China, to their breeding grounds in the Arctic tundra in Alaska, wintering coastal wetlands in New Zealand and Australia, studying shorebird ecology, the threats that they are facing and ways to mitigate those threats. Migratory shorebirds also connected me to many shorebird enthusiasts along the flyway that I would otherwise never meet.

Being the same age as *Stilt*, it was my great pleasure to join *Stilt's* Editorial Board in 2016 November. The journal provides an excellent venue for shorebird enthusiasts, especially amateurs, to share their observations and findings internationally. For example, the results of many important local-scale surveys conducted in the Yellow/Bohai Seas were published in the *Stilt*. This first-hand data helped to identify the important shorebird sites in the Yellow/Bohai Seas and laid the critical baseline for future research, monitoring and management. *Stilt* also published results on shorebird banding expeditions and flag resighting analysis, revealing the oldest shorebird banded, seen, or the migration route of shorebirds. Without *Stilt*, some of these articles may get buried in local journals in other languages inaccessible to international readers or even not getting published. In short, *Stilt* is an invaluable source of reference that shorebird enthusiasts could turn to, for learning more about the amazing story of shorebirds”.

For *Stilt* 76, Jimmy worked on the Point Moore and Separation Point article and for the author Marcus Singor, Birdlife WA osprey observer, the review process was great and Jimmy's constructive and informative feedback improved the quality of their manuscript. Professionalism, enthusiasm and valuable suggestions seem to be the key ingredients to add value to publications. Thanks Jimmy.

Australasian Shorebird Conference 2021 (ASC 2021)

A reminder that the 2021 Australasian Shorebird, jointly organised by The QWSG and AWSG, and under the theme “Global strategies, Local actions”, has been postponed to March 2022. For more details, please be in touch with David Edwards, Chair QWSG and Alison Russell-French OAM Chair AWSG.

I would like to thank the Editorial and Production team for their contribution to the journal. Also, a big thanks to our contributors. We are reviewing our processes so that our communication and systems are smoother. We will see you in May 2022 for *Stilt* 77.

Imogen Warren
Editor

A NOTE FROM THE AWSG CHAIR

I took over as Chair of the Australasian Wader Studies Group (AWSG) in 2018 following the appointment of the previous Chair Mr. Doug Watkins to the Chief Executive position in the East Asian – Australasian Flyway Partnership (EAAFP) Secretariat. As a Partner of the EAAFP, we maintain a close and effective working relationship with Doug and the Secretariat in the pursuit of conservation of migratory shorebirds and their habitat.

The AWSG Committee now meets on a quarterly basis rather than biannually to more actively pursue our business. The following matters provide a brief outline of the work that the Committee has been progressing over the last two years.

Australian national migratory shorebird program

The Shorebirds 2020 project (S2020) was a joint initiative established in 2007 by AWSG and Birds Australia. In 1981 AWSG initiated counts of shorebirds at selected sites and has been a major driver for shorebird counting since then. The program has now come to an end and has been replaced by the National Shorebird Monitoring Program. We have a vast network of around 1600 volunteers who have played a crucial role in and contributed significantly to monitoring of shorebirds since inception of the project and their monitoring has been seamlessly transitioned into the National Shorebird Monitoring program. National Shorebird Monitoring continues to be a critical undertaking, providing unique nation-wide information on the state of Australia's shorebirds from 520 shorebird areas.

BirdLife Australia and AWSG are aiming to (re)appoint state coordinators in all Australian states and territories in 2020 to install a decentralised network to coordinate count efforts, close survey gaps and to address the demographic problem of an aging counter population by increased recruitment efforts through events and workshops. Several key publications have been revised and reprinted, such as the Shorebird ID Booklet and a new Wetland Bird ID Booklet (refer to <http://birdlife.org.au/sb-monitoring> and download access to <http://birdlife.org.au/projects/shorebirds-2020/counter-resources>).

AWSG Newsletter Tattler

After a period of production difficulties, a special Edition of the AWSG Newsletter *Tattler* "A Year in Review" was produced late in 2019. Phil Straw, AWSG Flyway Liaison Officer, has taken on the role of editor of *Tattler*. The

Newsletter aims to provide articles of interest both within Australia and in the Flyway. Articles for *Tattler* are encouraged from all respective shorebird networks.

Stilt

In July 2020, the AWSG Committee welcomed Imogen Warren as the new *Stilt* editor. Imogen lives in the Manawatu Ramsar site in New Zealand and is involved with Birds NZ. She comes to AWSG with loads of experience in editing and proofreading, and has experience in websites and photography through her own site imogenwarrenphotography.net. Imogen worked with Dr Birgita Hansen, former editor, during a transition into the role and she is assisted by the editorial board with the scientific review process and making decisions about the scientific appropriateness of author contributions. Imogen's editorial work in producing *Stilt* has continued the high standard of production of AWSG's centrepiece ornithological publication.

Key AWSG Research and Science Directions

In 2020, the AWSG Committee focused on reviewing AWSG's portfolio of research activities across the EAAF. There has been significant discussion about the current AWSG research activities with the main points raised being:

- *Re-appraisal of flyway populations 2016*. Given the rapid declines in some species this project, delivered in 2016, should be undertaken at least every 5 years, which would align it with the lifespan of the Australian Government's Wildlife Conservation Plan for Migratory Shorebirds.
- *Migration/flagging*. It was agreed that a review of the effectiveness of plain leg flags should be conducted, and that contact should be made with Japan, Taiwan and other international bodies regarding the benefits of plain flags on Red-necked Stints.
- *Global Flyway Network*. AWSG is looking to establish a formal agreement with the Global Flyway Network (GFN) given the close cooperation taking place between both organisations.
- *Terns*. It was agreed that *Stilt* should continue to be the publication for material on Terns and that further efforts should be made to find analysts for the data – perhaps through collaboration with the Australian Seabird Group. It was noted that there will be a Seabird Conference 4-8 October 2021. Further development of AWSG research and science directions is ongoing.

AWSG Communications Plan and Communications Officer position

Led by Committee member Dr Amanda Lilleyman, AWSG has prepared a draft communications plan to guide CEPA activities and identify priority areas for attention including the need for a dedicated AWSG Communications Officer. The communications plan for AWSG includes Facebook, Twitter and other social media platforms, as well as an updated website, closer integration with BirdLife Australia communication streams and renewed development and delivery of traditional communications platforms Stilt and Tattler.

New NT Shorebird Banding Project

The AWSG Committee supported a proposal for an NT Shorebird Banding Project for catching and banding shore birds in the Northern Territory. Dr Amanda Lilleyman, who proposed the project, stated that she would like the project to come under the AWSG banner and would seek the necessary Animal Ethics and ABBBS permits for the project.

Development of database listing all AWSG and VWSG Publications

The AWSG Committee, led by Dr Danny Rogers, is investigating the means to develop a framework for listing all AWSG and VWSG publications on an online accessible platform. A number of possible systems that could be adopted for use have been suggested and additional work is being undertaken to determine which search engine would be most useful for AWSG to be involved with including relevant controls and functionality.

AWSG Scientific Committee

Collaborations with universities and other research organisations led to several publications making use of AWSG data. The scientific committee continued its basic work of overseeing requests for AWSG data. A key activity of the committee has been completing a review of the shorebird banding program in north-western Australia.

Global Flyway Network Update

Due to the COVID-19 pandemic, Global Flyway Network (GFN) researchers from Australia, The Netherlands and the United Kingdom were unable to travel to China. Luckily, GFN colleague Miss Katherine Leung was able to lead the fieldwork. Katherine was ably assisted in the fieldwork by six additional scanners, Mr. Guan Xiangyu, a Beijing bird guide, Miss Gao Chang, a freelance investigator from Beijing and graduate from Beijing Normal University (BNU) under

our long-time collaborator Professor Zhang Zhengwang, Miss Wu Entao, Miss Guo Jia and Miss He Ying, research assistants at Beijing Forestry University, and our close colleague Mr Hebo Peng. GFN thanks them all for their efforts in difficult times. The costs this year were covered by the Center for East Asian-Australasian Flyway Studies (CEAAF) at Beijing Forestry University (BFU) under the leadership of Professor Lei Guangchun. The team was in the field from 4 May to 7 June 2019, 34 days (less than a usual spring field season of 56 days).

The main findings from fieldwork showed that on the Luannan Coast in 2020, Red Knot *Calidris canutus* were never present in such large numbers as in 2019. The biggest single count in 2020 was 20,000 on 24 May. This is in stark contrast to the 47,537 counted on 22 May 2019. The numbers of Red Knot using the Luannan Coast varies a lot from year to year. Relatively large numbers were present in 2014, 2015 and 2018. However, relatively low numbers were recorded during 2016 and 2017. Given that food resources usually determine distributions, the benthic food at Luannan and other sites determine the numbers of Red Knot that come to Luannan.

Despite the shorter study period and subsequently lower numbers, as in previous years, these records reflect the vital importance of the area for Red Knots from NWA and throughout the EAAF.

MYSMA Counts 28 November – 3rd December 2020

The AWSG maintained its scientific program in North-western Australia, with banding expeditions in February 2020 and 2021 and continuation of the ongoing collaboration with the Global Flyways Network on studies of survival of north-western Australian Shorebirds. The MYSMA (Monitoring Yellow Sea Migrants in Australia) project continued the series of large-scale repeatable shorebird counts that have been carried out by the AWSG in two of Australia's premier shorebird sites (Roebuck Bay and Eighty Mile Beach) since 2004; MYSMA surveys were carried in June and December 2019. A major report on results from the MYSMA program was completed, reviewing trends in north-western Australia since 2004 and recommending future directions for the monitoring program. The report was published in 2020. In 2018, after consultation with the main funders, the Western Australian Department of Biodiversity, Conservation and Attractions (DBCA), we reduced the program to one winter count and one summer count each year, following an analysis by Danny Rogers et al. (2020) that demonstrated that the reduced program would bring costs down by ~40% with little impact on our capacity to detect change.

The report by Rogers et al. (2020) provides much additional information on shorebird monitoring in North-western Australia; it is available online [here](#).

Toward the end of 2020, the MYSMA team undertook another comprehensive survey of the Broome region and counted 309,591 shorebirds (44 species) during the 5-day survey. Numbers were broadly consistent with those in recent surveys. Once entered and vetted, the data will be included in the AWSG's MYSMA database, and also the database of Birdlife Australia's National Shorebird count program.

Highlights included a Buff-breasted Sandpiper *Calidris subruficollis* – the first record of this South American vagrant in northern Australia and the third record for WA. Still more remarkably, the team found two Nordmann's Greenshank *Tringa guttifer*: one on Eighty Mile Beach, the second at Bush Point. These are the 6th and 7th Australian records of this critically endangered species, which usually spends the non-breeding season in south-east Asia. It is noteworthy that ALL previous Australian records of Nordmann's Greenshank have been found during MYSMA surveys – an indication of how exciting the shorebird populations in north-western Australia are, and of the careful scrutiny that they are given by MYSMA teams. In January 2021, a Nordmann's was finally found in Australia outside NWA, on the Cairns foreshore.

AWSG NWA2020 Shorebird and Tern Expedition – February 2021

This year, 2021, we celebrated the 40th anniversary of the North-West Australia Wader and Tern Expedition. The first expedition to catch waders was in 1981, and members from the AWSG had just discovered the importance of the Roebuck Bay and Eighty Mile Beach region. The early work included counts of how many birds were in the region, where they occurred, what the most appropriate survey methods might be, and to catch and colour mark as many waders as possible. The team caught 1189 waders from 12 species. An impressive first catch for the region and it has gone down in history. The Expedition in 2021 was significantly impacted by COVID 19 and was limited to fewer participants and species caught. A report on the Expedition is currently in preparation.

Banding and Leg-flagging Databases Updates

With financial support from the Wettenhall Small Grants program awarded to the Victorian Wader Studies Group (VWSG) and logistic support from Deakin University, Dr Aaron Spence and Professor Marcel Klaassen (AWSG Committee Member) have completed the process of transferring all VWSG and AWSG banding databases to a web-based platform. This move, including transferring both the metal-band and the flag-sighting databases, has enabled VWSG and AWSG to better interrogate and present over 40 years of data.

The BirdMark portal is specially designed to accept submissions of resightings of colour marked waders along our flyway. It supports multiple different languages, offering the possibility for volunteers and researchers to enter and submit observations both interactively or as a file. It can be accessed [here](#). Videos on the various ways in which this can be done are included in the [Help Guides](#) provided on the portal. Feedback on flagged shorebird observations, including a history of the birds that have been observed, will be returned to the observer within a couple of days of submitting data.

With the launch of this site, we hope to further boost the reporting of marked shorebirds, which is crucial for ongoing conservation and scientific research, informing on the birds' population dynamics, movements and site use. The potential for other overviews to be generated and readily shared with the group and the wider public through the internet has now been improved dramatically.

Shorebird Science Meeting in the Republic of Korea

The 1st East Asian-Australasian Flyway (EAAF) Shorebird Science Meeting, which was due to be held at the National Institute of Ecology, Seocheon-gun, Chungcheongnam-do, Republic of Korea (May 5-8th, 2020), was moved online, taking place from 3-6 November 2020 due to the coronavirus situation. A full report of the meeting can be found [online](#) with presentations being available on the [EAAFSSM Official YouTube Channel](#). The AWSG was well represented at the meeting and gave a number of presentations at the Meeting. It is expected that outcomes from the meeting will feed into discussion at the East Asian - Australasian Flyway Partnership (EAAFP) Shorebird Working Group which will be held in conjunction with the next EAAFP Meeting of the Partners 2022 or 2023.

Meeting of the Partners (MOP) of the EAAFP

The 11th Meeting of the Partners (MoP) was originally scheduled for mid-March 2020 then 2021 but owing to the COVID 19 pandemic the Australian Government and Secretariat of the EAAFP have resolved to postpone the MoP until March 2022. The date and arrangements for the MoP will continue to be reviewed in light of the COVID pandemic.

Australasian Shorebird Conference (ASC)

The Queensland Wader Studies Group (QWSG) and AWSG are joint organisers of the Australasian Shorebird Conference and plans were to hold the Conference after the EAAFP MoP in March 2021. However, this was postponed owing to the COVID19 pandemic and closure of borders to international travellers in Australia. The QWSG and AWSG Organising Committee will continue to review potential dates and arrangements for the Conference and provide information to update possible timing for the Conference.

I would like to extend my appreciation to the Committee for their efforts and dedication over the last two years in contributing to an extensive program of work on migratory shorebirds both in Australia and in the Flyway. I would also like to acknowledge the tremendous effort from our volunteers who are an integral part of the monitoring and counting of shorebirds and contribute to our knowledge base.

Alison Russell-French OAM

Chair, Australasian Wader Studies Group

OBITUARY KEN ROGERS (1939 – 2021)

The birding world lost a friend when Ken Rogers died on 18th February 2021 aged 81. Over 50 years Ken made a substantial contribution to ornithology in both the UK and Australia where he arrived in 1980 with his wife Annie and son Danny and daughter Maryam. Soon after their arrival they met the inimitable Clive Minton who immediately saw a like-minded spirit in Ken and thereby commenced 40 years of contributing to shorebird and other ornithological studies in Australasia and the flyway.



Ken was born in Lancashire, UK, in 1939 and developed a love of the outdoors which remained throughout his life. Although a talented student in the sciences and mathematics at Kings College, he preferred to spend his time in the theatre and the arts and yes, socialising in pubs. As son Danny has pointed out elsewhere, he had an attitude to learning that embraced reading, thinking, and questioning, attributes that stayed with him for his life.

His interest in passerine banding was foremost over the first two decades in Australia and in the 1980's he commenced compiling his observations and findings into a guide to the ageing and sexing of bush birds. This was published as *Banders Aid* in 1986 and emphasised the two principles so important today; safe banding practices and careful attention to data accuracy and recording. It was around this time that shorebird research was developing, and Ken soon found his niche alongside other

workers such as Clive, Brett Lane, Mark Barter and others. With his professional background in operations research and applied statistics, he started analysing field data and contributing to the publishing of papers. While this may not be the priority of many of us, Ken had an ability to make some sense of the data and find ways of demonstrating the often-complex relationships and potential impacts, in an understandable and digestible way. All of this was done with an abundance of humour and a constant willingness to help anyone who would listen.

It wasn't until around the new millennium that I was introduced to Ken and Annie at Ninks Road through Mark Barter. As a relative newcomer to shorebird studies, Mark was one of my mentors and suggested that Ken could provide help in understanding ways of interpreting data. Our irregular meetings at Ninks Road were

memorable for the debates and exchange of ideas. Although I was a novice, Ken was a patient teacher and provided enormous encouragement to take a holistic view and try different ways of looking at data as a means to provide a basis for conservation strategies. These meetings not only showed his skill with numbers but also his imaginative approach to data analysis. All of this was accompanied by much storytelling, debate and even quotes from Elizabethan literature which was one of Ken's other passions.

Perhaps one of Ken's greatest contributions to the AWSG was as [editor of Stilt 50](#). This was a milestone edition of 325 pages containing 27 papers, many providing an overview of the status of shorebirds in our flyway. In the words of Mike Newman 'it was probably the apex of amateur publication of AWSG field studies' and is still proving useful today. At that time, it highlighted the contribution being made by the AWSG to international shorebird conservation. Ken had an ability to help and encourage first time authors and non-English speakers, to get their findings into print while at the same time being rigorous in the use of language and presentation. In his editorial to that edition, he states that 'The aim of this issue is to showcase the status of waders throughout the flyway, the problems they face, the ways in which they are addressed, and what has been learned from the studies'. At that same time in 2006 he commented on the 'the size and task facing Australian wader buffs', a challenge that the AWSG took up in the years to follow. He recognised that nearly all monitoring of Australian wader populations by banding and monitoring at that time was, and still is, carried out by amateurs or citizen scientists to use current terminology. He recognised that he could make a significant contribution by developing and encouraging the use of relevant analytical techniques and through assisting workers in their use.

Ken was especially interested in biometrics and moult data as well as looking to make sense of the extensive population data available, much of which had not been analysed up until that time. In regard to the former he developed a useful software package (SHEBA) to analyse bird biometrics. The AWSG managed the PMP (Population Monitoring Program) from the 1980's that demonstrated long term population changes. However, because of the destruction of stopover sites in Asia, a more rapid detection of change in shorebird populations was needed to promote a more responsive conservation management. Through the rigorous advice of Ken (and Danny) the AWSG initiated the Monitoring Yellow Sea Migrants in Australia (MYSMA) project in 2004. Part

of the impetus for this project was the need to find a more sensitive way to monitor shorebird populations in Australia. The fact that this program is still being maintained is a tribute to Ken and others for their foresight and ability to implement a program based on good science.

Ken was unable to join a lot of the shorebird field work in later years but in the background, he contributed an enormous amount through his erudite discussions, expert mathematical and statistical skills and constant willingness to help and support the less experienced, all accompanied by a unique sense of humour. Over the years he published at least 50 papers. We value Ken's contribution as a scientist, trainer and mentor and the legacy for future workers that he has left behind.

As important as his passion for birds and numbers, it was his family that was his highest priority throughout his life. He supported Annie following her illness and helped pick the family up after the disastrous bushfires of 2009 destroyed their property at Ninks Road. He was a friend and colleague to so many people throughout the birding world and will be remembered not only for his backroom contributions but his willingness to always be there to help others whatever their need and to do so with humility and a sense of humour. Brett Lane summarised his character succinctly: 'What a brilliant thinker, generous mentor and barrel of fun Ken was'. Our condolences to his son Danny and daughter, Maryam.

Ken Gosbell
July, 2021

POPULATION SIZE AND DISTRIBUTION OF LESSER SAND PLOVER *CHARADRIUS MONGOLUS* IN BANYUASIN PENINSULA, SOUTH SUMATRA, INDONESIA

MUHAMMAD IQBAL¹, DENI MULYANA², HENNI MARTINI³, ARUM SETIAWAN⁴,
PORMANSYAH⁵, YOPI MAINANDA⁴, INDRA YUSTIAN⁴ AND HILDA ZULKIFLI⁴

¹Biology Program, Faculty of Science, Sriwijaya University, Jalan Padang Selasa 524, Palembang, South Sumatra 30139, INDONESIA. Email: kpbsos26@yahoo.com

²Berbak Sembilang National Park, South Sumatra office, Jalan Tanjung Api-api Komplek Imadinatuna No. 114, South Sumatra, INDONESIA

³Hutan Kita Institute (HAKI), Jalan Yudo No. 9 H, Palembang, South Sumatra 30126, Indonesia

⁴Department of Biology, Faculty of Science, Sriwijaya University, Jalan Raya Palembang-Prabumulih km 32, Indralaya, South Sumatra, INDONESIA.

⁵Conservation Biology Program, Faculty of Science, Sriwijaya University, Jalan Padang Selasa 524, Palembang, South Sumatra 30139, INDONESIA.

Lesser Sand Plover *Charadrius mongolus* is one of the most common small migratory shorebird in Banyuasin Peninsula, South Sumatra Province, Indonesia. There are at least 32 documented observations of significant counts of Lesser Sand Plover in Banyuasin Peninsula between 1984 to 2020. Based on the single largest record of Lesser Sand Plover at a site, the population in Banyuasin Peninsula is estimated at 20000 birds (15% population in EAAF region). We investigated the population trend over time and show that since the 1980s that population size for Lesser Sand Plover across nine monitored sites in Banyuasin Peninsula has more than halved. The estimated population for the region has been less than 4000 individuals since the late 1980s. We recommend continued monitoring of shorebirds at this site and habitat protection for the conservation of this declining species.

INTRODUCTION

Lesser Sand Plover *Charadrius mongolus* is a small migratory shorebird that breeds discontinuously from Himalayas through Tibet (upto 5500 m) to eastern Asia, and moves to coasts of the southern hemisphere (South Asia, Southeast Asia and Australasia) (Hayman *et al.* 1986, Sonobe & Usui 1993). There are five subspecies of Lesser Sand Plover, including: *Charadrius mongolus pamirensis* (breeds in West Tien Shan, Pamirs, Karakoram to West Kunlun Shan; winters to Africa and India), *C. m. atrifrons* (breeds in Himalaya and South Tibet, winters to India and Sumatra), *C. m. schaeferi* (breeds in East Tibet and Mongolia, winters to Thailand and Greater Sundas), *C. m. mongolus* (breeds in Siberian and Russian Far East; winters to Taiwan to Australasia) and *C. m. stegmanni* (breeds in Kamchatka and Chukotskiy; winters to Ryukyu island and Taiwan to Australasia) (Piersma & Wiersma 1996, del Hoyo & Collar 2004). Two of the four populations in the East Asian-Australasian Flyway (EAAF) (*C. m. mongolus* and *stegmanni*) may qualify for Endangered status at the regional level (criterion A2/3/4 of IUCN), due to substantial documented declines in the flyway, and recognition that further proposed degradation of intertidal staging habitats will perpetuate this decline (Garnett 2011, Conklin *et al.* 2014).

As an extremely large range shorebird species, the global population of Lesser Sand Plover is estimated to be made up of 310,000 to 390,000 individuals (Wetlands International 2006, Birdlife International 2021b). The population in the EAAF is estimated to range between 180,000 to 275,000 individuals, and Indonesia supports the most Lesser Sand Plover in the EAAF during the non-breeding period (Bamford *et al.* 2008, Hansen *et al.* 2016). The global population trend is unknown, but the population is not recognized to be decreasing sufficiently rapidly to approach the thresholds under the population trend criterion (>30% decline over ten years or three generations) (Birdlife International 2021b). In the EAAF, the species is declining (Studds *et al.* 2017) due to habitat loss predominantly in eastern Asia.

Banyuasin Peninsula of South Sumatra province is an important habitat for Lesser Sand Plover in Indonesia during the non-breeding season (Bamford *et al.* 2008). Lesser Sand Plover is one of the nine most common shorebirds in Banyuasin Peninsula, including Black-tailed Godwit *Limosa limosa*, Common Redshank *Tringa totanus*, Bar-tailed Godwit *Limosa lapponica*, Terek Sandpiper *Xenus cinereus*, Eurasian Curlew *Numenius arquata*, Asian Dowitcher *Limnodromus semipalmatus*, Curlew Sandpiper *Calidris ferruginea* and Whimbrel *Numenius phaeopus* (Silvius 1988, Iqbal *et al.* 2020). In this paper, we review the population estimate and distributions of Lesser Sand Plover in Banyuasin Peninsula.

METHODS

We summarize all records and review Lesser Sand Plover in Banyuasin Peninsula, South Sumatra province, Indonesia. Banyuasin Peninsula is one of important wetlands sites in Indonesia (Wibowo & Suyatno 1997, Wibowo & Suyatno 1998). This area is also a Ramsar site, one of international importance, Important Bird Area (IBA) or Key Biodiversity Area (KBA) and UNESCO world heritage site (Authentic Indonesia 2021, Birdlife International 2021a, EAAFP 2021, RSIS 2021). We mapped the maximum count from our monitoring surveys of Lesser Sand Plover, and estimated the population size of Lesser Sand Plover in Banyuasin Peninsula based on the single highest count recorded from the monitoring sites (Figure 1).

DISCUSSION

Lesser Sand Plover were recorded from at least eight monitoring sites along the Banyuasin Peninsula. There are at least 32 internationally significant observations of Lesser Sand Plover in Banyuasin Peninsula between 1984 to 2020 (Table 1). Silvius (1988) reported a total of 10,764 Lesser Sand Plovers in Banyuasin Peninsula during October-November 1984. This record is the highest count of Lesser Sand Plover in this area, including in Sumatra and Indonesia (Bamford *et al.* 2008). Based on the single largest record of Lesser Sand Plover in a site, the population in Banyuasin Peninsula is estimated to be made up of at least 20000 birds.

Table 1. Lesser Sand Plover records in Banyuasin Peninsula between 1984 to 2020.

Date	Sources	Locations								
		1	2	3	4	5	6	7	8	9
Oct-Nov 1984	Silvius 1988									1076
Jul-Aug 1985	Silvius 1988									200
24-29 March 1986	Silvius 1987	600								
23-29 March 1986	Silvius 1987				150					
Aug 1988	Verheugt <i>et al.</i> 1990									250
Sep 1988	Verheugt <i>et al.</i> 1990									1322
Oct 1988	Verheugt <i>et al.</i> 1990									5565
Nov 1988	Verheugt <i>et al.</i> 1990									6624
Dec 1988	Verheugt <i>et al.</i> 1990									1310
Jan 1989	Verheugt <i>et al.</i> 1990									1675
Feb 1989	Verheugt <i>et al.</i> 1990									50
Mar 1989	Verheugt <i>et al.</i> 1990									2000
Apr 1989	Verheugt <i>et al.</i> 1990									715
May 1989	Verheugt <i>et al.</i> 1990									35
Jun 1989	Verheugt <i>et al.</i> 1990									15
Jul 1989	Verheugt <i>et al.</i> 1990									50
Aug 1989	Verheugt <i>et al.</i> 1990									200
31 July 2001	Gonner & Hasudungan 2001		c.70 0				c.70 0		c.700	
Dec 2012	TNS 2016									1000
Nov 2014	TNS 2016									3200
1 Nov 2008	MI <i>pers.obs</i>							3.00 0		
14 Dec 2008	MI <i>pers.obs</i>								5.000	
Nov 2008	TNS 2016									1515
Nov 2009	TNS 2016									226

Nov 2010	TNS 2016									1000
Jan 2016	SNP 2016		56						50	
Sep 2017	Iqbal & Martini 2018		10							
Feb 2018	Iqbal & Martini 2018		298		32				100	
Nov 2018	Iqbal & Martini 2018		352		3				28	
Dec 2019	TNBS 2019		426			2120				
Oct 2020	MI & DM		150	3000		200		50	2000	
Nov 2020	SY <i>pers.com</i>		3600							

Notes:

1. Bungin and Apung River
2. Barong River
3. Dinding River
4. Jentolo River
5. Between Tengkorak and Palu Gedi River
6. Teluk Galas River
7. Kuala Sapi River
8. Nibung River
9. Total count in Banyuasin Peninsula
10. TNS 2016 (Taman Nasional Sembilang 2016)
11. MI & DM (Muhammad Iqbal and Deni Mulyana observations)
12. TNBS 2019 (Taman Nasional Berbak Sembilang 2019)
13. SY *pers.com* (Suyoko personal communication to Muhammad Iqbal)

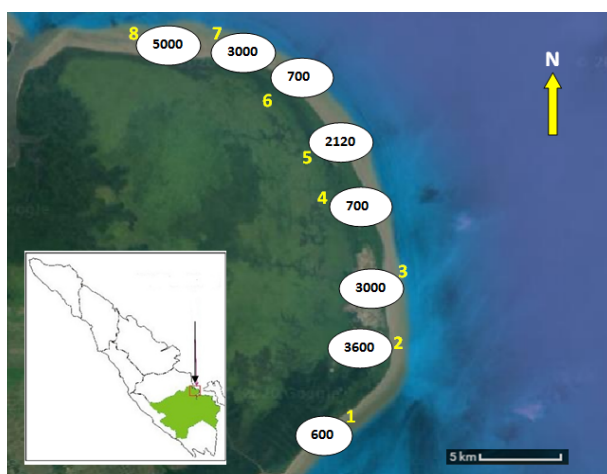


Figure 1. Map showing the Banyuasin Peninsula, South Sumatra, Indonesia. Yellow numbers refer to the number of rivers in Table 1. Numbers in white circles refer to the largest number in a single record of each localities.

The coastal zone of Banyuasin Peninsula is at least 50-60 km long stretching from the south (Bungin and Apung River) to the north (Sembilang River) (Silvius 1986). There are small rivers in this area, namely Bungin River, Apung River, Barong River, Dinding River, Jentolo River, Tengkorak River, Palu Gedi River, Teluk Galas River, Kuala Sapi River and Nibung River. Most of the area is mangrove forest, but in the inner part of Barong to Jentolo River, the mangrove forest has been converted to aquaculture ponds of up to 205,750 ha (Iqbal

et al. 2019). The single largest record of Lesser Sand Plover in a site is 5000 birds in Bungin River, following 3600 birds in Barong River. Except Barong River, where Lesser Sand Plover is found in aquaculture ponds, all records are observed in mudflats along the coastline (Figure 2 and 3). A record of 3600 birds in Barong River suggests aquacultural ponds can be important non-breeding habitat for Lesser Sand Plover. It is presumed concentration of Lesser Sand Plovers in aquaculture ponds is caused by high tides.

Bamford *et al.* (2008) estimate the number of Lesser Sand Plover in Indonesia during the non-breeding period is around 45,000 birds. Conklin *et al.* (2014) only listed Benoa Bay (Bali Province) as important habitat for Lesser Sand Plover in Indonesia, with a number of 4000 birds in 15 January 1996. Other important habitats for Lesser Sand Plover in Indonesia are Cemara beach of Jambi Province *c.* 3481-3924 birds, Wasur National Park of Papua Province birds *c.* 3130 birds, and in Bagan Percut of North Sumatra Province *c.* 2180-2222 birds (Silvius 1988, Crossland *et al.* 2012, Putra *et al.* 2015, Conklin *et al.* 2016, Febrianto *et al.* 2019). The results from this study show that the population is estimated to be at least 20,000 birds in Banyuasin Peninsula (15% population in EAAF region) indicating that this area is internationally important for Lesser Sand Plover.

The population trend of Lesser Sand Plover in Banyuasin Peninsula has decreased over time. This assumption based on a total number in October-November 1984 is around *c.* 10,000 birds, and compare to a single largest count of *c.* 4,000 birds in October and November 2020. No indication about threats to Lesser Sand Plover in Banyuasin Peninsula, including from hunting, aquaculture ponds and fisheries activities. However, the data since the 1980s suggest population size for Lesser Sand Plover across nine monitored sites in Banyuasin Peninsula has more than halved. The estimated population for the region has been less than 4000 individuals since the late 1980s (Figure 4). We have no significant indication of threats to Lesser Sand Plover and other shorebirds in Banyuasin Peninsula. The decline of Lesser Sand Plover in this region could be induced by hunting or loss of habitats outside this area. In the EAAF region, hunting of migratory shorebirds has occurred; there are records of hunting from 14 of the 22 countries (63.6%) within the flyway, from the non-breeding grounds through stopping sites, and also in breeding grounds areas (Gallo-Cajiao *et al.* 2020).

The Lesser Sand Plover is recently listed as Least Concern, because of its large number and the global population trend is unknown (Birdlife International 2021b). However, there is a potential to upgrade the species to Near Threatened or Vulnerable based on recent information of declines in some areas in East Asia (MacKinnon *et al.* 2012, Conklin *et al.* 2014). Two subspecies (*C. m. mongolus* and *stegmanni*) are listed as Endangered in EAAF region (Conklin *et al.* 2014), and concern on the population future trend should be pointed out. We need to continue monitoring Lesser Sand Plover in Banyuasin Peninsula to study local population trends.



Figure 2. Lesser Sand Plovers (with mix Terek Sandpiper and Curlew Sandpiper) on 16 October 2020 in Dinding River, Banyuasin Peninsula, South Sumatra, Indonesia (©Muhammad Iqbal).



Figure 3. Group of small shorebirds dominated by Lesser Sand Plovers on 6 December 2020 at an aquaculture pond in Barong River, Banyuasin Peninsula, South Sumatra, Indonesia (©Suyoko).

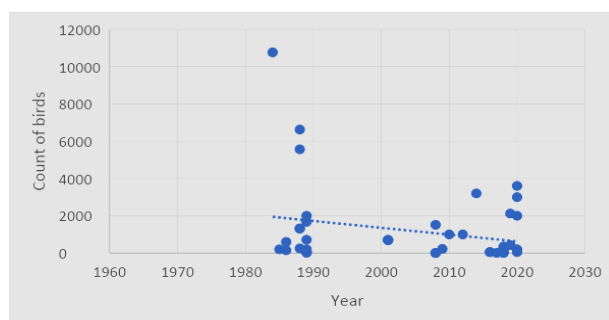


Figure 4. The estimated population of Lesser Sand Plovers in the region from the late 1980s to 2020.

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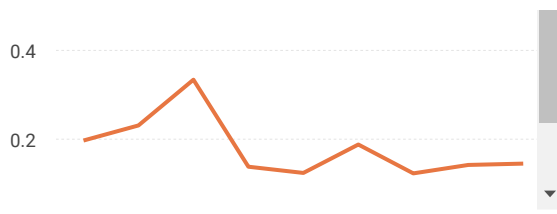
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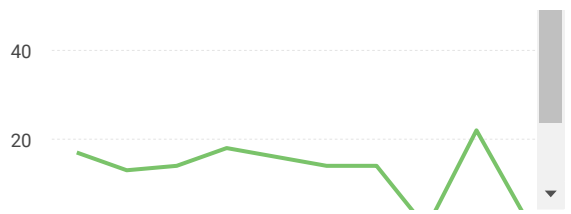
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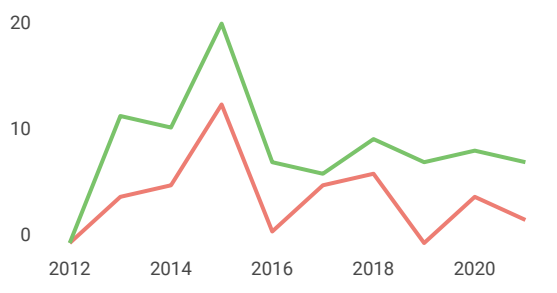
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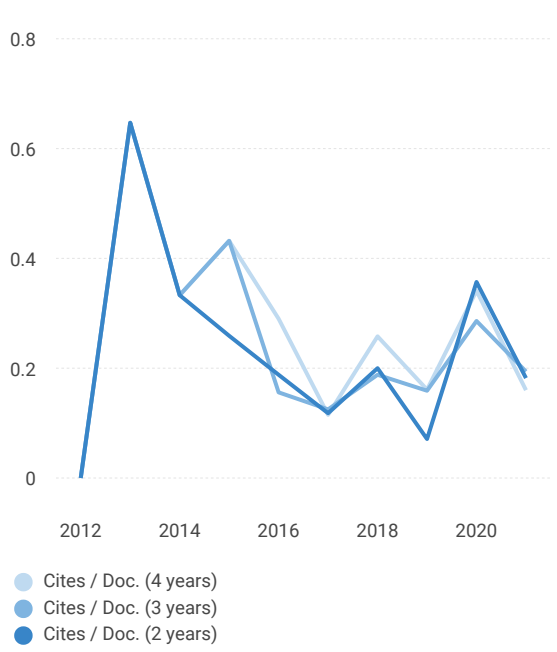
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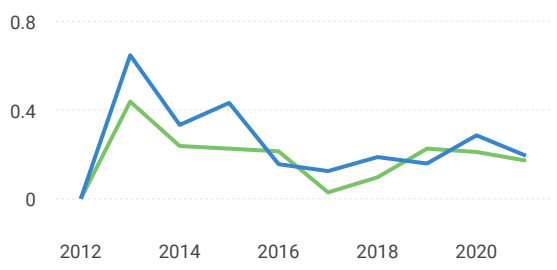
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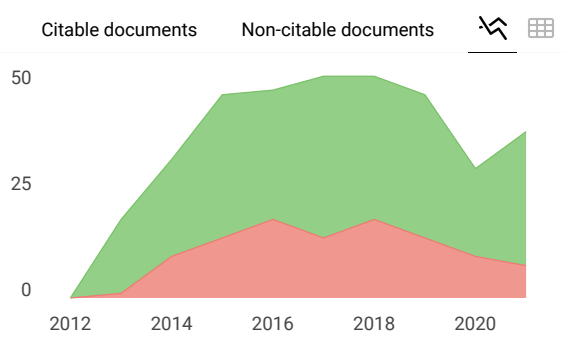
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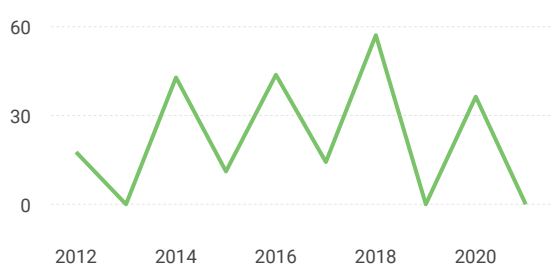
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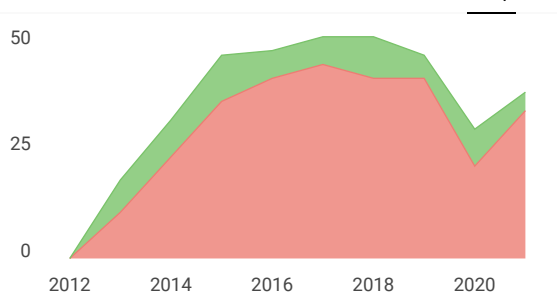
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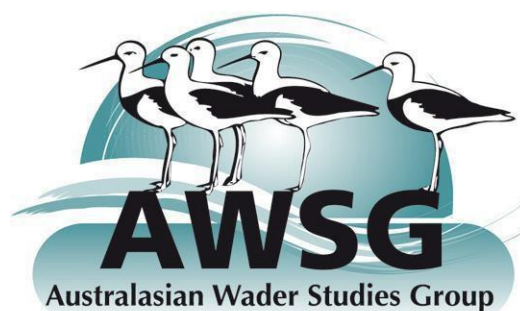
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