



EAST ASIAN – AUSTRALASIAN
FLYWAY PARTNERSHIP
9TH MEETING OF PARTNERS
APPROVAL OF DECISIONS

SINGAPORE, 11-15 JANUARY 2017



The Ninth Meeting of Partners of EAAFP was held on 11-15 January 2017 at the Copthorne King's Hotel in Singapore, hosted by the Singapore Government. ©Eugene Cheah/EAAFP

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INTRODUCTION

The Ninth Meeting of Partners (MOP) of EAAFP took place on 11-15 January 2017 in Singapore. Of the 35 Partners, 31 participated in the meeting, including representatives from all country Partners. There were about 150 participants. The Partner certificate was received by Hanns Seidel Foundation, EAAFP's 35th Partner, and 13 Flyway Network Site certificates were issued, covering new sites in six countries.

Since MOP8 two years ago, a Finance Committee established at that time has produced recommendations which resulted in several proposals at MOP9, including:

- The continuation and expansion of the Finance Committee
- The establishment of a financing baseline from Partner activities
- The recruitment, funds permitting, of an EAAFP Fundraising Officer
- The adoption of a voluntary fee-based contribution system

These were all approved, the latter in principle, since the mechanism for voluntary contributions to a non-legally binding instrument does not yet exist for some country Partners. Additional work to increase and diversify EAAFP's funding base, such as a Supporter Program, will be further explored by the Finance Committee. An Independent Review of EAAFP was also carried out since MOP8 and generated a set of governance proposals below that were adopted at MOP9, with the creation of an interim Technical Committee to be established to work intersessionally.

- New Rules of Procedures for MOPs
- New TOR for the Management Committee
- The creation of a Technical Committee

The MOP also agreed on the creation of a Task Force to develop a ten-year Strategic Plan for EAAFP, following on from the current Implementation Plan 2012-2016, which will be extended until the new Strategic Plan is approved at MOP10. A tentative timeline and membership for the Task Force was developed. The South East Asia Network, established at MOP8, developed a proposal for implementation of actions, with a timeline and budget, to be pursued through the ASEAN framework.

Some Working Groups and Task Forces held pre-meetings before the MOP. A CEPA Strategy and Action Plan and Single Species Action Plans for Scaly-sided Merganser and Far Eastern Curlew were adopted, and an interim Task Force on Illegal Hunting, Taking and Trade of Migratory Waterbirds was approved in the MOP.

The MOP also noted slow progress in updating information on Flyway Network Sites, many of which lack basic information, including geographical coordinates. It was proposed that all current FNS have updated Site Information Sheets before MOP10, when an overview of the Flyway Site Network will be on the agenda. A mechanism for reporting on threats to FNS was proposed. The Monitoring Task Force also agreed to develop a cooperative programme that builds on the existing monitoring activities, to strengthen and enhance waterbird and site monitoring across the Flyway.

This book compiles the decisions made in the MOP9 to share and remind us of the important achievements made, but also the work needed before MOP10 in 2019.



Spike Millington, Chief Executive

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Decision Number	Agenda Item	Title	Leading Partner/WG/TF
MOP9/D1	13.4	Development of new EAAFP Strategic Plan	AWSG
MOP9/D2	13.5	New Terms of Reference of Finance Committee	Finance Committee
MOP9/D3	13.5	Voluntary Contribution Fee to EAAFP	Finance Committee
MOP9/D4	13.5	Terms of Reference of Fundraising Officer	Finance Committee
MOP9/D5	13.7	New Rules of Procedure for MOPs	Australia
MOP9/D6	13.8	New Terms of Reference for Management Committee	Australia
MOP9/D7	13.9	New Terms of Reference and Rules of Procedure of the EAAFP Technical Committee	Australia
MOP9/D8	13.10	International Single Species Action Plan for the Conservation of Far Eastern Curlew and Terms of Reference for EAAFP Far Eastern Curlew Task Force	Australia
MOP9/D9	13.13	Definition of Migratory Populations	Japan
MOP9/D10	13.15	Terms of Reference for an Interim Task Force to address illegal hunting, taking and trade of migratory waterbirds in the East Asian-Australasian Flyway	CAFF
MOP9/D11	13.15	International Action Plan for the Conservation of the Scaly-sided Merganser <i>Mergus squamatus</i> , 2016-2025	Scaly-sided Merganser Task Force



[MOP9/D1] DEVELOPMENT OF NEW EAAFP STRATEGIC PLAN (AWSG)

Summary:

At its 6th Meeting of the Partners in March 2012, Palembang, Indonesia, the Meeting of the Partners adopted the East Asian – Australasian Flyway Partnership Implementation Strategy 2012-2016.

The Implementation Strategy provides a framework to guide Partners on the execution of the Partnership's goal and objectives. The Strategy is due to cease at the end of 2016 so it is timely to review the Strategy and develop a new framework for implementation of the Partnership goal and objectives.

The 'Independent Review of the East Asian – Australasian Flyway Partnership' recommended a new strategy be adopted by Partners. The Independent Review made a number of recommendations in relation to a revised strategy that would continue to deliver progress on the Partnership's goal and objectives. To date, reporting by Partners that captures data on the implementation of the Strategy's 11 Outcomes has been mixed.

Given the current Implementation Strategy ends in 2016, and noting the recommendations in the Independent Review, Partners are asked to extend the life of the existing Strategy until 2019. Partners are also asked to establish a Task Force that will review the existing Strategy, develop a new framework to guide Partners delivery of the Partnership's goal and objective and seek adoption at the 10th Meeting of the Partners.

EAST ASIAN – AUSTRALASIAN FLYWAY PARTNERSHIP IMPLEMENTATION STRATEGY 2012-2016:

PROPOSAL TO EXTEND, REVIEW AND UPDATE

(Prepared by the Australasian Wader Studies Group)

Implementation Strategies are one of the most useful guiding documents of the East Asian – Australasian Flyway Partnership (EAAFP) and has influenced many aspects of its activity since 2006. It is also used as the basis for the annual work plan of the Partnership Secretariat and 35 Partners. Furthermore, it provides the structure for the reports which are provided by Partners to the Secretariat for analysis and summary in the lead up to each Meeting of the Partners.

The first Implementation Strategy of the EAAFP was adopted at the 1st Meeting of the Partners in Bogor, Indonesia in November 2006 and refers to the period 2007-2011.

Linked to the Partnership document, it outlines the EAAFP five objectives and 14 expected outcomes, with considerable detail under each section.

Recognising that the Implementation Strategy would be due for review with a new version to be considered by Partners before the end of 2011, the 5th Meeting of Partners in Siem Reap, Cambodia (MOP5) discussed a process for review and any necessary update.

Partners agreed that a Task Force be established to conduct a review of the EAAFP Implementation Strategy 2007-2011 and that the Secretariat facilitate a workshop during 2011 for this purpose, with emphasis on progress of the Partnership towards implementing the five objectives that are set out in the Partnership document.

Partners asked the Convention on Migratory Species (CMS) to initiate the Task Force and CMS arranged to hold a meeting of interested Partners at the close of MOP5.

Representatives of Australia, Indonesia, Japan, Philippines, Singapore, Thailand, CMS, Ramsar and Wetlands International offered to join the Task Force.

Subsequently the Secretariat, in consultation with the Task Force, appointed a consultant, *Nature Management Services*, to assist meeting the Task Force's Terms of Reference through preparation of a report and facilitation of a workshop.

The report "*Review of the East Asian – Australasian Flyway Partnership Implementation Strategy 2007-2011*" was distributed to the Task Force, and presented and discussed at a *Workshop on the Review of the EAAFP Implementation Strategy* on 12-14 October 2011 at the EAAFP Secretariat in Incheon, Republic of Korea.

The report provided material for the review of the Task Force, including proposals for consideration in the preparation of the Implementation Strategy 2012-2016.

At the 6th Meeting of the Partners in March 2012, Palembang, Indonesia, the Meeting of the Partners adopted the East Asian – Australasian Flyway Partnership Implementation Strategy 2012-2016.

The Partnership's second Implementation Strategy, contains 11 outcomes based on the five EAAFP objectives in the Partnership document. For each outcome, a series of Key Result Areas were endorsed, with responsibilities identified and set measurable targets that could be monitored during the reporting period.

To date, reporting by Partners that captures adequate data on the implementation of the Strategy's 11 Outcomes has been mixed.

The 'Independent Review of the East Asian – Australasian Flyway Partnership' identified issues with the Implementation Strategy 2012-2016 as described in Governance Challenge #3 – *“Lack of a rigorous framework to review and monitor the delivery of the Objectives linked to the Implementation Strategy 2012 – 2017 does not allow the Partnership to assess the impacts of the Strategy”*.

The Independent Review recommended a new strategy be adopted by Partners at the 9th Meeting of the Partners. The Independent Review also made a number of recommendations in relation to a revised strategy that would continue to deliver progress on the Partnership's goal and objectives.

The Independent Review states:

“The recommendations from this review take a medium-term perspective (5-10 years) to create a basket of governance and financing actions through which short-term ‘interim’ objectives can be defined, delivered and assessed. These objectives and actions should be captured in the Implementation Strategy 2017 – 2021. Actors at each level have the opportunity to develop innovative solutions to the problems they face and this in turn, may contribute to delivering one of more of the outcomes in the Implementation Strategy. The active involvement of all Partners is essential to making this vision a reality because of their frontline role in the management of the flyway.” (p.46).

However, the Independent Review incorrectly assumes a revised strategy will be presented at the 9th Meeting of the Partners, Singapore and emphasizes the need to link the strategy to the budgeting process, including a *“report on the financing opportunities and challenges to delivering the 2012-2017 Implementation Strategy”*.

Given the current Implementation Strategy ends in 2016, and noting the recommendations in the Independent Review, Partners are asked to extend the life of the existing Strategy until MOP10 in January 2019.

Partners are also asked to establish a Task Force in accordance with Paragraph 9(9) of the Partnership document to review the existing Implementation Strategy, develop a new framework to guide Partners delivery of the Partnership's goal and objective and to seek adoption of the new plan at the 10th Meeting of the Partners in January 2019.

Terms of Reference for the Task Force are at **Attachment 1**.

A proposed timeline indicating key milestones is at **Attachment 2**.

The financial implications of preparing a new strategy will be minimised by working inter-sessionally via electronic communication. If financial resources were available, face-to-face meeting(s) and engaging a suitable consultant to assist the task force achieve its objective will be considered.

Action requested from the Meeting of the Partners:

Agree to extend the East Asian – Australasian Flyway Partnership Implementation Strategy 2012-2016 for another two years until the 10th Meeting of the Partners in January 2019.

Agree to establish an EAAFP Strategic Plan Task Force to review the Implementation Strategy (2012-2016) and to develop a new framework to guide Partner delivery of the Partnership's goal and objectives.

DRAFT RESOLUTION

EAST ASIAN – AUSTRALASIAN FLYWAY PARTNERSHIP IMPLEMENTATION STRATEGY 2012-2016:

PROPOSAL TO EXTEND, REVIEW AND UPDATE

(Prepared by the Australasian Wader Studies Group)

Recalling the adoption of the East Asian – Australasian Flyway Partnership Implementation Strategy 2012 – 2016 at the 6th Meeting of the Partners in March 2012, Palembang, Indonesia.

Aware that the Implementation Strategy 2012-2016 is overdue for its review and update.

Acknowledging that Partners require a framework to guide their decisions on implementing the Partnership's goal and objectives.

Noting that the 'Independent Review of the East Asian – Australasian Flyway Partnership' identified a number of recommendations to improve future versions of an Implementation Strategy.

The 9th Meeting of the Partners

of the East Asian – Australasian Flyway Partnership:

1. *Agrees* to extend the East Asian – Australasian Flyway Partnership Implementation Strategy 2012-2016 for two years until the 10th Meeting of the Partners
2. *Agrees* to develop a strategic plan and *confirms* the need for intersessional work on its elaboration;

3. *Agrees* to establish a Task Force to review the Implementation Strategy 2012-2016 and to draft the Strategic Plan for consideration by Partners at the 10th Meeting of the Partners. The Terms of Reference of the Task Force are annexed to this Resolution;
4. *Requests* the Task Force to submit progress reports to each Management Committee meeting;
5. Instructs the Task Force to take into account the findings of the independent review.
6. *Invites* Partners to join the Task Force and actively engage in the development of the Strategic Plan;
7. *Requests* Partners provide financial assistance for the implementation of this Resolution.

Attachment 1

TERMS OF REFERENCE OF THE STRATEGIC PLAN TASK FORCE

Objectives

1. The main objective of the Task Force will be to elaborate the EAAFP Strategic Plan for the period 2019 – 2029. The new Strategic Plan will be presented for adoption at MOP10.
2. To this end, the Task Force will take into account the Implementation Strategy 2012-2016. It will also take into account the conclusions of MOP9 and the recommendations of the Independent Review.
3. The Task Force will further take into account strategic documents of relevant global biodiversity related multinational environmental agreements and any other relevant documents that the Task Force may consider appropriate.
4. The Task Force will consider and propose a procedure for the assessment of the status of implementation of the Strategic Plan 2019-2029 by Partners and the Secretariat.
5. The Task Force will keep the Management Committee informed of its work through reports to each of the meetings of the Committee.

Composition of the Task Force

The Task Force shall be composed of 14 EAAFP Partners. The Chief Executive of the EAAFP Secretariat shall be an ex-officio member of the Task Force. The Task Force may identify individuals who can add valuable knowledge and experience and invite them as observers to the Strategic Plan Task Force meetings.

Partners shall be consulted at each step of the process.

The Task Force shall invite the views of and work in cooperation with all other task forces and working groups established under Paragraph 9(9) of the Partnership document.

The composition of the Task Force shall be agreed upon by consensus at MOP9 and be dissolved once the Strategic Plan has been adopted.

The Chair and Vice-Chair shall be chosen among the members of the Task Force at their first meeting to be held no later than two months after the end of MOP9.

The work of the Task Force will be facilitated by the EAAFP Secretariat.

Attachment 2

Proposed Timeline of Work

Date	Task	Responsible Party
Jan. 2017 (MOP9)	Establish Task Force	Partners and Secretariat
Feb/April 2017	<ol style="list-style-type: none"> 1. Prepare a brief review of relevant material from the Independent Review, relevant MOP9 resolutions and other appropriate material. 2. Evaluate existing strategic planning frameworks for migratory waterbird conservation and identify an approach to recommend to Partners. 3. Prepare a short document for Partners (WG & TF) on proposed development process for the Strategic Plan 2019 – 2029. 4. Prepare a questionnaire on the outcomes of the Implementation Strategy 2011 – 2016, ~5 key points for inclusion in the Strategic Plan and the proposed planning process. 	Strategic Plan Task Force
May 2017	5. Seek feedback on documents 1 – 4 from Partners and Chairs of WG/TF.	Partners
June 2017	<ol style="list-style-type: none"> 6. Summarize feedback from Partners and WG/TF Chairs. 7. Develop Draft Vision for Strategic Plan (10 years). 	Strategic Plan Task Force
July 2017	8. Provide Partners and Chairs of WG/TF with the summary of feedback (Docs. 1-4) and seek feedback on the Draft Vision for Strategic Plan.	Partners
Aug. 2017	<ol style="list-style-type: none"> 9. Prepare a summary of feedback from Step 8. 10. Populate the selected planning framework with the revised draft Vision and Objectives and circulate to partners. 	Strategic Plan Task Force
Sept. 2017	12. First consultation workshop/s with Partners on the draft Strategic Plan. This will develop a first draft of the Targets, for the Strategic Plan.	Partners, Strategic Plan Task Force
Oct. 2017	13. Consolidation of the input from workshop/s and develop the first draft of the full Strategic Plan.	Strategic Plan Task Force
Nov. 2017	14. Seek feedback on the first draft of the Strategic Plan	Partners

Dec. 2017	15. Review feedback and develop the second draft of the Strategic Plan	Strategic Plan Task Force
Feb. 2018	16. Workshop with a smaller group of Partners to refine the Draft Strategic Plan.	Sub-group of Partners, Strategic Plan Task Force
March 2018	17. Seek feedback on the Draft Strategic Plan	Strategic Plan Task Force
April 2018	18. Compile Final Draft for MoP 10	Strategic Plan Task Force
June 2018	19. Preparation of MOP agenda documents	Task Force
Jan. 2019	20. Seek endorsement of MoP of the EAAFP Strategic Plan 2019-2029	Partners and Secretariat



[MOP9/D2] NEW TERMS OF REFERENCE OF FINANCE COMMITTEE (FINANCE COMMITTEE)

Scope of the Terms of Reference

1. The Terms of Reference apply to the East Asian – Australasian Flyway Partnership Finance Committee, unless stated otherwise in the Terms of Reference.

General Functions of the Finance Committee

2. The Finance Committee, established in accordance with paragraph 9(9) of the Partnership document, provides advice on sustainable financing and fundraising to, *inter alia*, the Meeting of the Partners, the Secretariat, any other body set up under the Partnership or any Partner.

Operating Principles

3. The Finance Committee, in carrying out its functions, should support the implementation of the Partnership in a manner consistent with other nationally and internationally agreed goals relevant to the objectives of the Partnership document.
4. The Finance Committee should endeavour constantly to improve the quality of its advice at its meetings and in its documents and reports.
5. The Finance Committee may formulate its advice or recommendations in the form of options or alternatives, where appropriate.

Functions

6. The Finance Committee should fulfill the functions assigned to it by the Meeting of the Partners. These functions include:
 - a. **advising on the development and implementation of the Partnership's Financial Plan to achieve its strategic goals, and reporting on progress at MOPs;**
 - b. advising on the development and implementation of fundraising strategies and actions;
 - c. advise on the structure and functions of a fundraising program for EAAFP, including a potential fundraising unit within the Secretariat;
 - d. advising on the development and regular updating on a baseline of current Partner funding to support the achievement of EAAFP goals;
 - e. develop, refine and report on the implementation of the voluntary fee contribution system, or related system for Partner contributions;

- f. advise on the development of a supporter program for EAAFP, including best practice from EAAFP Partner and other organizations: advise on proposed funding levels and targets, marketing and maintenance strategies, structural and governance issues and monitoring and reports;
- g. identify opportunities, targets and strategies for increasing and diversifying the funding base of EAAFP and advice on approaches and actions;
- h. advise on approaches and development of proposals for potential funders, including, but not limited to, foundations, corporations, individuals and bilateral and multilateral development organisations;
- i. advising on budget re-allocation and priorities, should this be required;
- j. identify and work with Partners on joint-fundraising activities;
- k. provide advice and guidance and generally work closely with the EAAFP Fundraising Officer.

Appointment of Members

- 7. The Finance Committee is composed of members appointed by the Meeting of the Partners.
- 8. Any Partner may nominate a qualified expert as a member of the Finance Committee.
- 9. Finance Committee members do not represent the Partner that nominate them, but contribute to the workings of the Finance Committee in their expert capacity.
- 10. The Finance Committee will have seven members composed as follows:
 - a. Core members (four) of the existing Finance Committee until MoP10;
 - b. three additional members nominated by Partners
- 11. The Finance Committee shall be reconstituted at each Meeting of Partners
- 12. The EAAFP Fundraising Officer shall assist the committee.
- 13. The Finance Committee may identify individuals who can add valuable knowledge and experience and invite them as observers to the Finance Committee meetings

Responsibilities of the Finance Committee Members

14. Finance Committee members should, to the best of their abilities, act as impartially as possible and endeavour to base their judgements and opinions upon achieving financial sustainability for EAAFP goals and operations.
15. Finance Committee members should maintain regular communication with the other Partners in the Partnership.

Cooperation of Other Relevant Organisations

16. The Finance Committee should cooperate with other financing and fundraising structures of other organisations with similar goals to EAAFP, *inter alia*, inviting them to participate as observers in the meetings of the Finance Committee.

The Finance Committee should liaise, through its Chair or his/her nominated representative, with comparable bodies established under other relevant frameworks.



[MOP9/D3] VOLUNTARY CONTRIBUTION FEE TO EAAFP (FINANCE COMMITTEE)

Rationale

While EAAFP is a voluntary partnership of 35 organizations working to protect a shared biodiversity heritage, the costs of its operation, primarily through the Secretariat, have been borne largely by a single partner, the Republic of Korea, through the hosting arrangement with Incheon City Government. At MOP8 in January 2015, the Republic of Korea requested the Partnership to consider greater direct cash contributions by other Partners to help justify continued support to the Secretariat and to leverage increased funding by Korea and other Partners. The Finance Committee was established at MOP8 to make recommendations on increasing funding for EAAFP operations, including Partner contributions.

Benefits

While the practical benefit is increased support to EAAFP operational costs, there is a larger, longer-term benefit: a well-resourced Secretariat will better work with and assist Partners in achieving agreed Partnership goals and priorities. A fee structure can also build greater ownership and buy-in to EAAFP and leverage additional resources for priority actions.

Some Partners, meanwhile, have indicated that a fee structure, with standards and guidelines, would make it easier to secure funds to support EAAFP, in a way that current ad-hoc requests are unable to do.

Considerations

Because EAAFP is a voluntary partnership, it is recommended that any proposed fee structure also be voluntary, with minimum recommended contributions. Larger contributions will still be encouraged. A fee structure should be based on Secretariat needs and the ability of different Partners to pay a fee, given Partners vary so much in size, scope and level of resources. An indicative level of fee payment with differentiated scale is therefore suggested.

A. Country Partners

For country Partners, it is proposed to use a modified version of the UN Scale of Assessments, since this broadly reflects ability to pay and all EAAFP Country Partners are also UN member states, thus providing a potential basis for individual partner contributions relative to an overall budget. For United Nations member states, the UN Scale of Assessments reflects a country's capacity to pay (measured by factors such as a country's national income and size of population). For each EAAFP Partner country, the proportion they contribute to the UN budget is expressed in the second column of the table below.

The total contribution, an arbitrary figure, has been set at around 46, by adding together the assessment percentages of all countries currently EAAFP Partners. By calculating each Partner

country's relative contribution to this total, and proposing a total annual budget to cover the Secretariat budget of shortfall (see Table 3) of USD 150,000 (see end of next paragraph for rationale of country and non-country Partner contribution), each country's annual fee is shown in Column 3. The variation among contributions is very high, with USA and Japan alone contributing more than 70%. If the assessment rate is adjusted for percentage of national territory in the Flyway for USA (Alaska) and Russia (Far East) by (again, somewhat arbitrarily) reducing their assessment by three quarters, an adjusted contribution is indicated in the far right column. USA and Japan still contribute almost 60%. While these figures exceed the maximum level of contribution under the UN Scale of Assessments, as a voluntary scale for a smaller group of countries, it may still be appropriate. One result of this approach is that for some less-developed countries of the Flyway, the annual fee is very low (although a minimum fee, e.g. USD 100 could be set). This fee structure could be the basis of initial discussions among Partner countries.

Table 1. An indicative level of voluntary fee payment for Country Partners

Partner	UN Asst %	USD	UN Ass't % Adjusted	USD
Australia	2.074	6,732	2.074	11,156
Bangladesh	0.010	33	0.010	53
Cambodia	0.004	15	0.004	22
China	5.148	16,710	5.148	27,692
Indonesia	0.346	1,125	0.346	1,861
Japan	10.833	35,160	10.833	58,274
Malaysia	0.281	912	0.281	1,511
Mongolia	0.003	12	0.003	16
Myanmar	0.010	33	0.010	53
New Zealand	0.253	822	0.253	1,361
Philippines	0.154	498	0.154	828
Republic of Korea	1.994	6,468	1.994	10,727
Russia	2.438	7,914	0.610	3,281
Singapore	0.384	1,248	0.384	2,066
Thailand	0.239	777	0.239	1,286
USA	22.000	71,406	5.5000	29,587
Vietnam	0.042	135	0.042	226
<i>Total</i>	<i>46.213</i>	<i>150,000</i>	<i>27.885</i>	<i>150,000</i>

B. Non-country Partners

Half of EAAFP Partners are international non-governmental (including one private sector) and inter-governmental organizations. For these Partners, the UN Scale of Assessment is difficult to apply and there is no existing method of assessing capacity to pay, yet that task could be left to each Partner. Therefore the recommended fee could be proposed as a range from USD 2,000 to 4,000. The overall table is shown below.

Table 2. An indicative range of fee payment for Non-country Partners

Partner	USD	Partner	USD
AWSG	2,000 - 4,000	CMS	2,000 - 4,000
ICF	2,000 - 4,000	Ramsar	2,000 - 4,000
Wetlands Int'l	2,000 - 4,000	CBD	2,000 - 4,000
WWF	2,000 - 4,000	CAFF	2,000 - 4,000
Birdlife Int'l	2,000 - 4,000	FAO	2,000 - 4,000
WBS Japan	2,000 - 4,000	IUCN	2,000 - 4,000
WWT	2,000 - 4,000	ASEAN Biodiv Center	2,000 - 4,000
Pukorokoro Miranda	2,000 - 4,000		
WCS	2,000 - 4,000	Rio Tinto	2,000 - 4,000
Hanns Seidel	2,000 - 4,000		
Total			36,000 - 72,000

The difference between country and non-country Partner calculations in this example is that the former calculations represent a percentage of a total budget (in this case USD 150,000), while the latter is expressed as a range for each Partner's fee. The total annual contribution in this case would be USD 36,000 - 72,000. Clearly an overall annual target will need to be established based on EAAFP needs, which could be reviewed at each MOP, or every two MOPs. The relative contributions of country Partners and non-country Partners will need to be refined in terms of their payment ability. Based on the financial projection of the EAAFP Secretariat personnel and support activities (see Table 3), there will be shortfall of USD 103,000 for personnel in 2017 if a Fundraising Officer is added. At the same time there will be a deficit of USD 109,000 for core activities supported by the Secretariat. The total for current personnel and activity shortfall is therefore USD 212,000. According to Table 1, USD 150,000 could be supported by Country Partners and USD 62,000 by non-country Partners (if non-government Partners all use the higher end of the range for their donations).

Meanwhile, it should be noted that some country Partners may have difficulty in providing funds directly as fee payment and alternative mechanisms for those Partners including project-based contributions, needs to be developed separately.

Recommendation

There is a need for a fee-based system for Partner contributions, which must take into account the different situations of the various Partners. The voluntary fee system and scale developed above is recommended for Partner consideration at MOP9. Partners are requested to approve (i) the principle of a voluntary fee-based system; (ii) the system proposed and (iii) the scale for different Partners.



[MOP9/D4] TERMS OF REFERENCE OF FUNDRAISING OFFICER (FINANCE COMMITTEE)

1. OVERALL PURPOSE OF JOB

- To engage various donors and develop sustained relationships and acquire funding for EAAFP;
- To build the EAAFP Partnership brand and profile among various audiences within and outside of the region;
- build an EAAFP Supporter Program.

2. STAFF and Working RELATIONSHIPS

- The Fundraising Officer will report to the Chief Executive, and liaise with other Secretariat staff, e.g. Program, Finance Officers, as appropriate;
- Work in close collaboration with Finance Committee, including quarterly meetings;
- Work with Partners, as appropriate, on individual funding, supporter programs.

3. KEY WORKING RELATIONSHIPS

- Work with individual prospective and actual donors and supporters, to secure funds and provide regular communication and updates.

4. MAIN DUTIES/WORK PROGRAMME RESPONSIBILITIES

By main work area:

Fundraising

- To develop a fundraising plan for the EAAFP and raise resources for the EAAFP and its programmes, focusing initially on Korea;
- Work with the CE in prioritizing targets, identification of prospective funding supporters and building and maintaining sustained relationships with those funders;
- To lead in developing initial ideas and concepts leading to high quality sponsorship or partnership proposals;
- To ensure quality reporting to the donors;
- To manage the record keeping and updating of the donor database;

- To assist the Chief Executive and other principals in managing key donor relationships;
- Review existing supporter programs, such the CMS Champions program and the Birdlife International “Fighting Extinction” Program, as well as supporter programs in Korea, e.g. WWF-Korea;
- Develop an EAAFP Supporter Program, including undertaking or commissioning a feasibility analysis to include initial market research, funding targets, options for structuring the program, governance mechanisms, marketing and maintenance strategies and measures of success;
- Ensure good donor engagement, including sending information (over and above reports) presenting project results in face to face meetings and via phone and internet;
- To monitor and evaluate donor relations, campaigns and appeals.

Support for the Partners

- Liaise with relevant EAAFP stakeholders – external and internal, including but not exclusive to government agencies, research bodies, etc;
- Support Partners in their fundraising planning and activities;
- Lead and manage when required, members of the partnership in developing multi-country project proposals to acquire funding.

Others

- Attend events, conferences, and other events for and on behalf of EAAFP;
- Collaborate with the communications teams to develop the profile of EAAFP;
- Coordinate with the programme teams and other stakeholders to ensure proper project management and delivery

5. EDUCATION/SKILLS AND OTHER SPECIAL REQUIREMENTS

Requirement	Knowledge/Skills/Attributes
Minimum General Education	Educated to graduate degree level
Job Specific Education/Qualification	General education background, ideally with sales, marketing and/or public relations experience
Job Specific Knowledge	Ability to initiate and build rapport with various audiences within the business sector in order to the engage and acquire commitment of support for the EAAFP
Experience	Good experience in team and project management, good track record of successfully negotiating agreements

Management & organisational skills	Good communication, team management, organisational and problem-solving skills. Able to organise own time and priorities, work with minimal supervision and work well under pressure. Good team-working ability. Good basic financial literacy (understanding budgets).
Communications skills	Strong verbal and written communication and presentation skills, with the ability to draft documents and correspondence to the highest standards of presentation, accuracy and clarity while understanding acceptable protocols within various cultures. Tact and diplomacy in dealing with people and outside organisations at all levels. Pleasant, professional and confident telephone and interpersonal manner.
Creativity & Initiative	Able to summarise and simplify complex information. Able to come up with solutions for complex problems and think creatively.
Computer Literacy	IT literate (Word, Excel, Access, Power Point, databases, email and internet), able to use other office technologies, able to type with speed and accuracy.
Languages	Fluent in English and, if required, Korean
Travel requirements	Willingness to travel.
Other key requirements	Interest in international conservation and sustainable development. Discretion with confidential correspondence and other matters. Able and willing to work flexibly to meet deadlines when circumstances require.



[MOP9/D5] NEW RULES OF PROCEDURE FOR MOPS (AUSTRALIA)

RULES OF PROCEDURE FOR THE SESSIONS OF THE MEETING OF PARTNERS TO THE PARTNERSHIP FOR THE CONSERVATION OF MIGRATORY WATERBIRDS AND THE SUSTAINABLE USE OF THEIR HABITATS IN THE EAST ASIAN – AUSTRALASIAN FLYWAY

Purpose

Rule 1

These rules of procedure shall apply to any Session of the Meeting of Partners to the Partnership for the Conservation of Migratory Waterbirds and the Sustainable Use of their Habitat in the East Asian – Australasian Flyway, convened in accordance with paragraph 9(1) of the Partnership document.

Insofar as they are applicable, these rules shall apply *mutatis mutandis* to any other meeting held in the framework of the Partnership for the Conservation of Migratory Waterbirds and the Sustainable Use of their Habitat in the East Asian – Australasian Flyway.

Definitions

Rule 2

For the purpose of these rules:

- a) "Partnership" means the Partnership for the Conservation of Migratory Waterbirds and the Sustainable Use of their Habitat in the East Asian – Australasian Flyway (East Asian – Australasian Flyway Partnership), endorsed on 6 November 2006 at Bogor, Indonesia;
- b) "Partners" means the Partners to the Partnership;
- c) "Meeting of the Partners" means the Meeting of the Partners in accordance with paragraph 9(1);
- d) "Session" means any ordinary or extraordinary session of the Meeting of the Partners convened in accordance with paragraph 9(1) of the Partnership;
- e) The "Chair" means the Chair of the Meeting of the Partners and elected in accordance with rule 18, paragraph 1, of the present rules of procedure;
- f) "Subsidiary body" means all committees, task forces or working groups established by the Meeting of the Partners;
- g) "Technical Committee" means the body established in accordance with paragraph 9(9);
- h) "Management Committee" means the body established in accordance with paragraph 9(8);
- i) The "Meeting Committee", means the body established in accordance with Rule 23(1);

j) “Secretariat” means the Secretariat of the Partnership established in accordance with paragraph 9(3);

k) “Proposal” means a draft resolution or recommendation submitted by one or more Partners, by the Management Committee, by the Meeting Committee or by the Secretariat.

Place of Meetings

Rule 3

1. The Meeting of the Partners shall take place in the country chosen by the previous Meeting of the Partners on the basis of a formal invitation that should have been issued to this effect by the responsible authority of that country. If more than one Partner issues an invitation to host the next session of the Meeting of the Partners, and two or more invitations are maintained after informal consultations, the Meeting of the Partners shall decide on the venue of the next session by secret ballot. The Partnership and Secretariat encourage Partners who have not previously hosted a Meeting of Partners to consider doing so.

Dates of Meetings

Rule 4

2. Ordinary sessions of the Meetings of the Partners shall be held at intervals of not more than two years, unless the Meeting decides otherwise.
3. At each ordinary session, the Meeting of the Partners shall determine the year and venue of the next ordinary session of the Meeting of the Partners. The exact dates and duration of each ordinary session shall be established by the Secretariat, in consultation with the host country of the meeting.
4. Extraordinary sessions of the Meetings of the Partners shall be convened on the written request of at least one third of the Partners.
5. An extraordinary session shall be convened not later than ninety (90) days after the request has been received, in accordance with paragraph 3 of this rule.
6. In the event of an emergency situation, the Management Committee may urgently request the Secretariat to convene a Meeting of the Partners concerned.

Rule 5

The Secretariat shall notify all Partners of the date, venue, and provisional agenda of an ordinary session of the Meeting of the Partners at least 12 months before the session is due to commence. The notification shall include the draft agenda for the meeting and the deadline for submission of proposals by the Partners. Only Partners, the Management Committee, the Technical Committee, the Meeting Committee and the Secretariat shall be entitled to submit proposals.

Observers

Rule 6

7. The Secretariat shall notify any Range State not Party to the Partnership, and the secretariats of international conventions concerned *inter alia* with the conservation, including protection and management, of migratory waterbirds of the session of the Meeting of the Partners so that they may be represented as observers.
8. Such observers may, upon the invitation of the Chair, participate without the right to vote in the proceedings of any session of the Meeting of the Partners unless at least one third of the Partners present at the meeting object.

Rule 7

9. Bodies or agencies desiring to be represented at the meeting by observers shall submit the names of their representatives to the Secretariat at least one month prior to the opening of the session.
10. Such observers may, upon the invitation of the Chair, attend the Meeting of Partners without the right to vote in the proceedings of any session.
11. Seating limitations may require that no more than two observers not a Partner, body or agency be present at a session of the Meeting of the Partners. The Secretariat shall notify those concerned of such limitations in advance of the meeting.

Agenda

Rule 8

The Secretariat shall prepare the provisional agenda of each meeting, in consultation with the Chair of the Management Committee.

Rule 9

The provisional agenda of each ordinary session of the Meeting of the Partners shall include, as appropriate:

- a) Items arising from the paragraphs or the Annexes of the Partnership document;
- b) Items, the inclusion of which has been decided at a previous meeting or which emanate from decisions taken at a previous meeting;
- c) Items referred to in rule 15 of the present rules of procedure;
- d) Any item proposed by a Partner, the Management Committee, the Technical Committee or the Secretariat related to the fundamental principles or the implementation of the Partnership.

Rule 10

Except for proposals made in accordance with paragraph 9(6) of the Partnership document, the official documents for each ordinary session of the Meeting of the Partners, as referred to in Rule 51, and proposals received in accordance with rule 5, shall be distributed in the official language by the Secretariat to the Partners at least ninety (90) days before the opening of the meeting.

Rule 11

The Secretariat shall, in consultation with the Chair of the Management Committee, include any item which has been proposed by a Partner and has been received by the Secretariat after the provisional agenda has been produced, but before the opening of the meeting, in a supplementary provisional agenda.

Rule 12

The Meeting of the Partners shall examine the provisional agenda together with any supplementary provisional agenda. When adopting the agenda, it may add, delete, defer, or amend items. Only unforeseen items which are considered by the Meeting of the Partners to be urgent and important may be added to the agenda.

Rule 13

The provisional Agenda for an extraordinary session of the Meeting of the Partners shall consist only of those items proposed for consideration in the request for the extraordinary meeting. The provisional agenda and any necessary supporting documents shall be distributed to the Partners at the same time as the invitation to the extraordinary meeting.

Rule 14

The Secretariat shall report to the Meeting of the Partners on the administrative and financial implications of all substantive agenda items submitted to the meeting, before these items are considered by the meeting. Unless the Meeting of the Partners decides otherwise, no such item shall be considered until the Meeting of the Partners has received the Secretariat's report on the financial and administrative implications.

Rule 15

Any item of the agenda of an ordinary session of the Meeting of the Partners, consideration of which has not been completed at the meeting, shall be included automatically in the agenda of the next ordinary meeting, unless otherwise decided by the Meeting of the Partners.

Representation

Rule 16

Each Partner participating in a meeting shall be represented by a delegation consisting of a head of delegation and other representatives, alternate representatives, and advisers as the Partner may deem necessary. Logistics and other limitations may require that no more than four delegates of any Partner be present at a plenary session. The Secretariat shall notify Partners of any such limitations in advance of the meeting.

Rule 17

A representative may be designated as an alternate head of delegation. An alternate representative or an adviser may act as a representative upon designation by the head of delegation.

Officers

Rule 18

12. At the commencement of the first session of each ordinary meeting, a Chair and one or more Vice-Chairs shall be elected from among the representatives of the Partners present at the meeting, on the basis of a proposal put forward by the Meeting Committee. In preparing its proposal on this matter, the Meeting Committee shall consider first the candidate(s) put forward by the host country of the meeting for the post of Chair of the meeting.
13. The Chair shall participate in the meeting in that capacity and shall not, simultaneously, exercise the rights of a representative of a Partner. The Partner concerned shall designate another representative who shall be entitled to represent the Partner in the meeting and to exercise the right to vote.

Rule 19

14. In addition to exercising the powers conferred upon the Chair elsewhere by these rules, the Chair shall declare the opening and closing of the meeting, preside at the sessions of the meeting, ensure the observance of these rules, accord the right to speak, put questions to the vote, and announce decisions. The Chair shall rule on points of order and, subject to these rules, shall have complete control of the proceedings and over the maintenance of order.
15. The Chair may propose to the Meeting of the Partners the closure of the list of speakers, limitations on the time to be allowed to speakers and the number of times each Partner or observer may speak on a question, the adjournment or the closure of the debate, and the suspension or the adjournment of a session.
16. The Chair, in the exercise of the functions of that office, remains under the authority of the Meeting of the Partners.

Rule 20

The Chair, if temporarily absent from a session or any part thereof, shall designate the Vice-Chair to act as Chair. The Vice-Chair acting as Chair shall have the same powers and duties as the Chair.

Rule 21

If the Chair and/or the Vice-Chair resign or are otherwise unable to complete the assigned term of office or to perform the functions of the office, a representative of the same Partner shall be named by the Partner concerned to replace the said officer for the remainder of that office's mandate.

Rule 22

At the first session of each ordinary meeting, the Chair of the previous ordinary meeting, or in the absence of the Chair, the Chair of the Management Committee, shall preside until the Meeting of the Partners has elected a Chair for the meeting.

The Meeting Committee, other Committees and Working Groups

Rule 23

17. The Meeting Committee is established. It shall consist of the Chair of the previous ordinary session of the Meeting of the Partners, the elected Chair and Vice-Chairs of the current Meeting of the Partners, the Chair of the Management Committee, and the Chair of the Technical Committee. The Secretariat of the Partnership shall assist and support the Meeting Committee. The Meeting Committee may invite observers to attend the Meeting Committee, as they deem appropriate. The Meeting Committee shall be chaired by the Chair of the current session of the Meeting of the Partners.
18. The Meeting Committee shall meet at least once daily to review the progress of the meeting, including the draft of the report of the previous day prepared by the Secretariat, and to provide advice to the Chair in order to ensure the smooth development of the rest of the proceedings.
19. The Meeting of the Partners may establish other committees, task forces and working groups if it deems it necessary for the implementation of the Partnership. Where appropriate, meetings of these bodies shall be held in conjunction with the Meeting of the Partners.
20. The Meeting of the Partners may decide that any such body may meet in the period between ordinary meetings.
21. Unless otherwise decided by the Meeting of the Partners, the chair for each such body shall be elected by the Meeting of the Partners. The Meeting of the Partners shall determine the matters to be considered by each such body.
22. Subject to paragraph 5 of this rule, each body shall elect its own officers subject to its Terms of Reference.
23. Unless otherwise decided by the Meeting of the Partners, these rules shall apply *mutatis mutandis* to the proceedings of such bodies, except that:

- a) A majority of the Partners designated by the Meeting of the Partners to take part in any such body shall constitute a quorum, but in the event of the body being open-ended, one quarter of the Partners shall constitute a quorum;
- b) The Chair of any such body may exercise the right to vote;
- c) There shall be no requirement to provide interpretation in committee, task force or working group sessions, including the Meeting Committee.

Secretariat

Rule 24

- 24. The Chief Executive of the Partnership Secretariat shall be the Secretary of the Meeting of the Partners. The Secretary or the representative of the Secretary shall act in that capacity in all sessions of the Meeting of the Partners and of subsidiary bodies.
- 25. The Secretary shall provide and direct the staff as required by the Meeting of the Partners.

Rule 25

The Secretariat shall, in accordance with these rules:

- a) Prepare, receive and distribute the documents of the meeting;
- b) Publish and circulate electronically the official documents of the meeting;
- c) Make and arrange for keeping of recordings of the meeting;
- d) Arrange for the custody and preservation of the documents of the meeting;
- e) Draft the report of the meeting for consideration by the Meeting Committee first and for final approval by the Meeting of the Partners; and
- f) Generally perform all other work that the Meeting of the Partners may require.

Conduct of Business

Rule 26

- 26. Sessions of the Meeting of the Partners shall be held in public, unless the Meeting of the Partners decides otherwise.
- 27. Sessions of subsidiary bodies shall be held in private unless the subsidiary body concerned decides otherwise.
- 28. Delegations shall be seated in accordance with the alphabetical order of the English language names of the Parties.

Rule 27

The Chair may declare a session of the meeting open and permit the debate to proceed if at least one half of the Partners to the Partnership are present, and may take a decision when representatives of at least one half of the Partners are present.

Rule 28

29. No one may speak at a session of the Meeting of the Partners without having previously obtained the permission of the Chair. Subject to rule 29, 30, 31 and 33, the Chair shall call upon speakers in the order in which they signify their desire to speak. The Secretariat shall maintain a list of speakers. The Chair may call a speaker to order if the speaker's remarks are not relevant to the subject under discussion.
30. The Meeting of the Partners may, on a proposal from the Chair or from any Partner, limit the time allowed to each speaker and the number of times each Partner or observer may speak on a question. Before a decision is taken, two representatives may speak in favour and two against a proposal to set such limits. When the debate is limited and a speaker exceeds the allotted time, the Chair shall call the speaker to order without delay.
31. A speaker shall not be interrupted except on a point of order. He/She may, however, with the permission of the Chair, give way during his/her speech to allow any other representative or observer to request clarification on a particular point in that speech.
32. During the course of a debate, the Chair may announce the list of speakers, and with the consent of the meeting, declare the list closed. The Chair may, however, accord the right of reply to any representative, if appropriate, due to a speech delivered after the list has been closed.

Rule 29

The Chair or rapporteur of a subsidiary body may be accorded precedence for the purpose of explaining the conclusions arrived at by that subsidiary body.

Rule 30

During the discussion of any matter, a Partner may at any time raise a point of order, which shall be decided immediately by the Chair in accordance with these rules. A Partner may appeal against the ruling of the Chair. The appeal shall be put to the vote immediately and the ruling shall stand unless overruled by a majority of the Partners present and voting. A representative may not, in raising a point of order, speak on the substance of the matter under discussion.

Rule 31

Any motion calling for a decision on the competence of the Meeting of the Partners to discuss any matter or adopt a proposal or an amendment to a proposal submitted to it shall be put to the vote before the matter is discussed or a vote is taken on the proposal or amendment in question.

Rule 32

33. Proposals for amendment of the Partnership document including its annexes may be made by any Partner. According to paragraph 9(6) the text of any proposed amendment and the reason for it shall be communicated to the Partnership Secretariat not less than one hundred and fifty (150) days before the opening of the session.
34. A new proposal, other than in paragraph 1 of this rule, which was not submitted to the Secretariat at least ninety (90) days before the opening of the meeting as well as amendments to proposals, shall be introduced in writing by the Partners and handed to the Secretariat in the official language, for submission to the Meeting Committee.
35. A new proposal shall deal only with matters that could not have been foreseen in advance of the session or arise out of the discussions at the session. The Meeting Committee shall decide if the new proposal meets this requirement, so as to introduce it formally for consideration by the meeting. If a new proposal is rejected by the Meeting Committee, the sponsor(s) shall be entitled to request the Chair to submit the question of its admissibility to a vote, as per Rule 31. The sponsor(s) shall be given the opportunity to make one intervention to present the arguments in favour of the introduction of the new proposal, and the Chair shall explain the reasons for its rejection by the Meeting Committee.
36. As a general rule, no proposal shall be discussed or put to the vote at any session unless copies of it, have been circulated to delegations not later than the day preceding the session. Nevertheless, the Chair may permit the discussion and consideration of amendments to proposals or of procedural motions and, in exceptional circumstances, in cases of urgency and when deemed useful to advance the proceedings, permit the discussion and consideration of proposals even though these proposals, amendments or motions have not been circulated or have been circulated only the same day of the Meeting of the Parties.

Rule 33

37. Subject to rule 30, the following motions shall have precedence, in the order indicated below, over all other proposals or motions:
 - a) To suspend a session;
 - b) To adjourn a session;
 - c) To adjourn the debate on the question under discussion; and
 - d) For the closure of the debate on the question under discussion.
38. Permission to speak on a motion falling within (a) to (d) above shall be granted only to the proposer and, in addition, to one speaker in favour of and two against the motion, after which it shall be put immediately to the vote.

Rule 34

A proposal or motion may be withdrawn by its proposer at any time before voting on it has begun, provided that the motion has not been amended. A proposal or motion withdrawn may be reintroduced by any other Partner.

Rule 35

When a proposal has been adopted or rejected, it may not be reconsidered at the same meeting, unless the Meeting of the Partners, by a two-thirds majority of the Partners present and voting, decides in favour of reconsideration. Permission to speak on a motion to reconsider shall be accorded only to the mover and one other supporter, after which it shall be put immediately to the vote.

Voting

Rule 36

Each Partner shall have one vote.

Rule 37

39. The Partners shall make every effort to reach agreement on all matters of substance by consensus. If all efforts to reach consensus have been exhausted and no agreement reached, the decision shall, as a last resort, be taken by a two-thirds majority of the Partners present and voting, except in the case of the adoption of the budget for the next financial period, which require unanimity;
40. For the purposes of these rules, the phrase "Partners present and voting" means Partners present at the session at which voting takes place and casting an affirmative or negative vote. Partners abstaining from voting shall be considered as not voting.

Rule 38

If two or more proposals relate to the same question, the Meeting of the Partners, unless it decides otherwise, shall vote on the proposals in the order in which they have been submitted. The Meeting of the Partners may, after each vote on a proposal, decide whether to vote on the next proposal.

Rule 39

Any representative may request that any parts of a proposal or of an amendment to a proposal be voted on separately. The Chair shall allow the request unless a Partner objects. If objection is made to the request for separate voting, the Chair shall permit two representatives to speak, one in favour of and the other against the motion, after which it shall be put to the vote immediately.

Rule 40

If the motion referred to in rule 39 is adopted, those parts of a proposal or of an amendment to a proposal, which are approved, shall then be put to the vote as a whole. If all the operative parts of a proposal or amendment have been rejected, the proposal or amendment shall be considered to have been rejected as a whole.

Rule 41

A motion is considered to be an amendment to a proposal if it merely adds to, deletes from, or revises parts of that proposal. An amendment shall be voted on before the proposal to which it relates is put to the vote, and if the amendment is adopted, the amended proposal shall then be voted on.

Rule 42

If two or more amendments to a proposal are put forward, the Meeting of the Partners shall first vote on the amendment furthest removed in substance from the original proposal, then on the amendment next furthest removed there from, and so on, until all amendments have been put to the vote. The Chair shall determine the order of voting on the amendments under this rule.

Rule 43

Voting, except for elections and the decision on the venue of the next ordinary meeting, shall normally be by show of hands. A roll-call vote shall be taken if one is requested by any Partner; it shall be taken in the English alphabetical order of the names of the Partners participating in the meeting, beginning with the Partner whose name is drawn by the Chair. However, if at any time a Partner requests a secret ballot that shall be the method of voting on the issue in question, provided that this request is accepted by a simple majority of the Partners present and voting. The Chair shall be responsible for the counting of the votes, assisted by tellers appointed by the Meeting, and shall announce the result.

Rule 44

41. The vote of each Partner participating in a roll-call vote shall be expressed by "Yes", or "No", or "Abstain" and shall be recorded in the relevant documents of the meeting.
42. When the meeting votes by mechanical means, a non-recorded vote shall replace a vote by show of hands and a recorded vote shall replace a roll-call vote.

Rule 45

After the Chair has announced the beginning of voting, no representative shall interrupt the voting except on a point of order in connection with the actual proceedings. The Chair may permit the Partners to explain their votes, either before or after the voting, but may limit the time to be allowed for such explanations. The Chair shall not permit those who put forward proposals or amendments to proposals to explain their vote on their own proposals or amendments, except if they have been amended.

Rule 46

All elections and the decision on the venue of the next ordinary meeting shall be held by secret ballot, unless otherwise decided by the Meeting of the Partners.

Rule 47

43. If, when one person or one delegation is to be elected, no candidate obtains a majority of votes cast by the Partners present and voting in the first ballot, a second ballot shall be taken between the two candidates obtaining the largest number of votes. If, in the second ballot, the votes are equally divided, the Chair shall decide between the candidates by drawing lots.
44. In the case of a tie in the first ballot among three or more candidates obtaining the largest number of votes, a second ballot shall be held. If there is then a tie among more than two candidates, the number shall be reduced to two by lot and the balloting, restricted to them, shall continue in accordance with the procedure set forth in paragraph 1 of this rule.

Rule 48

45. When two or more elective places are to be filled at one time under the same conditions, the number of candidates must not exceed the number of such places, those obtaining the largest number of votes and a majority of the votes cast by the Partners present and voting in the first ballot shall be deemed elected.
46. If the number of candidates obtaining such majority is less than the number of persons or delegations to be elected, there shall be additional ballots to fill the remaining places. The voting shall then be restricted to the candidates that obtained the greatest number of votes in the previous ballot and shall not exceed twice the places that remain to be filled. After the third inconclusive ballot, votes may be cast for any eligible person or delegation.
47. If three such unrestricted ballots are inconclusive, the next three ballots shall be restricted to the candidates who obtained the greatest number of votes in the third of the unrestricted ballots and shall not exceed twice the places that remain to be filled. The following three ballots thereafter shall be unrestricted, and so on until all the places have been filled.

Official Language

Rule 49

The official and working languages of the Meeting of the Partners shall be English.

Rule 50

A representative of a Partner may speak in a language other than an official language, if the Partner provides for interpretation into the official language.

Documents

Rule 51

48. Official documents of the meetings shall be drawn up in the official language.
49. Financial limitations may make it necessary to limit the number of documents provided to each Partner and observer. The Secretariat shall encourage Partners and observers to download the

documents from the Partnership website on the Internet so as to save costs of photocopying and mailing.

50. Any documents, including proposals, submitted to the Secretariat in any language other than a working language shall be accompanied by a translation into the working language.
51. When in doubt, the Secretariat shall ask the approval of the Meeting Committee for issuing a document as an official document of the meeting.
52. Partners and observers wishing to distribute documents that have not been approved as official documents of the meeting shall make their own arrangements for distribution, after having sought the advice of the Secretariat on how to proceed.

Recordings of the Meeting

Rule 52

Recordings of the Meeting of the Partners, and whenever possible of its subsidiary bodies, shall be kept by the Secretariat.

Entering into Force and Amendments to the Rules of Procedure

Rule 53

These rules of procedure shall enter into force immediately after their adoption. Amendments to these rules shall be adopted by consensus by the Meeting of the Partners, upon a proposal by one or more Partners and/or the Management Committee.

Overriding authority of the Partnership

Rule 54

In the event of a conflict between any provision of these rules and any provision of the Partnership document, the Partnership document shall prevail.



[MOP9/D6] NEW TERMS OF REFERENCE FOR MANAGEMENT COMMITTEE (AUSTRALIA)

General Functions

53. The Committee provides general policy, operational and financial direction to the Secretariat concerning the implementation and the expansion of the Partnership.
54. It carries out, between one session of the Meeting of the Partners and the next, such interim activities on behalf of the Meeting as may be necessary.
55. It oversees, on behalf of the Partners, the development and execution of the Secretariat's budget, and also all aspects of revenue raising and expenditure undertaken by the Secretariat in order to carry out specific functions authorized by the Meeting of the Partners.
56. It oversees, as representative of the Meeting of the Partners, the implementation of policy by the Secretariat and conduct of the Secretariat's programs.
57. It provides guidance and advice to the Secretariat on implementation of the Partnership, on the preparation of meetings, and on any other matters relating to the exercise of the Secretariat's functions brought to it by the Secretariat. The Management Committee works closely with the Technical Committee to ensure consistency in the work of the Partnership.
58. It represents the Meeting of the Partners of matters relating to the Memorandum of Understanding for Hosting the Secretariat.
59. It makes recommendations or draft resolutions, as appropriate, for consideration by the Meeting of the Partners.
60. It performs the functions of a bureau at the sessions of the Meeting of the Partners, in accordance with the rules of procedure of the Meeting of the Partners.
61. It reports to the Meeting of the Partners on the activities that have been carried out between ordinary sessions of the Meeting of the Partners.
62. It performs any other functions that may be entrusted to it by the Meeting of the Partners.

Representation and Attendance

63. The Committee shall consist of not more than seven (7) Partners, which shall be appointed by the Meeting of the Partners.
 - a. The Committee shall consist of:
 - i. The Chair of the Partnership (who represents a government Partner)
 - ii. The Vice-Chair of the Partnership
 - iii. The Host Government Partner if not otherwise represented

- iv. One (1) intergovernmental Partner
 - v. Two (2) non-government Partners
 - vi. One (1) Government Partner
- b. No Partner shall be represented in more than one capacity.
64. Each member shall act on behalf of the entire Partnership.
65. In performing their role as Management Committee representatives, the Chair and Vice-Chair, in conjunction with the Secretariat, shall accomplish the following duties:
- a. Lead consultations among Partners to decide on common Partnership regional issues;
 - b. Follow up on requests made by the Secretariat in correspondence with Partners, e.g. by promoting the revision of comments or enquiries regarding draft meeting reports, completion of National Reports, provision of inputs on documents, and completion of questionnaires on specific issues related to the Partnership;
 - c. Ensure, to the extent possible, a coordinated flow of information from Partners to the Secretariat and vice versa;
 - d. Promote the drafting and/or revision of relevant documents to be examined by the Meeting of the Partners at its sessions, e.g. proposals for amendments to the Partnership and its annexes, draft Resolutions and Recommendations;
 - e. Coordinate the compilation of information and the completion of reports on relevant activities to be submitted to meetings of the Committee, and to any regional meetings that take place during the Meeting of the Partners or intersessionally;
 - f. Encourage Partners to update the Secretariat with actual information about the Focal Points as well as to promptly inform the Secretariat in cases of changes;
 - g. Maintain regular contact to non-Partners and Range States and promote their joining the Partnership.
66. Each member of the Management Committee shall be entitled to be represented at meetings of the Committee by a Representative or his or her Alternate Representative. The Representative shall exercise the voting rights of a Member. In his or her absence, the Representative of the member shall act in his or her place.
67. If an extraordinary session of the Meeting of the Partners is held between two (2) ordinary sessions, the host Partner of that session shall participate in the work of the Committee on matters related to the organization of the session.
68. The term of office shall expire at the close of the next ordinary session of the Meeting of the Partners following the session at which they were originally elected. Members are eligible for re-appointment but may not serve more than two (2) consecutive terms of office.
69. In making appointments, the Partnership should consider some continuity of membership rather than have all Members change at the same time.
70. The Chair may invite any person or representative of any Partner, or other country or organization, to participate in meetings of the Committee as an observer without the right to vote.

Officers

71. The members of the Committee shall elect the Chair and Vice-Chair at the first meeting after the session of the Meeting of the Partners.
72. The Chair shall preside at meetings of the Committee, approve for circulation the provisional agenda prepared by the Secretariat and maintain liaison with other committees and with the Technical Committee between meetings of the Committee. The Chair may represent the Committee and the Partners as required within the limits of the Committee's mandate, and shall carry out such other functions as may be entrusted by the Committee.
73. The Vice-Chair shall assist in the execution of the Chair's functions, and shall preside at meetings in the absence of the Chair.
74. The Secretariat of the Partnership shall provide a secretary for meetings of the Committee.

Elections

75. If in an election to fill one place no clear candidate emerges, a ballot will be taken. If in the ballot the votes are equally divided, the presiding officer shall decide between the candidates by drawing lots.

Meetings

76. The Committee shall normally meet at least once every year.
77. Meetings of the Committee shall be called at the request of the Chair or at least three members.
78. The Chair, in consultation with the Secretariat, shall determine the time, method (face-to-face or teleconference) and place of meetings.
79. Notice of meetings to all Partners including the time and method, shall be given by the Secretariat at least 60 days and, in the case of emergency meetings, at least 30 days in advance of the meeting.
80. A quorum for a meeting shall consist at least of four members out of seven of the Committee. No decision shall be taken at a meeting in the absence of a quorum.
81. Decisions of the Committee shall be taken by consensus unless a vote is requested by the Chair or by three members.
82. Decisions of the Committee by voting (pursuant to Paragraph 31) shall be taken by a simple majority of the members present. In the case of a tie, the motion shall be considered as rejected.
83. A summary record of each meeting shall be prepared by the Secretariat and shall be communicated to all Partners, and to the participants that attended the meeting to which the report refers, within four (4) weeks.
84. The Committee shall work in the official language of the Partnership.

Communication Procedure

85. Any member or the Secretariat may make a proposal to the Chair for a decision by email procedure. The Secretariat shall communicate the proposal to the members for comments within sixty (60) days of communication; any comments received within these limits shall also be so communicated.
86. If no objection to a proposal is received by the Secretariat by the date when the comments on the proposal were due to be communicated, the proposal shall be considered as adopted, and notice of the adoption shall be given to all members.
87. If any member objects to a proposal within the applicable time limit, the proposal shall be referred to the next meeting of the Committee.

Other functions

88. The Committee shall submit to each ordinary session of the Meeting of the Partners a report on its work since the previous ordinary session.
89. The Committee may receive reports from other Committees established under the Partnership.

Final Provisions

90. In matters not covered by the present Terms of Reference, the Rules of Procedure as adopted by the last ordinary session of the Meeting of the Partners shall be applied *mutatis mutandis*.
91. The Committee shall, by consensus, establish its own Rules of Procedure. These Rules shall come into force on adoption by the Committee by consensus, and may be amended by the Committee as required.
92. The Committee shall review these Terms of Reference every two (2) years, and may be amended by the Meeting of the Partners.



[MOP9/D7] NEW TERMS OF REFERENCE AND RULES OF PROCEDURE OF THE EAAFP TECHNICAL COMMITTEE (AUSTRALIA)

DRAFT RESOLUTION

Establishment of the Technical Committee of the East Asian – Australasian Flyway Partnership

(Prepared by the Australian Government)

Recognising the important role science and technical advice plays in the implementation of the Partnership objectives;

Noting with appreciation the EAAFP Science Officer's role in advancing the Partnership's objectives and on the communication, development and implementation of the Partnership's work program;

Further noting with appreciation all past and present expert advisors to the Meeting of the Partners, the Secretariat and all other bodies established under the East Asian – Australasian Flyway Partnership;

Recognising that the 'Independent Review of the East Asian – Australasian Flyway Partnership' identified a number of challenges exist with the organisational structure to achieve the delivery of the Partnership's goal and objectives,

Specifically:

"The current EAAFP organisation model works with the Meeting of Partners providing the main mechanism for reporting, interaction and decision making. The bulk of the scientific and technical work is devolved to the Task Forces and Working Groups which are voluntary in nature, largely self-funded, and report only to the MoP. The Secretariat provides communication and administrative services, overseen by the Secretariat Management Committee, which meets infrequently.

The current structure has several limitations:

1. It is too simplistic and leaves too much to be inferred especially in terms of processes, responsibilities, and liability.

2. It lacks advisory and oversight mechanisms to monitor, assess (including assessing risk) and respond to issues related to"

- The planning, management and implementation of actions during the intersessional period between MoPs, including the implementation of decisions taken at the MoP and the delivery of the Implementation Strategy

- The work of the Working Groups and Task Forces (that only report to the MoP).

- Emerging technical and other issues, beyond the mandate of working Groups and Task Forces and that may need action.” (page 18)

Further recognising the recommendation of establishing a ‘Technical Advisory Sub-Committee’ in the independent review to:

“provide scientific and technical oversight for the Working Groups and Task Forces and the Conservation and Policy/Advocacy Unit within the Secretariat”; and

“to identify emerging technical and other issues, beyond the mandate of the Working Groups and Task Forces, and that may need action, and work with the Conservation and Policy/Advocacy Unit to address these issues”.

Recalling, in accordance to Paragraph 9(9) of the Partnership document, that Partners may establish advisory groups and permanent and/or ad hoc working groups/task forces as needed;

Noting that to address the deficiencies of the organisational structure identified in the independent review, a new EAAFP Technical Committee should be established as soon as practicable and to ensure its appropriate operation, new Terms of Reference and Rules of Procedure for the EAAFP Technical Committee have been drafted at **Attachment A** and **B** respectively;

The 9th Meeting of the Partners

of the East Asian – Australasian Flyway Partnership:

1. *Agrees* to establish a EAAFP Technical Committee;
2. *Adopts* the ‘Terms of Reference for the EAAFP Technical Committee’;
3. *Adopts* the ‘Rules of Procedure of the EAAFP Technical Committee’;
4. *Instructs* the Secretariat and Management Committee, in consultation with Partners, to develop a selection process, seek nominations of qualified experts and appoint, on an interim basis, a Technical Committee as soon as practicable following the 9th Meeting of the Partners; and

Further instructs the Secretariat and Management Committee to present their recommendations regarding the selection process and membership of the Technical Committee to the 10th Meeting of the Partners for agreement.

[MOP9/D7.1] Terms of Reference for the EAAFP Technical Committee

Scope of the Terms of Reference

The Terms of Reference apply to the East Asian – Australasian Flyway Partnership Technical Committee, unless stated otherwise in the Terms of Reference.

General Functions of the Technical Committee

The Technical Committee, established in accordance with paragraph 9(9) of the Partnership document, provides scientific and technical advice to, *inter alia*, the Meeting of the Partners, the Secretariat, any other body set up under the Partnership or any Partner.

Operating Principles

The Technical Committee, in carrying out its functions, should support the implementation of the Partnership in a manner consistent with other nationally and internationally agreed goals relevant to the objectives of the Partnership document.

The Technical Committee should endeavour constantly to improve the quality of its scientific and technical advice by improving scientific input into debate at and work of its meetings and meetings of the Partnership working groups and task forces.

The Technical Committee may formulate its advice or recommendations in the form of options or alternatives, where appropriate.

Functions

The Technical Committee should fulfill the functions assigned to it by the Meeting of the Partners. These functions include:

- a. advising, between Meetings of the Partners, on the development and implementation of the Partnership's work programme from a scientific and technical standpoint;
- b. advising, identifying, assessing and recommending proposals to be considered for inclusion in the Flyway Site Network;
- c. making recommendations to the Meeting of the Partners as to the migratory waterbird species to be included in Appendix III;
- d. assessing proposals for the amendment of Appendix III from a scientific and technical standpoint, and providing advice to the Meeting of the Partners regarding proposed amendments;
- e. identifying and making recommendations to the Meeting of the Partners on flyway research needs on migratory species and their habitats, , especially those that are listed in Appendix III or candidates for such listing.

- f. advising on specific conservation and management measures for the conservation of Appendix III species and their priorities, or other mechanisms for the conservation of migratory species and their habitats undertaken within the framework of the Partnership;
- g. bringing to the attention of the Meeting of the Partners any new and emerging issues relating to the conservation and management of migratory waterbird species and their habitats;
- h. advising on the priorities for conservation activities relating to migratory waterbird species and their habitats, and on selecting, monitoring and evaluating projects which will promote the implementation of the Partnership objectives;
- i. recommending to the Meeting of the Partners solutions to problems relating to the scientific and technical aspects of the implementation of the Partnership objectives;
- j. providing information, channelled through the Secretariat, to all Range States of particular species and relevant organizations, with a view to encouraging non-partner Range States and relevant organizations to become Partners of the Partnership and to participate in its implementation.
- k. Liaising with working groups and task forces, to identify issues of common concern among these bodies and distil lessons for wider dissemination;
- l. Providing upon request, advice on scientific and technical proposals from working groups and task forces;
- m. making proposals for more effective and streamlined scientific and technical outputs of working groups and task forces to respond to Partnership objectives.

Appointment of Members

The Technical Committee is composed of members appointed by the Meeting of the Partners.

Any Partner may nominate a qualified expert as a member of the Technical Committee.

Technical Committee members do not represent the Partner that nominate them, but contribute to the workings of the Technical Committee in their expert capacity.

The composition of the Technical Committee is as follows:

- a. Ten members with expertise in regional, and thematic issues; and

Responsibilities of the Technical Committee Members

Technical Committee members should, to the best of their abilities, act as impartially as possible and endeavour to base their judgements and opinions upon an objective, scientific assessment of the best available evidence.

Technical Committee members should maintain regular communication with the chairs of the Partnership working groups and task forces.

Technical Committee members should maintain regular communication with the other Partners in the Partnership.

Cooperation of Other Relevant Bodies or organizations

The Technical Committee should cooperate with other advisory bodies set up by other Conventions, Agreements and MOUs, *inter alia*, inviting them to participate as observers in the meetings of the Technical Committee.

The Technical Committee should liaise, through its Chair or his/her nominated representative, with comparable bodies established under other relevant frameworks. This would include, where appropriate and resource permitting, attendance of the Chair of the Technical Committee, or his/her nominated representative, at meetings of these bodies.

The scientific contribution of non-governmental organizations to the fulfilment of the role of the Technical Committee is strongly encouraged. This includes inviting them to participate as observers in the meetings of the Technical Committee, and establishing and maintaining working cooperation on matters of common interest with organizations.

Rules of Procedure

The Technical Committee will establish its own Rules of Procedure which will be subject to the approval of the Meeting of the Partners.

[MOP9/D7.2] Rules of Procedure of the EAAFP Technical Committee

General Functions

Rule 1

The Technical Committee, established in accordance with paragraph 9(9) of the Partnership, provides scientific and technical advice to, *inter alia*, the Meeting of the Partners, the Secretariat, and to any Partner to the Partnership. Its functions are defined in Terms of Reference, supplemented from time to time by instructions included in resolutions or recommendations adopted by the Meeting of the Partners.

Rule 2

In particular, it advises, between the meetings of the Meeting of the Partners, on the development and implementation of the Partnership's work programme from a scientific and technical standpoint, and advises on the priorities for sponsorship of conservation activities.

Rule 3

The Technical Committee shall liaise, through its Chair or a member or members nominated for this purpose, with working groups and task forces established under the Partnership.

Representation and Attendance

Rule 4

Any Partner may nominate a qualified expert as a member of the Technical Committee. The Technical Committee shall include as members no more than ten qualified experts selected and appointed by the Meeting of the Partners. In addition, the Partnership Science Officer will be a member of the Committee *ex officio*.

Rule 5

Membership of the Committee shall be reviewed at each ordinary meeting of the Meeting of the Partners.

Rule 6

The Chair of the Management Committee shall have the right to participate in meetings of the Technical Committee as an observer without the right to vote.

Rule 7

The Chair may invite any person or representative of any Partner, non-Partner or organization to participate in meetings of the Committee as an observer without the right to vote, and shall inform the Secretariat accordingly.

Officers

Rule 8

The members of the Committee shall elect from among the Committee members, a Chair and Vice-Chair. This election will normally take place before the meeting of the Meeting of the Partners, and the newly elected officers shall assume their functions at the conclusion of the corresponding meeting of the Meeting of the Partners.

Rule 9

The Chair shall preside at meetings of the Committee, approve for circulation the provisional agenda prepared by the Secretariat, and liaise with working groups, task forces and with the Management Committee between meetings of the Committee. The Chair may represent the Committee as required within the limits of the Committee's mandate, and shall carry out such other functions as may be entrusted by the Committee.

Rule 10

The Vice-Chair shall assist in the execution of the Chair's functions, and shall preside at meetings in the absence of the Chair.

Elections

Rule 11

If in an election of an officer no clear candidate emerges, a ballot will be taken. If in the ballot the votes are equally divided, the presiding officer shall decide between the candidates by drawing lots.

Meetings

Rule 14

Meetings of the Committee shall be convened at the request of the Chair or, in exceptional cases, of at least one-third of the members, in both cases in consultation with the Secretariat. Meetings of the Technical Committee and any working groups or task forces established thereunder shall be serviced by the Secretariat of the Partnership.

Rule 15

The Committee should meet at least once between ordinary meetings of the Meeting of the Partners. The time, method (face-to-face or electronic) or venue of meetings shall be determined by the Chair, in consultation with the Secretariat.

Rule 16

Notice of meetings, including the date and venue, shall be sent to all Partners by the Secretariat at least 60 days in advance and, in the case of extraordinary meetings, at least 30 days in advance.

Rule 17

A quorum for a meeting shall consist of half of the members of the Committee. No decision shall be taken at a meeting in the absence of a quorum.

Rule 18

Decisions of the Committee shall be taken by consensus unless a vote is requested by the Chair or by three members.

Rule 19

Decisions of the Committee by voting (pursuant to Rule 18) shall be taken by a simple majority of the members present. In the case of a tie, the motion shall be considered as rejected.

Rule 20

A summary record of each meeting shall be prepared by the Secretariat within four (4) weeks and shall be communicated to all Partners.

Rule 21

The Committee shall work in the official language of the Partnership.

Working Groups

Rule 22

Working groups of the Technical Committee may be established in order to further the Committee's work programme intersessionally, taking into account the provisions of any relevant recommendations or resolutions of the Meeting of the Partners.

Communication Procedure

Rule 23

Any member or the Secretariat may make a proposal to the Chair for a decision by email procedure. The Secretariat shall communicate the proposal to the members for comments within 60 days of the date of communication; any comments received within these limits shall also be so communicated.

Rule 24

If, by the date on which comments on a proposal were due to be communicated, the Secretariat has not received any objection from a Partner, the proposal shall be considered as adopted, and notice of the adoption shall be given to all members.

Rule 25

If any member objects to a proposal within the applicable time limit, the proposal shall be referred to the next meeting of the Committee.

Other Functions

Rule 26

The Chair shall submit to each ordinary meeting of the Meeting of the Partners a written report on the Committee's work since the previous ordinary meeting.

Rule 27

The Committee shall receive reports from other committees established under the Partnership, as necessary.

Final Provisions

Rule 28

In matters not covered by the present Rules, the Rules of Procedure as adopted by the last regular meeting of the Meeting of the Partners shall be applied *mutatis mutandis*.

Rule 29

These Rules shall be applied at the first meeting of the Committee following their approval by the Meeting of the Partners, and may be amended by the Committee as required, in accordance with the provisions of the Partnership and decisions of the Meeting of the Partners.

[MOP9/D8] INTERNATIONAL SPECIES ACTION PLAN FOR THE CONSERVATION OF FAR EASTERN CURLEW AND TERMS OF REFERENCE FOR EAAFP FAR EASTERN CURLEW TASK FORCE (AUSTRALIA)

[MOP9/D8.1] International Single Species Action Plan for the Conservation of the Far Eastern Curlew (*Numenius madagascariensis*)



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Executive summary

The Far Eastern Curlew (*Numenius madagascariensis*) is the largest shorebird in the world and is endemic to the East Asian – Australasian Flyway. It breeds in eastern **Russia** and north-eastern **China** and travels through **Mongolia**, **Japan**, the **Democratic People’s Republic of Korea**, the **Republic of Korea**, **China**, **Vietnam**, **Thailand** and **Malaysia** to its non-breeding grounds. About 25% of the population is thought to spend the non-breeding season in the **Philippines**, **Indonesia** and **Papua New Guinea** but most (estimated at 26,000 individuals) spend the non-breeding season in **Australia**. Evidence from **Australia** suggests that Far Eastern Curlews have declined by an estimated 81% over 30 years and the species is listed as ‘Endangered’ on the IUCN Red List.

The greatest threat to the survival of the Far Eastern Curlew is the on-going destruction of tidal mudflats that it utilises on migration, especially in **China**, **Republic of Korea** and south-east Asia. In addition, hunting in some parts of its range is considered a serious threat. Other issues include human disturbance, pollution, overharvesting of potential prey animals, the effects of drought and overgrazing and climate change on habitats.

The goal of this action plan is to return the Far Eastern Curlew to a positive population growth rate for at least three generations. Essential actions to achieve this are to:

- (i) Identify, protect and manage remaining sites used by the species during its annual cycle
- (ii) Reduce or eliminate illegal harvesting and incidental bycatch
- (iii) Robustly monitor the species' population trend
- (iv) Determine key demographic parameters to support population modelling
- (v) Constitute a Far Eastern Curlew Task Force and keep it functioning until the goal is achieved.

All Range States must act quickly to halt the Far Eastern Curlew's imminent extinction. All threats must be minimised or preferably eliminated within the next decade. International and regional cooperation is essential to prevent extinction of this migratory shorebird. The East Asian – Australasian Flyway Partnership and the Convention on the Conservation of Migratory Species of Wild Animals (CMS) and other multilateral and bilateral agreements provide the frameworks necessary to ensure meaningful conservation efforts and their coordination across the region.

Acknowledgments

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1. Introduction

The Far Eastern Curlew is the largest shorebird in the world. It is endemic to the East Asian-Australasian Flyway (EAAF), breeding in **Russia** and **China** and migrating as far as **Australia** and **New Zealand**. Declining numbers at the species' staging and non-breeding sites prompted the IUCN Red

List to recognise Far Eastern Curlew as ‘Endangered’ in 2015 (BirdLife International 2015a). In **Australia**, the Far Eastern Curlew has declined by 81% over 30 years (equal to three generations) (Studds et al. in press) and the species is now listed as ‘Critically Endangered’ under Australia’s national environmental law (Australian Government 2015a). If the main threats continue, further declines leading to extinction is expected.

Acknowledging the severe decline of Far Eastern Curlew, the Australian Government initiated the development of this Action Plan under the auspices of the East Asian – Australasian Flyway Partnership. The Partnership and the CMS have endorsed similar Action Plans in the flyway including Action Plans for the Siberian Crane *Leucogeranus leucogeranus* (Ilyashenko et al. 2008), Black-faced Spoonbill *Platalea minor* (Chan et al., 2010), Spoon-billed Sandpiper *Eurynorhynchus pygmaeus* (Zöckler et al. 2010) and the Chinese Crested Tern *Sterna bernsteini* (Chan et al. 2010). All of these Action Plans are being successfully implemented and serve as models for this Action Plan.

This Action Plan addresses the issues at important sites along the flyway, ranging from the breeding grounds, stop-over (or staging) and non-breeding sites. To be successful, meaningful international cooperation will be required from all Range States. The mechanism of an international single species action plan has been proven to be effective in improving and coordinating conservation efforts (Boersma et al. 2001). It is the aim of this document to provide a summary of information on the status, threats, and current levels of protection in each range state and to develop a plan of action. The Action Plan is coordinated by the Far Eastern Curlew Task Force established under the auspices of the East Asian-Australasian Flyway Partnership (EAAFP) and is designed to be implemented by governments and non-government bodies.

This Single Species Action Plan provides an important tool for promoting and coordinating conservation at an international, national and regional level. The Action Plan provides guidance for EAAFP Partners, CMS Parties, Range States, conservationists, researchers and habitat managers over the next decade, while also providing a model for further advancing migratory bird conservation throughout the flyway. The Action Plan outlines an internationally agreed list of activities necessary along the flyway, to improve the understanding of the species’ status, to halt its decline and support its long-term survival.

2. Biological assessment

2.1 Taxonomy

Class: Aves

Order: Charadriiformes

Family: Scolopacidae

Species: *Numenius madagascariensis*

Common names: Australian or sea curlew, Eastern Curlew, curlew, Courlis de Siberie, Zarapito Siberiano, Allak-kkorimadoyo, Isabellbrachvogel, Burung Gajahan Timur, Gajahan Timur, Gegajahan paruh besar, Gegajahan timur, Burung Kedidi Kendi Timur, Burung Kedidi Timur, Burung Kendi Timur, Kedidi Timor, Kendi Timur, นกอีโก้ยตะโพกสีน้ำตาล,, Chim Choắt mỏ cong hông nâu, Choắt mỏ cong hông nâu, 大嘴儿, 大杓鹬, 紅腰杓鹬, 紅腰杓鹬, 黠鹬, Дальневосточный, Дальневосточный кроншеп,

Дальневосточный кроншнеп, кроншнеп, Кроншнеп дальневосточный, 알락꼬리마도요, ホウロクシギ, 焙烙鴟, 焙烙鷗, Мадагаскар тутгалжин, *ᠮᠠᠳᠠᠭᠠᠰᠠᠰᠠᠷ ᠲᠤᠳᠭᠠᠯᠵᠢᠨ*, *ᠮᠠᠳᠠᠭᠠᠰᠠᠰᠠᠷ ᠲᠤᠳᠭᠠᠯᠵᠢᠨ*, Мадагаскар тутгалжин, Accepted as Far Eastern Curlew *Numenius madagascariensis* Linnaeus, 1766 (BirdLife International 2015b).

Monotypic, no subspecies are recognised (del Hoyo and Collar 2014). Taxonomic uniqueness: medium (22 genera/family, 8 species/genus, 1 subspecies/species; Garnett et al. 2011). Preliminary research by Q.Q. Bai (unpublished data) on Far Eastern Curlews in Liaoning Province, **China** has suggested the presence of two populations with different moulting strategies on southward migration. One of these populations is thought to spend the non-breeding season in Australia, but the breeding and non-breeding distribution of the other potential population are currently unknown.

2.2 Global Distribution

The Far Eastern Curlew is endemic to the East Asian – Australasian Flyway. Within **Russia** the Far Eastern Curlew breeds in Siberia and Far Eastern Russia, specifically in Transbaikalia, Magadan Region, northern and southern Ussuriland, Iman River, scattered through south, west and north Kamchatka, lower and middle Amur River basin, Lena River basin, between 110° E and 130° E up to 65° N, and on the Upper Yana River, at 66° N (Higgins & Davies 1996). Although reported to breed in **Mongolia** (e.g. del Hoyo et al. 1996) there are no records, the species only occurring as a migrant (Gombobaatar & Monks 2011; S. Gombobaatar in litt. 25 November 2016; Axel Braunlich in litt. 24 November 2016), however it is reported to breed in north-eastern **China**-(Nei Mongol, Heilongjiang and Jilin) (Zhao 1988; Ma 1992; Wang et al. 2006; Xu 2007) with nests, eggs and young recorded in Heilongjiang in 1985 (Ma 1992) and three birds breeding/attempting to breed in 2011 (Gosbell et al. 2012).

The Far Eastern Curlew is a migrant in **Mongolia** (Gombobaatar & Monks 2011), **Japan** (The Ornithological Society of Japan 2012), **Democratic People's Republic of Korea** (Tomek 1999), **Republic of Korea** (Moore 2006), and **China** (Wang et al. 2006). Very small numbers are recorded moving through **Thailand** and Peninsular **Malaysia** in the non-breeding season (Melville 1982; Wells 1999; Round 2006). It is a rare passage migrant in **Singapore** (Lim 2015), and there is one record from **Vietnam** (Eames 1997).

During the non-breeding season very small numbers occur in the southern **Republic of Korea**, **Japan** and **China** (Li & Mundkur 2004). About 25% of the population is thought to spend the non-breeding season in Borneo, the **Philippines**, **Indonesia** and **Papua New Guinea** (although Bheeler & Pratt 2016 only record it on passage) but most of the population (estimated in 2008 at 73%) spend the non-breeding season in **Australia** (Bamford et al. 2008). Far Eastern Curlews are regular non-breeding visitors to **New Zealand** in very small numbers (Southey 2009), and occur very rarely on Kermadec Island and the Chatham Islands (Checklist Committee (OSNZ) 2010).

Small numbers of Far Eastern Curlews spend the non-breeding season in **Palau** (McKinlay 2016). It is recorded as a very rare migrant in the **Mariana Islands** (Stinson et al. 1997), and vagrant elsewhere in Micronesia (Yap, Truk/Chuuk, and Guam) (Pratt et al. 1987; Wiles et al. 2000; Wiles 2005), and on Savaii, **Samoa** (Pratt et al. 1987). There are occasional records from **Fiji** (Skinner 1983).

It is a vagrant in the Aleutian and Pribilof Islands, Alaska, **USA** (Thompson & DeLong 1969; Gibson & Byrd 2007), with one record in **Canada** (Kragh et al. 1986). Single records from Diego Garcia, **British**

Indian Ocean Territory (Carr 2015), **Bangladesh** (Thompson et al. 1993) and **Afghanistan** (Reeb 1977) although Rasmussen & Anderton (2005) consider the latter two records unconfirmed.

During the boreal summer considerable numbers of non-breeding, presumed immature, Far Eastern Curlews occur in the northern Yellow Sea and Bohai (Q.Q. Bai unpublished; N. Moores unpublished). Barter (2002) reported large numbers of 'immature' birds at Yancheng during the boreal summer, but it is unclear whether they still occur at this site as extensive invasion of the tidal flats by smooth cord-grass *Spartina alterniflora* has greatly reduced the value of this site to shorebirds (Melville et al. 2016).

Within **Australia**, the primary non-breeding range state, the Far Eastern Curlew has a mostly coastal distribution; they are rarely recorded inland. The species is found in all states, particularly the north, east, and south-east regions including Tasmania. Their distribution is continuous from Barrow Island and Dampier Archipelago, Western Australia, through the Kimberley Division and along Northern Territory, Queensland, and New South Wales coasts and the islands of Torres Strait. They occur patchily elsewhere.

Figure 1. Distribution of Far Eastern Curlew (Yellow = Breeding, Pink = Passage and Blue = Non-breeding. Source: BirdLife International 2015b)



2.3 Population size and trend

The global population estimate in 2008 was 38,000 individuals (Bamford et al 2008), but documented declines in Australia (Garnett et al. 2011) resulted in a revised estimate of 32,000 (Wetlands International 2012). Applying a different approach using count data and extrapolation to non-counted habitat resulted in the most recent global population estimate of 35,000 (Hanson et al 2016). The majority of the estimated population – 26,000 to 28,000 birds – occur in the non-breeding season in **Australia** (Bamford et al. 2008; Hansen et al. 2016), with an additional 5,000 in **Indonesia**, 3,000 in **China** and 2,000 in **Papua New Guinea** (Australian Government 2015a).

Barter (2002) estimated that 31,500 birds (83% of the then estimated world population) stage in the Yellow Sea on northward migration. The species is affected by habitat loss and degradation of intertidal habitat caused by reclamation, major infrastructural development and pollution. There was a 99% decline of Far Eastern Curlew staging at Saemangeum, **Republic of Korea** during northward migration between 2006 and 2014, with evidence of only limited displacement to adjacent sites following seawall closure there in 2006 (Moore et al. 2016). Numbers recorded at the Nakdong Estuary have also declined markedly following a series of development projects including construction of an estuarine barrage in the late 1980s, and reclamation projects and bridge-building in the 2000s, with a maximum count of 635 during southward migration in 1983 but of only 193 during southward migration in 2005 and 46 in 2014 (Wetlands and Birds Korea 2005; Shorebird Network Korea 2015). There are no clear trends in **Japan** between 1978 and 2008 (Amano et al. 2010), but this region lies outside the main migration route of the Far Eastern Curlew, especially during northward migration. There has been a fairly steady decline in Far Eastern Curlew numbers in **New Zealand** since the early 1980s, with an apparent acceleration in the decline since 2004; formerly about 20 birds wintered there (Higgins and Davies 1996) but now fewer do so (Southey 2009). Since 2008 fewer than 10 have visited each summer. A few non-breeders stay in **New Zealand** over the southern winter (Riegen 2013).

In Micronesia, Baker (1951) noted the Far Eastern Curlew as 'a regular visitor to western Micronesia, especially Palau Islands', and Wiles et al. (2000) noted: This species was once apparently a regular migrant to western Micronesia but has become much rarer throughout its range in recent decades. Only a handful of reports have been published for the region since 1945'. McKinlay (2016) regularly recorded small number on Palau, but noted 'The species was once more common, but sightings elsewhere are now rare'. In **Australia**, numbers appear to have declined on Eighty-mile Beach, Western Australia by c.40% between 2000 and 2008, whereas numbers at Roebuck Bay, Western Australia have remained relatively stable (Rogers et al., 2009). At Moreton Bay, Queensland they declined by c. 2.4% per year between 1992 and 2008 (Wilson et al. 2011), across the whole of Queensland they declined by c. 4.1% per year between 1992 and 2008 (Fuller et al., 2009), in Victoria by 2.2% per year between 1982 and 2011 (Minton et al., 2012) and in Tasmania by 80% between the 1950s and 2000 (Reid & Park 2003) and by 40% across 49 Australian sites between 1983 and 2007 (BirdLife Australia in litt. 2011). An observation of over 2000 Far Eastern Curlews at Mud Islands, Port Phillip Bay, Victoria in 1953 (Tarr and Launder 1954), compared to current counts of fewer than 50 birds in Port Phillip Bay, suggests that population declines in the Far Eastern Curlew may have begun well before regular shorebird counts were initiated in **Australia**. Far Eastern Curlews have declined in south and east Australia more rapidly than those in the west (Clemens et al. 2016).

An unpublished assessment of the numbers of Far Eastern Curlews at roost sites in Tasmania showed decreases of between 55% and 93%, depending on site (cited in Australian Government 2015a). In the southeast, the decrease was 90% for the period 1964/65 – 2010/11, and in the north, the decrease was 93% between 1973/74 and 2010/11 (cited in Australian Government 2015a). At both of these sites, and at other roost sites in Tasmania, the decreases have continued, with fewer birds seen in 2014 (cited in Australian Government 2015a).

In 2015 this species was listed as 'endangered' in the IUCN Red List owing to the past, recent and ongoing rapid population decline of 50-79 per cent in three generations (30 years), based on survey data and habitat loss. Time series data from directly observed summer counts at a large number of sites across **Australia** indicated a severe population decline of 66.8% over 20 years (5.8% per year; Australian Government 2015a), and 81.4 % over 30 years which for this species is equal to three generations (Garnett et al. 2011; Australian Government 2015a).

2.4 Habitat requirements

2.4.1 Breeding habitat

Far Eastern Curlew nest during the boreal summer, from early May to late June, often in small congregations of two to three pairs. Pairs breed in open mossy or transitional bogs, moss-lichen bogs and wet meadows, on swampy shores of small lakes and tundra. Nests are positioned on small mounds in swampy ground, often near where wild berries are growing. The nest is lined with dry grass and twigs. Clutches usually contain four eggs. Juveniles may delay breeding until three or four years of age (del Hoyo et al. 1996; Ueta & Antonov 2000; Antonov 2010).

2.4.2 Non-breeding habitat

During the non-breeding season Far Eastern Curlew is almost entirely dependent on freshwater lake shores, various wetlands, and coastal intertidal habitats. It is most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass (Zosteraceae). Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets. The birds are often recorded among saltmarsh and on mudflats fringed by mangroves, and sometimes use the mangroves. The birds are also found in saltworks and sewage farms (Higgins & Davies, 1996).

2.4.3 Feeding habitat

The Far Eastern Curlew mainly forages during the non-breeding season on sheltered intertidal sandflats or mudflats, that are open and without vegetation or covered with seagrass. Far Eastern Curlew often forage near mangroves, on saltflats and in saltmarsh, rockpools and among rubble on coral reefs, and on ocean beaches near the tideline, however, they have a preference for soft substrates containing little or no hard material (e.g. rock, shell grit, coral, debris) that provide better access to their prey (Finn et al., 2007, 2008). The birds are rarely seen on near-coastal lakes or in grassy areas (Higgins & Davies, 1996). Inland in East Asia individuals occur in open river valley, marshes and different wetlands with tall vegetation and fresh water lake shores and small islands (Gombobaatar et al. 2011), and saltponds (D.S. Melville unpublished).

2.4.4 Roosting habitat

The Far Eastern Curlew roosts during high tide periods on sandy spits and islets, especially on dry beach sand near the high-water mark, and among coastal vegetation including low saltmarsh or mangroves. It occasionally roosts on reef-flats, in the shallow water of lagoons, aquaculture ponds and other near-coastal wetlands. Far Eastern Curlews are also recorded roosting in trees and on the upright stakes of oyster-racks (Higgins & Davies 1996). At Roebuck Bay, Western Australia, birds have been recorded flying from their feeding areas on the tidal flats to roost 5 km inland on a claypan (Collins et al. 2001). Within Moreton Bay, Queensland, Australia, the distance over which Far Eastern Curlew typically travel between feeding and roosting habitat is 5-10 km, with high mobility between alternative roosts and/or feeding grounds occurring at or below this distance (Finn et al. 2002). In some conditions, shorebirds may choose roost sites where a damp substrate lowers the local temperature. This may have important conservation implications where these sites are heavily disturbed beaches (Rogers, 1999). From the requirements known for roosting habitat, it may be possible to create artificial roosting sites to replace those destroyed by development (Harding et al., 1999). Far Eastern Curlews typically roost in large flocks, separate from other shorebirds (Higgins & Davies, 1996).

2.5 Migration patterns

The Far Eastern Curlew is migratory. After breeding, they move south for the austral summer.

2.5.1 *Departure from breeding grounds*

Far Eastern Curlew leave Kamchatka Peninsula (Eastern **Russia**) from mid-July (Ueta et al. 2002) to mid-September. Birds migrate through Ussuriland, **Russia**, from mid-July to late September, birds pass through Sakhalin, (Eastern **Russia**), from mid-July to late August (Higgins & Davies 1996). Fewer birds appear in continental Asia on the southern migration than on the northern migration (Dement'ev & Gladkov 1951). Far Eastern Curlews are seen in **Democratic People's Republic of Korea, Republic of Korea, Japan** and **China** from June to November with birds seen in **Thailand**, the **Peninsular Malaysia, Singapore**, the **Philippines**, and Borneo (**Indonesia, Brunei** and **Malaysia**), from August to December (White & Bruce 1986; Dickson et al. 1991; Higgins & Davies 1996; Mann 2008; Moon et al. 2013; Choi et al. 2016) likely to be a mix of passage migrants and overwintering individuals. Migrating individuals are often seen with Eurasian Curlews (*Numenius arquata*) by late July to early September in Mongolia (Gombobaatar et al. 2011).

The birds arrive in north-west and eastern **Australia** as early as July (Lane 1987). In north-west Australia, the peak arrival time is in mid-August (Minton & Watkins 1993). There is an onward movement from north-west Australia by October (Lane 1987). Most birds arriving in eastern Australia appear to move down the coast from northern Queensland with influxes occurring on the east coast from mid-August to late December, particularly in late August (Choi et al. 2016). Counts suggest there is a general southward movement until mid-February (Alcorn 1988). Records from Toowoomba, Broken Hill and the Murray-Darling region in August and September suggest that some birds move overland (Higgins & Davies 1996) and the timing of arrival along the east and south-east Australian coasts suggests some fly directly to these areas (Alcorn 1988). In Victoria, most birds arrive in November, with small numbers moving west along the coast as early as August (Lane 1987). In southern Tasmania, most arrive in late August to early October, with a few continuing to arrive until December (Higgins & Davies 1996). When Far Eastern Curlews first arrive in Tasmania they are found at many localities before congregating at Ralphs Bay or Sorell (Thomas 1968).

Far Eastern Curlews arrive in **New Zealand** from the second week of August to mid-November with a median date of mid-October (Higgins & Davies 1996). Although in recent years, very few birds have been seen.

2.5.2 *Non-breeding season*

During the non-breeding season small numbers of Far Eastern Curlew occur in coastal southern **Republic of Korea, Japan**, and **China** (Li & Mundkur 2004). Unquantified numbers occur in **Indonesia, Papua New Guinea**, Borneo. and the **Philippines** (Higgins & Davies 1996. Li et al. (2006) recorded a total of 14 Far Eastern Curlews in the whole of **Malaysia** in the period November 2004 to February 2005. In Sabah, **Malaysia** Li et al. (2006) recorded 230 Far Eastern Curlews on the Bako-Semera coastline in April 2005, when it was considered that they may have been migrating.

The majority of the Far Eastern Curlew population is found in **Australia** during the non-breeding season (Bamford et al. 2008), mostly at a few sites on the east coast and in north-western **Australia** (Lane 1987). Population numbers are stable at most sites in November or between December-February, suggesting little movement during this period (Lane 1987; Alcorn 1988).

Analysis of biometrics of Far Eastern Curlew by Nebel et al. (2013) showed that they have a strongly skewed sex ratio in south-eastern **Australia**; only 35.3% of adult Far Eastern Curlew captured were male ($n = 383$ birds). In contrast, 54.3 % of adult Far Eastern Curlew captured in north-western **Australia** were male ($n = 102$). These data suggest that male and female Far Eastern Curlew have preferences for different non-breeding areas, with females migrating further south.

2.5.3 Return to breeding grounds

Most Far Eastern Curlews leave **Australia** between late February and March-April (Higgins & Davies 1996; Driscoll & Ueta 2002). The birds depart **New Zealand** from mid-March to mid-May (Higgins & Davies 1996) and peak in abundance at some sites in the **Republic of Korea** in early to mid-April (Moore 2012), and in mid-April in Hong Kong (Carey et al. 2001). The species has been recorded on passage elsewhere mostly between March and May, arriving at Kamchatka, **Russia**, during May (Higgins & Davies 1996).

Like many other large shorebirds, young Far Eastern Curlew can spend their second austral winter in **Australia**, and some may also spend their third winter in **Australia** before undertaking their first northward migration to the breeding grounds (Wilson, 2000). The numbers of birds that remain on the non-breeding grounds during the austral winter are around 25% of the peak austral summer numbers (Finn et al. 2001). Large numbers (locally tens or hundreds) apparently remain throughout the boreal summer at some coastal sites in the **Republic of Korea** (especially in Gyeonggi Bay) (N. Moore pers comm.), and in Liaoning, **China** (Q.Q. Bai unpublished). More research is required to determine whether these are immature birds and/or failed breeders.

2.6 Diet and foraging behaviour

The Far Eastern Curlew's diet on the breeding grounds includes insects, such as larvae of beetles and flies, and amphipods. During August-September, prior to southward migration, berries are also consumed (Gerasimov et al. 1997). During the non-breeding season, Far Eastern Curlew mainly eats crustaceans (including crabs, shrimps and prawns), but small molluscs, as well as some insects are also taken (Dann 2005; Finn et al., 2008; Dann 2014; Zharikov & Skilleter 2003, 2004a, 2004b). In the **Republic of Korea** Far Eastern Curlews principally feed on *Macrophthalmus* crabs (Piersma 1985; Yi et al. 1994).

In Roebuck Bay, Western Australia, the birds feed mainly on large crabs, but will also catch mantis shrimps and chase mudskippers (Rogers, 1999). In southern Australia, Far Eastern Curlews feed on a variety of crabs and shrimps (Dann 2014). Far Eastern Curlews find the burrows of prey by sight during the day or in bright moonlight, but also locate prey by touch. The sexual differences in bill length lead to corresponding differences in diet and behaviour (Higgins & Davies 1996; Dann 2005, 2014). Male and female Far Eastern Curlews use intertidal habitat area differently, with females using more sandy areas and males use more muddy areas (Dann 2014).

The birds are both diurnal and nocturnal with feeding and roosting cycles determined by the tides. Far Eastern Curlews usually feed alone or in loose flocks. Occasionally, this species is seen in large feeding flocks of hundreds (Higgins & Davies 1996).

2.7 Important Sites

In this Action Plan 'important sites' are defined based on a threshold of the Far Eastern Curlew global population. Here we consider sites that contain $\geq 1\%$ of the population as internationally important and requiring special protective measures (this being equivalent to Criterion 6 for identifying wetlands of international importance under the Ramsar Convention). In some countries, like **Australia**, 'nationally important sites' are defined as those areas that contain $\geq 0.1\%$ of the population (Australian Government 2015c).

Internationally, the Yellow Sea region is extremely important as stopover habitat for Far Eastern Curlews. It supports about 80% of the estimated flyway population on the northward migration (most of the remaining population apparently staying on the non-breeding grounds). Fewer are counted in the region during the southward migration, but this may be an artefact of their staggered migration.

Relatively few Far Eastern Curlews pass through **Japan** (Brazil 1991). Thirteen sites of international importance were identified in the Yellow Sea (six in **China**, six in **Republic of Korea** and one in **Democratic People's Republic of Korea**) (Barter 2002; Bamford et al. 2008). Twelve sites were considered important during the northward migration and seven during the southward migration, with six sites (Dong Sha, Shuangtaizihkou National Nature Reserve, Ganghwa Do, Yeong Jong Do, Mangyeong Gang Hagu and Dongjin Gang Hagu) important during both (Barter 2002; Bamford et al. 2008). It is important to note that despite being recognised as internationally important, habitat in some of these sites has been destroyed since the Barter (2002) surveys. For example, Mangyeong Gang Hagu and Dongjin Gang Hagu in the **Republic of Korea** (both part of Saemangeum impounded since 2006) are no longer considered important sites for Far Eastern Curlew (Moores et al. 2016). Ganghwa Do (Island), Yeongjong Do (Island), Janghang Coast and Yubu Do (Island) in the Geum Estuary and Namyang Bay now account for nearly 90% of population in the **Republic of Korea**. In **China**, Bai et al. (2015) identified seven internationally important sites for Far Eastern Curlew in the Yellow Sea region. During northward migration, Yalu Jiang estuarine wetland, Yellow River Delta and Shuangtaizihkou National Nature Reserve are utilised by large numbers of Far Eastern Curlew, particularly Yalu Jiang with 4,840 individuals recorded in April 2011. During southward migration, Yalu Jiang estuarine wetland, Tianjin coast, Zhuanghe Bay, Shuangtaizihkou National Nature Reserve, Cangzhou coast, Rudong coast, and the Yellow River Delta are considered internationally important. Again, Yalu Jiang is the most important site with 5,289 individuals recorded in July 2011 (Bai et al. 2015).

Recent surveys in the **Democratic People's Republic of Korea** (Riegen et al. 2016) found internationally important numbers of Far Eastern Curlews at three sites: Ilhae-ri/Sema-ri, Mundok and Undok-ri.

Outside the Yellow Sea, the Moroshechnaya River Estuary in Far East **Russia** is an internationally important site for Far Eastern Curlews during the southward migration. In **Indonesia**, the Banyuasin Delta in Sumatra is important during southward migration (Bamford et al. 2008) and in January (Li et al. 2009), while Pesisir Timur Pantai Sumatera Utara is internationally important in January (Conklin et al. 2014). In Sarawak, **Malaysia**, Pulau Bruit is internationally important for Far Eastern Curlews during northward migration (Mann 2008), and Sejinkat Ashponds is an internationally important non-breeding site (Conklin et al. 2014). There are few records from **Brunei Darussalam** (Moore undated). Bamford et al. (2008) identified the Kikori Delta as an important site in **Papua New Guinea** and Conklin et al. (2014) added the Bensbach-Bula coast.

During the non-breeding season, **Australia** is the most important country in the EAAF accounting for at least 73% of the population (Bamford et al. 2008). At least 19 sites have been identified as

internationally important for the Far Eastern Curlew (Bamford et al. 2008). Most are located along the north and east coasts of **Australia** and four sites are located in the southern state of Victoria. Both Moreton Bay in Queensland and Buckingham Bay in the Northern Territory have been identified as internationally important austral wintering sites for the Far Eastern Curlew, likely containing young birds that have not made the migration north.

Many of these sites are based on old count data and an outdated population level threshold (estimate 38 000; 1% = 380 individuals). Recent work suggests the population estimate is no greater than 35,000 individuals (1% = 350) (Hansen et al. 2016). There is an urgent need to reassess the number and location of sites of international importance based on this new population estimate.

3. Threats

The main threat to Far Eastern Curlew is considered to be reclamation of intertidal flats for tidal power plants and barrages, port development, industrial use, agricultural and urban expansion in the Yellow Sea where it stages on migration (Bamford et al. 2008; van de Kam et al. 2010; Murray et al. 2014; Melville et al. 2016). Other threats along their migratory route include hunting, incidental capture in fishing nets, environmental pollution, invasive cordgrass *Spartina*, reduced river flows resulting in reduced sediment flows competition for food from humans harvesting intertidal organisms, and human disturbance (Barter 2002; Chen and Qiang 2006; Moores 2006; Melville et al. 2016). Threats in **Australia**, especially eastern and southern **Australia**, include ongoing human disturbance, habitat loss and degradation from pollution and structural modification of soft-sediment feeding flats, changes to water regimes and invasive plants (Rogers et al. 2006; Finn 2009; Garnett et al. 2011; Australian Government 2015 a,b,c).

Human disturbance can cause shorebirds to interrupt their feeding or roosting and may influence the area of otherwise suitable feeding habitat that is actually used. Far Eastern Curlews are amongst the first shorebirds to take flight when humans approach to within 30–100 metres (Taylor & Bester, 1999), 185 metres (Paton et al. 2000), or even up to 250 metres away (Peter 1990). Coastal development, port development, land reclamation, construction of barrages and stabilisation of water levels can destroy feeding habitat (Close & Newman 1984; Sutherland et al. 2012; Melville et al. 2016). Pollution around settled areas may reduce the availability of food by altering prey composition and/or reducing substrate penetrability (Close & Newman 1984; Finn 2009). The species has been hunted intensively on breeding grounds and at stopover points while on migration and on the non-breeding grounds (Higgins & Davies 1996; Gerasimov et al. 1997). Illegal hunting in Russia is still occurring occasionally (Y. Gerasimov pers. comm.).

3.1 Description of key threats

3.1.1 *Habitat loss*

Habitat loss occurring as a result of development is the most significant threat currently affecting migratory shorebirds along the EAAF (Melville et al. 2016). Of particular concern in the EAAF is coastal development and intertidal mudflat 'reclamation' in the Yellow Sea region, which is bordered by **China**, the **Democratic People's Republic of Korea** and the **Republic of Korea** (Murray et al. 2014; Melville et al. 2016). A migratory shorebird's ability to complete long migration flights depends on the availability of suitable habitat at sites throughout the EAAF that provide adequate food and roosting opportunities to rebuild energy reserves (Piersma et al. 2015). The Yellow Sea region is the major staging area for several species of shorebird, including almost the entire population of the Far Eastern

Curlew, which fly between **Australia** and the east coast of Asia on migration (Barter 2002; Bamford et al. 2008; Minton et al. 2011, 2013; Iwamura et al. 2013; Moores et al. 2016). In a recent study using historical topographical maps and remote sensing analysis, Murray et al. (2014) showed that 65% of the tidal flats that existed in the Yellow Sea in the 1950s have disappeared, from a combination of coastal development and reduced sediment input to the Yellow Sea which in some areas is resulting in erosion. Losses of such magnitude are the key drivers of decreases in biodiversity and ecosystem services in the intertidal zone of the region (MacKinnon et al. 2012; Ma et al. 2014). Further reclamation projects are ongoing or are in the planning stage in the Yellow Sea region; for example, Jiangsu Province, **China** plans to reclaim 1,800 km² (Zhang et al. 2011).

Overall, coastal development in east and south-east Asia is accelerating and is already at a pace which is unprecedented in other parts of the world. Examples of urban expansion in coastal areas are well known from **Australia**, the **Republic of Korea**, **Japan**, and **Singapore** and most other countries in the region. Development for industry, housing, tourist and transport infrastructure is widespread. In some coastal areas, intertidal areas are increasingly used for conversion into land for new settlements and intensive aquaculture.

Habitat loss in the breeding grounds has also occurred, for instance, in the Amur River basin, there are examples of hydroelectric scheme dams inundating nesting areas e.g. the Zea reservoir in the 1970s and further dams in the future could destroy other breeding areas (Brown et al. 2014). Studies analysing satellite images indicated a decrease of 80% marshland (i.e. potential nesting ground for Far Eastern Curlew) over the last 50 years in north-east Heilongjiang Province, **China** (Liu et al. 2004; Liu et al. 2015). The authors' study area overlapped with the breeding ranges identified in Far Eastern Curlew geolocator studies (Gosbell et al. 2012).

Drought and livestock overgrazing in the major migrating and stopover site in Mongolia have been leading to habitat degradation and loss (Gombobaatar et al. 2011).

3.1.2 Habitat degradation

Modification of wetland habitats can arise from a range of different activities including fishing or aquaculture, forestry and agricultural practices, mining, changes to hydrology and development near wetlands for housing or industry (Lee et al. 2006; Sutherland et al. 2012; Melville et al. 2016). Steppe fires in spring and autumn destroy their feeding habitats in Mongolia (Gombobaatar et al. 2011). Such activities may result in increased siltation, pollution, weed and pest invasion, all of which can change the ecological character of a shorebird area, potentially leading to deterioration of the quantity and quality of food and other resources available to support migratory shorebirds (Sutherland et al. 2012 and references therein; Ma et al. 2014; Murray et al. 2015; Melville et al. 2016). The notion that migratory shorebirds can continue indefinitely to move to other important habitats as their normal feeding, staging or roosting areas become unusable is erroneous. As areas become unsuitable to support migratory shorebirds, areas that remain will likely attract displaced birds, in turn creating overcrowding, competition for food, depletion of food resources, and increased risk of disease transmission. The areas identified today are likely to represent the great majority of suitable stop-over sites and are irreplaceable. They need to be protected immediately and managed appropriately to ensure the species' survival.

Structural modification of feeding flats

Far Eastern Curlews require deep deposits of soft, penetrable sediment to realise their greatest foraging potential. Any structural modification of the Far Eastern Curlews' soft-sediment feeding flats that reduces the substrate penetrability may inhibit successful foraging and be detrimental to them

(Finn 2009). There are several causes of structural modification that may reduce the substrate penetrability of intertidal flats. Direct effects include activities such as intertidal oyster farming, the compaction of sediments by vehicles, the dumping of rubbish or debris and the artificial building up of beaches by adding foreign sediment to the intertidal zone. Indirect effects on the structure of soft-sediment intertidal zones can come from processes such as nutrient enrichment and the use of chemicals, such as the organophosphorus pesticide triazophos, to kill predators prior to spat seeding in aquaculture (Melville et al. 2016).

Intertidal oyster or mussel farming, whether bottom or suspended culture, may degrade the foraging habitat of shorebirds (Hilgerloh et al. 2001; Caldow et al. 2003; Connolly & Colwell 2005). The sediment structure may be rendered less penetrable by the presence of hard-shelled bivalves in abnormally high densities, the structures used for attaching bivalves (such as trestles) and/or the use of mechanical devices during harvest (such as dredges; Piersma et al. 2001; Connolly & Colwell 2005).

The compaction of sediments by vehicles may reduce the penetrability of the substrate and thereby inhibit burying by invertebrates and probing by shorebirds (Evans et al. 1998; Moss & McPhee 2006; Schlacher et al. 2008).

Physical modifications of soft sediments that increase their coarseness or hardness such as that caused by the dumping of rubbish or debris (including dredge spoil) and even beach filling (nourishment) are highly likely to degrade feeding habitats for deep-probing shorebirds (Peterson et al. 2006). The dumping of dredge spoil may however be important in some areas above highest astronomical tide for providing suitable roosting habitat for shorebirds (Yozzo et al. 2004).

Processes that increase the available nutrients in the intertidal zone (such as sewage discharge and runoff from terrestrial soils) may lead to eutrophication and the proliferation of algal mats (Raffaelli 1999; Lopes et al. 2006). These algal mats may reduce substrate penetrability and are therefore likely to be avoided by deep-probing shorebirds, unless there is an associated increase in suitable prey at the substrate surface (Lewis & Kelly 2001).

Farming

In southern parts of the breeding range, both arable and livestock farming are increasing, and this thought to be degrading breeding habitats (Brown et al. 2014). The burning of grasslands is an important land management practice in this area. Anecdotal evidence at one breeding site suggests Far Eastern Curlew preferentially nest within recently-burned grasslands, with high nest success recorded (Antonov 2010). After nesting, chicks are frequently observed foraging in nearby swamps and sedge meadows, suggesting a mosaic of unburnt grassland, burnt grasslands and wetlands is important (Antonov 2010). However, burning can also have a devastating impact on breeding success if undertaken during the nesting period: one study to the south of the Amur region recorded 28% of nests destroyed by fires (Antonov 2010). The timing of burning is therefore of critical importance. The impact of regular burning on invertebrate food resources is not well understood (Brown et al. 2014).

Invasive species

Of specific concern for migratory shorebirds is the introduction of exotic marine pests resulting in loss of benthic food sources at important intertidal habitat (Neira et al. 2006). Predation by invasive animals, such as cats (*Felix catus*) and foxes (*Vulpes vulpes*) in **Australia** has not been quantified, but anecdotal evidence suggests some individuals are taken as prey.

Invasive species are negatively affecting coastal habitats, causing local species to be displaced by species accidentally or deliberately introduced from other areas. With an increase in global shipping trade the influx of such species is increasing, especially in the coastal zone. In **China** smooth cordgrass *Spartina alterniflora* was deliberately introduced to speed accretion and by 2007 covered at least 34,451 ha of former tidal flats (Zuo et al. 2012) and has been responsible for the severe degradation of the intertidal areas at Yancheng National Nature Reserve, Jiangsu Province (Liu et al. 2016) – a site that Barter (2002) noted as internationally important for Far Eastern Curlew.

Harvesting of shorebird prey

Overharvesting of intertidal resources, including fish, crabs, molluscs, annelids, sea-cucumber, sea-urchins and seaweeds can lead to decreased productivity and changes in prey distribution and availability (MacKinnon et al. 2012). The recent industrialisation of harvesting methods in **China** has resulted in greater harvests of intertidal flora and fauna with less manual labour required, which is impacting ecosystem processes throughout the intertidal zone (MacKinnon et al. 2012). In many important shorebirds areas, the intertidal zone is a maze of fishing platforms, traps and nets that not only add to overfishing, but prevent access to shorebird feeding areas by causing human disturbance (Melville et al. 2016).

Altered hydrological regimes

Altered hydrological regimes can directly and indirectly threaten migratory shorebird habitats. Water regulation, including extraction of surface and ground water (for example, diversions upstream for consumptive or agricultural use), can lead to significant changes to flow regime, water depth and water temperature. Reduced water flows and associated reduced sediment discharge from the Yellow and Yangtze Rivers in China are having major impacts on near coast environments (Murray et al. 2015). Changes to flows can lead to permanent inundation or drying of connected wetlands, and changes to the timing, frequency and duration of floods. These changes impact both habitat availability and type (for example, loss of access to mudflats through permanent higher water levels, or a shift from freshwater to salt-tolerant vegetation communities), and the disruption of lifecycles of plants and animals in the food chain for migratory shorebirds.

Reduced recharge of local groundwater that occurs when floodplains are inundated can change the vegetation that occurs at wetland sites, again impacting habitat and food sources.

Water regulation can alter the chemical make-up of wetlands. For example, reduced flushing flows can cause saltwater intrusion or create hyper-saline conditions. Permanent inundation behind locks and weirs can cause freshwater flooding of formerly saline wetlands, as well as pushing salt to the surface through rising groundwater.

3.1.3 Climate change

Climate change is expected to have a major impact on coastal mudflats and breeding habitat throughout the EAAF. Such changes have the potential to impact on all migratory shorebirds and their habitats by reducing the extent of coastal and inland wetlands or through a poleward shift in the range of many species (Chambers et al. 2005; Iwamura et al. 2013; Wauchope et al. 2015). Climate change projections for the EAAF suggest likely increased temperatures, rising sea levels, more frequent and/or intense extreme climate events resulting in likely species loss and habitat degradation (Chambers et al. 2005, 2011; Iwamura et al. 2013; Nicol et al. 2015).

The Far Eastern Curlew's breeding range is in a region predicted to be one of the most heavily influenced by climate change (Wauchope et al. 2015). Rising annual and summer temperatures will

change the vegetation composition making areas less suitable as breeding habitat for the species. Predictions of decreasing precipitation in both winter and spring will lead to drying breeding habitat and loss of preferred nesting habitat around swampy ground. Depending on the exact geographical location and microclimate conditions, this could mean significant changes in key breeding habitats.

3.1.4 *Hunting, Poaching and Incidental Take*

Hunting of migratory shorebirds in **Australia** and **New Zealand** has been prohibited for a number of decades. It is unclear if illegal hunting occurs during the annual duck hunting season in certain Australian states. Far Eastern Curlews were shot for food in Tasmania, **Australia** until the 1970s (Park 1983; Marchant & Higgins 1993). Hunting also appears to have decreased in the **Republic of Korea**, with the only reported instance being minor hunting activity in Mangyeong Gang Hagu (Barter 2002).

Investigations into shorebird hunting activities at internationally important sites in **China** in the early 1990s, including in the Chang Jiang Estuary, Yellow River delta and Hangzhou Bay, suggested that tens of thousands of shorebirds were being trapped annually (Tang & Wang, 1991, 1992, 1995; Barter et al. 1997; Ma et al. 1998). Of 8,828 birds caught by hunters and identified there were 62 Far Eastern Curlews (0.7%) (Tang & Wang 1995). Studies during the 2000-2001 period indicate that hunting activity had declined at Chongming Dao, **China** (Ma et al. 2002).

Wang et al. (1991, 1992) reported hunting activity in the Yellow River Delta, estimating that 18,000-20,000 shorebirds were caught with clap nets during northward migration in 1992 and probably a higher number during southward migration in 1991. However, no hunting was observed in the Yellow River Delta during surveys in the 1997, 1998 and 1999 northward migrations (Barter 2002). With the exception of the Chang Jiang Estuary, no hunting activity was detected in **China** during shorebird surveys that covered about one-third of Chinese intertidal areas between 1996 and 2001 (Barter 2002).

They have been hunted at stopover points while on migration as well as on their breeding grounds in **Russia** where hunting has been reported since at least the 1980s (Tomkovich 1996), and Gerasimov et al. (1997) considered hunting to be main reason for the decline in numbers in Kamchatka. More recently, hunting of Far Eastern Curlew in **Russia** has been recorded as part of duck hunting (Victor Degtyaryev, Igor Fefelov, pers. comm. 2014). In **Russia** a special hunting season for shorebirds occurs before ducks, mainly for Whimbrels. It has been suggested that hunters cannot correctly identify Far Eastern Curlews compared to Whimbrels, particularly considering that young Far Eastern Curlews have a shorter bill in August (E. Syroechkovskiy). There are no current data on levels of take in the breeding grounds, and “occasional” hunting remains by most as a qualitative assessment, which is insufficient to assess population-level effects.

Mist-netting of shorebirds for local consumption and to supply local food markets still occurs in a number of countries, including **China**, although generally not in areas where Far Eastern Curlews are concentrated, (Melville et al. 2016). Incidental catch in fishnets, however, is known to kill Far Eastern Curlews in Liaoning, **China** (D.S. Melville unpublished). Deliberate poisoning of curlews using the organochloride pesticide hexachlorocyclohexane has also been reported in **China** (Melville et al. 2016). It is unclear if the Far Eastern Curlew makes up a significant proportion of the take, however, even if only small numbers are taken, the impact could be severe in the long-term. Turrin & Watts (2016) were unable to estimate sustainable harvest levels for Far Eastern Curlew due to gaps in knowledge of their life history. Considering that the current level of take across the entire range of this species is unknown, it is not justified to conclude that low levels of hunting at small spatial scales have negligible deleterious population-level effects.

Illegal fishing activities using gill nets, and abandoned gill nets on shore are potential impacts on the species in Mongolia (Gombobaatar et al. 2011).

3.1.5 *Disturbance*

Human disturbance of Far Eastern Curlew includes recreation, fishing, shell-fishing, research and monitoring activities. Disturbance from human activities has a high energetic cost to shorebirds and may compromise their capacity to build sufficient energy reserves to undertake migration (Goss-Custard et al. 2006; Weston et al. 2012; Lilleyman et al. 2016). Disturbance that renders an area unusable is equivalent to habitat loss and can exacerbate population declines. Disturbance is greatest where increasing human populations and development pressures impact important habitats. Migratory shorebirds are most susceptible to disturbance during daytime roosting and foraging periods. As an example, disturbance of migratory shorebirds in **Australia** is known to result from aircraft over-flights, industrial operations and construction, artificial lighting, and recreational activities such as fishing, off-road driving on beaches, unleashed dogs and jet-skiing (Weston et al. 2012; Lilleyman et al. 2016). Careful planning can allow for both recreational activities and maintenance of shorebird populations in important coastal habitats (Stigner et al. 2016).

A recent study by Martin et al. (2014) examined the responses to human presence of an abundant shorebird species in an important coastal migration staging area. Long-term census data were used to assess the relationship between bird abundances and human densities and to determine population trends. In addition, changes in individual bird behaviour in relation to human presence were evaluated by direct observation of a resident shorebird species. The results showed that a rapid increase in the recreational use of the study area in summer dramatically reduced the number of shorebirds and gulls which occurred, limiting the capacity of the site as a post-breeding stop-over area (Martin et al. 2014). In addition, the presence of people at the beach significantly reduced the time that resident species spent consuming prey. Martin et al. (2014) found negative effects of human presence on bird abundance remained constant over the study period, indicating no habituation to human disturbance in any of the studied species. Moreover, although intense human disturbance occurred mainly in summer, the human presence observed was sufficient to have a negative impact on the long-term trends of a resident shorebird species. Martin et al. (2014) suggested that the impacts of disturbance detected on shorebirds and gulls may be reversible through management actions that decrease human presence. The authors suggest minimum distances for any track or walkway from those areas where shorebirds are usually present, particularly during spring and summer, as well as appropriate fencing in the most sensitive areas.

Tidal flats in the Yellow Sea frequently have hundreds of people collecting sea food and undertaking aquaculture activities. In some areas where bivalve spat has been seeded out on to tidal flats fireworks are used to deliberately scare birds away, and firecrackers may be used by photographers to make birds fly for spectacular photographs (D.S. Melville unpublished). Disturbance from tourist camps and resorts near large lakes and rivers is also influence migrating individuals in Mongolia (Gombobaatar et al. 2011).

3.1.6 *Pollution*

Chronic pollution

Shorebird habitats are threatened by the chronic accumulation and concentration of pollutants. Chronic pollution may arise from both local and distant sources. Migratory shorebirds may be exposed to chronic pollution while utilising non-breeding habitats and along their migration routes, although the extent and implications of this exposure remains largely unknown although some studies have

been conducted in the **Republic of Korea** (Kim et al. 2007a, b; Kim & Koo 2008; Kim et al. 2009). In their feeding areas, shorebirds are most at risk from bioaccumulation of human-made chemicals such as organochlorines from herbicides and pesticides and industrial waste. High levels of DDT are still found in many parts of **China's** Yellow Sea coast, mostly apparently from anti-fouling paint used on wooden fishing boats (Melville et al. 2016). Agricultural, residential and catchment run-off carries excess nutrients, heavy metals, sediments and other pollutants into waterways, and eventually wetlands. Gold and other mining activities and pollution of wetlands, illegal fishing activities using gill nets, and abandoned gill nets on shore are potential impacts on the species in Mongolia (Gombobaatar et al. 2011). Shorebirds could be at risk from marine microplastics (Sutherland et al. 2012), as these birds prey on invertebrates that are known to ingest microplastics by filter-feeding. This gap in our current knowledge provides an opportunity for directed research.

Acute pollution

Wetlands and intertidal habitats are threatened by acute pollution caused by, for example, oil or chemical spillage (Melville 2015). Acute pollution generally arises from accidents, such as chemical spills from shipping, road or industrial accidents. Generally, migratory shorebirds are not directly affected by oil spills, but the suitability of important habitat may be reduced for many years through catastrophic loss of marine benthic food sources.

3.2 Threat prioritisation

Each of the threats outlined above has been assessed to determine the risk posed to Far Eastern Curlew populations using a risk matrix. This in turn determines the priority for actions outlined in Section 5. The risk matrix considers the likelihood of an incident occurring and the population level consequences of that incident. Threats may act differently in different locations and populations at different times of year, but the precautionary principle dictates that the threat category is determined by the group at highest risk. Population-wide threats are generally considered to present a higher risk.

The risk matrix uses a qualitative assessment drawing on peer reviewed literature and expert opinion. In some cases the consequences of activities are unknown. In these cases, the precautionary principle has been applied. Levels of risk and the associated priority for action are defined as follows:

- Very High - immediate mitigation action required
- High - mitigation action and an adaptive management plan required, the precautionary principle should be applied

Moderate – obtain additional information and develop mitigation action if required
 Low – monitor the threat occurrence and reassess threat level if likelihood or consequences change

Figure 2. Risk Prioritisation

Likelihood	Consequences				
	Not significant	Minor	Moderate	Major	Catastrophic

Almost certain	Low	Moderate	Very High	Very High	Very High
Likely	Low	Moderate	High	Very High	Very High
Possible	Low	Moderate	High	Very High	Very High
Unlikely	Low	Low	Moderate	High	Very High
Rare or Unknown	Low	Low	Moderate	High	Very High

Categories for likelihood are defined as follows:

- Almost certain – expected to occur every year
- Likely – expected to occur at least once every five years
- Possible – might occur at some time
- Unlikely – such events are known to have occurred on a worldwide basis but only a few times
- Rare or Unknown – may occur only in exceptional circumstances; OR it is currently unknown how often the incident will occur

Categories for consequences are defined as follows:

- Not significant – no long-term effect on individuals or populations
- Minor – individuals are adversely affected but no effect at population level
- Moderate – population recovery stalls or reduces
- Major – population decreases
- Catastrophic – population extinction

Figure 3. Far Eastern Curlew Population Residual Risk Matrix

Likelihood of occurrence	Consequences				
	Not significant	Minor	Moderate	Major	Catastrophic
Almost certain		Harvesting of shorebird prey	Hunting, Poaching and Incidental Take Disturbance	Climate change	Habitat loss
Likely		Chronic pollution Invasive species	Altered hydrological regimes Structural modification of feeding flats Farming		
Possible					
Unlikely			Acute pollution		
Rare or Unknown					

4. **POLICIES AND LEGISLATION RELEVANT FOR MANAGEMENT**

4.1 International conservation and legal status of the species

IUCN Status	CMS
<p>EndangeredA2bc+3bc+4bc (2015):</p> <p>A taxon is Endangered when the best available evidence indicates that it meets any of the following criteria (A to E), and it is therefore considered to be facing a very high risk of extinction in the wild:</p> <p>A. Reduction in population size based on any of the following:</p> <p>1. An observed, estimated, inferred or suspected population size reduction of $\geq 70\%$ over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are clearly reversible AND understood AND ceased, based on (and specifying) any of the following:</p> <p>(a) direct observation</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.</p> <p>2. An observed, estimated, inferred or suspected population size reduction of $\geq 50\%$ over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.</p>	<p>Appendix I (2011)</p> <p>Appendix II as part of the Scolopacidae.</p> <p>Designated for Concerted and Cooperative action at COP11 (Quito, Ecuador, 2014).</p>

<p>3. A population size reduction of \geq 50%, projected or suspected to be met within the next 10 years or three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of (b) to (e) under A1.</p> <p>4. An observed, estimated, inferred, projected or suspected population size reduction of \geq 50% over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both the past and the future, and where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.</p>	
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4.2 International conventions and agreements ratified by Range States

Country	CMS	CBD	Ramsar	EAAFP
Australia	✓	✓	✓	✓
Brunei Darussalam		✓		
Cambodia		✓	✓	✓
China		✓	✓	✓
Fiji*	✓	✓	✓	
Guam (to USA)*			✓	
Indonesia		✓	✓	✓
Japan		✓	✓	✓
Democratic People's Republic of Korea		✓		
Republic of Korea		✓	✓	✓

Malaysia		✓	✓	✓
Federated States of Micronesia*		✓		
Mongolia	✓	✓	✓	✓
New Zealand	✓	✓	✓	✓
New Caledonia & French Polynesia (to France)*	✓	✓	✓	
Northern Mariana Islands (to USA)*			✓	
Palau	✓	✓	✓	
Papua New Guinea		✓	✓	
Philippines	✓	✓	✓	✓
Russian Federation		✓	✓	✓
Singapore		✓		✓
Thailand		✓	✓	✓
Timor-Leste		✓		
Vietnam		✓	✓	✓

* Considered a vagrant.

4.3 National legislation relevant to the Far Eastern Curlew

Country	National Protection Status	Law protecting species	Legal protection from illegal killing, taking, trading, keeping or moving.	Penalties	Responsible Authority
Australia	<p>Commonwealth: Critically Endangered</p> <p>State:</p> <p>QLD:Near threatened NSW: Not listed NT:Vulnerable SA:Vulnerable TAS: Endangered WA:Vulnerable VIC:Vulnerable</p>	<p>Australia has a Federal Government with 8 separate State or Territory Governments.</p> <p>The Australian Government has responsibility for matters in the national interest, and for non-state/territory areas, which includes the marine environment from 3 nautical miles out to the edge of the Exclusive Economic Zone (EEZ). The State and Territory governments have responsibility for issues within their jurisdictional borders, including State/Territory waters.</p> <p>Far Eastern Curlews are listed as threatened,</p>	<p>Yes, through Commonwealth and State/Territory implementing legislation.</p>	<p>The EPBC Act provides penalties (financial and incarceration time) for various offences relating to listed threatened and migratory shorebirds.</p> <p>Penalties for offenses relating to native wildlife exist under other Commonwealth, State and Territory legislation.</p>	<p>Department of the Environment (Commonwealth)</p>

Country	National Protection Status	Law protecting species	Legal protection from illegal killing, taking, trading, keeping or moving.	Penalties	Responsible Authority
		<p>migratory and marine under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). It is an offence to kill, injure, take, trade, keep or move the species in a Commonwealth area (i.e. Commonwealth waters), unless the person taking the action holds a permit under the EPBC Act.</p> <p>Implementing legislation:</p> <p>Commonwealth: <i>Environment Protection and Biodiversity Conservation Act 1999</i></p> <p>QLD: <i>Nature Conservation Act 1992</i> NSW: <i>Threatened Species Conservation Act 1995; National Parks and</i></p>			

Country	National Protection Status	Law protecting species	Legal protection from illegal killing, taking, trading, keeping or moving.	Penalties	Responsible Authority
		<p><i>Wildlife Act 1974</i></p> <p>NT: <i>Territory Parks and Wildlife Conservation Act 2000</i></p> <p>SA: <i>National Parks and Wildlife Act 1972</i></p> <p>TAS: <i>Threatened Species Protection Act 1995; Living Marine Resources Management Act 1995</i></p> <p>WA: <i>Wildlife Conservation Act 1950; Conservation and Land Management Act 1984</i></p> <p>VIC: <i>Wildlife Act 1975; Flora and Fauna Guarantee Act 1988</i></p>			
Brunei Darussalam					
Cambodia					
China	Far Eastern Curlew is listed in the <i>Lists of terrestrial wildlife under state protection, which are beneficial or of important economic or scientific value.</i>	<p><i>Environmental Protection Law 1989</i></p> <p><i>Law of the People's Republic of China on the Protection of Wildlife 1988</i></p>	<p>Law of the People's Republic of China on the Protection of Wildlife indicates:</p> <p>-Hunting without license is prohibited</p>		

Country	National Protection Status	Law protecting species	Legal protection from illegal killing, taking, trading, keeping or moving.	Penalties	Responsible Authority
		<i>Marine Environment Protection Law 1999</i>	<p>-Activities which are harmful to the living and breeding of wildlife shall be prohibited.</p> <p>- The areas and seasons closed to hunting as well as the prohibited hunting gear and methods shall be specified by governments at or above the county level or by the departments of wildlife administration under them</p> <p>- The hunting or catching of wildlife by the use of military weapons, poison or explosives shall be prohibited.</p>		

Country	National Protection Status	Law protecting species	Legal protection from illegal killing, taking, trading, keeping or moving.	Penalties	Responsible Authority
Hong Kong Special Administrative Region of China	Protected	<i>Wild Animals Protection Ordinance</i>	Hunting and possession prohibited	Depending on offense; imprisonment or a fine of HK\$10,000-100,000.	Agriculture, Fisheries and Conservation Department
Indonesia					
Japan	National Red List: Vulnerable	Far Eastern Curlew is designated as a rare wild animal species under the <i>Wildlife Protection Control and Hunting Management Act</i> , and taking of the birds or their eggs is prohibited unless the person taking the action holds a permit by the Minister of the Environment.	Taking of the birds or their eggs is prohibited unless the person taking the action holds a permit by the Minister of the Environment.	The <i>Wildlife Protection Control and Hunting Management Act</i> provides penalties (financial and incarceration time) for illegal taking of the birds and their eggs.	Ministry of the Environment
Democratic People's Republic of Korea					

Country	National Protection Status	Law protecting species	Legal protection from illegal killing, taking, trading, keeping or moving.	Penalties	Responsible Authority
Republic of Korea	Endangered Species II Marine Organisms under Protection	<i>Wildlife Protection and Management Act</i> <i>Conservation and Management of Marine Ecosystems Act</i>	Protected legally by prohibition of illegal capture, collecting, keeping, trading.	Punished by imprisonment for not more than 3 years or by a fine not exceeding 30 million won.	Ministry of Environment Ministry of Oceans and Fisheries
Malaysia	No National Red List for Birds	Peninsular Malaysia: Wildlife Conservation Act 2010 (Totally Protected) Sarawak: Wildlife Protection Ordinance 1998 (Protected) Sabah: Wildlife Conservation Enactment 1997 (Protected)	No hunting, taking etc in Peninsular Malaysia under the law. For Sabah and Sarawak, limited hunting is permitted with proper licence.	Jail term and/or financial penalties.	Peninsular Malaysia: Department of Wildlife and National Parks (PERHILITAN) Sarawak: Sarawak Forestry Corporation (SFC) Sabah: Sabah Wildlife Department (SWD)
Mongolia	In Mongolia, it is assessed as Least Concern. Approximately 7.1% of the species' range in Mongolia occurs within protected areas	Mongolian Law on Nature Protection (2005), Mongolian Law on Fauna (2012)	Mongolian Law on Nature Protection (2005), Mongolian Law on Fauna (2012)		Ministry of Environment and Tourism of Mongolia

Country	National Protection Status	Law protecting species	Legal protection from illegal killing, taking, trading, keeping or moving.	Penalties	Responsible Authority
	(Gombobaatar et al. 2011).				
New Zealand	New Zealand Threat Classification Status: Migrant (Robertson et al. 2013)	Far Eastern Curlew are "Absolutely Protected Wildlife" pursuant to the <i>Wildlife Act 1953</i> .	Taking of the birds or their eggs is prohibited unless the person taking the action holds an Authority issued by the Department of Conservation.	The Wildlife Act provides penalties (financial and incarceration time) for various offences relating to absolutely protected wildlife.	Department of Conservation.
Palau					
Papua New Guinea					
Philippines		<i>Wildlife Conservation and Protection Act of 2001</i> (R.A. 9147)	Illegal capture, trading, transport is prohibited.	Provisions for penalties include financial and imprisonment	Department of Environment and natural Resources
Russian Federation	Listed in Red Data Book of Birds	Yes	Yes	Yes	Ministry of Nature Resources and Ecology
Singapore	Rare passage migrant	<i>Parks & Trees Act, Wild Animals and Birds Act</i>	Yes	Penalties (financial and/or incarceration)	National Parks Board Agri-Food & Veterinary Authority of Singapore

Country	National Protection Status	Law protecting species	Legal protection from illegal killing, taking, trading, keeping or moving.	Penalties	Responsible Authority
Thailand					
Timor-Leste					
Vietnam					

5. FRAMEWORK FOR ACTION

5.1 Goal

To restore the Far Eastern Curlew's population to a positive growth rate for a period of at least three generations.

5.2 Objectives, Actions and Results

The objectives and corresponding actions and results are set out in the tables below for all threats identified for the Far Eastern Curlew in the EAAF. Tables have been listed according to ratings assigned in the risk matrix.

Actions are prioritized as:

- Essential
- High
- Medium
- Low

Timescales are attached to each Action using the following scale:

- Immediate: completed within the next year
- Short: completed within the next 3 years
- Medium: completed within the next 5 years
- Long: completed within the next 10 years
- Ongoing: currently being implemented and should continue

Objective 1: Protect all important habitats for Far Eastern Curlew across its range.				
Result	Action	Priority	Time Scale	Organisations responsible
1.1 All important staging and non-breeding sites along the EAAF are adequately protected and, where possible, managed .	1.1.1 Important non-breeding areas are identified Applicable to: All Range States that support staging and non-breeding habitat	Essential	Short	Government institutions in charge of nature conservation International and National conservation NGOs Academic institutions
	1.1.2 Important non-breeding areas are adequately managed Applicable to: All Range States that support staging and non-breeding habitat	Essential	Medium	Government institutions in charge of nature conservation International and National conservation NGOs

	<p>1.1.3 Important non-breeding areas are adequately protected</p> <p>Applicable to: All Range States that support staging and non-breeding habitat</p>	Essential	Medium	<p>Government institutions in charge of nature conservation</p> <p>International and National conservation NGOs</p>
<p>1.2 Breeding habitats are adequately protected and, where possible, managed.</p>	<p>1.2.1 Important breeding areas are identified</p> <p>Applicable to: Russia and China</p>	Essential	Short	<p>Government institutions in charge of nature conservation</p> <p>International and National conservation NGOs</p> <p>Academic institutions</p>
	<p>1.2.2 Important breeding areas are adequately managed</p> <p>Applicable to: Russia and China</p>	Essential	Medium	<p>Government institutions in charge of nature conservation</p> <p>International and National conservation NGOs</p>
	<p>1.2.3 Important breeding areas are adequately protected</p> <p>Applicable to: Russia and China</p>	Essential	Medium	<p>Government institutions in charge of nature conservation</p> <p>International and National conservation NGOs</p>
<p>Objective 2: Establish a climate change response plan for Far Eastern Curlew</p>				
<p>2.1 The impacts of climate change on Far Eastern Curlew are buffered.</p>	<p>2.1.1 Quantify and predict changes to important breeding habitat</p> <p>Applicable to: All Range States that support breeding habitat</p>	Medium	Medium	<p>Government institutions in charge of nature conservation</p> <p>International and National conservation NGOs</p> <p>Academic institutions</p>

	<p>2.1.2 Quantify and predict changes to important staging and non-breeding sites</p> <p>Applicable to: All Range States that support staging and non-breeding habitat</p>	Medium	Medium	<p>Government institutions in charge of nature conservation</p> <p>International and National conservation NGOs</p> <p>Academic institutions</p>
	<p>2.1.3 Validate predictions of population response to climate change against measured data</p> <p>Applicable to: All Range States</p>	Medium	Long	<p>Government institutions in charge of nature conservation</p> <p>International and National conservation NGOs</p> <p>Academic institutions</p>
	<p>2.1.4 Identify potential shifts in nesting and non-breeding distribution and ensure adequate coverage of these areas in protected areas</p> <p>Applicable to: All Range States that support breeding and non-breeding habitat</p>	Medium	Long	<p>Government institutions in charge of nature conservation</p> <p>International and National conservation NGOs</p> <p>Academic institutions</p>
Objective 3: Ensure the legal direct take of Far Eastern Curlew is eliminated				
3.1 Far Eastern Curlew populations subject to legal direct take are protected	<p>3.1.1 Immediately cease all forms of legal direct take of Far Eastern Curlew</p> <p>Applicable to: All Range States where legal hunting occurs.</p>	Essential	Short	<p>Government institutions in charge of nature conservation</p> <p>International and National conservation NGOs</p>
Objective 4: Reduce, or eliminate, illegal take of Far Eastern Curlew				
4.1 The areas where the illegal take of Far Eastern Curlews occurs are identified	<p>4.1.1 Identify key areas where Far Eastern Curlew illegal take occurs</p> <p>Applicable to: All Range States</p>	Essential	Short	<p>Government institutions in charge of nature conservation</p> <p>International and National</p>

				conservation NGOs
	4.1.2 Strengthen legal mechanisms in areas affected by harvesting, trading and illegal use Applicable to: All Range States	Essential	Medium	Government institutions in charge of nature conservation.
4.2 Reduced illegal take of Far Eastern Curlew	4.2.1 Promote the enforcement of legal mechanisms to reduce illegal take Applicable to: All Range States	Essential	Short	Government institutions in charge of nature conservation International and National conservation NGOs
	4.2.2 Implement an educational awareness programme, which may include incentives for best practice, aimed at reducing the illegal and incidental take of Far Eastern Curlew in the EAAF Applicable to: All Range States	Medium	Immediate	Government institutions in charge of nature conservation International and National conservation NGOs
Objective 5: Support activities to reduce the risk and impact of chronic and acute pollution on Far Eastern Curlew in coastal foraging areas				
5.1 Reduced chronic pollution in sites of international importance	5.1.1 Work with policy and regulatory authorities to reduce levels of pollution Applicable to: All Range States	Medium	Medium	Government institutions in charge of nature conservation and pollution control International and National conservation NGOs Academic institutions
5.2 Monitoring programmes are in place to measure the impact of chronic pollution within coastal waters on the health of Far Eastern Curlew	5.2.1 Monitor water quality and Far Eastern Curlew health in key coastal staging and non-breeding sites Applicable to: All Range States that support staging and non-breeding habitat	Low	Medium	Government institutions in charge of nature conservation International and National conservation NGOs Academic institutions
Objective 6: To monitor the population dynamics of Far Eastern Curlew in the EAAF to detect population responses to management implemented under this Single Species Action Plan				

6.1 Demographic data are available to allow assessment of the response of Far Eastern Curlew to anthropogenic impacts throughout the EAAF	6.1.1 Establish, or maintain long-term monitoring system of key demographic parameters following best practice guidelines Applicable to: All Range States	High	Medium	Government institutions in charge of nature conservation International and National conservation NGOs Academic institutions
	6.1.2 Monitor numbers of birds at a statistically robust sample of staging and non-breeding sites and undertake analysis of data to improve the accuracy of the global population estimate Applicable to: All Range States that support staging and non-breeding habitat	Essential	Immediate	Government institutions in charge of nature conservation International and National conservation NGOs Academic institutions
	6.1.3 Monitor numbers at a statistically robust sample of breeding areas in Russia and China Applicable to: Russia and China	Essential	Immediate	Government institutions in charge of nature conservation International and National conservation NGOs Academic institutions
	6.1.4 Initiate research to accurately determine: <ul style="list-style-type: none"> • Population structure • Population trends • Adult and juvenile survival • Productivity • Nest survival and causes of nest loss • Chick survival • Breeding density • Foraging ecology and diet Applicable to: All Range States	Medium	Ongoing	Government institutions in charge of nature conservation International and National conservation NGOs Academic institutions
	6.1.5 Identify through satellite tracking the migratory routes and non-breeding distributions of birds from different breeding	Medium	Immediate	International and National conservation NGOs

	populations, particularly while on southward migration. Applicable to: All Range States			Academic institutions
	6.1.6 Maintain an internationally coordinated colour-marking scheme through the EAAFP Colour-marking Task Force and relevant national bird banding programmes Applicable to: All Range States	Medium	On-going	Government institutions in charge of nature conservation International and National conservation NGOs East Asian – Australasian Flyway Partnership
Objective 7: Assess the risk and impact of disturbance on Far Eastern Curlew				
7.1 The effect of disturbance on Far Eastern Curlew has been quantified	7.1.1 Quantify the impact of disturbance on the breeding grounds and assess the likely impact on the population Applicable to: Russia and China	High	Medium	Government institutions in charge of nature conservation International and National conservation NGOs Academic institutions
	7.1.2 Quantify the level of disturbance in key staging and non-breeding sites and assess the likely impact on the population Applicable to: All Range States that support staging and non-breeding habitat	High	Medium	Government institutions in charge of nature conservation International and National conservation NGOs Academic institutions
Objective 8: All Range States are actively implementing the Single Species Action Plan				
8.1 International cooperation is maximised through the full engagement of all Range States in relevant multilateral frameworks	8.1.1 Consider developing national action plans to assist in the implementation of this Single Species Action Plan Applicable to: All Range States	High	Immediate	Government institutions in charge of nature conservation International and National conservation NGOs

	8.1.2 Consider accession to all relevant multilateral frameworks by Range States Applicable to: All Range States	High	Long	Government institutions in charge of nature conservation International and National conservation NGOs
	8.1.3 Maintain the active work of the EAAFP Far Eastern Curlew Task Force to coordinate implementation of the Single Species Action Plan Applicable to: All Range States	Essential	Long	Government institutions in charge of nature conservation International and National conservation NGOs
	8.1.4 Hold regular meetings to exchange information and plan joint actions for the conservation of the Far Eastern Curlew Applicable to: All Range States	Essential	On-going	Government institutions in charge of nature conservation International and National conservation NGOs Academic Institutions
Objective 9: Raise public awareness of the Far Eastern Curlew and disseminate information material				
9.1 Use modern technologies and social media to raise public awareness	9.1.1 Prepare a brochure in Range States' languages and disseminate widely Applicable to: All Range States	High	Short	International and National conservation NGOs
9.2 Target local authorities and decision-makers on the needs of Far Eastern Curlew	9.2.1 Develop materials to raise awareness amongst local authorities responsible for approving developments at important sites identified in Action 1.1 and 1.2	High	Short	International and National conservation NGOs

6. REFERENCE

- Alcorn, R. (1988). Australasian Wader Study Group Regular Wader Counts Project. Interim report to June 1987: Migratory waders. *Stilt* 12: 7-23.
- Amano, T., Székely, T., Koyama, K., Amano, H., & Sutherland, W.J. (2010). A framework for monitoring the status of populations: an example from wader populations in the East Asian-Australasian flyway. *Biological Conservation* 143: 2238-2247.
- Antonov, A.I. (2010). Nesting ecology of the Eastern Curlew, *Numenius madagascariensis* (Linnaeus, 1766) in the South of the species range. *Russian Journal of Ecology* 41: 345-346.
- Australian Government (2015a). *Numenius madagascariensis* in Species Profile and Threats Database, Department of the Environment, Canberra. Available from: <http://www.environment.gov.au/sprat>. (Accessed 22/06/2015)
- Australian Government (2015b). Wildlife Conservation Plan for Migratory Shorebirds. <http://www.environment.gov.au/biodiversity/publications/wildlife-conservation-plan-migratory-shorebirds-2016> (Accessed 07/02/2016).
- Australian Government (2015c). EPBC Act Policy Statement 3.21 – Industry Guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species <http://www.environment.gov.au/epbc/publications/shorebirds-guidelines> (Accessed 07/02/2016).
- Bai, Q., Chen, J., Chen, Z., Dong, G., Dong, J., Dong, W., Fu, V.W.K., Han, Y., Lu, G., Li, J., Liu, Y., Lin, Z., Meng, D., Martinez, J., Ni, G., Shan, K., Sun, R., Tian, S., Wang, F., Xu, Z., Yu, Y-T., Yang, J., Yang, Z., Zhang, L., Zhang, M. & Zeng, X. (2015) Identification of coastal wetlands of international importance for waterbirds: a review of China Coastal Waterbirds Surveys 2005-2013. *Avian Research* 6:12
- Bamford, M., Watkins, D., Bancroft, W., Tischler, G. & Wahl, J. (2008). Migratory Shorebirds of the East Asian – Australasian Flyway; Population Estimates and Internationally Important Sites. Wetlands International – Oceania. Canberra, Australia.
- Barter, M. (2002). Shorebirds of the Yellow Sea: Importance, threats and conservation status. Wetlands International Global Series 9, International Wader Studies 12. Canberra, Australia.
- Barter, M., Qian, F.W., Tang, S.X., Yuan, X. & Tonkinson, D. (1997). Hunting of migratory waders on Chongming Dao: a declining occupation? *Stilt* 31: 19-22.
- Bheeler, B.M. & Pratt, T.K. (2016). Birds of New Guinea. Princeton: Princeton University Press.
- BirdLife International (2015a). *Numenius madagascariensis*. The IUCN Red List of Threatened Species 2015: e.T22693199A67194768. <http://dx.doi.org/10.2305/IUCN.UK.2015-4.RLTS.T22693199A67194768.en> (Accessed 22/11/2016)
- BirdLife International (2015b). Species factsheet: *Numenius madagascariensis*. Downloaded from <http://www.birdlife.org> on 22/07/2015.
- Boersma, P.D., Kareiva, P., Fagan, W.F., Clark, J.A. & Hoekstra, J.M. (2001). How good are endangered species recovery plans? *BioScience* 51: 643-649.
- Brazil, M. A. (1991). The birds of Japan. London: Christopher Helm.

- Brown, D., Crockford, N., & Sheldon, R. (2014). Drivers of population change and conservation priorities for the Numeniini population of the world. Conservation statements for the 13 species and 38 biogeographic populations of curlews, godwits and the upland sandpiper. BirdLife International and the International Wader Study Group.
- Caldow, R. W. G., Beadman, H.A., McGrorty, S., Kaiser, M.J., Goss-Custard, J.D., Mould, K. & Wilson, A. (2003). Effects of intertidal mussel cultivation on bird assemblages. *Marine Ecology Progress Series* 259:173-183.
- Carey, G.J., Chalmers, M.L., Diskin, D.A., Kennerley, P.R., Leader, P.J., Leven, M.R., Lewthwaite, R.W., Melville, D.S., Turnbull, M. & Young, L. (2001). The avifauna of Hong Kong. Hong Kong: Hong Kong Bird Watching Society.
- Carr, P. (2015) Birds of the British Indian Ocean Territory, Chagos archipelago, central Indian Ocean. *Indian Birds* 10: 57-70.
- Chambers, L.E., Hughes, L. & Weston, M.A. (2005). Climate change and its impact on Australia's avifauna. *Emu* 105: 1-20.
- Chambers, L.E., Deveny, C.A., Congdon, B.C., Dunlop, N., Woehler, E.J. & Dann, P. (2011) Observed and predicted effects of climate on Australian seabirds. *Emu* 111: 235-257.
- Chan, S., Chen, S.H. & Yuan, H.W. (2010). International Single Species Action Plan for the Conservation of the Chinese Crested Tern (*Sterna bernsteini*). BirdLife International Asia Division, Tokyo, Japan; CMS Secretariat, Bonn Germany. 22 pages. Technical Report Series 21.
- Chan, S., Fang W.H., Lee, K.S., Yamada, Y. & Yu, Y.T. (2010). International Single Species Action Plan for the Conservation of the Black-faced Spoonbill (*Platalea minor*) BirdLife International Asia Division, Tokyo, Japan; CMS Secretariat, Bonn Germany. 74 pages. Technical Report Series 22.
- Checklist Committee (OSNZ). (2010) Checklist of the birds of New Zealand, Norfolk and Macquarie Islands, and the Ross Dependency, Antarctica. (4th. Ed.). Wellington: Ornithological Society of New Zealand & Te Papa Press.
- Chen, K. & Qiang, X. (2006). Conserving migratory shorebirds in the Yellow Sea region. In Waterbirds around the World. (Eds G Boere, C Galbraith and D Stroud) p. 319. The Stationary Office, Edinburgh, UK.
- Choi, C.Y., Rogers, K.G., Gan, X.J., Clemens, R.S., Bai, Q.Q., Lilleyman, A., Lindsey, A., Milton, D.A., Straw, P., Yu, Y.T., Battley, P.F., Fuller, R.A. & Rogers, D.I. (2016). Phenology of southward migration of shorebirds in the East Asian-Australasian Flyway and inferences about stop-over strategies. *Emu* 116: 178-189.
- Clemens, R.S., Rogers, D.I., Hansen, B.D., Gosbell, K., Minton, C.D.T., Straw, P., Bamford, M., Woehler, E.J., Milton, D.A., Weston, M.A., Venables, B., Weller, D., Hassell, C., Rutherford, B., Onton, K., Herrod, A., Studds, C.E., Choi, C.Y., Dhanjal-Adams, K.L., Murray, N.J., Skilleter, G.A. & Fuller, R.A. (2016). Continental-scale decreases in shorebird populations in Australia. *Emu* 116: 119-135.
- Close, D.H. & Newman, O.M.G. (1984). The decline of the Eastern Curlew in south-eastern Australia. *Emu* 84: 38-40.
- Collins, P., Boyle, A., Minton, C. & Jessop, R. (2001). The importance of inland claypans for waders in Roebuck Bay, Broome, NW Australia. *Stilt* 38: 4-8.

- Conklin, J.R., Verkuil, Y.I. & Smith, B.R. (2014). Prioritizing migratory shorebirds for conservation action on the East Asian-Australasian Flyway. Hong Kong: WWF Hong Kong.
- Connolly, L. M. & M. A. Colwell. (2005). Comparative use of long line oyster beds and adjacent tidal flats by waterbirds. *Bird Conservation International* 15:237-255.
- Dann, P. (2005). Is bill length in curlew *Numenius* associated with foraging habitats and diet in non-breeding grounds? *Wader Study Group Bulletin* 106: 60-61.
- Dann, P. (2014). Prey availability, and not energy content, explains diet and prey choice of Eastern Curlews *Numenius madagascariensis* in southern Australia. *Ardea* 102: 213-224.
- del Hoyo, J., Collar, N. J., Christie, D. A., Elliott, A. & Fishpool, L. D. C. (2014). *Handbook of the Birds of the World and BirdLife International Illustrated Checklist of the Birds of the World*. Lynx Editions BirdLife International.
- del Hoyo, J., Elliott, A. & Sargatal, J., (eds) (1996). *Handbook of the Birds of the World. Volume 3, Hoatzin to Auks*. Barcelona: Lynx Editions.
- Dement'ev, G.P. & Gladkov, N.A. (eds) (1951). *Birds of the Soviet Union, Volume 3*. Jerusalem: Israel Program for Scientific Translations.
- Dickinson, E.C., Kennedy, R.S. & Parkes, K.C. (1991). *The birds of the Philippines*. Tring: British Ornithologists' Union.
- Driscoll, P.V. & Ueta, M. (2002). The migration route and behaviour of Eastern Curlews *Numenius madagascariensis*. *Ibis*. 144: E119-E130.
- Eames, J.C. (1997). Some additions to the birds of Vietnam. *Forktail* 12: 163-166.
- Evans, P. R., Ward, R.M., Bone, M. & Leakey, M. (1998). Creation of temperate climate intertidal mudflats: factors affecting colonization and use by benthic invertebrates and their bird predators. *Marine Pollution Bulletin* 37:535-545.
- Finn, P.G. (2009). Habitat selection, foraging ecology and conservation of Eastern Curlews on their non-breeding grounds. PhD thesis. Griffith School of Environment and Centre for Innovative Conservation Strategies, Griffith University, Nathan Campus, Brisbane.
- Finn, P.G., Catterall, C.P. & Driscoll, P.V. (2008). Prey versus substrate as determinants of habitat choice in a feeding shorebird. *Estuarine, Coastal and Shelf Science*. 80: 381-390.
- Finn, P.G., Catterall, C.P. & Driscoll, P.V. (2007). Determinants of preferred intertidal feeding habitat for Eastern Curlew: A study at two spatial scales. *Austral Ecology*. 32: 131-144.
- Finn, P.G., Driscoll, P.V. & Catterall, C.P. (2002). Eastern Curlew numbers at hightide roosts versus low tide feeding grounds: a comparison at three spatial scales. *Emu*.102: 233-239.
- Finn, P.G., Catterall, C.P. & Driscoll, P.V. (2001). The low tide distribution of Eastern Curlew on feeding grounds in Moreton Bay, Queensland. *Stilt*. 38: 9-17.
- Fuller, R.A., Wilson, H.B., Kendall, B.E. & Possingham, H.P. (2009). Monitoring shorebirds using counts by the Queensland Wader Study Group. Report to the Queensland Wader Study Group and the Department of Environment and Resource Management, Melbourne.
- Garnett, S.T., Szabo, J.K. & Dutson, G. (2011). *The Action Plan for Australia Birds 2010*. Birds Australia, CSIRO Publishing, Melbourne.

- Gerasimov, Y.N., Artukin, Y.B. & Gerasimov, N.N. (1997). The Eastern Curlew *Numenius madagascariensis* in Kamchatka, Russia. *Stilt* 30: 14-15.
- Gibson, D.D. & Byrd, G.V. (2007). Birds of the Aleutian Islands, Alaska. Cambridge Massachusetts and Washington, DC: Nuttall Ornithological Club and American Ornithologists' Union.
- Gombobaatar, S. & Monks, E.M. (2011). Mongolian Red List of birds. Regional Red List Series vol. 7. Birds. London and Ulan Bator: Zoological Society of London, National University of Mongolia and Mongolian Ornithological Society.
- Gosbell, K., Minton, C. & Fox, J. (2012). Geolocators reveal incubation and re-nesting characteristics of Ruddy Turnstones *Arenaria interpres* and Eastern Curlews *Numenius madagascariensis*. *Wader Study Group Bulletin* 119: 160-171.
- Goss-Custard, J.D., Triplet, P., Sueur, F. & West, A.D., (2006). Critical thresholds of disturbance by people and raptors in foraging wading birds. *Biological Conservation* 127: 88-97.
- Hansen, B.D., Fuller, R.A., Watkins, D., Rogers, D.I., Clemens, R.S., Newman, M., Woehler, E.J. & Weller, D.R. (2016). Revision of the East Asian – Australasian Flyway Population Estimates for 37 listed Migratory Shorebird Species. Unpublished Report for the Department of the Environment. BirdLife Australia, Melbourne.
- Harding, J., Harding, S. & Driscoll, P. (1999). Empire Point Roost: a purpose built roost site for waders. *Stilt* 34: 46-50.
- Higgins, P.J. & Davies S.J.J.F. (eds). (1996). *Handbook of Australian, New Zealand and Antarctic Birds. Volume 3 – Snipe to Pigeons*. Melbourne, Victoria: Oxford University Press.
- Hilgerloh, G., Halloran, J.O., Kelly, T.C. & Burnell, G.M.. (2001). A preliminary study on the effects of oyster culturing structures on birds in a sheltered Irish estuary. *Hydrobiologia* 465:175-180.
- Ilyashenko, E., Smirenski, E., Moore, S., Prentice, C., Mirande, C. & Hyslop, D. (2008) Conservation measures for the Siberian Crane. 4th Edition. CMS Secretariat, Bonn Germany. Technical Report Series 16.
- Iwamura, T., Possingham, H.P., Chadès, I., Minton, C., Murray, N.J., Rogers, D.I., Treml, E.A. & Fuller, R.A. (2013). Migratory connectivity magnifies the consequences of habitat loss from sea-level rise for shorebird populations. *Proceedings of the Royal Society B* 281:20130325.
- Kim, J.S., Park, S.K. & Koo, T.H. (2007a). Trace elements and pollutants concentrations in shorebirds from Yeongjong Island, Korea in the East Asian-Australian migration flyways. *Ecotoxicology* 16: 403-410.
- Kim, J.S., Park, S.K. & Koo, T.H. (2007b). Lead and cadmium concentrations in shorebirds from the Yeongjong Island, Korea. *Environmental Monitoring and Assessment* 134: 355-361.
- Kim, J.S. & Koo, T.H. (2008). Heavy metal concentrations in feathers of Korean shorebirds. *Archives in Environmental Contamination and Toxicology* 55: 122-128.
- Kim, J.S., Lee, H.S. & Koo, T.H. (2009). Heavy metal concentrations in three shorebird species from Okgu mudflat, Gunsan, Korea. *Ecotoxicology* 18: 61-68.
- Kragh, W.D., Kautsek, B.M., Ireland, J. & Sian, E. (1986). Far Eastern Curlew in Canada. *American Birds* 40: 13-15.
- Lane, B.A. (1987). *Shorebirds in Australia*. Sydney, NSW: Reed.

- Lee, S.Y., Dunn, R.J.K., Young, R.A., Connolly, R.M., Dale, P.E.R., Dehayr, R., Lemckert, C.J., McKinnon, S., Powell, B., Teasdale, P.R. & Welsh, D.T. (2006). Impact of urbanization on coastal wetland structure and function. *Austral Ecology* 31: 149-163.
- Lewis, L. J. & T. C. Kelly. (2001). A short-term study of the effects of algal mats on the distribution and behavioural ecology of estuarine birds. *Bird Study* 48:354-360.
- Li, D.Z.W. & Mundkur, T. (2004). Numbers and distribution of waterbirds and wetlands in the Asia-Pacific region. Results of the Asian waterbird Census: 1997-2001. Kuala Lumpur, Malaysia: Wetlands International.
- Li, D.Z.W., Yeap, C.A., Lim, K.C., Kumar, K., Lim, A.T., Yang, C. & Choy, W.M. (2006). Shorebird surveys of the Malaysian coast November 2004-April 2005. *Stilt* 49: 7-18.
- Li, D.Z.W., Bloem, A., Delany, S., Martakis, G. & Quintero, J.O. (2009). Status of waterbirds in Asia. Results of the Asian Waterbird Census: 1987-2007. Kuala Lumpur, Malaysia: Wetlands International.
- Lilleyman, A., Franklin, D.C., Szabo, J.K. & Lawes, M.J. (2016). Behavioural responses of migratory shorebirds to disturbance at a high-tide roost. *Emu* 116: 111-118.
- Lilleyman, A., Garnett, S.T., Rogers, D.I. & Lawes, M.J. (2016). Trends in relative abundance of the Eastern Curlew (*Numenius madagascariensis*) in Darwin, Northern Territory. *Stilt* 68: 25-30.
- Liu, H.Y., Zhang, S.K., Li, Z.F., Lu, X.G. & Yang, Q. (2004). Impacts on wetlands of large-scale land-use changes by agricultural development: The small Sanjiang Plain, China. *Ambio* 33: 306-310.
- Liu, J.P., Sheng, L.X., Lu, X.G. & Liu, Y. (2015). A dynamic change map of marshes in the Small Sanjiang Plain, Heilongjiang, China, from 1955 to 2005. *Wetlands Ecology and Management* 23: 419-437.
- Liu, C.Y., Jiang, H.X., Zhang, S.Q., Li, C.R., Pan, X., Lu, J. & Hou, Y.Q. (2016). Expansion and management implications of invasive alien *Spartina alterniflora* in Yancheng salt marshes, China. *Open Journal of Ecology* 6: 113-128.
- Lopes, R. J., Pardal, M.A., Murias, T., Cabral, J.A. & Marques, J.C.. (2006). Influence of macroalgal mats on abundance and distribution of dunlin *Calidris alpina* in estuaries: a long-term approach. *Marine Ecology Progress Series* 323:11-20.
- Ma, J.Z. (ed.). (1992). The avifauna of Heilongjiang. Beijing: China Forestry Publishing House. (in Chinese)
- Ma, M., Lu, J.J., Tang, C.J., Sun, P.Y. & Hu, W. (1998). The contribution of shorebirds to the catches of hunters in the Shanghai area, China, during 1997-1998. *Stilt* 33: 32-36.
- Ma, Z.J., Jing, K, Tang, S.M. & Chen, J.K. (2002). Shorebirds in the eastern intertidal areas of Chongming Island during the 2001 northward migration. *Stilt* 41: 6-10.
- Ma, Z.J., Melville, D.S., Liu, J.G., Chen, Y., Yang, H.Y., Ren, W.W., Zhang, Z.W., Piersma, T. & Li, B. (2014). Rethinking China's new great wall. *Science* 346 (6212): 912-914.
- MacKinnon, J., Verkuil, Y.I. & Murray, N. (2012). IUCN situation analysis on East and Southeast Asian intertidal habitats, with particular reference to the Yellow Sea (including the Bohai Sea). Occasional Paper of the IUCN Species Survival Commission No. 47. IUCN, Gland, Switzerland and Cambridge, UK. ii + 70 pp.

- Mann, C.F. (2008). *The birds of Borneo*. BOU Checklist Series 23. Peterborough: British Ornithologists' Union.
- Marchant, S. & Higgins, P.J. eds. (1993). Handbook of Australian, New Zealand and Antarctic Birds. Volume 2—Raptors to Lapwings. Oxford University Press. Melbourne, Victoria.
- Martin, B., Delgado, S., de la Cruz, A., Tirado, S. & Ferrer, M. (2015). Effects of human presence on the long-term trends of migrant and resident shorebirds: evidence of local population declines. *Animal Conservation* 18: 73-81.
- McKinlay, B. (2016). A new flyway site in Palau, Micronesia – discovery, observations and challenges. *Tattler* 41: 4-8.
- Melville, D.S. (1982). Sight record of the Eastern Curlew *Numenius madagascariensis* in central Thailand. *Natural History Bulletin of the Siam Society* 30: 47-48.
- Melville, D.S. (2015). Tianjin's tragic explosions highlight risks to the coastal environment from China's expanding chemical industries. *Wader Study* 122: 85-86.
- Melville, D.S., Chen, Y. & Ma, Z.J. (2016). Shorebirds along the Yellow Sea coast of China face an uncertain future – a review of threats. *Emu* 116: 100-110
- Minton, C., & Watkins, D. (1993). The 1992 North-west Australia Wader Expedition. *Stilt* 22: 10-12.
- Minton, C., Jessop, R., Collins, P. & Stasnden, R. (2011). The migration of Eastern Curlew *Numenius madagascariensis* to and from Australia. *Stilt* 59: 6-16.
- Minton, C.D.T., Dann, P., Ewing, A., Jessop, R., Anton, P. & Clemens, R. (2012). Trends of shorebirds in Corner Inlet, Victoria, 1982-2011. *Stilt* 61:3-18.
- Minton, C., Gosbell, K., Johns, P., Christie, M., Klaassen, M., Hassell, C., Boyle, A., Jessop, R. & Fox, J. (2013). New insights from geolocators deployed on waders in Australia. *Wader Study Group Bulletin* 120: 37-46.
- Moon, Y.M., Kim, K.M. & Yoo, J.C. (2013). Bird-days carrying capacity estimation of the curlews stopping over in the southern intertidal zone of Kanghwa Island. *Journal of Wetlands Research* 15: 281-288. (in Korean)
- Moore, J. (undated). Birdwatching and bird records in Brunei August 2005 – September 2009. [https://www.bsp.com.bn/panagaclub/pnhs/Focus On Birds files/JeremyMoore Birdwatching%20in%20Brunei.pdf](https://www.bsp.com.bn/panagaclub/pnhs/Focus%20On%20Birds%20files/JeremyMoore%20Birdwatching%20in%20Brunei.pdf) (accessed 25/11/2016)
- Moores, N. (2006). South Korea's shorebirds: a review of abundance, distribution, threats and conservation status. *Stilt* 50: 62-72.
- Moores, N. (2012). The Distribution, Abundance and Conservation of Avian Biodiversity in Yellow Sea Habitats in the Republic of Korea. Ph.D. thesis, University of Newcastle, Australia.
- Moores, N., Rogers, D., Rogers, K. & Hansbro, P. (2016). Reclamation of tidalfats and shorebird declines in Saemangeum and elsewhere in the Republic of Korea. *Emu* 116: 136–146.
- Moss, D. & D. P. McPhee. (2006). The impacts of recreational four-wheel driving on the abundance of the Ghost Crab (*Ocypode cordimanus*) on a subtropical sandy beach in SE Queensland. *Coastal Management* 34:133-140.

- Murray, N.J., Clemens, R.S., Phinn, S.R., Possingham, H.P. & Fuller, R.A. (2014). Tracking the rapid loss of tidal wetlands in the Yellow Sea. *Frontiers in Ecology and the Environment*. 12: 267-272.
- Murray, N.J., Ma, Z.J. & Fuller, R.A. (2015). Tidal flats of the Yellow Sea: A review of ecosystem status and anthropogenic threats. *Austral Ecology*40: 472-481.
- Lim, K.S. (2015) Nature Society (Singapore) Bird Group Records Committee. Checklist of the birds of Singapore (2015 edition). <https://singaporebirdgroup.wordpress.com/singapore-bird-checklist/> (Accessed 25/11/2016)
- Nebel, S., Rogers, K.G., Minton, C.D.T. & Rogers, D.I. (2013)...Is geographical variation in the size of Australian shorebirds consistent with hypotheses on differential migration? *Emu*113:99–111.
- Neira, C., Grosholz, E.D., Levin, L.A. & Blake, R. (2006). Mechanisms generating modification of benthos following tidal flat invasion by a *Spartina* hybrid. *Ecological Applications* 16: 1391-1404.
- Nicol, S., Fuller, R.A., Iwamura, T., & Chadès, I. (2015) Adapting environmental management to uncertain but inevitable change. *Proceedings of the Royal Society of London B: Biological Sciences* 282(1808): 20142984.
- Park, P. (1983). Orielton Lagoon and Sorell wader areas. *An Occasional Stint* 2: 15-33.
- Paton, D.C., Ziembicki, M., Owen, P. & Heddle, C. (2000). Disturbance distances for water birds and the management of human recreation with special reference to the Coorong Region of South Australia. Final report for the waterbird component of the National Wetlands Program.
- Peter, J.M. (1990). Bird Study in the Nooramunga: The Possible Effects of Oyster Farming. *RAOU Report Series* 74. 1-18.
- Peterson, C. H., Bishop, M.J., Johnson, G.A., D'Anna, L.M. & Manning, L.M. (2006). Exploiting beach filling as an unaffordable experiment: benthic intertidal impacts propagating upwards to shorebirds. *Journal of Experimental Marine Biology and Ecology* 338:205-221.
- Piersma, T. (1986). Eastern Curlews *Numenius madagascariensis* feeding on *Macrophthalmus* and other Ocypoid crabs in the Nakdong Estuary, South Korea. *Emu* 86: 155-160.
- Piersma, T., Koolhaas, A., Dekinga, A., Beukema, J.J., Dekker, R. & Essink, K. (2001). Long-term indirect effects of mechanical cockle-dredging on intertidal bivalve stocks in the Wadden Sea. *Journal of Applied Ecology* 38:976-990.
- Piersma, T., Lok, T., Chen, Y., Hassell, C.J., Yang, H.Y., Boyle, A., Slaymaker, M., Chan, Y.C., Melville, D.S., Zhang, Z.W. & Ma, Z.J. (2015). Simultaneous declines in summer survival of three shorebird species signals a flyway at risk. *Journal of Applied Ecology* 53: 479-490.
- Pratt, H.D., Bruner, P.L. & Berrett, D.G. (1986). A field guide to the birds of Hawaii and the tropical Pacific. Princeton: Princeton University Press.
- Pratt, H.D., Falanruw, M., Etpison, M.T., Olsen, A., Buden, D.W., Clement, P., Gupta, A., Ketebengang, H., Yalap, Y.P., Herter, D.R., Klauber, D., Pisano, P., Vice, D.S. & Wiles, G.J. (2010). Noteworthy bird observations from the Caroline and Marshall Islands 1988-2009, including five new records for Micronesia. *Western Birds* 41: 70-101.

- Raffaelli, D. (1999). Nutrient enrichment and trophic organisation in an estuarine food web. *Acta Oecologica* 20:449-461.
- Rasmussen, P.C. & Anderton, J.C. (2005). Birds of South Asia. The Ripley guide. Vol. 2. Attributes and status. Washington, DC and Barcelona: Smithsonian Institution and Lynx Edicions.
- Reeb, R. (1997). Contribution a l'étude de l'avifaune et des migrations en Afghanistan. *Alauda* 45: 293-333.
- Reid, T. & Park, P. (2003). Continuing decline of Eastern Curlew, *Numenius madagascariensis*, in Tasmania. *Emu* 103: 279-283.
- Riegen, A.C. (2013). Eastern Curlew in Miskelly, C.M. (ed.). New Zealand birds online. www.nzbirdsonline.org.nz (accessed 26/11/2016)
- Riegen, A.C., Vaughan, G.R. & Rogers, K.G. (2014). Yalu Jiang Estuary shorebird survey report 1999-2010. Dandong, Liaoning and Miranda: Yalu Jiang estuary National Nature Reserve and Miranda Naturalists' Trust.
- Riegen, A., Melville, D.S., Woodley, K., Postill, B., Ju, S.I., Hong, H.S., Kim, S.H. & Pak, U. (2016). Coastal shorebird surveys in the Provinces of North and South Pyongyang, The Democratic People's Republic of Korea, April 2016. *Stilt* 69-70: 36-42.
- Robertson, H.A., Dowding, J.E., Elliott, G.P., Hitchmough, R.A., Miskelly, C.M., O'Donnell, C.F.J., Powlesland, R.G., Sagar, P.M., Scofield, R.P. & Taylor, G.A. (2013). Conservation status of New Zealand birds, 2012. Wellington: Department of Conservation.
- Rogers, D. (1999). Roost choice in the waders of Roebuck Bay: is avoiding heat stress their main consideration? *Stilt* 35: 65.
- Rogers, D., Hassell, C., Oldland, J., Clemens, R., Boyle, A. & Rogers, K. (2009). Monitoring Yellow Sea migrants in Australia (MYSMA): north-western Australian shorebird surveys and workshops, December 2008.
- Rogers, D.I, Piersma, T. & Hassell, C.J. (2006). Roost availability may constrain shorebird distribution: exploring the energetic costs of roosting and disturbance around a tropical bay. *Biological Conservation* 133: 225-235.
- Round, P.D. (2006). Shorebirds in the Inner Gulf of Thailand. *Stilt* 50: 96-102
- Schlacher, T. A., Richardson, D., & McLean, I. (2008). Impacts of off-road vehicles (ORVs) on macrobenthic assemblages on sandy beaches. *Environmental Management* 41:878-892.
- Shorebird Network Korea. (2015). Shorebird Population Count Report of Korea (2014). Shorebird Network Korea Secretariat (in Korean).
- Skinner, N.J. (1983). The occurrence of waders at Suva Point, Fiji. *Notornis* 30: 227-232
- Southey, I. (2009). Numbers of waders in New Zealand 1994-2003. DOC Research & Development Series 103. Department of Conservation, Wellington. 70 p.
- Stigner, M.G., Beyer, H.L., Klein, C.J. & Fuller, R.A. (2016). Reconciling recreational use and conservation values in a coastal protected area. *Journal of Applied Ecology* 53: 1206-1214.

- Stinson, D.W., Wiles, G.J. & Reichel, J.D. (1997). Occurrence of migrant shorebirds in the Mariana Islands. *Journal of Field Ornithology* 68: 42-55.
- Studds, C.E., Kendall, B.E., Wilson, H.B., Rogers, D.I., Clemens, R.S., Murray, N.J., Gosbell, K., Hassell, C.J., Jessop, R., Melville, D.S., Milton, D.A., Minton, C.D.T., Possingham, H.P., Riegen, A.C., Straw, P., Woehler, E.J. & Fuller, R.A. (in press). Rapid population decline in migratory shorebirds relying on the Yellow Sea tidal mudflats as stopover sites. *Nature Communications*
- Sutherland, W.J., Alves, J.A., Amano, T., Chang, C.H., Davidson, N.C., Finlayson, C.M., Gill, J.A., Gill, R.E., González, P.M., Gunnarsson, T.G., Kleijn, D., Spray, C.J., Székely, T. & Thompson, D.B.A. (2012). A horizon assessment of current and potential future threats to migratory shorebirds. *Ibis* 54: 663-679.
- Tang, S.X. & Wang, T.H. (1991). A Survey of Hunting Pressure on Waterbirds near Shanghai, March-May 1991. East China Waterbirds Ecology Group Report, June 1991. East China Normal University, Shanghai.
- Tang, S.X. & Wang, T.H. (1992). Assessment of Hunting Pressure on Shorebirds near Shanghai, Phase II (Socio-economic Analysis). East China Waterbirds Ecology Group Report, December 1992. East China Normal University, Shanghai.
- Tang, S.X. & Wang, T.H. (1995). Waterbird hunting in East China. Asian Wetland Bureau Publication No. 114, Kuala Lumpur.
- Tarr, H., & Launder, J. (1954). Bird Observer.
- Taylor, I.R. & Bester, A. (1999). The response of foraging waders to human recreation disturbance at Rhyll, Phillip Island, Victoria. *Stilt* 35: 67.
- The Ornithological Society of Japan. (2012). Check-list of Japanese birds, 7th rev. ed. Sanada: The Ornithological Society of Japan.
- Thomas, D.G. (1968). Waders of Hobart. *Emu* 68: 95-125.
- Thompson, M.C. & DeLong, R.L. (1969). Birds new to North America and the Pribilof Islands, Alaska. *Auk* 86: 747-749.
- Thompson, P.M., Harvey, W.G., Johnson, D.L., Millin, D.J., Rashid, S.M.A., Scott, D.A., Stanford, C. & Woolner, J.D. (1993). Recent notable bird records from Bangladesh. *Forktail* 9: 12-44.
- Tomek, T. (1999). The birds of North Korea. Non-Passeriformes. *Acta Zoologica Cracoviensia* 42: 1-217.
- Tomkovich, P. S. (1996). Main concentrations of migratory shorebirds in the Russian Far East, and their conservation. Conservation of Migratory Waterbirds and their Wetland Habitats in the East Asian-Australasian Flyway. Pp. 43-54. In: Wells, D. R. and T. Mundkur (eds.). Conservation of migratory waterbirds and their wetland habitats in the East Asian-Australasian Flyway. Proceedings of an International Workshop, Kushiro, Japan, 28 Nov-3 Dec; 1994. Wetlands International-Asia Pacific. Kuala Lumpur, Malaysia.
- Turrin, C. & Watts, B.D. (2016). Sustainable mortality limits for migratory shorebird populations within the East Asian-Australian Flyway. *Stilt* 68: 2-17.
- Ueta, M. & Antonov A. (2000). Habitat preferences of Eastern Curlews at breeding site. *Emu* 100: 72-74.

- Ueta, M., Antonov, A., Artukhin, Y. & Parilov, M. (2002). Migration routes of Eastern Curlews tracked from far east Russia. *Emu* 102: 345-348.
- van de Kam, J., Battley, P.F., McCaffery, B.I., Roger, D.I., Hong, J.S., Moores, N., Ki, J.Y., Lewis, J., & Piersma, T. (2010). *Invisible Connections: Why Migrating Shorebirds Need the Yellow Sea*. CSIRO Publishing, Melbourne.
- van Gils, J. & Wiersma, P. (1996). Far Eastern Curlew (*Numenius madagascariensis*). In: del Hoyo, J., Elliott, A., Sargatal, J., Christie, D.A. & de Juana, E. (eds.) (2014). *Handbook of the Birds of the World Alive*. Lynx Edicions, Barcelona. (retrieved from <http://www.hbw.com/node/53898> on 23 August 2015).
- Wang, Q.S., Ma, M. & Gao, Y.R. (2006). *Fauna Sinica Aves*. Vol. 5. Beijing: Science Press. (in Chinese)
- Wang, T.H., Tang, S.X. & Ma, J.S. (1991). Survey of shorebirds and coastal wetlands in the Yellow River Delta, Shandong Province. Autumn 1991. East China Waterbird Ecology Group, East China Normal University, Shanghai.
- Wang, T.H., Tang, S.X., Sai, D.J. & Fu, R.S. (1992). A survey of coastal wetlands and shorebirds in the Yellow River Delta, Shandong Province. Spring 1992. East China Waterbird Ecology Group, East China Normal University, Shanghai.
- Wauchope H, Shaw J, Varpe Ø, Boertmann D & Fuller R (2015). Environmental niche modelling for polar species using MaxEnt. Pp. 39-43 in: Vongraven D (ed.) *Assessing vulnerability of flora and fauna in polar areas*. Norwegian Polar Institute Brief Report Series No. 32. Norwegian Polar Institute, Tromsø, Norway.
- Wells, D.R. (1999). *Birds of the Thai-Malay Peninsula*. Vol. 1. Non-passerines. Academic Press, London.
- Weston, M.A., McLeod, E.M., Blumstein, D.T., & Guay, P.J. (2012). A review of flight-initiation distances and their application to managing disturbance to Australian birds. *Emu* 112: 269-286.
- Wetlands International, 2012. *Waterbird Population Estimates, Fifth Edition*. Wetlands International, Wageningen, The Netherlands www.wpe.wetlands.org
- Wetlands and Birds Korea (WBK). (2005). *Report on Monitoring of Waterbirds in the Nakdong Estuary, 2005*. Published by Wetlands and Birds Korea, Busan, 2005 (in Korean).
- White, C.M.N. & Bruce, M.D. (1986). *The birds of Wallacea*. BOU Check-list 7. London: British Ornithologists' Union.
- Wiles, G.J. 2005. A checklist of the birds and mammals of Micronesia. *Micronesica* 38: 141-189.
- Wiles, G.J., Worthington, D.J., Beck, R.E., Pratt, H.D., Aguon, C.F. & Pyle, R.L. (2000). Noteworthy bird records from Micronesia, with a summary of raptor sightings in the Mariana Islands, 1988-1999. *Micronesica* 32: 257-284.
- Wilson, H.B., Kendall, B.E., Fuller, R.A., Milton, D.A. & Posingham, H.P. (2011). Analyzing variability and the rate of decline of migratory shorebirds in Moreton Bay, Australia. *Conservation Biology* 25: 758-766.

- Wilson, J.R. (2000). The northward movement of immature Eastern Curlews in the austral winter as demonstrated by the population monitoring project. *Stilt* 36: 16-19.
- Xu, R.G. (2007). Fauna Inner Mongolia. Vol. 3 Aves non-passeriformes. Hohhot: Inner Mongolia University Press. (in Chinese)
- Yi, J.Y., Yoo, J.C. & Won, P.O. (1994). Foraging behaviour and energy intake of pre-migratory Australian Curlews *Numenius madagascariensis* on Kanghwa Island, Korea. *Korean Journal of Ornithology* 1: 1-13.
- Yozzo, D. J., Wilber, P. & Will, R.J.(2004). Beneficial use of dredged material for habitat creation, enhancement, and restoration in New York - New Jersey Harbor. *Journal of Environmental Management* 73:39-52.
- Zhang, C.K., Chen, J., Lin, K., Ding, X.R., Yuan, R.H. & Kang, Y.Y. (2011). Spatial layout of reclamation of coastal tidal flats in Jiangsu Province. *Journal of Hohai University (Natural Sciences)* 39: 206-212. (in Chinese)
- Zhao, Z.J. (ed.). (1988). The birds of Northeast China. Shenyang: Liaoning Science and Technology Press. (in Chinese)
- Zharikov, Y. & Skilleter, G.A. (2003). Nonbreeding Eastern Curlews *Numenius madagascariensis* do not increase the rate of intake or digestive efficiency before long-distance migration because of an apparent digestive constraint. *Physiological and Biochemical Zoology* 76: 704-715.
- Zharikov, Y. & Skilleter, G.A. (2004a). A relationship between prey density and territory size in non-breeding Eastern Curlews *Numenius madagascariensis*. *Ibis* 146: 518-521.
- Zharikov, Y. & Skilleter, G.A. (2004b). Why do eastern curlews *Numenius madagascariensis* feed on prey that lowers intake rate before migration? *Journal of Avian Biology* 35: 533-542.
- Zöckler, C., Syroechkovskiy, E.E., & Bunting, G. (2010). International Single Species Action Plan for the Conservation of the Spoon-billed Sandpiper (*Eurynorhynchus pygmeus*). BirdLife International Asia Division, Tokyo, Japan; CMS Secretariat, Bonn Germany. 52 pages. Technical Report Series 23.
- Zuo, P., Zhao, S.H., Liu, C.A., Wang, C.H. & Liang, Y.B. (2012). Distribution of *Spartina* spp. along China's coast. *Ecological Engineering* 40: 160-166.

[MOP9/D8.2] Terms of Reference for EAAFP Far Eastern Curlew Task Force

Goal

To restore the Far Eastern Curlew's population to a positive growth rate for a period of at least three generations.

Role

The role of the EAAFP Far Eastern Curlew Task Force is to:

1. Coordinate and catalyse the implementation of the International Single Species Action Plan (SSAP) for the Conservation of Far Eastern Curlew;
2. Stimulate and support Range States in the implementation of the SSAP; and
3. Monitor and report on the implementation and the effectiveness of the SSAP.

Remit

The EAAFP Far Eastern Curlew Task Force will:

1. Set priorities for action from the activities outlined in the International Single Species Action Plan for the Far Eastern Curlew (SSAP) and implement them;
2. Coordinate the overall international implementation;
3. Raise funds for development and implementation;
4. Assist Range States in producing national action plans, if required;
5. Ensure the Task Force is open to governmental and expert members from all key Range States and other Partners.
6. Ensure regular and thorough monitoring of the species populations;
7. Stimulate and support scientific research in the species necessary for conservation;
8. Promote the protection of the network of critical sites for the species, by assisting Partners to develop new Flyway Site Network nominations, and encourage the designation of new protected areas by Partners;
9. Facilitate internal and external communication and exchange of scientific, technical, legal and other required information, including with other specialists and interested parties;
10. Assist with information in determination of the IUCN Red List status and population size and trends of the species;

11. Regularly monitor the effectiveness of implementation of the SSAP and take appropriate action according to monitoring results;
12. Regularly report on the implementation of the SSAP to the EAAFP Meeting of the Partners; and
13. Revise the international SSAP and update every 10 years or as required.

Membership

The EAAFP Far Eastern Curlew Task Force will be open to (1) designated representatives of EAAFP Governmental Partners of all principal Range States, (2) representatives of the relevant EAAFP Working Groups, (3) representatives of national experts and conservation organizations from all principal Range States, international organizations, and (4) other experts (not necessarily from the EAA Flyway) as required.

Officers

A Chairperson of the EAAFP Far Eastern Curlew Task Force will be elected amongst its members. This position should ideally be filled by an EAAFP Governmental Partner from a key Range State.

A Coordinator post will be nominated by the Chairperson from among the Task Force members. The Coordinator will be in charge of the day-to-day operations of the Task Force, participate in fund raising, and shall act in close cooperation with the Chairperson, the EAAFP Secretariat and the relevant EAAFP Working Group (Shorebird). The coordinator will be a member of the Task Force and, ideally, represent an EAAFP Partner.

Meetings

The EAAFP Far Eastern Curlew Task Force should aim to hold face-to-face meetings at least once every three years, preferably in conjunction with MOPs. Other face-to-face meetings may be arranged if circumstances require. Between meetings, business will be conducted electronically such as via email, an appropriate Task Force website and list server.

Reporting

A report on the implementation of the SSAP will be produced for each EAAFP MOP according to a standard format agreed by the EAAFP Secretariat, with contributions from all major Range State Governmental Partners and Task Force members. Reports should be provided to and collated by the EAAFP Science Officer in order to ensure uniform handling of communication and record-keeping. At each EAAFP MOP, the Task Force Chairperson, Task Force Coordinator, and/or the EAAFP Science Officer, should give an overview report on Single Species Action Plan development and implementation, summarizing progress for each Task Force, lessons learned, challenges common to the Task Forces, and any adjustments needed. Other reports will be produced by Task Forces as required by the EAAFP Secretariat or relevant EAAFP Working Group.

Financing

The operations of the EAAFP Far Eastern Curlew Task Force, including the Coordinator post, are to be financed primarily by its members and the organizations they represent. The Lead Organisation should ideally support or raise funds for development and implementation of the SSAP, including the Coordinator post, and associated SSAP activities of the Task Force. Funds may be sought from members and various external sources. The EAAFP does not derive annual membership dues from its Partners and thus has limited resources. Accordingly the Secretariat cannot commit regular financial support and may only provide such if possible. Funding for SSAP activities of the Task Force or its members is to be sought from various external sources.



[MOP9/D9] DEFINITION OF MIGRATORY POPULATIONS (JAPAN)

Introduction

1. The purpose of East Asian-Australasian Flyway Partnership (EAAFP) is to provide a flyway wide framework to promote dialogue, cooperation and collaboration among a range of stakeholders to conserve migratory waterbirds and their habitats.
2. The definition of 'Migratory waterbird' is provided in Appendix II of the EAAFP Partnership document (page 10) adopted on 6 November 2006, as follows:

For the purposes of the Partnership:

1. *'Migratory waterbird' means the East Asian – Australasian Flyway population of any species or lower taxon of waterbirds of the taxonomic groups identified in Appendix III, a significant proportion*¹ of whose members cyclically and predictably cross one or more national jurisdictional boundaries.*
3. This definition has functioned well for the most part since the establishment of EAAFP in 2006. In the meantime, some issues have been identified in relation to applying the definition.
4. In accordance with Paragraph 9(9) of the EAAFP Partnership document, a Task Force on the definition of 'migratory waterbird' (TF) under EAAFP was established at MOP8 in 2015 in order to look at the issues. The TF makes the following observations and recommendations for the consideration of MOP9.
5. First of the issues identified, there are some sites within the Flyway Site Network (FSN) for crane populations which do not migrate across national jurisdictional boundaries. These sites were formally a part of the Crane Site Network under the Asia-Pacific Migratory Waterbird Conservation Strategy (APMWCS) which was the predecessor of the EAAFP. Crane Network sites were designated regardless of the migratory habit of crane populations. According to the Action Plan for the Conservation of Migratory Cranes in the North East Asian Flyway, a part of APMWCS, there was no criterion regarding a species' migratory habit for a site's nomination. In accordance with Paragraph 3 (2) of the Partnership document, all Crane Network sites as well as Anatidae and Shorebird Network sites under the APMWCS were invited to become part of the EAAFP FSN without further validation according to transitional guidelines. As a result, the EAAFP FSN covers the population of Red-crowned Crane *Grus japonensis* in Japan which is considered to be sedentary and does not meet the definition of 'migratory waterbird', even though the species is migratory in other parts of its range*².
6. Second, there is no guidance for how to deal with the following waterbird populations that might

*¹ TF discussed about what proportion is significant in this context. It concluded that recognising the ongoing process within CMS for development of such a definition for adoption at CMS COP12 in Nov 2017, the Partnership may deal with this issue at our next MOP.

*² For information, Sarus Crane *Grus antigone* in Myanmar is also considered to migrate within national boundary only. Some of its habitats, i.e. Indawgyi and Moeyungyi, are included within FNS based on other species which meet the definition of 'migratory waterbird'.

be covered under EAAFP:

- Those which lose the migratory habit due to a significant decrease in population size, but are recovering migratory habits as well as undergoing an increase in population size as a result of conservation efforts.
- Those which are likely to meet the definition but have not been proven to do so.
- Those species for which a portion of the population migrates across national boundaries but only to countries outside the EAAF.

As an example of the first case, a Japanese native population of Oriental Stork *Ciconia boyciana* became extinct in the wild in 1971 and a reintroduction project using artificially bred individuals has been conducted since 2005. Currently, the wild population is growing in number and some individuals move between Japan and South Korea. There is thus a possibility to recover their migration in East Asia. As for the second case, a trial review reveals that 37 species*³ including Malaysian Plover *Charadrius peronii* and Black-naped Tern *Sterna sumatrana* have the potential to migrate across national jurisdictional boundaries in the EAAF. For the third case, the Black-necked Crane *Grus nigricollis* migrates in substantial numbers from China to winter in Bhutan and the whole breeding population in India migrates to China; Bhutan and India, however, are outside the EAAF region according to the Partnership document.

Action requested from the Meeting of the Partners to endorse the following recommendations:

1. The Meeting of the Partners (MOP) notes the following definition of ‘Migratory waterbird’ which is provided in Appendix II, Partnership document adopted on 6 November 2006.

For the purposes of the Partnership:

‘Migratory waterbird’ means the East Asian – Australasian Flyway population of any species or lower taxon of waterbirds of the taxonomic groups identified in Appendix III, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries.

2. The MOP reaffirms its commitment to Paragraph 3 (2) of the Partnership Document, as adopted on 6 November 2006.

The Anatidae, Crane and Shorebird Network sites under the APMWCS will be invited to become part of the East Asian – Australasian Flyway Site Network without further validation according to transitional guidelines.

3. The MOP acknowledges that the population of Red-crowned Crane in Japan does not migrate across national jurisdictional boundaries, yet has been covered due to the transition of Crane Network sites under APMWCS into the FSN under the EAAFP, this population continues to be covered within the activities related to FSN; no new sites may be added to FSN on the basis of this non-migratory populations.

4. The MOP may give approval for any of the following migratory waterbird populations to be included in an appropriate taxonomic group listed in Annex III of the EAAFP document upon request of the relevant Government Partner(s) or other Partner(s). Such a request should be submitted in writing by providing evidence/justification for inclusion of an additional population.

1) migratory populations in which a significant proportion regularly cross national boundaries

*³ See the Annex.

but in doing so leave the EAAF region (sites for these species within EAAF can be added to the FSN);

2) recovering populations that have lost but may regain their migratory behavior (their sites, however, cannot be added to the FSN until a regular migratory pattern of a significant proportion of the population has been established); and

3) populations that may regularly migrate across national boundaries but have not yet been proven to do so (their sites cannot be added to the FSN without confirmed information about the migrations of these populations. they will be totally covered in the framework of EAAFP when their regular migration is confirmed).

[MOP9/D9.1] Potentially Migratory Species Identified by a Trial Review

The below is the list of the species which are found in more than one countries in EAA Flyway and may move across national borders, but have not been proved to do so. This list does not distinguish biogeographic populations although some species such as Greater Adjutant and Wandering Whistling-duck are separated into two or more populations.

Listing is based on the result of a trial review done by Simba Chan, BirdLife International Tokyo, in 2016. It should be noted that this list was prepared just as an information for Partners for the consideration of TF's Recommendations at MOP9.

Family name	Scientific name	Common name
Pelecanidae: pelicans	<i>Pelecanus philippensis</i>	Spot-billed Pelican
Phalacrocoracidae: cormorants	<i>Phalacrocorax fuscicollis</i>	Indian Cormorant
	<i>Phalacrocorax melanoleucos</i>	Little Pied Cormorant
	<i>Phalacrocorax niger</i>	Little Cormorant
	<i>Anhinga melanogaster</i>	Oriental Darter
Ardeidae: herons, egrets and bitterns	<i>Ardea insignis</i>	White-bellied Heron
	<i>Ardea sumatrana</i>	Great-billed Heron
	<i>Ardea goliath</i>	Goliath Heron
	<i>Ardeola grayii</i>	Indian Pond-heron
	<i>Egretta sacra</i>	Pacific Reef-egret
	<i>Nycticorax caledonicus</i>	Rufous Night-heron
Ciconiidae: storks	<i>Mycteria cinerea</i>	Milky Stork
	<i>Ciconia episcopus</i>	Woolly-necked Stork
	<i>Ciconia stormi</i>	Storm's Stork
	<i>Leptoptilos javanicus</i>	Lesser Adjutant
	<i>Leptoptilos dubius</i>	Greater Adjutant
Threskiornithidae: ibises and spoonbills	<i>Thaumatibis gigantea</i>	Giant Ibis
	<i>Nipponia nippon</i>	Asian Crested Ibis
Anatidae: swans, geese and ducks	<i>Dendrocygna bicolor</i>	Fulvous Whistling-duck
	<i>Dendrocygna arcuata</i>	Wandering Whistling-duck
	<i>Tadorna cristata</i>	Crested Shelduck
	<i>Sarkidiornis melanotos</i>	Comb Duck
	<i>Anas gibberifrons</i>	Sunda Teal
	<i>Rhodonessa caryophyllacea</i>	Pink-headed Duck
Rallidae: rails, gallinules, coots	<i>Gallirallus philippensis</i>	Buff-banded Rail
	<i>Amauornis bicolor</i>	Black-tailed Crake
	<i>Porzana tabuensis</i>	Spotless Crake
	<i>Porzana cinerea</i>	White-browed Crake
	<i>Porphyrio porphyrio</i>	Purple Swamphen

Heliornithidae: Finfoots	<i>Heliopais personatus</i>	Masked Finfoot
Jacanidae	<i>Metopidius indicus</i>	Bronze-winged Jacana
Glareolidae	<i>Glareola lactea</i>	Small Pratincole
Charadriidae	<i>Charadrius peronii</i>	Malaysian Plover
Laridae: gulls, terns, skimmers	<i>Sterna sumatrana</i>	Black-naped Tern
	<i>Procelsterna cerulea</i>	Blue Noddy
	<i>Gygis alba</i>	Common White Tern
	<i>Rynchops albicollis</i>	Indian Skimmer



[MOP9/D10] TERMS OF REFERENCE FOR AN INTERIM TASK FORCE TO ADDRESS ILLEGAL HUNTING, TAKING AND TRADE OF MIGRATORY WATERBIRDS IN THE EAST ASIAN-AUSTRALASIAN FLYWAY (CAFF)

1. Background and purpose

A key recommendation of the Arctic Council Working Group on the Conservation Arctic Flora and Fauna's (CAFF) Arctic Migratory Bird Initiative (AMBI) workshop in Singapore (96 participants from 25 countries) was to establish an international working group to consider illegal hunting, taking and trade of migratory waterbirds in the East Asian-Australasia Flyway. Workshop participants included many of the East Asian-Australasian Flyway Partnership's (EAAFP) Partners including the governments of: Australia, Cambodia, China, Indonesia, Japan, Republic of Korea, Myanmar, the Philippines, Singapore, Russia and the USA, as well as CMS, BirdLife International, Wetlands International, WCS, WWT and WWF.

It was noted at the AMBI meeting that many countries in the region have experience in significantly reducing illegal hunting, while other countries are becoming active in addressing this issue. Hence, there is an opportunity for the exchange of experience and knowledge in the region that will address shared priorities related to eliminating illegal mortality of migratory bird species.

The creation of such a task force assists with the implementation of the EAAFP decision 7.9 of its 8th Meeting of Partners in 2015 as well as meeting objectives under the AMBI work plan 2015-2019, of which EAAFP is a project partner, as approved by the Arctic Council Senior Arctic Officials. It is also in line with the Convention on Migratory Species (CMS) Resolution 11.16 on "The Prevention of Illegal Killing, Taking and Trade of Migratory Birds" adopted in 2014 by the 11th Conference of the Parties (COP).

2. Goal

To provide a platform for partners to work together, and to exchange experience and knowledge with the ultimate goal of taking action to significantly reduce the impact of illegal hunting, taking and trade of migratory waterbirds in the East Asian-Australasian Flyway.

3. Role

The role of the Task Force are to:

- Facilitate exchange of experience and knowledge, and coordinate efforts aimed towards combating illegal hunting, taking and trade of migratory waterbirds in the East Asian-Australasian Flyway.
- Work with partners to develop guidelines, action plans and other recommendations to respond to illegal hunting, taking and trade issues within the flyway, and other specific problems as necessary, as well as encourage its implementation on the flyway.

4. Scope

- The Task Force will cover all migratory waterbird taxa and the geographic region as covered by the EAAFP.
- The task force will explore with CMS and other frameworks to extend the scope to other migratory bird species and geographic regions. Cooperation with CMS would be valuable, noting that CMS covers a wider variety of taxonomic groups of birds such as landbirds and raptors, which are currently outside of the scope of the EAAFP.

5. Remit

The Task Force will:

- a) Support and guide a review on the status of hunting regulations related to migratory waterbirds in the EAAF;
- b) Support and guide a situation analysis on illegal hunting, taking and trade of migratory waterbirds in the flyway, building on the existing work in the Mediterranean, Europe and the Middle East;
- c) Stimulate internal and external communication and exchange of information, experience and best practices;
- d) Promote and facilitate implementation of relevant decisions and plans adopted in the framework of Multilateral Environmental Agreements (MEAs) or other frameworks, especially the CMS, AMBI (under CAFF) and Bilateral Migratory Bird Agreements;
- e) Set priorities for its actions and facilitate implementation;
- f) Assist in resource mobilization for priority actions including cooperation with ASEAN;
- g) Monitor the implementation of the relevant decisions and plans and their effectiveness and regularly submit progress reports to the governing bodies of participating MEAs, including via an intergovernmental 'scoreboard' to indicate progress on eliminating illegal hunting, taking and trade of migratory waterbirds;
- h) Strengthen regional and international networks with experience on illegal take and trade of wildlife (ex. ASEAN Wildlife Enforcement Network); and
- i) Liaise and share experience with the CMS Mediterranean Illegal Killing, Taking and Trade Task Force (MIKT).

6. Membership

The Task Force membership will be comprised of representatives of EAAFP partners with interest in the work of the task force. This includes relevant government institutions in the field of environment, game management, law enforcement and judiciary in the EAAF. The task force can also involve observers from the Secretariats of the participating MEAs and frameworks.

The following representatives will also be invited to contribute to the Task Force:

- a) Representatives of Governments and relevant organizations elsewhere in the EAAF and beyond that wish to support the work of the Task Force;
- b) Representatives of the AEWA, CMS Mediterranean Illegal Killing, Taking and Trade Task Force (MIKT), CMS Preventing Poisoning Working Group and Flyways Working Group, and other groups with relevant experience;
- c) Representatives from relevant Bilateral Migratory Bird Agreements;

- d) Representatives from Relevant IUCN specialist groups;
- e) Academic institutions, the hunting community, NGOs and other stakeholders, as relevant; and
- f) Relevant independent experts.

7. Governance

- An interim chair, vice-chair and steering group will be formed from the consultation group during the EAAFP MOP9.
- Ultimately, the Task Force will elect a Chair and a Vice-Chair from amongst its members.
- The Task Force will operate by seeking consensus, as much as possible, among the group.
- The Task Force will operate in accordance with a modus operandi, which shall be established once the Task Force has been convened.

8. Operation

Funding permitting, a coordinator will be appointed by the Task Force with the following functions:

- Organize the meetings of the Task Force and prepare the background documents;
- Maintain and moderate the Task Force communication platform (website and intranet);
- Facilitate implementation of decisions of the Task Force;
- Facilitate fundraising and resource mobilization in coordination with the EAAFP finance Committee;
- Maintain an online workspace within the Task Force's website; and
- Facilitate engagement with stakeholders within and beyond the Task Force.

Meetings of the Task Force will be convened at appropriate intervals, as considered necessary and funding permitting.

The Task Force, in collaboration with Parties and relevant international organizations, subject to the availability of funds, will organize regional workshops in areas found to have high levels of illegal hunting to assist in developing appropriate local or regional solutions.

[MOP9/D11] INTERNATIONAL ACTION PLAN FOR THE CONSERVATION OF THE SCALY-SIDED MERGANSER *Mergus squamatus*, 2016-2025 (SCALY-SIDED MERGANSER TASK FORCE)

EAAFP Scaly-sided Merganser Single Species Action Plan

This Single Species Action Plan has been prepared to assist fulfilment of obligations under:

Convention on the Conservation of Migratory Species of Wild Animals (CMS)

East Asian – Australasian Flyway Partnership



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Contributors

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Milestones in the Production of the Plan

Action Planning Workshops: April 2010; September 2015.

First draft: September 2015.

Second draft: November 2016.

Final draft: January 2017, approved by EAAFP MoP 9.

Geographical Scope

This plan should be implemented in the following Principal Range States⁴: the Democratic People's Republic of Korea, the People's Republic of China, the Republic of Korea and the Russian Federation.

The species also occurs in small numbers in other countries/areas, including the Kingdom of Thailand, Republic of the Union of Myanmar, Japan, and Vietnam. Although there is no requirement for this plan to be adopted in these countries, they are encouraged to develop appropriate measures for the species based on the framework of this plan.

Reviews

This International Single Species Action Plan should be reviewed every ten years.

Recommended Citation

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Cover Photograph: Xiao Dongyang

For more information on Scaly-sided Mergansers, consult the EAAFP Scaly-sided Merganser website: <http://www.eaaflyway.net/our-activities/task-forces/scaly-sided-merganser/>

⁴ Countries / areas are referred to in this plan as: China, DPRK, Myanmar, Japan, ROK, Russia, Thailand and Vietnam.

SUMMARY

The Scaly-sided Merganser *Mergus squamatus* is a globally threatened species, classified as Endangered on the IUCN Red List since 2002. This is justified on the basis that it has a very small population which is suspected to be undergoing a continuing and rapid decline as a result of habitat loss, illegal hunting and disturbance.

Based on surveys in the breeding range during 2000–2012, the population is estimated to be c. 1,940 pairs (or c. 4,660 birds prior to reproduction) (Solovyeva *et al.* 2014). This comprises 1,654 pairs in Russia (1,643 in the Sikhote-Alin), 166 pairs in China (155 in the Changbai Mountains), and an estimate of 116 pairs in DPRK (all in the Changbai Mountains).

The species is endemic to East Asia. The majority of the population (85%) breeds in the Sikhote-Alin mountain range in Far Eastern Russia (primarily in Primorsky Krai and Khabarovsk Krai). Most of the remainder (14%) is found in the Changbai Mountains, straddling China (Jilin Province) and DPRK, though there have been no recent surveys in the latter country to confirm its continued presence there. A small number of pairs (ca. 20) also breed in the Lesser Xingan Mountains in China. The species winters mainly in central mainland China, probably within the Yangtze River catchment and in small number on the Taiwan Island, and in the Republic of Korea. It also occurs in small numbers in other countries / areas, notably the Kingdom of Thailand, the Republic of the Union of Myanmar, Japan, Vietnam.

Scaly-sided Mergansers rely on freshwater rivers throughout the annual cycle. Breeding habitat requirements include mature broadleaf forest on the banks of clean fast-flowing rivers. It nests solely in tree cavities (or in artificial boxes and tubes designed to emulate natural nest sites). Scaly-sided Mergansers feed on various fish species, frogs and aquatic insect larvae on the breeding grounds. Ducklings rely on small fish and larvae.

In winter, almost all birds are found on rivers and freshwater reservoirs. Ideal winter habitat seems to be similar to that used for breeding: fast-flowing clean mountain rivers with a variety of fish. Modelling showed favoured habitats were rivers and reservoirs within an area with mid-winter air temperatures of above 2°C. Diet in winter is poorly studied but includes different fish species.

The main threats to the species, all of which are considered to be high (factor causing or likely to cause rapid and/or major decline) are poaching, drowning in fishing nets, dam construction affecting the suitability of rivers as feeding areas, and pollution.

The goal of the plan is to remove the Scaly-sided Merganser from the threatened categories of the IUCN Red List. The objective is to maintain the world population of Scaly-sided Merganser at its current level (c. 5,000 birds). To meet this objective, the plan sets out ten results to be achieved within its lifetime:

- Result 1:** Raise awareness of the issue of dams and reduce construction of new dams in sensitive areas.
- Result 2:** Reduce pollution in wintering areas.
- Result 3:** Raise awareness of the issue of dredging and reduce the impact of dredging in sensitive areas.
- Result 4:** Eliminate mortality from shooting in breeding and moulting grounds in Russia.
- Result 5:** Minimise drowning in fishing nets in breeding grounds.

- Result 6:** Minimise disturbance during brood-rearing period.
- Result 7:** Key knowledge gaps about the species and threats are addressed.
- Result 8:** A network of protected areas, covering all important sites throughout the lifecycle, is designated and maintained and supported by wider policies.
- Result 9:** Increase production of young through coordinated nest box programmes.
- Result 10:** Manage captive breeding populations in North America and Europe to maximise genetic diversity and establish a funding mechanism for zoos to support in situ conservation.

A total of 41 actions are identified to deliver the results.

Relevant authorities, statutory bodies and stakeholders are encouraged to work collaboratively to implement the actions. International cooperation and coordination will be essential. Progress towards both delivery of the actions and achievement of the results should be reviewed on a regular basis. Barriers to implementation should be identified and overcome to ensure that the objective of the plan is met.

1. PLAN PURPOSE

1.1 Purpose of this action plan

This plan specifies actions to improve the conservation status of the Scaly-sided Merganser *Mergus squamatus*. Experts from all range states, through a series of consultations, have identified the most important known or suspected threats to the species and determined actions to remove these threats or mitigate their effects. This approach has enabled unpublished data and expert opinion to be included in the development of the plan while retaining high scientific rigour.

Relevant actions should be implemented in each range state. Countries are encouraged to develop national work plans for the Scaly-sided Merganser, or to transpose these actions into existing plans and legislation.

Implementation will require the collaborative efforts of national and regional authorities and competent statutory bodies, and a range of key stakeholders. Principal among these are national and international non-governmental conservation organisations, hunting, game management and fishing organisations, site management committees, and academics.

International cooperation and coordination will be essential for implementation. This should be facilitated, in the most part, through the East Asian – Australasian Flyway Partnership Anatidae Working Group's Scaly-sided Merganser Task Force.

It is expected that the actions identified in this plan will receive priority consideration for funding through relevant international and national instruments.

The conservation of the Scaly-sided Merganser is dependent on the successful implementation of this Plan. Progress towards both delivery of the actions and achievement of the results should be reviewed on a regular basis. Barriers to implementation should be identified and overcome to ensure the objective of the Plan is met.

1.2 Geographical scope

This plan should be implemented in the following Principal Range States⁵: the Democratic People's Republic of Korea, the People's Republic of China, the Republic of Korea and the Russian Federation.

The species also occurs in small numbers in other countries / areas, notably Kingdom of Thailand, Republic of the Union of Myanmar, Japan and Taiwan Island. Although there is no requirement for this plan to be adopted in these countries, they are encouraged to develop appropriate measures for the species based on the framework of this plan.

Scaly-sided Merganser occurs as a vagrant in other countries within the EAAFP region. There is no obligation to implement this plan in those countries.

1.3 Plan term

This plan covers the period 2016 to 2025.

This plan should be reviewed and updated every ten years, with the next revision in 2025. An emergency review will be undertaken if there is a significant change to the species' status before the next scheduled review.

2. CONSERVATION OBLIGATIONS

Conservation obligations and requirements for Scaly-sided Merganser are specified in various international and national policies, legislation and agreements.

2.1 Global status

Scaly-sided Merganser is a globally threatened species, classified as Endangered on the IUCN Red List since 2002. This is justified on the basis that it has a very small population which is suspected to be undergoing a continuing and rapid decline as a result of habitat loss, illegal hunting and disturbance.

2.2 International conservation and legal status of the species

The East Asian – Australasian Flyway Partnership's (EAAFP) Implementation Strategy has the objective to 'develop, especially for priority species and habitats, flyway wide approaches to enhance the conservation status of migratory waterbirds and specifically identifies Scaly-sided Merganser as species for which an International Single Species Action Plan should be produced and implemented, to act as a flagship for wetland conservation.

Table 1. Applicability of major international conservation instruments to Principal Range States for the Scaly-sided Merganser.

⁵ Countries / areas are referred to in this plan as: DPRK, China, ROK, Myanmar, Japan, Russia, and Thailand.

Principal Range State	EAAFP	CMS	CBD	Ramsar
DPRK	No	No	Yes	No
China	Yes	No	Yes	Yes
ROK	Yes	No	Yes	Yes
Russia	Yes	No	Yes	Yes

2.3 National policies, legislation and site protection

DPRK

The species is listed as an Endangered species in the 2016 Red Data Book of the DPRK. Earlier, the Red Data Book (DPRK 2002) stated that “Investigation on population and breeding should be done and habitat should be protected”. However, initial discussions suggest that there has been little progress in conducting focused research on the species due to a range of challenges. Nonetheless, the National Biodiversity Strategy and Action Plan (DPRK 2007) recognised the issue of deforestation and habitat degradation and listed several protected areas which seem on present knowledge likely to include breeding habitat of the Scaly-sided Merganser. Especially, these include designation of 24,000ha of “Strict nature reserve” in core areas of the Baekdu Biosphere Reserve and an additional 36,000ha of buffer zone there.

China

Scaly-sided Merganser is listed as a first class national protected wild animal in China. Through public education in recent years in breeding and wintering sites, no killing of the species has been reported, while human disturbance on its habitats is high, which needs to be improved.

Breeding areas in China are protected by the Changbai Mountain National Nature Reserve (Jilin Province) and Bishui National Nature Reserve (Heilongjiang Province). Other protected areas within the species wintering range in China are mainly national wetland parks: Yuanshui, Wuqiangxi, Xiuheyuan, etc. No Ramsar sites or EAAF network sites are officially designated.

ROK

The species is included in NIBR (2012) as an Endangered species, and listed as A1c in accordance with IUCN Red List Criteria, i.e. as a species that has a reduced population of >70% over 10 years or three generations, with a decline in area of occupancy, extent of occurrence or habitat quality. However, with the exception of two species-specific nationwide surveys conducted by Birds Korea (Moores & Kim 2014) and incidental counting of the species during the annual winter bird census conducted under the auspices of the Ministry of the Environment since 1999, there has been no coordinated nationwide or detailed research on the species’ distribution, ecological requirements or the conservation status of favoured rivers.

Moreover, while the Ministry of Environment has jurisdictional responsibility for the conservation of biodiversity, none of the preferred rivers used by wintering birds that were identified by Moores &

Kim (2014) are contained within protected areas; and almost all areas known to support the species have been modified to varying degrees by dredging, dam, road and bridge building during the past decade as well as in previous decades, as the rivers and all areas contained within the bunds that contain the rivers are under the administrative jurisdiction of the Ministry of Land, Transport and Construction (and derivatives thereof).

Russia

Scaly-sided Merganser is listed in the Russian Federation Red Data Book (2016 Edition category 2 – steadily declining with potential for being critically endangered) which affords it full protection. There are high penalties for killing the species or destroying its nests. Enforcement of this legal protection is, however, poor.

Breeding rivers in Russia are protected by the following State Nature Reserves: Sikhote-Alinskiy, Botchinskiy, Komsomol'skiy and Lazovskiy (zapovedniks = strict reserves). Other federal protected areas within the species range in Russia are the following National Parks: Anyuiskiy, Zov Tigra, Bikin and Udegeyskaya Legenda, and the Tumninskiy. Locally protected areas are the Chukenskiy, Birskiy, Bobroviy, Gurskiy, Ust-Urminskiy, Tazhniy and Vasilkovskiy zakazniks and the Khoso and Arseniev Nature Parks. One protected area is proposed (Kur zakaznik). There are ten IBAs in the Russian Far East, no Flyway Network Sites have been designated.

3. BIOLOGICAL ASSESSMENT

In the past decade, monitoring and research of Scaly-sided Mergansers has been undertaken in some detail at a few study sites in the core breeding range and at some wintering sites. The combination of remote breeding areas and high sensitivity of the species to habitat changes makes study difficult. The extent of the wintering range is poorly known, as are key sites within it. In most range states, there are relatively few academic or volunteer ornithologists studying or monitoring the species. Consequently, data are often incomplete or lacking and much of the information collected before the year 2000 has been published in Russian or Chinese and is therefore not generally accessible by non-native speakers. These factors greatly limit the understanding of how issues affect the species and of conservation requirements and in some cases, there is relatively little hard evidence with which to determine to what extent some of the threats are actually a problem. As a consequence, whilst there is a reasonable qualitative understanding of conservation status, population size, distribution, trends and threats, the lack of data makes it difficult to recommend specific solutions for some of the conservation problems. Poor genetic diversity was confirmed both by mt-DNA and random amplified polymorphic DNA (Solovyeva & Pearce, 2011; Zhang *et al.* 2013).

3.1 Taxonomy and biogeographic populations

Phylum: Chordata

Class: Aves

Order: Anseriformes

Family: Anatidae

Tribe: Anserini

Species: *Mergus squamatus* (Gould 1864)

Common names

English: Scaly-sided Merganser (also Chinese Merganser)

Mandarin: 中华秋沙鸭 (zhong hua qiu sha ya)

North Korean: 비오리 (Biori)

Japanese: コウライアイサ (Kōrai-aisa)

Russian: Чешуйчатый крохаль (cheshuichatyi krokhal)

South Korean: 호사비오리 (Hosa biori)

Vietnamese: Vịt mỏ nhọn [phonetic]

The Scaly-sided merganser is monotypic, and there is just one biogeographic population. This Action Plan covers the entire world population.

3.2 Distribution throughout the annual cycle

The Scaly-sided merganser is a short-distance migrant (Figure 1). It breeds in Far Eastern Russia and northeast China, and probably also in the DPRK. Males and some females moult primarily on rivers to the north and northeast of the breeding grounds, and to a lesser extent in coastal areas or estuaries also north of breeding range (Solovyeva *et al.*, 2014a; 2016). The species migrates southwest to the ROK and mainland China, where the majority of the population is thought to winter in the Yangtze River catchment. The same migration route is followed, in reverse, in spring. Scaly-sided Mergansers show high site fidelity to both breeding and wintering areas (Solovyeva *et al.* 2012).

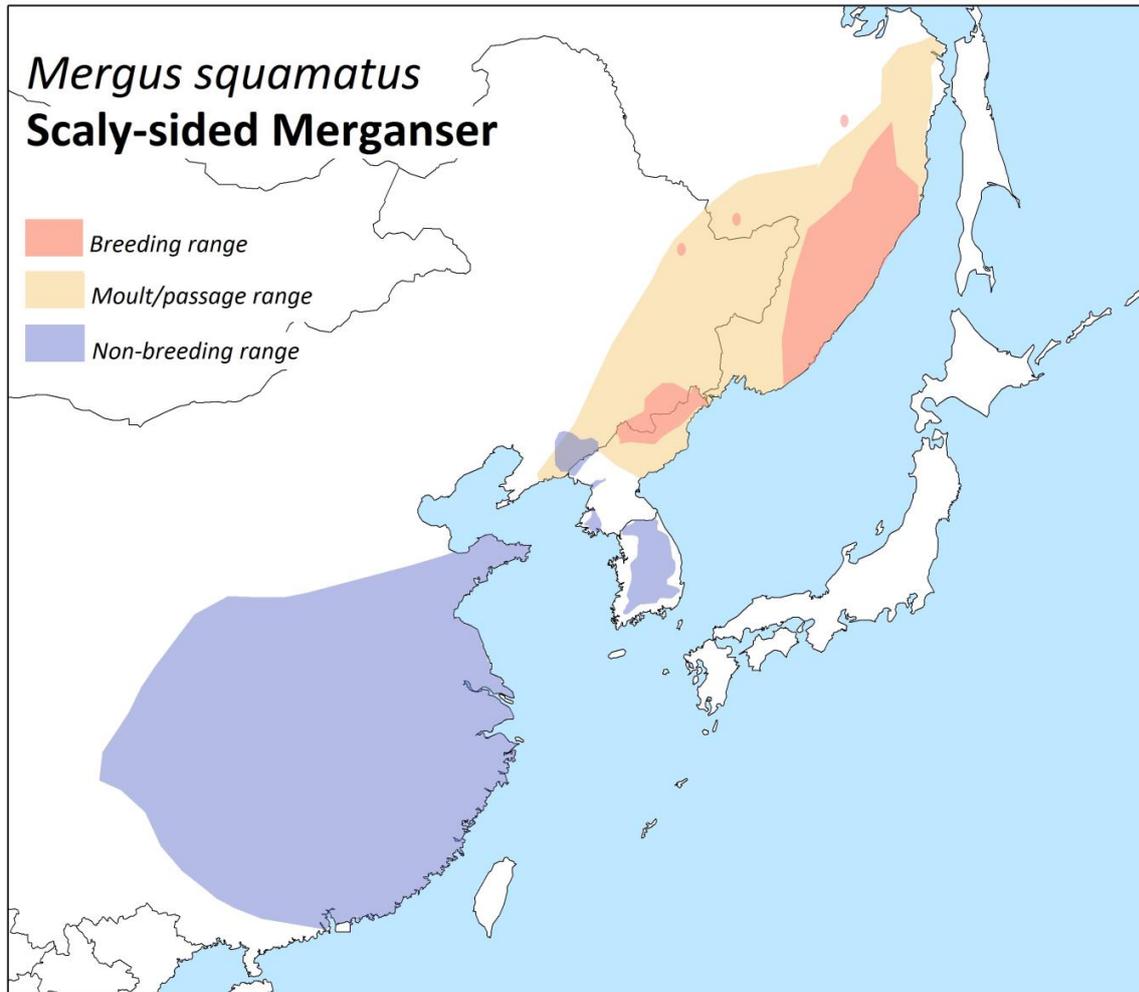


Figure 1. Range map of Scaly-sided Merganser (compiled by David Broughton from Moores & Kim 2014, Solovyeva *et al.* 2014a,b, 2016, Zeng *et al.* 2015 a).

The majority of the population (85%) breeds in the Sikhote-Alin mountain range in Far Eastern Russia (primarily in Primorsky Krai and Khabarovsk Krai) (Solovyeva *et al.* 2014b). Most of the remainder (14%) is found in the Changbai Mountains / Baekdu Massif, straddling China (Jilin Province) and the DPRK, though there have been no recent surveys in the latter country to confirm its continued presence there. Recent surveys have provided a reasonably precise delimitation of much of the breeding range.

There were significant changes in breeding distribution in the 20th Century. Previously occupying a large area of the Greater and Lesser Xingan Mountains in China, breeding is now reduced to around twenty pairs in a small portion of the Lesser Xingan. Numbers in the eastern Chinese part of the range (the Changbai Mountains / Paekdu Massif) were considered a small part of the total in the 1980s. The population has grown there and this area now supports the largest numbers in China. A similar picture was observed for the Sikhote-Alin Mountains in Russia – the small number of breeding pairs in the 1970s had increased significantly by 2006. Though it might be speculated that there has been a redistribution of breeding birds from west to east, there are insufficient data from historical censuses to draw any clear conclusions.

Males and non-breeding females moult in pristine rivers to the north and east of the breeding rivers, and some birds in coastal locations, as far north as Central Kamchatka, the Koryak coast and the Commander Islands (Buturlin & Dementiev 1935. Isakov & Ptushenko 1952, Gerasimov 2006).

Scaly-sided Mergansers migrate up to 3,000 km southwest to winter primarily in mainland China (Figures 2, Barter *et al.* 2012). From the breeding rivers in Russia, birds migrate south over the Sea of Japan / East Sea and the Yellow Sea to the Yangtze catchment. Most birds stage for about a week on rivers in the ROK and the DPRK but some birds migrate direct to their wintering grounds in a single flight. Some birds remain at staging sites longer - up to 67 days. Spring migration follows a similar route and is generally faster.

Migration timing and routes have been studied for birds breeding in the South Sikhote-Alin and Lesser Xingan (Solovyeva *et al.*, 2012, Dong-Ping *et al.* 2014), though for the majority of breeding population these patterns are unclear.

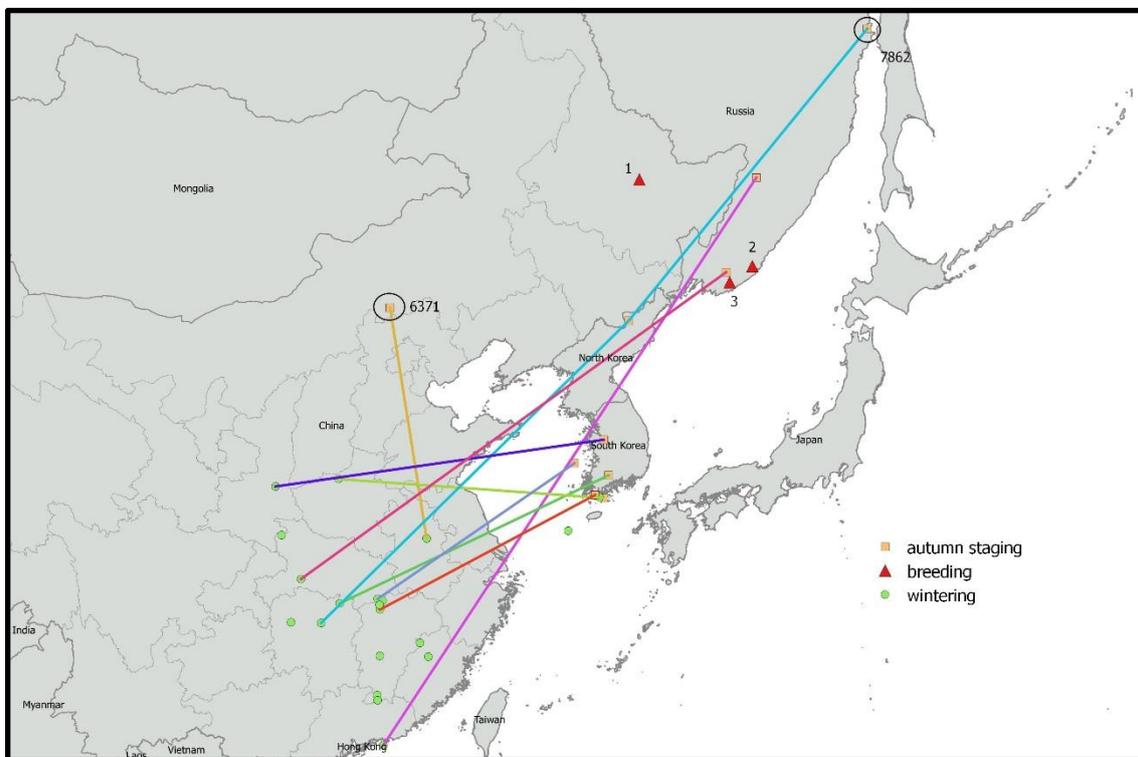


Figure 2. Migration route, staging and wintering locations of Scaly-sided Merganser females (Solovyeva *et al.*, 2012, Dong-Ping *et al.* 2014).

The majority of the population is believed to winter in central mainland China, mostly within the Yangtze River catchment. A large proportion of birds fitted with data loggers wintered in Jiangxi Province, but the extent of the wintering range is relatively poorly known and was estimated from modelling (Zeng *et al.* 2014). Surveys have only located a small proportion (less than 20%) of the known population (Barter *et al.* 2014).

Perhaps up to 250 individuals also winter in the DPRK and the ROK (where 150-200 winter annually), with numbers able to overwinter perhaps dependent on the severity of the weather (Moore 2014).

Small numbers have also been recorded wintering in Russia and birds also occasionally occur in winter in Japan, Thailand, Myanmar and Taiwan Island.

3.3 Population size and trend

Based on surveys in the breeding range during 2000–2012, the population is estimated to be *c* 1,940 pairs (or *c* 4,660 birds prior to reproduction) (Solovyeva *et al.* 2014). This comprises 1,654 pairs in Russia (1,643 in the Sikhote-Alin), 166 pairs in China (155 in the Changbai Mountains), and an estimate of 116 pairs in DPRK (all in the Baekdu Massif / Changbai Mountains).

Solovyeva *et al.* (2014) reported a contraction in range in northeast China: the species was extinct in the former breeding range in the Greater Xingan Mountains and the Chinese side of the Ussuri catchment, and close to extinction in the Lesser Xingan Mountains, with just 11 pairs remaining. There was an increase in the Changbai Mountains since the 1970s, which appears to have stabilised since 2008.

A significant decline was reported in the northwest Sikhote-Alin in 1960s and '70s, followed by an increase between the 1990s and 2006, since when numbers have also stabilised.

Many previous publications showed the breeding range extending west a considerable distance inland in Russia, but detailed examination of past records suggests these were erroneous. Solovyeva *et al.* (2014) concluded that it probably never occurred over an extensive area west and north of the Amur River and historically Scaly-sided Mergansers may never have been much more numerous or extensive in Russia than at present.

3.4 Survival and productivity

Few data are available on adult survival or generation length. The oldest known bird from ringing recoveries is a female that reached nine years old (few males have been ringed).

Females first breed when they are two years old, males when they are three or four. Unusually for a duck, there are more females (59%) than males in the spring and summer population. Breeding trios (one male accompanied by two females) occur regularly, on average accounting for 11.1% (range 3.8–22.2%, *n*=703) of breeding 'pairs' during 2000 to 2015; such polygyny is atypical in the Anseriformes (Donald 2007). Theoretical models predict that in monogamous mating systems the extinction probability of small populations is likely to be lowest when the sex ratio is balanced, and in polygynous systems extinction risk is lowest when the sex ratio is female-skewed (Bessa-Gomes *et al.* 2004). Female-skewed sex ratios have been observed on several breeding rivers in the Sikhote-Alin and Changbai Mountains (Solovyeva *et al.* 2016; Liu *et al.* 2010).

Average clutch size is 11.1 ± 0.7 eggs (range 7–19, *n*=126). Intraspecific nest parasitism (when more than one female lays in the same cavity) is common. Nest success averages 69.9% (range 38–100%, *n*=166). Key nest predators are Yellow-throated Marten *Martes flavigula* and Sable *Martes zibellina*, which are known to also take nesting females, and Schrenck's Rat Snake *Elaphe schrenkii* frequently takes newly-hatched ducklings. Brood size declines rapidly after hatching and average fledging success is less than four ducklings per brood (6.2 ducklings in August). There are several avian and mammalian predators of young and adult birds on breeding rivers and in moulting areas.

The proportion of young birds in the breeding population is high, with second or third-year females accounting for average 30% (range 0–42.9%, n=55) of all nesting females and young birds accounting for a maximum of 15.5% (3.3–38.5%, n=2541) of all birds during the pre-nesting period.

3.5 Habitat requirements

The Scaly-sided Merganser is the most freshwater species of seaduck, almost exclusively using freshwater habitats, particularly fast-flowing rivers, for most of the annual cycle. It is not known to form aggregations (flocks number fewer than 100 individuals).

Breeding habitat requirements include mature broadleaf forest on the banks of clean fast-flowing rivers. It nests solely in tree cavities (or in artificial boxes and tubes designed to emulate natural nest sites). Both water transparency and the presence of cavity-containing forest are important in the selection of breeding habitat. Nest cavities vary in height from 2 to 26m and are mainly found in oak *Quercus*, poplar *Populus*, linden (lime) *Tilia* and willow *Salix*, with small numbers in other species. There is high competition for nest sites with owls, rodents and some insects, such as bees.

The north and west extent of the breeding range is probably determined by natural factors (it coincides with the distribution of Manchurian flora and fauna, such as Mongolian Oak *Quercus mongolica*, Amur Tiger *Panthera tigris altaica* and Yellow-throated Marten *Martes flavigula*).

Scaly-sided Mergansers feed on various fish species, frogs and water insect larvae on the breeding grounds. Ducklings rely on small fish and larvae.

Brood-rearing females moult on the breeding rivers when rearing their broods. Failed females seemingly show three different patterns of site and habitat use following the loss of eggs or offspring: (1) remaining initially on the breeding river, occasionally visiting adjacent marine areas, then moulting on nearby marine waters; (2) moving to distant marine waters; or (3) moving to other freshwater rivers north of the breeding river and remaining there to moult before departing for the wintering grounds.

Males use a range of different habitats – fresh, marine and brackish waters, usually in pristine areas to the north and north-east of the breeding grounds – for the flightless moult period. Disturbance by humans involved in fishing activities along the breeding rivers, and the potential reduction of fish abundance on the breeding areas, may explain why birds use moult sites in the Russian forest away from the breeding rivers.

In winter, almost all birds are found on rivers and freshwater reservoirs. Ideal winter habitat seems to be similar to that used for breeding: fast-flowing clean mountain rivers with a variety of fish. Modelling showed favoured habitats were rivers and reservoirs within an area with mid-winter air temperatures of above 2°C (Zeng *et al.* 2015). Diet in winter is poorly studied but includes different fish species.

3.6 Captive population

The global captive population is estimated to be between 650 and 700 birds - 79 are part of EAZA/AZA breeding programmes with a further 460 – 660 individuals held by private individuals.

The European captive population was established by the private sector, not via zoo imports, and is thought to derive from only three birds, two of which siblings, from the Avvakumovka River in Far East Russia. It is possible that further imports were made via Erwin Maas, of Belgium, on two or three separate occasions. These were also imported from the East Primorye. Birds were bred in captivity

from the first time in 2002. Since then the only organisations to have bred them successfully are Pensthorpe, Blackbrook & Berlin Tierpark.

The EAZA Zoo population has been monitored since 2011 and was upgraded to a European Studbook on 12 March 2013. This is run by Johnpaul Houston of Blackpool Zoo. There were five EAZA zoos holding Scaly-sided Mergansers in 2014 (Augsburg, Berlin Tierpark, Blackpool, Prague and Wuppertal) plus three other non-EAZA zoos (Pensthorpe, WWT Arundel and Cottbus). There are a total of 40 Scaly-sided Mergansers held by organisations in Europe (18 males and 22 females). The best breeding year so far was in 2014 with 19 mergansers hatched at Pensthorpe following an import of new males. In European private aviculture the species is sustained in large numbers by numerous private breeders – estimated 400 – 600 individuals.

The North American captive population were imported from Europe: the International World Waterfowl Association imported birds to Sylvan Heights and the Wildlife Conservation Society imported birds to Central Park Zoo. Chuck Cerbini of Toledo Zoo runs the AZA Scaly-sided Merganser Species Survival Plan Program and there are now a total of 39 mergansers in AZA accredited institutions. Since 2007, private breeders have been very successful at breeding Scaly-sided Mergansers in the USA and there are estimated to be around 60 birds in total - at Livingston Ripley, Sylvan Heights, Pinola Conservancy and Dry Creek Waterfowl, all of which bred Scaly-sided Mergansers in 2015. AZA zoos are now struggling to find holders with the necessary facilities to keep Scaly-sided Mergansers and so the population growth in accredited zoos is slowing whilst new holders are sought.

4. THREATS

Threats are ranked according to the following relative scale:

- **Critical:** a factor causing or likely to cause a rapid and major decline and potentially extinction.
- **High:** a factor causing or likely to cause rapid and/or major decline.
- **Medium:** a factor causing or likely to cause slower but significant decline.
- **Low:** a factor causing or likely to cause fluctuations.
- **Local:** a factor causing or likely to cause declines in only some areas, with little or no overall effect at the population level.
- **Unknown:** a factor that is likely to affect the species but it is unknown to what extent.

Assigning a particular rank to threats using the above definitions can sometimes be difficult, especially when the impacts have not been fully quantified. An important aspect of the assessment is therefore the relative ranking of each threat, which provides prioritisation for subsequent action.

4.1 Priority threats

Poaching Importance: high

Although the species is protected in all Range States, and killing of birds is forbidden, shooting of adult Scaly-sided Mergansers is a key threat in the Russian breeding areas. Only low levels of shooting occur in China, and it is not thought to be a threat either in breeding or wintering areas in that country.

The timing of the hunting seasons in Russia increases the pressure upon Scaly-sided Mergansers as only this species and Mandarin Duck *Aix galericulata* may be present at those times. Most Scaly-sided Mergansers are shot in spring, when there is a legal hunting season for males of dabbling and some diving ducks. The spring hunting season is short (just two weeks) and popular among hunters, and coincides with the arrival of Scaly-sided Mergansers. The spring hunting season is normally from late March to early April, but the precise dates vary each year – later dates are likely to exacerbate the problem. Since 2010, the dates for the hunting seasons have been set by Moscow in consultation with the local regions though it is unclear what data are used to decide the dates. Dates are set usually a month beforehand and published in newspapers. Scaly-sided Mergansers are most likely to be shot when entering breeding rivers from the sea.

Hunting is also permitted in autumn but fewer Scaly-sided Mergansers are shot at that time. The autumn hunting season is from the last weekend of August until 31 December and only at nominated wetlands (some rivers, river estuaries, lakes, bogs). Shooting on most rivers is prohibited in autumn and allowed on only a few that are important for Scaly-sided Mergansers (the Pavlovka, Zhuravlevka and Ussuri Rivers). Hunting effort is less concentrated in autumn because the season is longer, and most legally hunted duck species migrate earlier than the departure of Scaly-sided Mergansers and use different habitats.

Poaching probably also occurs outside the open hunting seasons. Scaly-sided Mergansers are shot for sport rather than for subsistence. Russian law only permits the shooting of birds on the water, though it is likely that many Scaly-sided Mergansers are shot in flight. Numbers of Scaly-sided Mergansers shot are generally thought to be relatively small – usually a few birds per river, though in years when the timing of the hunting season occurs before or after the main migration of legal quarry species, hunters are more likely to shoot non-quarry species. In 2007, for example, 26 Scaly-sided Mergansers were reported shot at the mouth of the Kievka River (14% of the local population). Poaching of Scaly-sided Mergansers is most prevalent in the eastern Sikhote-Alin.

In China, guns can only be used in designated hunting zones. Because Scaly-sided Mergansers do not generally associate with other ducks during winter, the potential for their being shot is limited.

Some Scaly-sided Mergansers are shot accidentally, as some hunters do not recognise the species. Identification skills in general are thought to be relatively poor and there is considerable potential for confusion with Goosander *Mergus merganser*. There is also a generally poor understanding of the law, and some hunters do not know that the Scaly-sided Merganser is protected. Some hunters deliberately ignore the law as it is unlikely that they will be caught.

Hunters in Russia are required to have a licence but since 2013 training is not required to obtain a licence. The authorities have insufficient resources to enforce the legislation and since 2000 the number of inspectors outside refuges has decreased.

With the improving economic situation, the number of people owning guns is likely to increase, so there is potential for this problem to increase.

Fishing nets Importance: high

Gill nets and sleeve nets used across rivers to catch fish also accidentally catch Scaly-sided Mergansers, many of which drown. These nets can be used under licence in China, but their use on the most of the rivers is illegal in eastern Sikhote-Alin Mountains, Russia. Although nets can be used in both the ROK and the DPRK, they are not believed to pose a threat in those countries as they are used in slow-flowing rivers, and not across the upper reaches of rivers favoured by Scaly-sided Mergansers.

The threat is most prevalent in the Sikhote-Alin Mountains, Russia, where the nets are used across fast-flowing rivers. Nets are also used in the Khabarovsk/Amur Basin, but in slow channels between lake systems, which are not favoured by Scaly-sided Mergansers. Fishing is used particularly by poorer villagers to catch fish for food and to sell fish and fish eggs, providing a significant source of income, primarily from June to early August. Although fisherman will release birds found in nets, most birds die as fishermen cannot extract them in time (many nets are unattended much of the time). Its impact is greatest during the period when birds cannot fly, and it has the potential to kill whole broods.

Though illegal, the legislation is not enforced (different authorities are responsible for fishing and hunting). This reflects not so much a lack of resources but a change in mentality to allow natural resources to be exploited. It is known that police participate in fishing, especially for eggs.

Fishing nets are more numerous in recent years (every kilometre in some places) in the Sikhote-Alin, and are used more blatantly in defiance of the legislation.

Fishing nets are used legally for fish farming in China, and the numbers in use are thought to have diminished when fishing was legalised. Nets continue to be used illegally also, both by poor people but also contracted by richer people. Laws are not enforced by the authorities. This is complicated by the division of responsibilities for different aspects between different government offices.

In China, sleeve nets are considered to have greater effect on Scaly-sided Mergansers. These are used when water flow is lower (in summer) and dams remain in place to channel the water into the net. The threat in China is overall considered to have only a regional effect.

Permanent dams Importance: high

Dams, particularly in China and particularly in the wintering areas and also in the ROK, are considered to be a major threat. While their precise impact has not been studied, the significant changes to river flow and form are likely to have a major effect on the suitability of rivers as feeding areas for Scaly-sided Mergansers.

Dams are common and widespread in central and eastern China. Dams for hydro-electricity generation tend to be the largest, while medium-sized dams are used for water supply, both for drinking and especially for irrigation. Large dams cause a major change to the environment for ten or more kilometres upstream, and in some cases there are also downstream effects. Although individual dams may not be especially large, they are sometimes used in series, with a dam every 5–15km. Dams placed in the middle and upper stretches of larger rivers have the greatest impact upon Scaly-sided Merganser feeding areas.

Some important wintering sites for Scaly-sided Mergansers occur directly below dam walls, probably because the faster-flowing water creates suitable habitat. The lack of observations prior to construction means, however, that it is not known if these sites were already favoured by Scaly-sided Mergansers. It is possible that these locations remain the only suitable feeding sites within river systems that have been largely modified.

Dams occur on the vast majority of rivers in China and the ROK. They are usually sited in the middle and lower reaches of medium-sized rivers, areas that might otherwise be good wintering rivers for Scaly-sided Mergansers. There is no information on whether any known Scaly-sided Merganser sites have been lost directly because of dam construction, but it is considered inevitable that this must have occurred.

Dam construction is expected to continue in China (and in the ROK). The country is water-stressed and there is a national energy deficit. Dams are an attractive option because there are few alternative energy sources and they are a source of green energy. Many dams are old, poorly constructed and probably inefficient. Whilst there is a potential that these may be retired, and that wind farms and new thermal plants may replace some dams, the strategic plan for dam construction is unknown. Whilst energy provision over long distances is relatively easy, it is likely that a widespread need for medium dams will persist as part of a water-supply strategy. The increasing human population and the drive for economic development will continue the increased demand for water and electricity. In some cases, dams have been built to generate economic development.

Although there are fewer dams within the breeding areas in China, proposals for hydro-electric schemes are being promoted by Governor of Jilin. Both small and medium dams (affecting perhaps 6–7km upstream) are envisaged, including several within the Changbaishan breeding areas. Dams in these areas are, however, likely to have only a regional effect on the Scaly-sided Merganser population.

In the DPRK, there is also a drive towards dam development, with the Government encouraging construction. The scale and strategy for this is unknown. Without clearer information on the numbers and distribution of Scaly-sided Mergansers in the country, it is unclear what the effects might be.

There is at least one proposal for major dam construction in the ROK on a river used by substantial numbers of Scaly-sided Merganser. The 'Four Rivers Project' (mostly conducted between 2009 and 2012) has already resulted in several new dams (along with reservoirs and canalisation of rivers), including in rivers used by Scaly-sided Mergansers.

Pollution Importance: at least medium, probably high

Wintering sites in central China are considered highly contaminated with persistent organic pollutants (POPs) and heavy metals from industrial development and poor environmental practice and regulation. This has the potential to affect Scaly-sided Merganser prey abundance both directly and indirectly as well as having a direct impact on the mergansers themselves. Scaly-sided Mergansers caught in Russia (particularly those using nest-boxes) and their eggs are contaminated with medium to high levels of heavy metals (Solovyeva *et al.* in prep.). POPs have not been investigated in Scaly-sided Mergansers.

Industrial waste from manufacturing, mining and smelting in the wintering areas in China is potentially a large problem as water is likely to be discharged into rivers with minimal treatment (small-scale mining in the Scaly-sided Merganser breeding areas is not thought to be an issue). Heavy metals and organic compounds are likely to enter water courses from a variety of sources, from large factories to cottage industries. The numbers and locations of mines, factories and smaller businesses and the extent to which these affect key and likely wintering rivers for Scaly-sided Mergansers need to be determined.

Often there is only primary treatment of waste water before discharge and domestic waste can be discharged directly into a water source. There is often no controlled disposal or treatment of garbage – it is simply piled outside cities – and collection and disposal is non-existent in more remote areas. The extent and impact of non-point source pollution from agrochemicals and pesticides is unknown but likely to be widespread.

Water quality in many areas in China is scored as '5', considered unfit for any use. Water quality is known for larger rivers but may not be available for rivers used by Scaly-sided Mergansers.

Although central Government encourages and provides money – which is also provided through international funds – for treatment plants, these may not be funded locally and fall into disrepair. Individuals will keep money for profit rather than pay for treatment. There appears to be lack of appreciation of the problem centrally, and of environmental issues generally, with a focus on development and growth.

In DPRK, the approach to water treatment appears to be largely similar to that of China. An iron mine results in large discharge and environmental damage on the upper Duman River. Otherwise, the much smaller-scale of human habitation and development means there is likely to be rather less industrial pollution. However, more research is required to determine the ecological health of rivers used by the species.

In Russia, there is only one case of concern, past gold mining on Pompeevka River in the Jewish Autonomous Okrug. Previous problems from mining and industry – concerning heavy metal pollution and suspended clay on the Bikin River (Bocharnikov & Shibnev 1994) and an ore-processing plant and a gold-mining complex on the Iman River (Surmach & Zaykin 1994) – no longer appear to be a threat.

Pollution is currently not considered to be a serious issue to the species in the ROK.

4.2 Additional threats

Dredging Importance: medium

Extraction of gravel and sand from rivers is considered to be a medium threat in wintering rivers in China (as in the ROK), but of low importance in breeding areas. Dredging causes a change in river morphology, an increase in turbidity, which continues downstream of the activity, and disturbance. Scaly-sided Mergansers were found to favour areas with larger and more contiguous gravel patches, and less human disturbance during the winter in China (Zeng *et al.* 2015).

There is extensive extraction of gravel in wintering areas in China associated with the national drive to increase GDP (China is responsible for 40% of world concrete consumption) and it is widespread on all rivers. Licences for dredging are granted by local government and the activity is mostly local (rather than by large companies).

In breeding areas in China, there is widespread extraction of sand. Increased turbidity is generally short-lived because of water flow, but changes in riverbed morphology may have a serious effect on the river and also bank-side trees. It is unknown if the activity occurs in fish-spawning areas.

The drive for increased development and tourism in Jilin (the city of Songjianghe is projected to increase from 10-20,000 to 100,000 people with plans for highway and rail links) adjacent to Scaly-sided Merganser breeding areas drives the need for sand and aggregates. Although there dredging is regulated, this is not enforced.

Gravel extraction occurs in breeding areas Russia, but the activity is very limited, and the declining human population in the region means there is only a low potential for this to be a problem in future.

In the DPRK, local enterprises regularly extract aggregates around towns and villages for general development, presumably including in Scaly-sided Merganser breeding areas. This generally involves bank-side collection, so has a lesser effect on river morphology and turbidity. Small-scale gold extraction (both by individuals and mechanised) can create increased turbidity locally.

There is industrial-scale and local aggregate extraction in the ROK but the effects of this on Scaly-sided Merganser passage and wintering areas has not yet been studied.

Disturbance Importance: low

Disturbance arises from a number of activities, and is increasing in some areas as result of increasing development and growth, particularly in China and the ROK, and the associated expansion of roads and other transport infrastructure alongside rivers. A particular concern in breeding areas is the disruption of broods, especially from boats and other river users.

The primary cause of brood disruption is boats associated with tourism, which is increasing in both the Primorye and Jilin. Boat use in China requires a licence, but the authorities are not discerning about where boating is allowed. No permissions are needed in Russia, but there are restrictions on the use of motorboats during the fish-breeding period. Increasing general tourism and recreation (not using boats) in the Russian breeding area, and as a result of increased access to remote villages in China, may also cause disturbance. In some parts of the Sikhote-Alin, boats may be the primary means of transport and boat use has increased in the last 10 years. Tourism is not yet an issue for the species in the DPRK, but many rivers are vulnerable to excessive disturbance from local communities (see Duckworth & Kim 2005).

Human habitation and development is increasingly an issue. Urbanisation in parts of the Changbaishan in Jilin is already thought to have caused some Scaly-sided Merganser breeding sites to be abandoned, particularly due to roads and railways being constructed close to rivers. Development and disturbance in this part of China is predicted to increase. Increased development and disturbance are also predicted in wintering areas in China, although the effect is difficult to predict. Associated with the general rise in personal wealth, domestic tourism is increasing in wintering areas, with roads alongside many rivers. In ROK bankside construction and clearance of riverside vegetation (for road traffic safety) are likely to affect the suitability of sites, both for the Four Rivers Project and on small rivers. Such activities are likely to increase. Photographers also cause disturbance at some sites.

In Khabarovsk, there is increased infrastructure for providing electricity to China. Oil and gas pipelines pass from Sakhalin to southern Khabarovsk, across the eastern Sikhote-Alin, from Siberia through Khabarovsk, and across the Bikin to the Primorye.

Fishing in the Sikhote-Alin, Russia, and in Jilin, China, is a local but increasing problem. In Russia, the problem is mainly sport fishing by people coming from outside the region. Although it is legal and licensed, the year-round fishing season extends over the entire breeding season.

Legal hunting of other duck species causes disturbance of Scaly-sided Mergansers, but the extent to which this is an issue is unclear.

Deliberate killing because of perceived competition Importance: local

In China, some Scaly-sided Mergansers are deliberately killed by fishery owners, perceived as a threat to their livelihood. Birds are also killed by poisoning along river stretches used as *Rana* (frog) fisheries. Both threats are considered to have only a local effect.

Semi-permanent small dams Importance: local

Small semi-permanent dams are used in China in Scaly-sided Mergansers breeding areas for fisheries (in combination with sleeve nets), and may be quite common (every 3–5km). They are also used in Scaly-sided Merganser wintering areas, where their primary use is for local water supply and irrigation

(there are few fish in the wintering rivers). It is considered unlikely that the dams isolate sections of the river, preventing fish moving along the river.

Dams tend to occur on smaller rivers, less occupied by Scaly-sided Mergansers, and their effect on the species is unclear. It is possible that the water behind the dams may be used as feeding pools.

Overfishing Importance: local

Although illegal, fishing – particularly electric fishing – is widespread in China. It occurs through the year, often during the night. Fish numbers are already considerably depleted (fish are rarely seen in rivers) and that few waterbirds are seen on rivers in China may reflect the absence of food. The impact on Scaly-sided Mergansers is unclear though probably small (other threats have a larger impact). Fishing is thought to occur in DPRK, though the extent is unknown.

Fishing is for personal or local consumption. There is little or no enforcement of regulations by the authorities, particularly in rural areas.

Logging Importance: local

Commercial logging occurs in all three breeding Range States and generally seems to be well regulated, with little direct overlap with Scaly-sided Mergansers. Local extraction (for firewood or timber) also occurs, but is considered likely to be a problem only in certain areas.

Commercial logging is regulated in Russia. In Primorye and Khabarovsk, logging is prohibited in river flood plains. The tree species targeted (notably ash *Fraxinus* and oak *Quercus*) are not favoured by Scaly-sided Mergansers for nesting. The larger commercial companies are more likely to comply with legislation in order to receive certification for their activities. The rafting of logs on rivers has been totally prohibited and so is no longer an important issue for Scaly-sided Mergansers.

Previously, local communities obtained government 'tickets' to take trees for firewood, but access to the majority of woodland is now restricted because large areas are contracted to companies. A forest code requires that old large trees are felled for 'sanitary' reasons, to prevent them falling and damaging other trees good for logging. The code imposes a buffer zone of 50 m around small rivers and 500m or more around bigger rivers. Locals do, however, take trees within flood-plain forests immediately around villages, concentrating on smaller trees because they are easier to transport. This nevertheless poses a possible threat for Scaly-sided Mergansers, and a heronry was largely destroyed through this activity. Any logging is prohibited in buffer zones. There is greater potential for this to be an issue in southern Primorye because of the higher human population density. No changes in forestry management drivers are anticipated in the near future, particularly away from southern Primorye.

In China, the peak in logging was during the 1970s. Forestry rights are owned by Government and the State Forestry Authority produces an annual logging plan that allows only a small amount of virgin forests to be logged. All riverine sections (500 m either side of the river) are protected and logging is banned. International Forest Certification requires that any endangered species is protected and the European market will only buy wood from responsible sources, which drives a large increase in the price of wood.

Management rights have been passed to local (private) people to ensure more sympathetic management. Forests are classified and in 'ecological forests' people are only allowed to use the land or tree products (*e.g.* pine nuts) but are not permitted to fell trees. Other forest classifications allow

only selected logging. This has decreased the incidence of illegal logging, though it still occurs, it is expected to have a positive impact on Scaly-sided Mergansers.

Forests are regenerating both naturally and through plantation. The Changbai Natural Reserve still contains primary forest along some rivers though there is a wider problem that regeneration does not yet provide adequate nest sites for Scaly-sided Mergansers because the trees are too young.

In DPRK, logging is primarily for local timber supply (for commercial reasons), but also of underbrush for heating and fuel by villagers, and for clearance for cultivation. Commercial logging for wider markets may continue at a low level. Logging is not allowed along river valleys, but may be not enforced. This activity probably occurs in potential or suspected Scaly-sided Merganser breeding areas.

Fires Importance: local

In Russia, fires are used locally for maintaining grassland areas, mainly in the southern Sikhote-Alin, which results in some local losses of habitat. It is not an issue in the northern part of the range.

China has a well-established system for quickly controlling fires and there have been no significant forest fires in Jilin for thirty or more years. Fires do occur in Heilongjiang, but are not felt to be an issue in Scaly-sided Merganser breeding areas.

Fire is regularly used in DPRK for forest clearance for agriculture, including areas close to rivers, especially in spring.

Predation Importance: local

Nesting females are taken by Sable and Yellow-throated Marten. Eggs are taken by snakes and ducklings are predated by snakes, Taimen *Hucho taimen*, Eurasian Otter *Lutra lutra* and introduced American Mink *Mustela vison*. Adult birds might be taken by Taimen, Goshawk *Accipter gentilis* and White-tailed Eagle *Haliaeetus albicilla*.

Competition Importance: local

There is competition for nest sites, both natural and nest-boxes, from owls, e.g. Ural Owl *Strix uralensis*, Siberian Flying Squirrel *Pteromys volans*, Red Squirrel *Sciurus vulgaris* and Asian Giant Hornet *Vespa mandarini* and other hornets. Mandarin Duck is not considered to be a competitor however they might cause clutch abandonment from intra-specific nest parasitism. Potential competition with Goosander occurs on the rivers in the north portion of the range.

Competition for food with other fish-eating birds and mammals is unstudied but might take place in core breeding area in Primorye. Grey Heron *Ardea cinerea*, Cormorant *Phalacrocorax carbo*, Goosander and Mandarin Duck could compete for fish and frogs as well as American Mink and Otter.

5. KNOWLEDGE GAPS

Current knowledge is limited for some geographic and demographic parameters for Scaly-sided Merganser, and about the extent and impact of some threats. Significant knowledge gaps may hinder

the successful implementation of conservation measures. Key knowledge gaps are identified below so that they can be addressed in the implementation of this plan.

Issue	Knowledge gap	Priority
Distribution	Breeding numbers and range in DPRK	High
Distribution	Staging and wintering areas in DPRK	Medium
Distribution	Wintering range and key sites in China	High
Distribution	Habitat use and requirements in winter	Medium
Habitat	Effect of dams on winter distribution and foraging	High
Demography	Juvenile survival from hatching to fledging, and from fledging to first breeding	High
Demography	Annual survival of males	Medium
Pollution	Pollution effect on egg hatchability	Medium

6. FRAMEWORK FOR ACTION

6.1 Goal and objective

Goal

To remove the Scaly-sided Merganser from the threatened categories of the IUCN Red List.

Objective

The objective is to maintain the world population of Scaly-sided Merganser at its current level (c. 5,000 birds).

Ten results are identified to deliver the objective, to be achieved by implementation of specific actions. Most actions address the key threats, and some seek to address knowledge gaps about threats in order to develop appropriate actions. Further actions ensure that key sites for the species are protected, and ensure that the species is monitored appropriately, in particular to clarify its current status.

Actions should be implemented in all four Principal Range States unless otherwise indicated. It is expected that some actions can be undertaken relatively quickly, while others may take until the end of the period plan to be completed. Timescales are given as 2018, 2021 and 2025 to reflect actions that can be completed by the end of the first, second and final thirds of the term of the plan. It is expected that significant progress should have been made on all actions by 2025.

Footnotes capture suggestions made at the action-planning workshop that should facilitate implementation of certain actions, or identify specific issues for consideration.

The results and actions listed below should be incorporated into the relevant national action plans of each Range State in which they apply. Range States are, however, encouraged, through the EAAFP Scaly-sided Merganser Task Force, to develop and share best practice and imaginative ideas to implement actions. Range States are also encouraged to develop collaborative cross-border projects for implementation, as these are likely to be more effective than implementing actions in isolation.

6.2 Results

Ten results involving a total of 41 actions were identified.

Result 1: Raise awareness of the issue of dams and reduce construction of new dams in sensitive areas

It should immediately be noted that fundamental issues of development and dam construction, particularly in China, will not be turned around by individual conservation issues, but adding the Scaly-sided Merganser to the list of issues – and combining this with other initiatives to address environmental concerns – should be undertaken.

Action	Priority	Timescale	Organisations
1. Ensure relevant authorities (including high level Government) receive information on Scaly-sided Mergansers (to know which are important areas) and of the possible impact of developments, e.g. dams	High	Significant progress by 2018	National and international NGOs, Universities, Academies of Science
2. Make representation to EIAs for dam proposals and contribute to mitigation recommendations ⁶	High	Occurring regularly by 2018	Universities, Academies of Science, National and international NGOs
3. Make representations to high level authorities about nature conservation mechanisms at appropriate meetings, e.g. CBD COP ⁷	High	Occurring regularly by 2018	National and international NGOs
4. Undertake post-construction monitoring of any new dam to determine effect on Scaly-sided Mergansers in breeding and wintering areas	Medium	At least two studies underway by 2021	National NGOs, Universities

Result 2: Reduce pollution in wintering areas

As with dams (see Result 1), pollution and water quality, particularly in China, are major issues that require addressing at a high-level. Actions proposed for dams (notably 1 and 3) also apply to pollution and water quality and combining both issues in relevant actions may be advantageous.

Action	Priority	Timescale	Organisations
5. Make representations to high level authorities about nature	High	Occurring regularly by 2018	National and international NGOs, Universities, Academies of Science

⁶ It is acknowledged that the EIA process is not open and difficult to influence and in some Range States no obvious mechanism exists to make representation to the authorities or process.

⁷ This would address much bigger issues at a policy level, and need a high-level approach, eg EAAFP involvement, linked to other organisations, initiatives and/or combined with other affected species. Consider targeted side event at next COP. Might be linked to issue of water quality/pollution.

conservation mechanisms at appropriate meetings, e.g. CBD COP ⁴			
6. Develop demonstration projects that address pollution/water quality at different scales (e.g. industrial, community, cottage industry), using Scaly-sided Merganser as flagship and/or seek to include Scaly-sided Merganser as beneficiary species in existing initiatives	High	Projects proposals developed by 2018 and underway by 2021	National NGOs, Universities, Academies of Science

Result 3: Raise awareness of the issue of dredging and reduce the impact of dredging in sensitive areas

Action	Priority	Timescale	Organisations
7. Identify future dredging activity in sensitive areas and raise awareness of effects and mitigation with authorities and relevant companies	High	Future activity identified by 2018; relevant bodies aware by 2021	National NGOs, Universities, Academies of Science
8. Make representation to EIAs for aggregate extraction and contribute to mitigation recommendations ⁸	High	Occurring regularly by 2018	National NGOs, Universities, Academies of Science
9. Identify and advocate measures for site restoration	Medium	Significant progress by 2018	National NGOs, Universities, Academies of Science

Result 4: Eliminate mortality from shooting in breeding and moulting grounds in Russia

Action	Priority	Timescale	Organisations
10. Prohibit spring hunting of merganser <i>Mergus</i> species throughout Primorye and Khabarovsk or all key Scaly-sided Merganser rivers; or prohibit hunting of all wildfowl on key Scaly-sided Merganser breeding rivers	High	Submission by 2018; in place by 2021	Local NGOs and authorities, SSM Project
11. Develop and disseminate materials explaining plight of Scaly-sided Merganser and legal situation ⁹	High	2018	Local NGOs and hunting organisations, SSM Project
12. Ensure hunters are able to identify Scaly-sided Mergansers ¹⁰	Medium	2021	Hunting organisations and authorities

⁸ It is acknowledged that the EIA process is not open and difficult to influence and in some Range States no obvious mechanism exists to make representation to the authorities or process.

⁹ This has worked successfully on the Kievka River. Also consider agreements with hunting associations to champion Scaly-sided Merganser conservation.

¹⁰ Consider developing identification charts and running training courses with hunting societies/associations.

13. Incorporate identification training into hunting licensing process	Medium	2021	Authorities and hunting organisations
14. Increase in patrol effort ¹¹	Medium	2021	Authorities and hunting organisations

Result 5: Minimise drowning in fishing nets in breeding grounds

Action	Priority	Timescale	Organisations
15. Raise awareness with villagers and authorities in Sikhote-Alin and Jilin about Scaly-sided Merganser, its plight and protected status and the need to comply with existing regulations ¹²	High	2021	Local NGOs, schools and SSM Project
16. Undertake Participatory Rural Appraisal for local villagers to identify alternative income sources (e.g. fish farms) ¹³	Medium	Projects proposals developed by 2018 and underway by 2021	Local NGOs
17. Open sport fishing using rod and line and police illegal use of gill nets	Medium	2021	Authorities

Result 6: Minimise disturbance during brood-rearing period

Action	Priority	Timescale	Organisations
18. Seek regulation of motorboat traffic on Scaly-sided Merganser rivers ¹⁴	High	2018	Local NGOs and SSM Project
19. Develop and disseminate guidance for boat-users when approaching broods (e.g. kill engines and pass broods as quickly as possible; keep to same main channels in braided sections)	Medium	2018	Academies of Science, Local NGOs

¹¹ Consider increasing the licence fee to fund patrols or using 'advisors', e.g. local staff, hunting society members.

¹² Water and electricity authorities thought to be unaware of Scaly-sided Merganser issue; also need to ensure coordination with other relevant authorities, e.g. Forestry Bureau. Students may be a good target group (likely to be sympathetic and provide 'pester power').

¹³ Many villagers are poor people and fish are an important source of food and/or income. Grants already exist for alternative livelihoods.

¹⁴ Use of motorboats is already restricted on named rivers in May and June to minimise disturbance to fisheries.

Result 7: Key knowledge gaps about the species and threats are addressed

Action	Priority	Timescale	Organisations
20. Determine breeding numbers and range in DPRK	High	2021	Hanns Seidel Foundation, Birds Korea
21. Identify staging and wintering areas in DPRK	Medium	2021	Hanns Seidel Foundation, Birds Korea
22. Identify key areas for wintering in China, especially through new GPS tracking studies	High	2018	National NGOs, Universities, Academies of Science
23. Determine habitat use and requirements in winter	Medium	2018	National NGOs, Universities, Academies of Science
24. Determine juvenile survival from hatching to fledging, and from fledging to first breeding	High	2021	SSM Project
25. Determine annual survival of males	High	2021	SSM Project
26. Understand effect of dams on prey of Scaly-sided Mergansers	High	2021	National NGOs, Universities, Academies of Science
27. Document extent and nature of water pollution in China in order to target activities	Medium	2021	National NGOs, Universities, Academies of Science
28. Undertake research on sub-lethal effects of poisoning, especially heavy metals and pesticides on productivity	Medium	2018	SSM Project
29. Understand effect of dredging on Scaly-sided Mergansers	Medium	2018	National NGOs, Universities, Academies of Science
30. Understand threats during moulting period in Russia	High	2021	SSM Project, Academy of Science, Universities

Result 8: A network of protected areas, covering all important sites throughout the lifecycle, is designated and maintained and supported by wider policies

Action	Priority	Timescale	Organisations
31. Ensure key sites are protected ¹⁵	High	2021	Local authorities
32. Nominate key sites as 'Flyway Network Sites' ¹⁶	High	2018	National EAAFP representatives

¹⁵ In China, protected as Provincial Nature Reserves as a minimum, ideally as National Nature Reserves.

¹⁶ Identify benefits for the site, e.g. through sister site arrangement.

Result 9: Increase production of young through coordinated nest box programmes

Action	Priority	Timescale	Organisations
33. Nest box programme within the existing breeding range	High	All times	SSM Project
34. Develop nest box programme in the known areas of former breeding range (Greater Xingan, Wusuli basin)	Medium	2021	Academies of Science, Local NGOs

Result 10: Manage captive breeding populations in North America and Europe to maximise genetic diversity and establish a funding mechanism for zoos to support in situ conservation

Action	Priority	Timescale	Organisations
35. Ascertain genetic diversity of captive breeding populations in North America and Europe and manage them to maximise genetic diversity	Medium	2018 and ongoing	EAZA / AZA
36. Establish a funding mechanism for zoos to support in situ conservation	High	2018	EAZA / AZA / WWT
37. Create photographic guide to age, to aid identification in situ	Medium	2018	EAZA / AZA
38. Increase captive breeding within European zoological institutions in line with European studbook programme goals		2018	EAZA
39. Find new holders with AZA institutions to continue growth of the population		2018	AZA
40. Investigate genetic inheritance paternally		2018	EAZA / AZA
41. Build capacity, and husbandry knowledge, for captive management of merganser within range states		2018 and ongoing	EAZA / AZA

7. REFERENCES

- Barter, M., Xuliang Zhuang, Xin Wang, Lei Cao, Jinyu Lei, D. Solovyeva & A.D. Fox. 2014. Abundance and distribution of wintering Scaly-sided Mergansers *Mergus squamatus* in China: where are the missing birds? *Bird Conservation International* 24: 406–415.
- Bessa-Gomes, C., S. Legendre & J. Clobert. 2004. Allee effects, mating systems and the extinction risk in populations with two sexes. *Ecol. Lett.* 7: 802–812.
- Bocharnikov, V.N. & Y.B. Shibnev. 1994. The Scaly-sided Merganser *Mergus squamatus* in the Bikin River Basin, Far-East Russia. Pp. 3-10 In *The Scaly-sided Merganser Mergus squamatus* in Russia and China. *TWRG Special Publ. No. 1* (Hughes, B. & Hunter, J., Eds.). WWT, Slimbridge.

- Buturlin, S.A. & G.P. Dementiev. 1935. The Complete Reference Guide of Birds of the USSR. Volume 1. KOIZ: Moscow-Leningrad. [In Russian]
- Donald, P. 2007. Adult sex ratios in wild bird populations. *Ibis* 149: 671–692.
- Duckworth, J. & Kim C. 2005. Scaly-sided Mergansers *Mergus squamatus* on the lower Chongchon River, Central Korea. *Wildfowl* 55: 135-144. Published by the Wildfowl and Wetlands Trust.
- DPRK. 2002. Red Data Book of DPRK (Animal). Published in Pyongyang, DPRK, 2002.
- DPRK. 2007. National Biodiversity Strategy and Action Plan. Produced by the DPRK, UNEP and GEF. Published in Pyongyang, DPRK, 2007.
- Gerasimov, Yu.N. 2006. Scaly-sided Merganser. In Red data book of Kamchatka Vol. 2: Animals: 133-134 (Torkanov, A.M., Ed.). Petropavlovsk-Kamchatskiy: Kamchatskiy Pechatny Dvor Publishing House. [In Russian]
- Gould, J. 1864. Description of a new species of the genus *Mergus*. Pp. 184-185 In: Proc. Zool. Soc. London.
- Isakov, Y.A. & E.S. Ptushenko. 1952. Order Anseriformes. Family Anatidae. In Birds of the Soviet Union. Volume 4: 247-635 (Dementiev, G.P. & Gladkov, N.A., Eds.). Moscow: Sovetskaya Nauka Publishers. [In Russian]
- Liu, P., Li, F., Song, H., Wang, Q., Song, Y., Liu, Y. & Zh Piao. 2010. A survey of the distribution of the Scaly-sided Merganser (*Mergus squamatus*) in Changbai Mountain range (China side). *Chinese Birds* 1(2): 148-155.
- Moore, N. & A. Kim. 2014. Birds Korea Scaly-sided Merganser *Mergus squamatus* Survey, January 2014. Birds Korea Report prepared for the EAAFP, June 2014.
- NIBR. 2012. Korean Red List of Threatened Species: Mammals, Birds, Reptiles, Amphibians, Fishes and Vascular Plants. Published by the National Institute of Biological Research, Ministry of Environment. ISBN: 9788997462452.
- Solovyeva, D.V. & J.M. Pearce. 2011. Comparative mitochondrial genetics of North American and Eurasian mergansers with an emphasis on the endangered scaly-sided merganser (*Mergus squamatus*). *Conservation Genetics* 12: 839–844.
- Solovyeva D.V., V. Afanasiev, J.W. Fox, V. Shokhrin & A.D. Fox. 2012. Use of geolocators reveals previously unknown Chinese and Korean scaly-sided merganser wintering sites. *Endangered Species Research* 17: 217–225.
- Solovyeva, D., K.A. Hobson, N. Kharitonova, J. Newton, J.W. Fox, V. Afanasyev & A.D. Fox. 2016. Combining stable hydrogen (d2H) isotopes and geolocation to assign Scaly-sided Mergansers to moult river catchments. *Journal of Ornithology* 157 (3): 663–669.
- Solovyeva, D.V., P. Liu, A.I. Antonov, A.A. Averin, V.V. Pronkevich, V.P. Shokhrin, S.L. Vartanyan & P.A. Cranswick. 2014a. The population size and breeding range of the Scaly-sided Merganser *Mergus squamatus*. *Bird Conservation International* 29: 393–405.
- Solovyeva, D., J. Newton, K. Hobson, J.W. Fox, V. Afanasyev & A.D. Fox. 2014b. Marine moult migration of the freshwater Scaly-sided Merganser *Mergus squamatus* revealed by stable isotopes and geolocators. *Ibis* 156: 466–471.

Surmach, S.G. & D.V. Zaykin. 1994. The Scaly-sided Merganser *Mergus squamatus* (Gould) in the Iman Basin, Far-East Russia. Pp. 11-17 *In* The Scaly-sided Merganser *Mergus squamatus* in Russia and China. TWRG Special Publ. No. 1 (Hughes, B. and Hunter, J., Eds.). WWT, Slimbridge.

Wetlands International. 2016. "Waterbird Population Estimates". Retrieved from wpe.wetlands.org on Tuesday 29 Nov 2016.

Zeng, Q., L. Shi, L. Wen, J. Chen, H. Duo & G. Lei. 2015a. Gravel bars can be critical for biodiversity conservation: a case study on Scaly-sided Merganser in South China. *PLoS One* 10(5): e0127387.

Zeng, Q., Zhang, Y., Sun, G., Duo, H., Wen, L., & G. Lei. 2015b. Using species distribution model to estimate the wintering population size of the Endangered Scaly-Sided Merganser in China. *PLoS ONE* 10(2): e0117307. doi:10.1371/journal.pone.0117307.

Zhang, Z-Q., C-J. Qin, D-A Fang, A-P. Wang, C-H. Luo & K. Liu. 2013. Genetic diversity of the endangered scaly-sided merganser (*Mergus squamatus*) in the wintering habitat of central-southern China. *Genetics and Molecular Research* 12: 3103-3109.

8. ANNEXES

Annex 1. The importance of threats at the country level.

	Overall	Breeding			Wintering		
		CH	DPRK	RU	CH	DPRK	ROK
Priority threats							
Poaching	High	low		high			
Fishing nets	High	medium		high	medium		
Permanent dams	High				high		high
Pollution	Unknown, probably high	low			high		
Additional threats							
Dredging	Medium				medium		medium
Disturbance	Low	low	low	local	local	low	
Deliberate killing because of perceived competition	Local	local			local		
Semi-permanent small dams	Local	low	medium		local	medium	
Overfishing	Local	Local		medium	medium		
Logging	Local	low		local	low	local	
Fires	Local	Local	local	local	low		
Predation	Local	Local	Ukn.	local	low		
Competition	Local	Local		local	low		

CH: China, DPRK: Democratic People's Republic of Korea, ROK: Republic of Korea, RU: Russia.

- **Critical:** a factor causing or likely to cause a rapid and major decline and potentially extinction.
- **High:** a factor causing or likely to cause rapid and/or major decline.
- **Medium:** a factor causing or likely to cause slower but significant decline.
- **Low:** a factor causing or likely to cause fluctuations.

- **Local:** a factor causing or likely to cause declines in only some areas, with little or no overall effect at the population level.
- **Unknown:** a factor that is likely to affect the species but it is unknown to what extent.

Annex 2. Key sites for Scaly-sided Mergansers.

This list of key sites is based on the current IBA list for Scaly-sided Merganser, supplemented with information from other sites not currently recognised as IBAs for the species. The 1% threshold for Scaly-sided Merganser, a means of identifying sites of international importance, is 50 birds (Wetlands International 2016).

Country / site name	EAAFP FNS ¹⁷	IBA	Ramsar	National Designations	Season
China					
Changbai Shan Nature Reserve	N	Y	N	Y	Breeding
Liangshui Nature Reserve	N	Y	N	Y	Breeding
Shuifeng Reservoir and middle reaches of Yalu Jiang	N	Y	Y		Breeding
Xinjiang Yiyang Qinghu Section	N	Y	N	N	Unknown
Democratic Peoples Republic of Korea					
Paekdu Mnt.	N	Y	Y	Y	Breeding
Myohyang Mnt	N	N	N	Y	Winter
Republic of Korea					
“North River”	N	Y	N	N	Winter
Russian Federation					
Kievka and Chernaya river basins	N	Y	Y	Y	Breeding
Middle reaches of the Bikin River	N	Y	N	Y	Breeding
Middle reaches of the Iman River	N	Y	N	N	Breeding

¹⁷ East Asian – Australasian Flyway Partnership Flyway Network Site.



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The East Asian – Australasian Flyway Partnership provides a framework for international cooperation, aimed at protecting migratory waterbirds, their habitat and the livelihoods of people dependent upon them.

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