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Proposals for Concerted and Cooperative Action Bird Species for Consideration by COP11

Summary:

This document has been submitted by BirdLife International and the International Wader Study Group in order to provide background information on a number of bird species that are being proposed for Concerted and Cooperative Actions in document UNEP/CMS/COP11/Doc.22.4. These species include the Far Eastern Curlew (*Numenius madagascariensis*), the Bar-tailed Godwit (*Limosa lapponica*), the Great Knot (*Calidris tenuirostris*) and the Red Knot (*Calidris canutus*).

Proposals for Concerted and Cooperative Action for Consideration by CMS COP 11, November 2014

Far Eastern Curlew *Numenius madagascariensis*

Bar-tailed Godwit *Limosa lapponica*

Great Knot *Calidris tenuirostris*

Red Knot *Calidris canutus*

Jutta Leyrer, Nancy van Nieuwenhove, Nicola Crockford, Simon Delany

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BirdLife International

International Wader Study Group

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PROPOSAL FOR ADDING THE FAR EASTERN CURLEW (*NUMENIUS MADAGASCARIENSIS*) TO THE CMS CONCERTED ACTION LIST DURING THE 2014-2017 TRIENNIUM

This proposal follows the approach of the report: SSc Doc 6.1.1
Rationale, Criteria and Guidance for Identifying Candidate Species
for Concerted and Cooperative Actions.

A. Specify target species / population(s), and their status in CMS Appendices:	
Species: Far Eastern Curlew (*Numenius madagascariensis)*	
Taxonomy	*Monotypic species*. There may be several disjunct breeding populations.
Range States (CMS Parties are shown in capital letters.)	AUSTRALIA, BANGLADESH, Brunei, China, Fiji, Guam (to USA), Indonesia, Japan, Malaysia, Micronesia, NEW ZEALAND, North Korea, Northern Mariana Islands (to USA), PALAU, Papua New Guinea, PHILIPPINES, Russian Federation, Singapore, South Korea, Thailand, Timor–Leste, Vietnam. It has also been recorded as a vagrant in Iran and Oman.
Red List and Status in the CMS Appendices (I or II)	IUCN Red List: up-listed to Vulnerable under the IUCN Red List in 2010. CMS: added to CMS Appendix I at COP10 (2011). Population size: Its global population has been estimated at **38,000** individuals in 2006 (Wetlands International, 2006) and **32,000** individuals in 2012 (Wetlands International, 2014). The 2012 estimate is based on a rate of decline (Garnett *et al*. 2011) applied to the 2006 estimate. Continuing documented declines mean that the true population size is unlikely to exceed 20,000 (Wetlands International 2013, Conklin *et al*. 2014).
Summary of the migration –Single flyway species (East Asian-Australasian Flyway)	

Far Eastern Curlew is a long distance migrant endemic to the ***East Asian-Australasian Flyway,*** one of the world's major flyways, that supports many migratory waterbird species and a high proportion that are globally threatened because of their dependence on intertidal wetlands. The Far Eastern Curlews' long migrations cover thousands of kilometres between their non-breeding grounds in Australia and breeding grounds in eastern Russia and north-eastern China (Driscoll, 1999; Driscoll and Ueta, 2002). The loss of suitable natural habitats appears to be one of the main threats (IWSG 2003)

Population size: 32,000 individuals (Bamford *et al*. 2008, Garnett *et al*. 2011); Actually probably <20,000 (R.Conklin, Queensland Wader Study Group, in litt.)
Trend: Declining

- *Migration:*
  The Yellow Sea of North Korea, South Korea and China is an important stopover site on migration, where the birds remain for 5 weeks. There is a diversity of migration strategies, and when migrating south, birds follow a more easterly and less continental route (Driscoll and Ueta. 2002). On northward migration an estimated 83% of the population stage in the Yellow Sea (Barter, 2002).
  Southward migration: with birds passing through the Yellow Sea and Japan, some staging in the Philippines and most flying direct to northern Australia. Numbers of birds in Japan and the Philippines are highest on southward migration (Higgins and Davies 1996). On southward migration, birds marked with geolocators in Victoria, Australia, have been shown to fly from the breeding grounds (NE China) to the Yellow Sea (Yalu Jiang in particular). They then make a long migration to either Papua New Guinea, or Gulf of Carpentaria (Norrthern Australia) and then usually one stopover on the Queensland coast before returning to Inverloch, Victoria (Minton *et al*. 2012).
  Northward migration: from Australia direct to the east coast of China and then north through the Yellow Sea. Far Eastern Curlew in marked with geolocators in Victoria, Australia, have been shown to fly direct to northern sites in the Yellow sea (eg, Republic of Korea coast, Yalu Jiang and Bohai Bay China (Minton *et al*. 2012). High numbers, exceeding 1% of the population, occur at the Mai Po Marshes (China) during northward migration (Chalmers and Turnbull, 1990). (Barter 2002).
- *Key breeding countries*: Russia, China. From eastern Russia, from the upper reaches of the Nizhnyaya

Tunguska river east though the Verkhoyarsk mountains to Kamchatka, and south to Primorye and formerly north-eastern Mongolia (del Hoyo *et al.* 1996) They breed in open, mossy or transitional bogs, moss-lichen bogs, wet meadows and the swampy shores of small lakes. The breeding range is estimated as 727,000 km^2 (del Hoyo *et al.* 1996).

- *Key staging countries*: China, South Korea, Japan and PHILIPPINES. It roosts in salt-marshes, behind mangroves, and on sandy beaches. Intertidal mudflats are a critical habitat for many species using the East Asian - Australasian flyway including the Far Eastern Curlew. Recent analysis has shown the scale of intertidal losses in most countries of the flyway (MacKinnon *et al.* 2012), with 51% reclaimed in China and 60% in South Korea.
- *Key non-breeding countries*: AUSTRALIA, China, Indonesia, Papua New Guinea. Most birds spend the non-breeding season in Australia (August to April), but >1% also in China, Indonesia and Papua New Guinea. Immature birds may remain year-round on non-breeding grounds until their third year (Higgins and Davis. 1996). The non-breeding habitat is essentially coastal, occurring at estuaries, mangrove swamps, saltmarshes and intertidal mudflats, particularly those with extensive seagrass (Zosteraceae) meadows (del Hoyo *et al.* 1996) where the birds feed on marine invertebrates, especially crabs, shrimps and small molluscs (del Hoyo *et al.* 1996; Higgins and Davies 1996).
- *There are several sites of international importance for the Far Eastern Curlew*
  Thirteen sites of international importance have been identified in the Yellow Sea (six in China, six in South Korea and one in North Korea). Twelve sites are important during the northern migration and seven during the southern migration, with six sites (Dong Sha, Shuangtaizihekou National Nature Reserve, Ganghwa Do, Yeong Jong Do, Mangyeung Gang Hagu and Dongjin Gang Hagu) important during both (Barter 2002).
  Australia has 17 sites in the flyway network: Kakadu National Park, Northern Territory, Parry Lagoons, Western Australia, Thomsons Lake, Western Australia, Moreton Bay, Queensland,,Hunter Estuary, NSW, Corner Inlet, Victoria, The Coorong, Lake Alexandrina & Lake Albert, South Australia, Orielton Lagoon, Tasmania, Logan Lagoon, Tasmania, Western Port, Victoria, Port Phillip Bay (Western Shoreline) and Bellarine Peninsula, Victoria, Shallow Inlet Marine and Coastal Park, Victoria, Discovery Bay Coastal Park, Victoria, Bowling Green Bay, Queensland, Shoalwater Bay, Queensland, Great Sandy Strait, Queensland, Currawinya National Park, Queensland.(http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=847

  In the South Korean Yellow Sea: The population at the very important staging site, Saemangeum, decreased by 32.6% (c1,800 birds) between 2006 and 2008, due to the reclamation of tidal flats (N. Moores *et al.* in litt. 2008).

***Type of action requested* - Concerted Action during 2014-2017**

The Far Eastern Curlew (*Numenius madagascariensis)* is proposed for concerted action from 2014-2017. It is a migratory species facing threats (declining population; habitat loss and deterioration, pollution and reduced food availability). International cooperation is needed to avoid further population declines and a real risk of extinction.

Concerted action is needed to:

1. Protect staging habitat from land claim and other threats and appropriately manage as much as possible of the Yellow River Delta, the remaining habitat at Yalu Jiang and other places in the Yellow Sea.
2. Effectively manage shellfisheries at key sites for the benefit of shorebirds.

B Demonstrate the case for Action, based on:

Criterion i (Conservation Priority) and **Criterion iii** (Urgency)	**There is a conservation priority** The Far Eastern Curlew was added to CMS Appendix I at COP10 (2011) following its up-listing to Vulnerable under the IUCN Red List in 2010, owing to the past, recent and ongoing rapid population decline of 30-49% in three generations (30 years), based on survey data and habitat loss (Birdlife International, 2012). **It has been identified as a priority for conservation action** in the WWF Hong Kong East Asian-Australasian Flyway (EAAF) prioritisation report, on the basis of small population size, declines and flyway endemism (Conklin *et al.* 2014). **The Far Eastern Curlew is showing decreasing population trends** (Reid & Park 2003; Fuller *et al*. 2009; Birds Australia in litt. 2011) The species is facing threats at

staging, breeding and wintering sites:

- Habitat fragmentation and loss at non-breeding sites. At non-breeding (wintering) sites, especially in eastern and southern Australia, threats include ongoing human disturbance, habitat loss and degradation from pollution, changes to the water regime and invasive plants (Garnett *et al.* 2011; Australian Government 2009). There is a greater threat for females, which travel further south in Australia.
- Habitat fragmentation and loss at staging sites. It is especially threatened by wetland loss and degradation at Yellow Sea staging sites (Bamford *et al.* 2008; van de Kam *et al.* 2010) where 83% of the world population stages (Barter, 2002). Reclamation of intertidal habitat in the Yellow Sea has been extensive (MacKinnon *et al.* 2012) Twenty-eight percent of Yellow Sea tidal flats existing in the 1980s had disappeared by the late 2000s (Murray *et al*. 2014) and up to 65% of tidal flats have been lost since the 1960s (Murray *et al*. 2014). The tidal wetlands in the Yellow Sea provide ecosystem services estimated at $30 billion per year (MacKinnon *et al*. 2012). Tidal flats act as nurseries for finfish and shellfish, and as habitat for tens of millions of migratory birds (Ma 2005). The Yellow Sea coastal zone is projected to be part of an 1,800-km-long urban corridor by 2030 (Seto *et al*. 2012). Coastal ecosystems in China are anticipated to continue to decline due to economic growth if strict conservation measures are not taken (He *et al*. 2014).
- Dams and hydroelectric schemes influence natural water flow cycles and negatively impact on the processes required for the formation of intertidal habitat, and the unsustainable harvesting of aquatic resources is an additional threat.
- Climate change: future sea-level rise, may further reduce intertidal foraging areas in the long-term (Iwamura *et al*. 2013) and reduce suitable safe roosts
- Reduction of prey abundance and pollution. A decrease in the availability of food has occurred due to the pollution of wetlands at stopover points that lie adjacent to major industrial and infrastructural development (e.g. in China and South Korea). China's land reclamation for living and development has continued rising, resulting in coastal landscape fragmentation and loss of biodiversity, the destruction of habitats for fish and feeding grounds for shorebirds, etc. (Wang *et al*. 2014). The pollution reduces food availability (Close & Newman 1984) and can cause mortality (MacKinnon *et al.* 2012). (Close & Newman 1984)
- Increased human disturbance is a potential threat, given that the species is easily disturbed by people at feeding and roosting sites (Close & Newman 1984; Thompson 1993b). Eastern Curlews take off when humans approach to within 30–100 m (Taylor & Bester 1999), or up to 250 m away (Peter 1990). For example, in Queensland, Moreton Bay, a feeding area and internationally important site for this species, is at the centre of Australia's fastest-growing region for human population (Finn *et al*. 2001). This level of human disturbance (when birds are feeding or roosting) is increasing especially in South Eastern Australia where wintering habitat often is close to major population centres.
- Decreasing survival due to hunting activities: The species is hunted on breeding grounds and at stopover points (Marchant & Higgins 1993). Hunting happens in much of the range of distribution, but no longer in Australia (Barter *et al.* 1997) and there is a risk of lack of discrimination by hunters between the Far Eastern Curlew and other shorebirds (such as the Whimbrel *Numenius phaeopus).* Hunting occurs at an unknown level but is not thought to have a population-level impact.

Threats to waders (such as habitat loss at staging sites in the Yellow Sea and pressure from hunting) have been repeatedly highlighted for nearly 20 years and continue to be emphasised in conservation reports relating to waders (Straw 1997, Barter 2002, 2003, Lane 1987, IWSG 2003, Straw 2004, Bamford *et al*. 2008, Rogers *et al*. 2010).

There is urgency

The Yellow Sea is a critical staging area for the species during its migration. It is undergoing massive land reclamation. Further proposed reclamation projects in the Yellow Sea, together with widespread threats elsewhere on the flyway, are predicted to

	cause additional declines in future (BirdLife International, 2014). There are concerns that the population size may overestimated, and the IUCN Red List status of Far Eastern Curlew may warrant up-listing to Endangered in the near future (Conklin *et al*.2014). The species will qualify for Endangered status if the whole population is set to decline by >50% in 30 years. Declines will accelerate and the risk of extinction will increase if there is not Concerted Action, involving support by the CMS Parties, to address habitat loss in the Yellow Sea countries within the next three years.
Criterion iv (Confidence in the science)	**The strength of evidence is considered high.** The declines of the Far Eastern Curlew, first reported from Tasmania in 1984 by Close and Newman, have now expanded to other regions in Australia (Gosbell & Clemens 2006, Hansen *et al*. 2011, Wilson *et al*. 2011). Declines are occurring across much of Australia and are exacerbated by the rapidly expanding tidal flat destruction taking place in the critical Yellow Sea region. Population collapses are predicted in this and other flyways (Stroud 2006). Evidence of declines has been published in peer reviewed scientific publications (e.g. Reid and Park 2003), and numerous published reports authored by tenured scientists, including documented declines on Eighty-mile Beach of c.40% between 2000 and 2008, whereas numbers at Roebuck Bay have remained stable (Rogers *et al.* 2009). The species has declined at Moreton Bay by c.5.5% per year between 1998 and 2008 (Fuller *et al.* 2009), in Tasmania by 80% between the 1950s and 2000 (Reid and Park 2003). In Great Sandy Straight, Queensland, numbers have decreased from around 6,000 to 3,000 (Queensland Wader Study Group in litt.). The species also declined in Western Port (Victoria) between 1998 and 2009 (Hansen *et al* 2014). Across 49 Australian sites between c.1983 and c. 2007, recorded declines were 40% (Garnett *et. al*, 2011). There has been a steady decline in the species numbers in New Zealand since early 1980s, with acceleration in the decline since 2004 (R. Schuckard, Ornithological Society of New Zealand, *pers. comm.*). Numbers declined less severely elsewhere in the flyway, e.g. there were no clear trends in Japan between 1978 and 2008 (Amano *et al.* 2010). Given that more reclamation is proposed within the Yellow Sea, it can confidently be assumed that declines of 30–49% over 30 years will continue. Documentation of habitat loss in the Yellow Sea is sound (MacKinnon *et al*. 2012, Murray *et al*. 2014). The science has been endorsed by the IUCN and CMS in listing the species as vulnerable on the 2010 IUCN Red List and CMS Appendix I.
Criterion ii (Relevance) and **Criterion v** (Absence of better remedies)	**The problem is linked threats on migration.** The Far Eastern Curlew faces various threats on its breeding and non-breeding (wintering) grounds, especially the loss of feeding and roosting habitats in the Yellow Sea region and associated pollution and human disturbance. The loss and modification of Yellow Sea staging sites, affecting food resources, results in birds being unable to replenish energy for the next stage of their journey. This may influence the ability of birds to complete the last leg of their migration to their breeding grounds, arriving either late or not at all. **The conservation of the species can only be secured through multilateral action.** The species moves according to the classic pattern of long-distance migratory shorebirds, using regular staging posts along its migration route. It experiences threats along the length of the flyway, but particularly in the Yellow Sea. Because of the scale of the threats in the Yellow Sea, international support will be needed for China, South

	Korea and North Korea, including through existing bilateral migratory bird agreements with CMS Parties (e.g Australian agreements with China and South Korea), as well as other Multilateral Environmental Agreements such as the Convention on Biological Diversity and Ramsar. It is hoped that the CMS Parties, AUSTRALIA, BANGLADESH, NEW ZEALAND, PALAU and PHILIPPINES. encourage the conservation of the species in other range states, especially the crucial staging states (China, South Korea, North Korea and Japan) but also the breeding states (Russian Federation, China), and other states of the EAAF (Brunei, Indonesia, Japan, Malaysia, Papua New Guinea, Singapore, Thailand, Timor–Leste and Vietnam). **No conflicts with any CMS policies can be detected.** **Absence of better remedies.** **A collaborative effort** to prepare and implement a recovery plan is necessary to encourage timely engagement of CMS Parties, together with non-Party range states, in a stepping up of actions, within the framework of the EAAFP and bilateral migratory bird agreements, to accelerate conservation efforts for this and other species on the EAAF.
Criterion vi (Feasibility) and **Criterion vii** (Likelihood of success)	**Listing the species for Concerted Action** The main objective for listing of the Far Eastern Curlew is to improve its conservation status. There is a need to deploy every available tool that can add value to flyway scale efforts to prevent the extinction of this species. Many of the key range states are not CMS Parties, but listing the species for Concerted Action to increase the imperative for CMS Parties that are Range States to engage with non-Party Range States, through other fora, such as the EAAFP, bilateral agreements, and other Multilateral Environment Agreements, to encourage Concerted Action for the species. In 2013, the International Wader Study Group convened world experts to build consensus on key conservation needs of the species (The *Numeniini* review, Brown *et al.* 2014). **Concerted Action is needed to:** ▪ Prevent habitat destruction and damage, and attempt to restore habitat to compensate for habitat lost at key migratory staging sites. ▪ Maintain and improve the protection of roosting and feeding sites, including, Australian non-breeding grounds. ▪ Legally protect all internationally important sites known for the species, including those identified as Important Bird Areas, Potential EAAF Partnership Flyway Network Sites, etc. ▪ Legally protect the species in all Range States, drawing the attention of hunters to the issue of look-alike species. ▪ Coordinate surveys to identify further key staging sites. ▪ Continue to monitor population numbers and trends. ▪ Improve understanding of dependence on key migratory staging sites in Asia. ▪ Improve understanding of the impacts of disturbance, for example in Australia. Surveying the breeding grounds for potential threats, including those likely to result from climate change. **Likelihood of success. Some conservation actions are straightforward, others will be more challenging**. The proposed research priorities are straightforward, feasible activities: 1. to develop an effective monitoring programme on both the breeding and non-breeding grounds, 2. to deploy further satellite-tracking technology to identify migratory routes and stop-over sites, and 3. to undertake basic ecological research to identify the drivers of population decline. The Australasian Wader Studies Group conducts long-term annual monitoring (over 30 years and continuing) at more than 20 locations around Australia. The Victorian Wader Study Group is investigating migratory patterns using deployment of

	geolocators on Far Eastern Curlews - so far 23, eight of which have been retrieved. Staff at the Kronotsky Nature Reserve, on the coast of the Kamchatka Peninsula (Russia) intend to study the species more closely (studies relating to breeding ecology, success and density as well as deploying colour rings and geolocators) (Fedor Kazansky in litt.) The likelihood of successfully addressing research priorities is considered to be high. The proposed critical conservation actions will be more challenging. These actions are protection of the most important staging sites from further land reclamation and other threats, both in the Chinese sector of the Yellow Sea: Yalu Jiang and the Yellow River Delta, and management of shellfisheries at key sites for the benefit of shorebirds. The likelihood of success has increased since COP10, due to the establishment of new international cooperation with China (a non-CMS party) in addressing these threats, including through coordination via the East Asian-Australasian Flyway Partnership (EAAFP) (of which China is the current chair), and with the Republic of Korea where the secretariat now based. ▪ The adoption at the IUCN World Conservation Congress, 2012, of *Resolution 28 Conservation of the East Asian-Australasian Flyway and its threatened waterbirds, with particular reference to the Yellow Sea* with a 100% yes vote from 126 governments, including China. ▪ The launch, in early 2014, of the China Coastal Wetland Conservation Blueprint Project by the Chinese Academy of Sciences, the Chinese State Forestry Administration and the Paulson Institute. ▪ The forthcoming WWF-Hong Kong - led EAAFP Shorebird Conservation Plan (proposed to be adopted at the EAAFP Meeting of Partners, January 2015), which prioritises actions at Yalu Jiang.
Criterion viii (Magnitude of likely impact)	**There will be a high magnitude of likely impacts.** The Concerted Actions for this species will be able to address multiple problems simultaneously affecting a whole suite of species that are threatened by habitat loss and deterioration of the Yellow Sea, at least 24 of which are already listed by IUCN as being threatened with global extinction (MacKinnon *et al.* 2012). Of these, three Critically Endangered species, Spoon-billed Sandpiper *Eurynorhynchus pygmeus*, Black-faced spoonbill *Platalea minor* and Chinese Crested Tern *Sterna bernsteini* already have CMS/EAAFP Species Action Plans. However, the range of all of these species is restricted to Asia and does not reach the full extent of the EAAF, i.e. to Australasia. The Far Eastern Curlew, together with Great Knot *Calidris tenuirostris*, also listed by IUCN as Vulnerable and also proposed as a Concerted Action species, can act as flagships for the species that use the full extent of the EAAF, from the Russian Arctic to Australasia, with absolute dependence on the Yellow Sea as a staging area, together with Red Knot *Calidris canutus* and Bar-tailed Godwit *Limosa lapponica* which were proposed to the 18th CMS Scientific Council meeting as Cooperative Action species, the latter species also encompassing a population that breeds in Alaska, USA.
Criterion ix (Cost-effectiveness)	Any funding that could be channelled to conservation of priority habitat in China or Republic of Korea (for example, through bilateral migratory bird agreements) would contribute to conservation efforts in those countries, although it will be necessary to identify where the funding would be most cost effective. Volunteer driven scientific research into the species is already under way through the Australasian Waders Study group and support of such research will be very cost effective due to considerable in kind contributions.
Criterion x (Prospects for funding	The chances of finding the necessary funds to undertake Concerted Action for the conservation of the species are low (particularly in Australia).

Criterion xi (Prospect for leadership)	Australia has indicated an interest in preparing a Species Action Plan and could possibly be approached to coordinate the implementation of Action. The key threats to this species (and to a considerable number of other migratory species) need to be addressed within the context of economic development in the coastal areas of China and the Republic of Korea. Strong engagement, and preferably leadership from China and/or the Republic of Korea (non-CMS Parties), will be required for success.
Criterion xii (Potential for synergy)	A key purpose of this action is to assist CMS Party Range states to contribute actions for the species within the framework of the EAAFP (and by extension, Ramsar and the CBD (Convention on Biological Diversity) and bilateral Migratory Bird Agreements.
Criterion xiii (Stakeholder appeal)	The Far Eastern Curlew is one of the most spectacular and recognisable of the shorebirds of the EAAF dependent on the Yellow Sea, with a long neck, long legs, a heavy bill and a wingspan of 110 cm (Higgins & Davies 1996). It is the largest shorebird in the world (63cm), with a long, curved slender bill, (average length 19cm) sometimes equalling the length of its body. The Far Eastern Curlew is an excellent flagship for the group of shorebirds that rely on critical staging areas in the Yellow Sea. Its visibility and relative ease of identification compared to other smaller shorebird species makes it a suitable centrepiece for drawing the public's attention to shorebird threats in the EAAF. As a recognisable flagship species, coordinated actions for Far Eastern Curlews include opportunities for awareness-raising, capacity building, encouraging new Party accessions and catalysing other associated activities. The stakeholder appeal that is essential is to the Governments of China and the Republic of Korea.

C. Expected outcomes?

The Concerted Action is expected to contribute to the reduction of further declines in the Far Eastern Curlew population in the short to medium term and to its return to a better conservation status in the long term.
CMS currently does not have many Parties in the EAAF, hence many of its objectives in the EAAF are achieved through an MOU (Memorandum of Understanding) with the EAAFP. This Concerted Action provides a mechanism for CMS to strengthen its contribution to the work of the EAAFP, through encouraging action from range states that are parties.

D. Associated benefits?

The Concerted Action for this species is also intended to benefit the many other migratory waterbirds that depend upon the Yellow Sea and other intertidal habitats of the EAAF. The EAAF is one of nine major migratory waterbird flyways around the globe and is home to over 50 million migratory waterbirds.
The Far Eastern Curlew is an excellent flagship for the group of shorebirds that breed south of the Arctic and rely on critical staging areas in the Yellow Sea. As a recognisable flagship species, coordinated actions for Far Eastern Curlews include opportunities for awareness-raising, capacity building, encouraging new Party accessions and catalysing other associated activities.

E. Timeframe?

Concerted action should commence immediately, with more detailed discussion of a joint work programme at the Bilateral Migratory Bird Agreement meetings in November 2014 and EAAFP Meeting of Partners in January 2015 in Hokkaido, in conjunction with the expected discussion on the Shorebird Conservation Plan, Yellow Sea Task Force and Shorebird Working Group. Given the scale of the threats, this action is likely to be needed to continue at least for the lifetime of the CMS Strategic Plan i.e. at least until 2023. Progress should be reviewed at each COP.

F. Relationship to other CMS actions?

This Concerted Action should be undertaken in close association with that proposed for Great Knot, and Cooperative Actions proposed for Red Knot and Bar-tailed Godwit, and, as appropriate, the existing CMS/EAAFP **Species Action Plans** for Spoon-billed Sandpiper, Black-faced Spoonbill and Chinese Crested Tern.
Conservation Actions will contribute to the realisation of the (Draft) **CMS Strategic Plan**, especially:
Target 2: Multiple values of migratory species and their habitats have been integrated into international, national, and local development …planning processes, and are being incorporated into national accounting, and reporting systems, as appropriate;
Target 3: National, regional, and international governance arrangements and agreements affecting migratory species and their migratory systems have improved significantly, making relevant policy, legislative and implementation processes more coherent, accountable, transparent, participatory, equitable and inclusive, and;
Target 5: Governments, key sectors and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption, keeping the impacts of natural resource use on migratory species well within safe ecological limits to promote the favourable conservation status of migratory species and maintain the quality, integrity, resilience, and connectivity of their habitats and migratory routes.

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PROPOSAL FOR ADDING FOUR SUBSPECIES OF BAR-TAILED GODWIT (*LIMOSA LAPPONICA)* TO THE CMS COOPERATIVE ACTION LIST DURING THE 2014-2017 TRIENNIUM

This proposal follows the approach of the report: SSc Doc 6.1.1 Rationale, Criteria and Guidance for Identifying Candidate Species for Concerted and Cooperative Actions.

A. Specify target species / population(s), and their status in CMS Appendices:	
Species: Four subspecies of Bar-tailed Godwit *(Limosa lapponica)*	
Common names	Bar-tailed Godwit, Barge Rousse, Aguja colipinta
Taxonomy	*Five recognized -subspecies*.
Range States (CMS Parties are shown in capital letters http://www.cms.int/en/species/limosa-lapponica)	Afghanistan, ALBANIA, ALGERIA, Angola, Armenia, AUSTRALIA, Austria, Azerbaijan, Bahrain, BANGLADESH, BELARUS, BELGIUM, BENIN, Bosnia and Herzegovina, Botswana, Brunei Darussalam, BULGARIA, Cambodia, CAMEROON, CHAD, China, CONGO (BRAZZAVILLE), CROATIA, CYPRUS, CZECH REPUBLIC, CÔTE D'IVOIRE, DENMARK, DJIBOUTI, Egypt, Equatorial Guinea, ERITREA, ESTONIA, EUROPEAN UNION, FINLAND, FRANCE, Gabon, GAMBIA, GEORGIA, GERMANY, GHANA, GREECE, GUINEA, GUINEA-BISSAU, HUNGARY, INDIA, Indonesia, Iran, Iraq, IRELAND, ISRAEL, ITALY, Japan, JORDAN, KAZAKHSTAN, KENYA, Kuwait, Kyrgyzstan, Lao People's Democratic Republic, LATVIA, Lebanon, LIBERIA, LIBYA, LITHUANIA, LUXEMBOURG, Madagascar, Malaysia, MALTA, MAURITANIA, MONACO, MONGOLIA, Montenegro, MOROCCO, Mozambique, Myanmar, Namibia, Nepal, NETHERLANDS, NEW ZEALAND, NIGERIA, NORWAY, Oman, PAKISTAN, Papua New Guinea, People's Democratic Republic of Korea, PHILIPPINES, POLAND, PORTUGAL, Qatar, Republic of Korea, Republic of Moldova, ROMANIA, Russian Federation, San Marino, SAUDI ARABIA, SENEGAL, Serbia, Sierra Leone, Singapore, SLOVAKIA, SLOVENIA, Somalia, SOUTH AFRICA, SPAIN, Sudan, SWEDEN, Switzerland, SYRIAN ARAB REPUBLIC, TAJIKISTAN, Thailand, Togo, TUNISIA, Turkey, Turkmenistan, UKRAINE, United Arab Emirates, UNITED KINGDOM, United Republic of Tanzania, United States of America, UZBEKISTAN, Viet Nam, Yemen, Zambia, Zimbabwe, the former Yugoslav Republic of Macedonia
Red List and Status in the CMS Appendices (I or II)	IUCN Red List: Least Concern CMS: Appendix II AEWA: African-Eurasian Migratory Waterbird Agreement Action Plan *L. l. taymyrensis* is listed in Column B, category 2a: *Populations numbering more than around 100,000 individuals and considered to be in need of special attention as a result of concentration onto a small number of sites at any stage of their annual cycle*, and also being category 2c*, Showing significant long-term decline*.

Summary of the migration - Multi flyway species (East Asian-Australasian Flyway, West Asian-East African Flyway and East Atlantic Flyway)

L.l. lapponica **This sub-species has a favourable conservation status and is not proposed for Cooperative Action, but has been included for completeness**

L. l. lapponica breeds in northern Fennoscandia and northwest Russia. The winter population is concentrated in northwestern Europe, but extends as far south as Iberia;

Population size: 120,000[25]
Trend: Increasing[26]
Key breeding countries: Norway, Sweden, Finland, Russia
Key staging countries: Germany, Netherlands, Denmark, UK, France,
Key wintering countries: UK, Ireland, Netherlands, Germany, Denmark, France, Portugal

L. l. taymyrensis breeds from the Northern Ural Mountains to the lower Anabar River, in western Siberia[5], and spends the non-breeding season along the coasts of West Africa, East Africa, the Middle East and northwest India[3,6]. This subspecies is currently under discussion as comprising two separate subspecies [3](R.H.G. Klaassen *in litt.*.): one migrating via the Wadden Sea to West Africa, the other migrating via the Middle East to East Africa[3,6-12]

Population size: 725,000 [1,2] with taymyrensis West & Southwest Africa: 600,000, possibly decreasing [3] and *taymyrensis* Eastern Africa, South-west & South Asia: 150,000, unknown trend [3]

Trend: Declining [3,4]

Key breeding country: Russia
Key staging countries: DENMARK, FRANCE, GERMANY, NETHERLANDS, Sudan, UK,
Key non-breeding countries: GUINEA-BISSAU, Guinea, INDIA, IRAN, MAURITANIA, MOROCCO, MOZAMBIQUE, Namibia, Oman**,** PAKISTAN, SAUDI ARABIA, SOUTH AFRICA, UNITED ARAB EMIRATES
Most outstandingly important staging and wintering sites: International Wadden Sea, Netherlands, Germany, Denmark; Banc d'Arguin, Mauritania; Bijágos Archipelago, Guinea-Bissau; Baie d'Ad Dakhla, Morocco; Barr al Hikman, Oman; Deltas of Rud-i Gaz, Rud-i Hara, Rud-i Shur, Rud-i Shirin and Rud-i Minab, Iran; Bazaruto Archipelago, Mozambique

L. l. menzbieri breeds in northeast Siberia from north-central Yakutia to the Chaun Bay in Chukotka[5], and winters mostly in northwest Australia, but also in South-East Asia. Migrating birds stage for over one month during both southwards and northwards migration in western and northern parts of the Yellow Sea[5,10,13-20]

L. l. anadyrensis often seen as part of the *menzbieri* population, yet see[10,24,25] as its breeding range is very restricted to the Anadyr River Lowlands[5]

Population size: 146,000[21,22]

Trend: Declining[23]

Key breeding countries: Russia
Key staging countries: China, North Korea, South Korea.
Key non-breeding countries: AUSTRALIA, NEW ZEALAND (*L.l. anadyrensis*[25]), China, Indonesia, Taiwan
Most outstandingly important non-breeding sites: Bohai coast, China

L. l. baueri breeds in coastal Alaska and winters in New Zealand and northern and eastern Australia. Migrating birds stage for over one month in the Yellow Sea region (especially the mouth of the Yalu River) during northwards migration. During southwards migration, after staging in southwest Alaska, they fly directly to their wintering grounds[10,13,14,17,19 15,16,18,20 27-32]

Population size: 133,000[21,22]

Trend: Declining [23,26]

Key breeding countries: USA
Key staging countries: Southbound: USA, Northbound: China, Japan, North Korea, South Korea
Key non-breeding countries: AUSTRALIA, NEW ZEALAND
Most outstandingly important non-breeding sites: Yalu Jiang, China; Yukon-Kuskokwim-Delta, USA.

Type of action requested - **Cooperative Action for *L.l. taymyrensis*, *L.l. menzbeiri*, *L.l. anadyrensis* and *L.l baueri* during the 2014-2017 triennium**

The Bar-tailed Godwit *(Limosa lapponica)* is proposed for cooperative action during the 2014-2017 triennium. It is a migratory species facing severe threats (declining populations, habitat deterioration and loss) that require immediate international cooperation in order to prevent severe population declines or even extinction of some populations.

Cooperative action is needed to:
Maximize efforts to protect and safeguard all breeding, (especially) staging and non-breeding sites
Facilitate ecological research to understand the pressures acting on populations and requirements for recovery.

B Demonstrate the case for Action, based on:

Criterion i (Conservation Priority)

and **Criterion iii** (Urgency)

There is a conservation priority.

The Bar-tailed Godwit is listed on CMS Appendix II. Two subspecies are listed in the AEWA Action Plan Table 1: *L. l. taymyrensis* is in Column B, category 2a and 2c and *L.l. lapponica* is in Column B, category 2a.

The *menzbieri and baueri* populations have been identified as a priority for conservation action in:

the WWF Hong Kong East-Asian Australasian Flyway (EAAF) prioritization report, on the basis of small population size, population declines, and the fact that they are endemic to the flyway [19]

the Arctic Migratory Bird Initiative (AMBI) of the Arctic Council's working group on the Conservation of Arctic Flora and Fauna (CAFF).

Most populations of Bar-tailed Godwits are showing decreasing population trends[3,4,19,22].
In all flyways, the respective subspecies concentrate at only a few sites, and even if many sites have been acknowledged under the Ramsar Convention and/or are national parks these sites face severe threats:
Habitat loss and fragmentation along the East Asian – Australasian Flyway through reclamation of intertidal habitat for human settlement and industrial development, damming of rivers and the expansion of aquaculture. This rapid loss is predicted to continue [32-35]
Subspecies concerned: *baueri, menzbieri, anadyrensis*
Habitat fragmentation and loss at the two main East Atlantic Flyway tropical non-breeding sites [36]
* National Park of Banc d'Arguin, Mauritania – through increasing residential and commercial developments, expanding aquaculture developments, oil and gas extraction
* Bijágos Archipelago, Guinea Bissau – potentially as a follow up to the

prospecting for oil and gas close to the reserve, and a potential new shipping route proposed to traverse the reserve
* Barr al Hikman, Oman – increasing human population and plans for offshore oil winning are threats to this area. In addition, a new oil and gas harbour is planned south of Barr al Hikman, which has a potentially large negative impact on the area.
Subspecies concerned*: taymyrensis*
Habitat fragmentation and loss in the European wintering and staging sites through an increase in renewable energy projects, including offshore wind farms, oil and gas extraction and mining, resulting, among other things, in land and sea-bed subsidence. [36,37]
Subspecies concerned: *taymyrensis, (lapponica)*
Reduction of prey abundance and availability through expanding aquaculture developments and increased harvesting of aquatic resources [34,36]
Subspecies concerned: *baueri, menzbieri, anadyrensis, taymyrensis, (lapponica)*
Pollution of intertidal ecosystems by run-off from industrial, mining and port activities as well as DDT in antifouling paint in China [34,36]
Subspecies concerned: *baueri, menzbieri, anadyrensis, taymyrensis, (lapponica)*
Increase in disturbance due to the above mentioned activities as well as an increase in recreational activities [34,36]
Subspecies concerned: *baueri, menzbieri, anadyrensis, taymyrensis, (lapponica)*
Climate change induced sea level rise and thawing of the permafrost will threaten both intertidal staging and wintering sites as well as the arctic breeding area [36]
Subspecies concerned: *baueri, menzbieri, anadyrensis, taymyrensis, (lapponica)*
Decreasing survival due to hunting activities on staging and wintering (*L.l. lapponica*) populations along the French Atlantic coast [36]
Subspecies concerned: *taymyrensis*, (*lapponica*)

There is urgency.

The Yellow Sea is a critical staging area for the species during southward and northward migrations which is undergoing massive land reclamation to house expanding human settlement and industrial development[13,14,17,34,35,38-41]. As more reclamation projects are predicted for the Yellow Sea region, immediate attention is needed to halt waterbird population declines and at least to preserve still existing staging sites. Anticipated oil and gas extraction, as well as commercial and industrial development, also threaten staging and non-breeding grounds in West Africa, the Middle East and the Wadden Sea.

The particular urgency that is driving this proposal is the following prediction of Theunis Piersma *et al.* (submitted), in relation to ***L. l. menzbieri***: *With annual survival rates in 2011-2012 of 0.69 for Bar-tailed Godwits (and annual breeding outputs of 0.12), we predict a halving of the population in 4 years. Only the immediate protection and safeguard of suitable staging grounds in the Yellow Sea region, during both northward and southward migration, may now help to prevent widespread extinction in the most species-rich flyway of the world.*

It is likely that the situation for ***L.l. baueri*** is similarly bleak, as it too depends on the Yellow Sea.

L.l. anadyrensis has a small population and is the least studied subspecies, requiring urgent further studies, as it too is likely to depend on the Yellow Sea.

There is thus a real risk that populations will collapse within the next three years if

	there is no Cooperative Action, involving support by the CMS Parties, due mainly to the current speed with which intertidal habitat relevant for migratory shorebirds in general is being lost in the Yellow Sea and along the South East Asian coast [19,34,35]. Furthermore, the godwits of the ***taymyrensis*** population are also in need of urgent action due to the current speed of residential, commercial and industrial development at the West African and Middle East staging and wintering grounds leading to habitat loss and fragmentation. The Situation of the East African Flyway population is largely unknown, but very likely also to be very unfavourable, e.g. strong decline in South Africa[36,42].
Criterion iv (Confidence in the science)	**The strength of evidence is considered strong.** Bar-tailed Godwits are among the better scientifically studied migratory shorebirds (see the list of peer-reviewed publications used as references and listed at the end of the document). All non-referenced statements present expert opinion collected during a workshop on the conservation status of Numeniini species of the International Wader Study Group – Wetlands International's Shorebird Specialist Group – in September 2013 in Wilhelmshaven, Germany, and associated preparatory and follow up work with most of the key experts on the species[36]
Criterion ii (Relevance) and **Criterion v** (Absence of better remedies)	**<u>The problem is linked with migration.</u>** Bar-tailed Godwits - being long distance migrants (*baueri* has the longest known non-stop migratory flight of any bird species[27] - with an exceptionally concentrated distribution during staging, are especially dependent on a functional chain of non-breeding, staging and breeding sites with healthy ecosystems, to be able to migrate, breed and moult. Many key sites, used by Bar-tailed Godwits, especially along the East Asian coast, are threatened by fragmentation and destruction[14,38,43-45]. The Bar-tailed Godwit faces various threats during migration especially the deterioration and loss of staging habitats in the Yellow Sea region, which are of great concern and demand immediate attention[14,22,38,40,43-46]. **<u>The species can only be secured through multilateral action:</u>** The habitats visited by Bar-tailed Godwits are geographically widely separated, with the Pacific crossing of the *baueri* godwits being an extreme example. All subspecies visit several countries during the year. Therefore, successful conservation requires an international, multilateral, and preferably flyway-wide approach. **No conflicts with any CMS policies can be detected.** **<u>Absence of better remedies.</u>** A Cooperative Action will be faster than a CMS Agreement, as action must be taken immediately to reduce the risk of continuing dramatic population declines. There is no better option for encouraging timely engagement of CMS Parties and non-Party range states, within the frameworks of the EAAFP, Arctic Migratory Bird Initiative (AMBI), AEWA and EAAF bilateral Migratory Bird Agreements, to speed up conservation efforts for this species at a global scale.

Criterion vi (Feasibility) and **Criterion vii** (Likelihood of success)	**<u>Listing this species for Cooperative Action</u>** The listing of this species for Cooperative Action helps to increase the imperative for CMS Party Range States to engage with non-Party Range States through flyway frameworks such as AEWA, the East Asian – Australasian Flyway Partnership (EAAFP), and AMBI. **Because of the scale of the challenge and the speed with which habitat deterioration and loss is proceeding, especially in the Yellow Sea,** there is a need to deploy every available tool that can add value to the flyway-wide efforts to conserve current population sizes of Bar-tailed Godwits. The listing of this species for Cooperative Action helps to increase the imperative for CMS Party Range States to engage with non-Party Range States through flyway frameworks such as AEWA, the East Asian – Australasian Flyway Partnership (EAAFP), AMBI, and bilateral agreements, to encourage Cooperative Action for the species including the following: • Appropriately manage key sites in terms of human and commercial development (avoid risks from (i) land claim, (ii) gas and oil exploitation, (iii) the development of renewable energy projects, (iv) dredging activities to maintain shipping routes and ports. • Legally protect the species in all Range States, draw the attention of hunters to the issue of look-alike species. Improve public awareness of the dependence of migratory shorebirds on key staging sites, and the impacts of disturbance on these birds. **In addition, critical conservation actions identified in the IWSG conservation brief for the Bar-tailed Godwit [36] are:** **For *menzbieri, baueri and anadyrensis,* to:** * Save and protect as much as possible of the remaining habitat at critical Yellow Sea staging sites in China: e.g. Yalu Jiang and Nanpu, Bohai Bay from further reclamation, and ensure appropriate management. * Initiate high-level advocacy at the earliest possible opportunity to ensure that future coastal land-use planning in North Korea is sympathetic to the needs of shorebirds and wider biodiversity. * Effective management of shellfisheries at key sites. * Eradication of *Spartina alterniflora* from Bohai **For *taymyrensis,* to:** * Stop unsustainable shellfisheries in the Wadden Sea and other important European estuaries (this will also benefit *lapponica*). * Ensure adequate protection of spring staging sites in the International Wadden Sea of The Netherlands, Germany and Denmark. * In addition, for *taymyrenis,* for critical West African wintering sites, Banc d'Arguin, Mauritania and Bijagós Archipelago, Guinea-Bissau, ensure adequate protection, and proper planning of infrastructure and other potential developments. * Ensure conservation of Barr al Hikman (Oman) and other key sites in the Middle East as well as further research of the biology and ecology of this population, including tracking studies and population trends. * Ensure robust management plans with strong management committees to oversee their implementation. * Ensure protection from threats associated with oil and gas extraction and shipping. **Monitoring and Research priorities:** • Maintain and expand the existing monitoring systems (e.g. annual high tide counts along the migration routes and at non-breeding grounds, and breeding conditions survey in the Arctic) to obtain more reliable population and trend

	estimates for all subspecies, with a special focus on the largely unknown East African Flyway/Middle East *taymyrensis*, and the *L.l. anadyrensis* populations. • Establish and maintain monitoring systems that collect data on relevant fitness parameters such as breeding success and (seasonal) mortality rates for all subspecies in all flyways. • Deploy remote tracking systems to identify (i) migration routes, (ii) breeding and non-breeding (staging) sites, (iii) the timing of migration, (iv) the use of alternative staging sites, and (v) the drivers of population redistribution all subspecies[16,17,20,28,47], with a special focus on the largely unknown East African Flyway/Middle East *taymyrensis*, and the *L.l. anadyrensis* populations. • Undertake relevant basic ecological research to identify drivers of population declines. • Investigate the use of intertidal habitats in the Yellow Sea, with a focus on the relationships between foraging, food resources and fine-scale habitat use, with a view to informing future habitat creation and restoration. Investigate whether current food resources are 'natural' or the result of a disturbed situation, as has recently been found for Red Knot *Calidris canutus* in Bohai Bay (unpublished study by Beijing Normal University and the University of Groningen). • Investigate the effects of pollutants within the highly polluted intertidal habitats of the Yellow Sea and other key sites, with a focus on the accumulation of pollutants and consequences for survival and reproductive success **Likelihood of Success.** The EAAFP (of which China is the current chair) acts for CMS in the EAAF and coordinates existing international frameworks. Within the EAAF, there are extremely functional partnerships on the ground between research institutes and conservation organizations. AEWA acts for CMS in the EAF and has recently launched an African Initiative. The Wadden Sea Flyway Initiative (WSFI), in cooperation with the Conservation of Migratory Birds project of BirdLife International and Wetlands International, and also with AMBI, runs projects in West African wetlands. The Bar-tailed Godwit migration system mainly covers two major flyways, the East Atlantic Flyway (EAF) and the East Asian – Australasian Flyway (EAAF), with one population, the East Africa/South-west Asia population of *taymyrensis* occurring on the West Asian – East African Flyway. **East Asian – Australasian Flyway** The EAAFP (of which China is the current chair) acts for CMS in the EAAF. Due to the speed of habitat loss, the situation for shorebirds staging along the coast of China (a non CMS Party) has been of particular concern [35,40]. The chances of influencing this situation have actually improved since COP10, due to the establishment of new international frameworks, coordinated by EAAFP, to support China in addressing the threat of habitat deterioration and loss: The adoption of Resolution 28: *Conservation of the East Asian – Australasian Flyway and its threatened waterbirds, with particular reference to the Yellow Sea* at the IUCN World Conservation Congress 2012, with a 100% "yes" vote from 126 countries including China. The launch of the China Coastal Wetland Conservation Blueprint Project in early 2014 by the Chinese Academy of Sciences, the Chinese State Forestry Administration and the Paulson Institute. The forthcoming WWF-Hong Kong - led EAAFP Shorebird Conservation Plan (to be adopted at the EAAFP Meeting of Partners in January 2015). The launch in early 2014 of the Arctic Migratory Bird Initiative of the Arctic Council's Working Group on the Conservation of Arctic Fauna and Flora, for which Bar-tailed Godwit is selected as a priority species in the EAAF. This is intended to engage not only the Arctic Council range state, Russia, but also the permanent observer nations: China, South Korea, Japan, Singapore and

	India. In Australia, actions will be facilitated through the Action Plan for Australian Birds 2010 [23] by increasing work with China to conserve the species under the bilateral Migratory Bird Agreement. Within the EAAF, there are extremely functional partnerships on the ground between research institutes (Fudan University, Beijing Normal University, Massey University, University of Queensland, Global Flyway Network) and conservation organizations (WWF China, Miranda Shorebird Centre, Australian Wader Study Group). There is an intensive exchange between experts from Australia, New Zealand, China and The Netherlands ensuring up-to-date information on status of sites and populations. Joint expeditions and publications by local and international experts and the successful involvement of the general public on a flyway wide scale is a prominent and positive example for other flyways. **East Atlantic Flyway** AEWA acts for CMS in the EAF. In 2014, it launched its African Initiative. Since 2012, the Wadden Sea Flyway Initiative (WSFI) has launched two projects focusing on monitoring and capacity building, in close cooperation with the BirdLife International/Wetlands International Conservation of Migratory Birds (CMB) project for West African coastal wetlands. For the most important non-breeding sites within the EAF, Parc National Banc d'Arguin (PNBA), the future of which is jeopardized by overfishing, future gas and oil exploitation and rapid residential and industrial development along PNBA's borders, a Memorandum of Understanding to enhance conservation and research of shorebirds was signed between management authorities of the World heritage Sites PNBA and the European Wadden Sea in early 2014 under the umbrella of UNESCO. In the framework of AMBI and WSFI, with a focus on Bar-tailed Godwit, a proposal is in preparation to assist the Bijagós Archipelago, Guinea-Bissau, to resubmit its deferred nomination for inscription onto the World Heritage List, including through development of a management plan and management committee. Also on the EAF a long tradition of cooperation exists between research institutes, conservation authorities and conservation organisations. Particularly in the Wadden Sea a fruitful exchange in information exists between these parties (Royal Netherlands Institute fro Sea Research NIOZ, University of Groningen, Institute for Avian Research, University of Hamburg, Research Institute Senckenberg, University of Oldenburg, University of Kiel, Alfred-Wegener-Institute for Polar and Marine Research, National Park Authorities in Germany, WWF, Waddenvereiniging, BirdLife Netherlands, BirdLife Germany, Friends of the Earth Germany). Relatively little is known about the South west Asia/East African wintering *L.l. taymyrensis* population. The importance of Barr al Hikman has been described[3,42], yet there are many unknowns on other important sites, the breeding range and population trends.
Criterion viii (Magnitude of likely impact)	**Yes, there will be a magnitude of likely impacts.** The cooperative actions for this species will address multiple problems simultaneously affecting a whole suite of species that are threatened by habitat loss and deterioration. Complementary proposals submitted in parallel concern Red Knot (Cooperative Actions), Far Eastern Curlew (Concerted Action) and Great Knot (Concerted action). **For the EAAF:**

	At least 24 bird species on the EAAF are already listed by IUCN as being threatened with global extinction [19,34]. Of these, three Critically Endangered species, Spoon-billed Sandpiper *Eurynorhynchus pygmeus*, Black-faced Spoonbill *Platalea minor* and Chinese Crested Tern *Sterna bernsteini* already have CMS/EAAFP Species Action Plans. However, the range of all these species is restricted to Asia and does not reach the full extent of the EAAF, i.e. to Australasia. The Far Eastern Curlew *Numenius madagascariensis* and Great Knot *Calidris tenuirostris*, which are both listed by IUCN as Vulnerable were proposed to the 18th CMS Scientific Council meeting as Concerted Action species. Together with Red Knot *Calidris canutus*, also proposed to the 18th CMS Scientific Council meeting as a Cooperative Action species, all can act as flagships for the species that use the full extent of the EAAF, from the Russian Arctic to Australasia, with absolute dependence on the Yellow Sea as a staging area. The *baueri* subspecies of Bar-tailed Godwit is the only one of this suite of species that breeds in Alaska. It is famous for having the longest non-stop flight of any bird, to its non-breeding sites in New Zealand. It is therefore a powerful flagship for the Alaskan component of the EAAF. **For the EAF:** Together with Red Knot *Calidris canutus*, proposed to the 18th CMS Scientific Council meeting as a Cooperative Action species, the *taymyrensis* Bar-tailed Godwit can act as a flagship for all species that breed from the Siberian Arctic in the east and the east Canadian Arctic in the west, and migrate as far south as South Africa.
Criterion ix (Cost-effectiveness)	Funding is required for additional and detailed benthos work at all major wintering and staging grounds bearing in mind that females and males show strong differences in diet choice which results in spatial segregation [8,11,33,48-51] with a special focus on Yalu Jiang for the period of northward and southward migration as well as northern hemisphere summer[28,30,32]; for long-term demography monitoring projects for all subspecies in all flyways in order to detect population fluctuations at early stages; for tracking studies.
Criterion x (Prospects for funding	It is hoped that new funding might be accessed via AMBI from Arctic Council countries including Permanent observer countries, for example China, South Korea, Japan and Singapore in the EAAF, and the Fennoscandian, Wadden Sea countries, UK or France for the EAF. For the East Africa/South-west Asia population of *tamyrensis* it might be appropriate for Middle Eastern countries such as Saudi Arabia to offer support.
Criterion xi (Prospect for leadership)	The Wadden Sea flyway countries of Germany, Netherlands and Denmark, including through their Common Wadden Sea Secretariat, and Mauritania and Guinea Bissau, would be well placed to act in partnership for this species.

Criterion xii (Potential for synergy)	**Yes.** A key purpose of this action is to help give imperative, in view of the vulnerability of this long distance migrant with a very concentrated distribution, for CMS Party Range states to contribute actions for the species in the framework of the EAAFP (and by extension, Ramsar and the CBD), bilateral Migratory Bird Agreements, AMBI and AEWA.
Criterion xiii (Stakeholder appeal)	**Yes.** Shorebirds and their migrations are one of the most fascinating natural phenomena. The *baueri* Bar-tailed Godwit population performs the longest ever recorded non-stop flight: 11,000km across the Pacific from their Alaskan breeding grounds to their wintering sites in New Zealand (Gill *et al.* 2009). The Bar-tailed Godwit is an unofficial national icon in New Zealand, resulting in a very high level of public awareness of the species. Furthermore, the Bar-tailed Godwit is the symbol for one of the major yearly events in the Wadden Sea National Park of Lower Saxony, resulting in a high level of public awareness of the species also in this part of the flyway.

C. Expected outcomes?

The Cooperative Action is expected to contribute to the prevention of further declines in all Bar-tailed Godwit populations in the short to medium term, and to its return to a favourable conservation status in the long term.

Three out of the five Bar-tailed Godwit subspecies occur in the EAAF. CMS currently has few Parties in the EAAF, hence many of its objectives in the EAAF are achieved through an MOU with the EAAFP. This Coordinated Action provides a mechanism for CMS to strengthen its contribution to the work of the EAAFP, through encouraging action from range states that are parties to both.

D. Associated benefits?

The Cooperative Action for the Bar-tailed Godwit migration system is intended to benefit many other migratory waterbirds that depend on intertidal ecosystems along the EAAF and EAF.

The spectacular trans-Pacific non-stop migration has been taken up by the international press. Articles in daily newspapers as well as reports on TV and radio on migratory phenomena are very often illustrated by the migration of shorebirds.

Raising awareness of the importance of intertidal wetlands for shorebirds is a suitable tool to engage local populations in sustainable exploitation of aquatic resources (such as artisanal fisheries) which can also benefit conservation.

The regular waterbird censuses along the flyways engage, educate and connect local scientists, birdwatchers, students and volunteers across the globe.

E. Timeframe?

The Cooperative Action should commence immediately to avert extinction in the EAAFP and to maintain populations in the EAF through actions to conserve key non-breeding sites.

For the EAAF:

Concerted Action should commence immediately, with more detailed discussion of a joint work programme at the Bilateral Migratory Bird Agreement meetings in November 2014 and EAAFP Meeting of Partners in January 2015 in Hokkaido, in conjunction with the expected discussion on the Shorebird Conservation Plan, Yellow Sea Task Force and Shorebird Working Group. Given the scale of the threats, this action is likely to be needed to continue at least for the lifetime of the CMS Strategic Plan i.e. at least until 2023. Progress should be reviewed at each COP.

For the EAF:

Concerted Action should commence immediately, in the framework of a collaboration between AMBI, WSFI and AEWA African Initiative and be reviewed at the AEWA Technical Committee meeting in March 2015 and AEWA MOP in late 2015.

F. Relationship to other CMS actions?

In the EAAFP, this Cooperative Action should be undertaken in close association with that proposed for Red Knot, and Concerted Actions proposed for Great Knot and Far Eastern Curlew and, as appropriate, the existing CMS/EAAFP Species Action Plans for Spoon-billed Sandpiper, Black-faced Spoonbill and Chinese Crested Tern.

In the EAF it should form a component of the AEWA African Initiative, providing a flagship, together with Red Knot for intertidal conservation in West Africa.

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PROPOSAL FOR FOR ADDING THE GREAT KNOT (*CALIDRIS TENUIROSTRIS*)TO THE CMS CONCERTED ACTION LIST DURING THE 2014-2017 TRIENNIUM

This proposal follows the approach of the report: SSc Doc 6.1.1 Rationale, Criteria and Guidance for Identifying Candidate Species for Concerted and Cooperative Actions.

A. Specify target species / population(s), and their status in CMS Appendices:	
Species: Great Knot (*Calidris tenuirostris)*	
Taxonomy	*Monotypic species*.
Range States (CMS Parties are shown in capital letters.)	AUSTRALIA, BANGLADESH, Brunei, China, Guam (to USA), INDIA, Indonesia, Iran, Japan, Kuwait, Malaysia, Myanmar, North Korea, Northern Mariana Islands (to USA), Oman, PAKISTAN, Papua New Guinea, PHILIPPINES, Russian Federation, SAUDI ARABIA, Seychelles, Singapore, South Korea, Sri Lanka, Taiwan, Thailand, Timor-Leste, UNITED ARAB EMIRATES, Vietnam. And as a vagrant to Bahrain, Djibouti, ISRAEL, MAURITIUS, Micronesia, MOROCCO, New Caledonia (to FRANCE), NEW ZEALAND, PALAU, Qatar, Yemen, UK.
Red List and Status in the CMS Appendices (I or II)	**IUCN Red List:** Vulnerable, up-listed from Least Concern in 2010 due to rapid population decline caused by the reclamation of Asian staging sites, and the assumption that further proposed reclamation projects will cause additional declines in future [1]. **CMS:** Proposed for addition to CMS Appendix I at COP11 (Doc 24.1.6) **AEWA:** The Central Siberian/Mediterranean & SW Asian population is listed in Column A of Table 1, categories 1a, 1b, 1c, of the Action Plan of the Agreement on the Conservation of African-Eurasian Migratory Waterbirds. **Population:** Most recently estimated at c.295,000 individuals (based on 2007 census data), though given documented declines the true figure is likely to be lower [1,2]. Two biogeographic populations are recognised with different non-breeding distribution: ▪ The population centred around Australasia and Southeast Asia in the non-breeding period is estimated at c.290,000 individuals.[2] It was previously estimated at 380,000 individuals, of which >45% were thought to stage in South Korea on northward migration [3] and 360,000 spending the non-breeding period in Australia. Bamford *et al.* [4] used data from as far back as 1986 and as such any population decline over this period may not be captured in the estimate. ▪ The population centred along the northern coast of the Arabian Sea is estimated at about 5,000 individuals) [2].
Summary of the species migration - Single flyway (East Asian - Australasian Flyway)	
The Great Knot is a long distance migrant mainly in the East Asian-Australasian Flyway, with an additional small population in the Central Asian flyway. Its distribution in South Asia is poorly understood. **Breeding:** Breeds in north-east Siberia, Russia on plateaus or gentle slopes with montane tundra in the subarctic, at altitudes of 300-1,600 m, from late-May to late-June [5,6]. **Migration:** Uses different routes during northward and southward migration. It departs the breeding grounds in July, arriving in the non-breeding range between August and October. The return migration to the breeding grounds is in March and April, although immature non-breeders often remain in the tropical parts of the non-breeding range for the breeding season.[6] The species largely travels along the coast making few stopovers, mainly on estuaries and intertidal mudflats [7,8] but also at some inland wetlands (e.g. Pong Dam, Himachal Pradesh, India) [9] foraging in large flocks of one hundred to many thousands at favoured passage sites [10,11,12]. More than 80% of the global population stages in the Yellow Sea of North Korea, South Korea and China, especially on northward migration[12,13]. Great Knots have been recorded during northward migration in internationally important concentrations at 19 sites around the Yellow Sea[43]. Saemangeum, South Korea, was a major fuelling site that has been reclaimed [12,14]. Most northbound birds fly non-stop from non-breeding grounds to	

Yellow Sea staging areas[15,16,17,18], but significant passage numbers are recorded in Japan (5,000-10,000 individuals), Philippines (3,700 in spring), Thailand, Malaysia, and also in Vietnam and Indonesia. Flight from the Yellow Sea to breeding grounds is direct. Some post-breeding birds use the Yellow Sea, and some migrate south via the Sea of Okhotsk, Russia, where they stage for a non-stop flight to non-breeding areas further south.[19,20,21]

Non-breeding: Great Knots are largely restricted to coastal habitats (inland wetlands are rarely used), the great majority of the population occurring at sites with extensive tidal flat systems, where the species (a specialised molluscivore) forages mainly on bivalves[22]. These sheltered coastal habitats include inlets, bays, harbours, estuaries and lagoons with large intertidal areas of mud and sandflats, and oceanic sandy beaches with nearby mudflats. It roosts in refuges such as wave-dampened beaches, shallow water in sheltered sites or on salt-flats amongst mangroves during high tides. The species also roosts on sandy spits and islets and occasionally on exposed reefs or rock platforms [10,11,23,24]
Most of the population spends the non-breeding season in Australia (probably >90%; [4,25,26], mainly at sites on the northern coast. There are also non-breeding populations on the coastline of south-east Asia including:

- **Philippines:** more than 7,000 [27], mainly in the coastal wetlands of Negros Occidental (Tibsoc and Ilog-Hilabangan) which is of international importance for Great Knot, and in lower numbers at Olango Island Wildlife Sanctuary, Cebu [27,28]. It has also been recorded from 13 other islands: Batan, Cuyo, Loran, Luzon, [29], Masbate, Leyte, Samar, Palawan, Mindanao, Tawi-Tawi, Sibutu, Tres Islas and Tumindao [30,31,32].
- Thailand (c. 5,000 P Round *in litt.* 2013),
- Malaysia (3,000 in Selangor, D Bakewell *in litt.* 2014.)
- Papua New Guinea
- **India:** uncommon, October to March, on the entire east and especially south east coast, including Point Calimere [33,34], Chennai [35], Pulicat Lake [36] and the Marine National Park, Gulf of Mannar, Tamil Nadu [37]. Also recorded from Assam, Orissa, the Sundarbans and West Bengal [38,39] and Andaman Islands [35]. On the west coast, it is recorded in Gujarat [40] with large numbers recorded in recent years (1,500 at Pirotan Island, Uran in Maharashtra (Balachandran, *in litt* 2014) and the Lakshadweep Islands [35].
- Bangladesh (fewer than 600 birds S Choudhury *in litt* 2014),
- Pakistan, Ali and Ripley 1969
- Eastern coast of the Arabian Peninsula [35,41].

Key areas Of the 40 known sites which are internationally important for the eastern population of Great Knot[4,42,43], 19 are in China (especially Shuangtaizi Estuary Yalujiang, and Bohai Bay with more than 10,000 birds during northward migration 2013 and/or 2014, Z Ma *in litt.* 2014)[44,45,46,47], Three further sites in China, Linghekou, Zhuanghe East Coast, and Huanghe Delta were recently found to hold higher numbers than Bohai[43]. 10 in the Republic of Korea, 10 in Australia, and four in Russia [48], with one each in Japan, The Philippines, Malaysia (Kapar Power Station, Selangor, D Bakewell *in litt.* 2014) and Thailand (Inner Gulf, P. Round *in litt.* 2013). For the smaller Arabian Sea population, three known internationally important sites are in west India (S. Balachandran *in litt.* 2014), two in United Arab Emirates and one each in Oman, Iran and Saudi Arabia [41].

***Type of action requested* - Concerted Action during the 2014-2017 triennium**

The Great Knot is proposed for Concerted Action during the 2014-2017 triennium as it is a migratory species facing a decline in population size, and having a limited geographic range, that requires immediate international cooperation in order to prevent severe population declines or even extinction.

Cooperative action is needed to:

3. Maximize efforts to protect and safeguard all breeding, (especially) staging and non-breeding sites
4. Facilitate ecological research to understand the pressures acting on populations and requirements for recovery.

B Demonstrate the case for Action, based on:

Criterion i (**Conservation Priority)**	**Yes. There is a conservation priority** A proposal to uplist the Great Knot to CMS Appendix I has been submitted to CMS following its uplisting from Least Concern to Vulnerable under the IUCN Red List in 2010. This species was uplisted to Vulnerable on the IUCN Red List in 2010 owing to a recent and ongoing decline of 30-49% in three generations (22 years), caused by *the reclamation of non-breeding stopover ground*s, and under the assumption that further proposed reclamation projects in the Yellow Sea, together with widespread threats elsewhere on the flyway, will cause additional declines in the future[42].
Criterion iii Urgency	**Yes, there is urgency** There is a strong risk of species extinction in the medium to long term if there is not Concerted Action, involving support by the CMS Parties, for action in the Yellow

	Sea countries within the next three years. With an annual survival rate during 2011-2012 of 0.63 and annual breeding output of 0.15, it is predicted that the global population of Great Knot will halve within four years. Only the immediate protection and safeguard of suitable staging grounds in the Yellow Sea region, during both northward and southward migration, may now help to prevent extinction (Piersma *et al.* submitted). The Great Knot is especially *threatened by wetland loss and degradation in the Yellow Sea* where c.80% of the population stages on northward migration [4,12,49,50]. Intertidal mudflats in the Yellow Sea have decreased in area by 65% in 50 years [51].., The loss of the important Saemangeum stopover area, and almost all of the tidal-flats in Asan Bay and much of Namyang Bay in **South Korea** has been associated with major declines in non-breeding population counts in NW Australia [25,52,53](D. Rogers *in litt.* 2014). Furthermore, remaining staging sites in South Korea may be threatened by proposed constructions of tidal power plants and barrages, wind turbines, industrial development and urban expansion [7,12,14] In the **the Yellow Sea** (Chinese, North Korean and South Korean regions), the species is also threatened by the degradation and loss of wetland habitats through *environmental pollution* (e.g. oil contamination of intertidal mudflats) and *reduced river flows* [42,54]. Key staging habitats in the Yellow Sea are also being overgrown by Spartina alterniflora. The plant was introduced in the 1980's and has been estimated to cover 34,178 ha based on 2006-2008 imagery (Lu & Zhang 2013). In the **Philippines** there are threats from *increased mangrove afforestation* at its feeding areas within the tidal mudflats of Negros Occidental, and general deterioration of the coastal environment due to massive unsustainable *fishing* activities including gathering of molluscs and bivalves (Godfrey Jakosalem pers. comm. 2014). In **India** there are threats from *port developments* in Orissa and Andhra Pradesh, the potential habitat degradation/loss in the Gulf of Mannar from the Sethu Samudhram *Canal Project*, the increased risk of *oil pollution* due to oil exploration on the Gujarat coast (Balachandran & Sathiyaselvam in prep.), at Chilika Lake, habitat loss due to the *extension of prawn farms and invasion of halophytic plants and grasses* [55] and general deterioration of coastal environment due to *pollution, litter and fishing activities* (Rahmani *in prep*). Threats in **Australia** include *local mangrove encroachment* e.g. in Roebuck Bay [56,57] (D Rogers *in litt.* 2014) and, especially in the east and south, habitat loss and degradation from *pollution, changes to the water regime and invasive plants* [58]. Around the Yellow Sea in **China, North Korea** and **South Korea**, and in **Australia**, especially the east and south, the species is threatened by *disturbance* (e.g. from off-road vehicles, tourists and hunters) [8,54]. There is also increased disturbance from beach tourism in **India** (Rahmani, in prep.).
Criterion ii Relevance	**Yes, the problem is linked to migration.** The Great Knot faces various threats on its breeding and non-breeding (wintering and staging) grounds, especially the loss of feeding and roosting habitats in the Yellow Sea region and associated pollution and human disturbance. The loss and modification of Yellow Sea staging sites, affecting food resources, results in birds being unable to replenish energy for the next stage of the journey. This may influence the ability of birds to complete the last leg of their migration to their breeding grounds, arriving either late or not at all. [42,51,52,59] The main threat to the species is extensive reclamation of intertidal feeding habitat and associated roosting habitat in the Yellow Sea, due to various developments (industrial use and urban expansion, aquaculture, renewable energy projects (tidal power plants, wind energy), oil and gas developments, transportation networks) [4,7,12,49,50,54,60,61,62]. Upstream dams and hydroelectric schemes reduce natural water flow and sedimentation cycles and negatively impact the processes required for the formation of intertidal habitat.

Future sea-level rise may also further reduce the availability of intertidal foraging areas in the long-term.

Pollution could further reduce the food availability and lead to increased mortality, especially at staging areas adjacent to major industrial and infrastructural development (e.g. in China and South Korea) [42]

Over -harvesting of aquatic resources is an additional threat. [42]

The level of human disturbance (when birds are feeding or roosting) has increased. [42]

Yes, the species conservation can only be secured through multilateral action.

The species moves according to the classic pattern of long-distance migratory shorebirds, using regular stopover sites along its migration route. It experiences threats along the length of the flyway, but particularly in the Yellow Sea. Because of the scale of threats in the Yellow Sea, international support will be needed.

The following range states of Great Knot are Parties to CMS:. AUSTRALIA, BANGLADESH, PAKISTAN, PHILIPPINES, UNITED ARAB EMIRATES, PALAU, SAUDI ARABIA. It is hoped that these Parties can also encourage conservation of the species in other range states. Particularly those harbouring large proportions of the population during migration.

No conflicts with any CMS policies can be detected.

Criterion iv (Confidence in the science)

The strength of evidence is considered High

The decreasing population trend in Great Knots has been well documented[2,7,10,25,43,53,56,58]

Documentation of habitat loss in the Yellow Sea has been thorough[42, 51]

IUCN Red List assessment data[58]

	Estimate	**Reliability**
Population visiting Australia		
Extent of occurrence trend	35,000 km^2 stable	high high
Area of occupancy trend	2,800 km^2 decreasing	low medium
No. of mature individuals trend	290,000 decreasing	medium high
No. of subpopulations	1	high
No. of locations	>10	high
Generation time	8.6 years	high
Global population share	50–100%	high

Criterion v Absence of better remedies

Yes, there is an absence of better remedies.
Concerted international action is needed, perhaps in the framework of a single species or multispecies recovery plan.
We need to encourage engagement of CMS Parties in a stepping up of actions, together with non-Party range states.

A Concerted Action will be faster than a CMS Agreement, as action must be taken immediately to reduce the risk of continuing dramatic population declines. There is no better option for encouraging timely engagement of CMS Parties and non-Party range states.

Criterion vi Feasibility and **Criterion vii Likelihood of success**	Because of the scale of the challenge, especially in addressing the threats in the Yellow Sea there is a need to deploy every available tool that can add value to flyway scale efforts to prevent the extinction of this species. Many of the key range states are not CMS Parties, but listing the species for Concerted Action increases the imperative for CMS Parties that are range states to engage with non-Party range states. **To improve the conservation status of the Great Knot it is necessary to:** • Save and protect all remaining habitat at critical staging sites. Particularly in the Yellow Sea area, update Protected Area Management planning to protect critical habitat from reclamation and ensure appropriate management. . • Initiate high-level advocacy at the earliest possible opportunity to ensure that future coastal land-use planning in North Korea is sympathetic to the needs of shorebirds and wider biodiversity • Enhance the capacity of Protected Area staff around the Yellow Sea to implement appropriate management for the staging habitats used by Great Knot. • Prevent all habitat loss and destruction and restore appropriate habitats. • Maintain and improve the protection of roosting and feeding sites in the species' non-breeding range to minimise disturbance (Rogers *et al.* 2006). • Legally protect all internationally important sites for the species, including those identified as Important Bird Areas. • Legally protect the species in all Range States, drawing the attention of hunters to the issue of look-alike species. • Improve understanding of dependence on key migratory staging sites in Asia. • Improve understanding of the impacts of disturbance, for example in Australia. Surveying the breeding grounds for potential threats, including those likely to result from climate change. **Monitoring and Research priorities** • Maintain and expand the existing monitoring systems (e.g. annual high tide counts along the migration routes and at non-breeding grounds, and breeding conditions survey in the Arctic) to obtain more reliable population and trend estimates • Establish and maintain monitoring systems that collect data on relevant fitness parameters such as breeding success and (seasonal) mortality rates for all subspecies in all flyways. • Deploy remote tracking systems to identify (i) migration routes, (ii) breeding and non-breeding (staging) sites, (iii) the timing of migration, (iv) the use of alternative staging sites, and (v) the drivers of population redistribution • Undertake relevant basic ecological research to identify drivers of population declines. • These priorities are also important for the populations that spend the non-breeding season in south and south-west Asia, whose migrations and ecology remain poorly known. **Some conservation actions seem straightforward to achieve, others will be more challenging**. The proposed research priorities (to develop an effective monitoring programme on both the breeding and non-breeding grounds, to deploy further remote-tracking technology, to identify migratory routes and stop-over sites, and to undertake basic ecological research to identify the drivers of population decline) seem straightforward to achieve. The Australasian Wader Studies Group is still doing long-term annual monitoring (over 30 years) at more than 20 locations around Australia, The Victorian Wader Study Group undertakes monitoring and ringing The proposed critical conservation actions (protection of the most important staging sites from further land reclamation and other threats, in the Chinese, sectors of the Yellow Sea) will be more challenging. The EAAFP (of which China is the current chair) acts for CMS in the EAAF and coordinates existing international frameworks. Within the EAAF, there are extremely functional partnerships on the ground between research institutes and conservation organizations.

	The likelihood of success has significantly increased since COP10, due to the establishment of new collaborative international frameworks coordinated by EAAFP, to support China in addressing the threat of habitat deterioration and loss • The adoption at the IUCN World Conservation Congress, 2012, of Resolution 28: Conservation of the East Asian-Australasian Flyway and its threatened waterbirds, with particular reference to the Yellow Sea with a 100% yes vote from 126 governments, including China. • The launch, in early 2014, of the China Coastal Wetland Conservation Blueprint Project by the Chinese Academy of Sciences, the China State Forestry Administration and the Paulson Institute. • The forthcoming WWF-Hong Kong led EAAFP Priority Shorebird Conservation Plan (to be put to the EAAFP Meeting of Partners, January 2015), which prioritises actions at a small number of critical sites around the Yellow Sea.
Criterion viii (Magnitude of likely impact)	**There will be a high magnitude of likely impacts.** The Concerted Actions for this species will address multiple problems simultaneously affecting a whole suite of species that are threatened by habitat loss and deterioration of the Yellow Sea, at least 24 of which are already listed by IUCN as being threatened with global extinction (MacKinnon *et al.*2012). Of these, three Critically Endangered species, Spoon-billed Sandpiper *Eurynorhynchus pygmeus*, Black-faced spoonbill *Platalea minor* and Chinese Crested Tern *Sterna bernsteini* already have CMS/EAAFP Species Action Plans. However, the range of all of these is restricted to Asia and does not include the full extent of the EAAF, i.e., to Australasia. The Great Knot, together with the Far Eastern Curlew, which is also listed by IUCN as Vulnerable, can act as flagships for the species that use the full extent of the EAAF, from the Russian Arctic to Australasia, with absolute dependence on the Yellow Sea as a staging area, together with Red Knot *Calidris canutus* and Bar-tailed Godwit *Limosa lapponica* which were proposed to the 18th CMS Scientific Council meeting as Cooperative Action species, the latter species also encompassing a population that breeds in Alaska, USA.
Criterion ix (Cost-effectiveness)	Any funding that could be channelled (for example, through bilateral migratory bird agreements) to conservation of priority habitat in China or Republic of Korea would contribute to conservation efforts in those countries, although it will be necessary to identify where the funding would be most cost effective. **Funding is required:** a. for additional and detailed benthos work at all major wintering and staging grounds; b. for long-term demography monitoring projects in order to detect population fluctuations at early stages; c. for tracking studies.
Criterion x (Prospects for funding	The chances of finding the necessary funds to undertake Concerted Action for the conservation of the species are moderate.
Criterion xi (Prospect for leadership)	Prospects are considered moderate The key threats to this species (and to a considerable numbers of other migratory species) need to be addressed within the context of economic development in the coastal areas of China and the Republic of Korea. Strong engagement, and preferably leadership from China, and or the Republic of Korea (non-CMS Parties) will be required for success.
Criterion xii (Potential for synergy)	**Yes.** A key purpose of this action is to help to give imperative, in view of the high risk of extinction of this species, for CMS Party Range states to contribute actions for the species in the framework of the EAAFP (and by extension, Ramsar and the CBD) and bilateral Migratory Bird Agreements.
Criterion xiii (Stakeholder appeal)	**Yes.** Shorebirds and their migrations are among the most fascinating natural phenomena.

	The importance of Eighty Mile Beach as a place for non-breeding shorebirds, and the fate of shorebird migration within the EAAF has recently been featured in the hugely successful BBC *Coast* Programme. The stakeholder appeal that is essential is to the Governments of China and the Republic of Korea.

C. Expected outcomes?

The Concerted Action is expected to contribute towards the prevention of further declines in the Great Knot population in the short to medium term and to its return to favourable conservation status in the long term.

CMS does not currently have many Parties in the EAAF, hence many of its objectives in the EAAF are achieved through an MOU with the EAAFP. This Concerted Action provides a mechanism for CMS to strengthen its contribution to the work of the EAAFP, through encouraging action from range states that are parties to both.

D. Associated benefits?

The Concerted Action for this species is intended to benefit the many other migratory waterbirds that depend upon the Yellow Sea and other intertidal habitats of the EAAF: The East Asian-Australasian Flyway is one of nine major migratory waterbird flyways around the globe and is home to over 50 million migratory waterbirds. The Great Knot is an excellent flagship for the group of shorebirds that breed south of the Arctic and rely on critical staging areas in the Yellow Sea.
As a recognisable flagship species, coordinated action for Great Knots include opportunities for awareness-raising, capacity building, encouraging new Party accessions and catalysing other associated activities.

E. Timeframe?

Concerted action should commence immediately, with more detailed discussion of a joint work programme at the Bilateral Migratory Bird Agreement meetings in November 2014 and EAAFP Meeting of Partners in January 2015 in Hokkaido, in conjunction with the expected discussion on the Shorebird Conservation Plan, Yellow Sea Task Force and Shorebird Working Group. Given the scale of the threats, this action is likely to be needed to continue at least for the lifetime of the CMS Strategic Plan i.e. at least until 2023. Progress should be reviewed at each COP.

F. Relationship to other CMS actions?

This Concerted Action should be undertaken in close association with that proposed for Far Eastern Curlew and Cooperative Action proposed for Red Knot and Bar-tailed Godwit, and, as appropriate, the existing CMS/EAAFP Species Action Plans for Spoon-billed Sandpiper, Black-faced Spoonbill and Chinese Crested Tern.
Actions to conserve the Great Knot will contribute to the realisation of the (Draft) **CMS Strategic Plan**, especially:
Target 2: Multiple values of migratory species and their habitats have been integrated into international, national, and local development …planning processes, and are being incorporated into national accounting, and reporting systems, as appropriate;
Target 3: National, regional, and international governance arrangements and agreements affecting migratory species and their migratory systems have improved significantly, making relevant policy, legislative and implementation processes more coherent, accountable, transparent, participatory, equitable and inclusive, and;
Target 5: Governments, key sectors and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption, keeping the impacts of natural resource use on migratory species well within safe ecological limits to promote the favourable conservation status of migratory species and maintain the quality, integrity, resilience, and connectivity of their habitats and migratory routes.

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PROPOSAL FOR ADDING FIVE SUBSPECIES OF RED KNOT *(CALIDRIS CANUTUS)* TO THE CMS COOPERATIVE ACTION LIST DURING THE 2014-2017 TRIENNIUM

This proposal follows the approach of the report: SSc Doc 6.1.1 Rationale, Criteria and Guidance for Identifying Candidate Species for Concerted and Cooperative Actions.

A. Specify target species / population(s), and their status in CMS Appendices:	
Species: Red Knot (*Calidris canutus)*	
Common names	Red Knot, Bécasseau maubèche, Correlimos gordo
Taxonomy	Six subspecies are recognized
Range States (CMS Parties are shown in capital letters.) http://www.cms.int/en/species/calidris-canutus	ALGERIA, Angola, Antigua and Barbuda, ARGENTINA, AUSTRALIA, Bahamas, Barbados, BELARUS, BELGIUM, Belize, Bolivia, Brazil, Brunei Darussalam, Canada, CHILE, China, Colombia, Costa Rica, Cuba, CÔTE D'IVOIRE, DENMARK, Dominica, Dominican Republic, El Salvador, ESTONIA, EUROPEAN UNION, FINLAND, FRANCE, GAMBIA, GERMANY, GHANA, Grenada, Guatemala, GUINEA, GUINEA-BISSAU, Guyana, Haiti, Honduras, Iceland, Indonesia, IRELAND, Jamaica, Japan, LATVIA, LIBERIA, LITHUANIA, Malaysia, MAURITANIA, Mexico, MOROCCO, Namibia, NETHERLANDS, NEW Zealand, Nicaragua, NORWAY, Palau, PANAMA, Papua New Guinea, Paraguay, People's Democratic Republic of Korea, PHILIPPINES, POLAND, PORTUGAL, Republic of Korea, Russian Federation, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, SENEGAL, Sierra Leone, Singapore, SOUTH AFRICA, SPAIN, Suriname, SWEDEN, Trinidad and Tobago, UNITED KINGDOM, United States of America, Uruguay, Venezuela
Red List and Status in the CMS Appendices (I or II)	IUCN Red List: Least Concern CMS: Appendix II AEWA: *Calidris canutus canutus* and *Calidris canutus islandica* are each listed in Column B, category 2a: *Populations numbering more than around 100,000 individuals and considered to be in need of special attention as a result of concentration onto a small number of sites at any stage of their annual cycle*, and also being category 2c*, Showing significant long-term decline*.

Subspecies: *C. c. rufa*
CMS status: Appendix I and Concerted Action (since 2005).
Listed as nationally "Endangered" in Argentina, Canada, and Chile
Proposed for listing as "Threatened" under the USA Federal Endangered Species Act (U.S. Fish & Wildlife Service currently collecting public comment).

Subspecies: *C. c. canutus* and *C. c. islandica*
CMS Status: Proposed for Cooperative Action (Appendix II) (this document)
African-Eurasian Migratory Waterbird Agreement (AEWA) Action Plan Table 1: C.c. canutus and C.c. islandica are listed in Column B, category 2a: Populations numbering more than around 100,000 individuals and considered to be in need of special attention as a result of concentration onto a small number of sites at any stage of their annual cycle, and also being category 2c, Showing significant long-term decline
C.c. islandica listed as "Special Concern" in Canada (not a category of protection, but requires a management plan to be developed).

Subspecies: *C. c. roselaari*
CMS Status: Proposed for Cooperative Action (Appendix II) (this document)
listed as "Threatened" in Canada
a Bird of Conservation Concern under the U.S. Fish and Wildlife Service.

Subspecies: *C. c. piersmai*
CMS Status: Proposed for Cooperative Action (Appendix II) (this document)

Subspecies: *C. c. rogersi*
CMS Status: Proposed for Cooperative Action (Appendix II) (this document).

Summary of the migration –Multi- flyway species: East Asian – Australasian Flyway (EAAF), East Atlantic Flyway (EAF), West Atlantic Flyway (WAF), and East East Pacific Flyway (EPF)

Six subspecies are currently recognised:
In summary, given the extreme dependence of this long-distance migrant on the quality of its spring staging areas, the main spring staging site of each of the six following subspecies are the six global sites of pre-eminent importance for this species: Schleswig-Holstein Wadden Sea, Germany for *canutus* [1], N Norway (Troms and Finnmark) and W Iceland for *islandica* [2], Delaware Bay for *rufa* [3], Bohai Bay for *piersmai* and *rogersi* [4] and the Yukon-Kuskokwim Delta, Copper River Delta and Grays Harbor/Willapa Bay, WA for *roselaari* [5-9].

- ***C. c. canutus*** breeds on Taymyr Peninsula, north Siberia[10]. The non-breeding population is concentrated in Mauritania, West Africa, but extends as far south as South Africa[11,12]
  Population size: 400,000 [13,14]
  Trend: Decreasing ? [12,14,15]
  Key breeding countries: Russia
  Key staging countries/sites: Estonia, Germany (Schleswig-Holstein Wadden Sea[16-22]), Netherlands (Dutch Wadden Sea[23,24]), France (Baie de l'Aiguillon, Ile de Ré, Baie d'Yves & Fouras, Bassin de Marennes Oléron[11,16,25-27]), Portugal, Poland[28-30]
  Key non-breeding countries/sites: Mauritania (Banc d'Arguin[31-35], 75% of the population), Guinea-Bissau (Bijagós Archipelago[11],15% of the population), Morocco, Sierra Leone, South Africa.
- ***C. c. islandica*** breeds in Greenland and Eastern Canada[11,12]. The non-breeding population is concentrated in Western Europe. Norway hosts ca 20% of the adult population on spring migration (at least up to 2012 since when Norwegian spring staging numbers have halved) (J Wilson *in litt*).
  Population size: 450,000 [13,14]
  Trend: Fluctuating, Decreasing [14,15]
  Key breeding countries: Canada, Greenland [2]
  Key staging countries/sites: Wadden Sea (Germany, Netherlands, Denmark [17,21,24]), UK[2,12] (Ribble Estuary, North Norfolk coast), Norway[2,36-41] (Porsangerfjord/Lille Porsangerfjord), Iceland[36,42-45] (Breidafordur), France[46] (Bassin d'Arcachon, Banc d'Arguin, Marais Poitevin et Baie de l'Aiguillon)
  Key non-breeding countries/sites: Wadden Sea [2,11] (Netherlands, Germany), UK (The Wash, Morecambe Bay, Dee, Humber, Alt and Thames Estuaries)[2,13], Ireland, France[46-49] (Baie de l'Aiguillon et Point d'Arçay, Baie de St-Brieuc-Yffiniac-Morieux, Baie de Mont Saint-Michel, Bassin d'Arcachon et Banc d'Arguin, Ile d'Oléron, Marais de Brouage-Saint-Agnant, Marais littoraux de Charente-Maritime, R.N. d'Yves, Marais poitevin et Baie de l'Aiguillon, Reserves Naturelles de Moëze)
- ***C. c. piersmai*** breeds on the New Siberian Archipelago and spends the non-breeding season in Australia and New Zealand, staging in the Yellow Sea region, especially in Bohai Bay, China. [4,50-53]
  Population size: 50,000 [4,14,54]
  Trend: Declining [55]
  Key breeding countries: Russia [56]
  Key staging countries/sites: China (Bohai Bay) [4,50-53]
  Key non-breeding countries/sites: Australia (Eighty Mile Beach; Roebuck Bay), New Zealand [4,53,57]
- ***C. c. rogersi*** breeds on the Chukotskiy Peninsula, far NE Russia and spends the non-breeding seasons in Australia and New Zealand. Migrating birds concentrate in the Yellow Sea region, especially in Bohai Bay, China). [4,53,58]
  Population size: 60,000 [4,14,54]
  Trend: Declining [55]
  Key breeding countries: Russia [58]
  Key staging countries: China (Bohai Bay) [4,50-53]
  Key non-breeding countries: Australia (SE Gulf of Carpentaria), New Zealand (Farewell Spit, North Island, Manukau, Kaipara & Parengarenga Harbours) [4,53,57,59]
- ***C. c. roselaari*** breeds on Wrangel Island, Russia and Alaska, USA (e.g. Seward Peninsula), and spends the non-breeding season in California (USA) and Mexico, and potentially Central America (Costa Rica, Panama). This is the least studied subspecies.
  Population size: 17,000 [2]
  Trend: Apparent decline [60]
  Key breeding countries: Russia, USA
  Key staging countries/sites: USA - Yukon-Kuskokwim Delta, Alaska (~10,000 birds in spring[61]); Copper River Delta, Alaska; Grays Harbor and Willapa Bay, Washington (>4,000 birds during spring migration. [5-9]
  Mexico - Golfo de Santa Clara, Sonora, NE Gulf of California (~1,500 birds during spring migration.[62]

Key non-breeding countries/sites: USA (San Francisco Bay, San Diego Bay area, California). Mexico (Guerrero Negro, Baja California [9], Las Garzas, Nayarit.

- ***C. c. rufa*** breeds in the central Canadian Arctic and has four main non-breeding areas: Florida and SE USA; coast of Gulf of Mexico in Texas (USA) and northeastern Mexico; northeastern South America (Maranhao in Brazil), and Tierra del Fuego in southern South America (Argentina, Chile). Migrating birds concentrate in Delaware Bay, USA.[63]
  Population size: 42,000[60]
  Trend: Declining [60]
  Key breeding countries: Canada [63]
  Key staging countries/sites: [63-65] USA (in spring Delaware Bay[3,66-68], in autumn Cape Cod, Stone Harbor, Virginia Coastal Islands, Georgia Coastal Islands and Jacksonville Florida), Canada (James Bay, Nelson river, Mingan Archipelago Reserve), French Guiana (Mana Rice Fields), Brazil (Rio Grande do Sul, Maranhao), Argentina (Bahía de San Antonio, Peninsula Valdes, Bahía Blanca), Uruguay (north east)
  Key non-breeding countries [63-65]: Argentina (Rio Grande, Bahía San Sebastián), Chile (Bahía Lomas), Brazil (coast of Maranhao and Para States), USA (southeastern states, Gulf coast of Florida, Texas)

Type of action requested **- Cooperative Action for *C.c. canutus, C.c. islandica, C.c. piersmai, C.c. rogersi* and *C.c. roselaari* during the 2014-2017 triennium. (C.c. rufa is already listed for Concerted Action)**

This presents a test case for treatment of a species that is listed on both CMS Appendices I and II. Red Knot could potentially be proposed for either Concerted or Cooperative Action, given that the Appendix 1 - listed *rufa* subspecies has been a Concerted Action species since 2005, the remaining five subspecies, as yet being only on Appendix II. However, given the urgency of the situation, the likelihood of the uplisting of the species on the IUCN Red List in the near future, and the need for a global Action Plan, we suggest that these five subspecies should be listed for Cooperative Action, in addition to the listing of the *rufa* subspecies for Concerted Action.

Concerted action is needed to:

5. Maximize efforts to protect and safeguard all breeding, (especially) staging and non-breeding sites.
6. Facilitate ecological research to understand the pressures acting on populations and requirements for recovery

B Demonstrate the case for Action, based on:

Criterion i (Conservation Priority) and **Criterion iii** (Urgency)	**<u>There is a conservation priority!</u>** Most populations of Red Knot are showing <u>decreasing population trends</u>. In all flyways, the respective subspecies concentrate at only a few sites, many of which face severe threats, even in cases where they are designated as Ramsar sites and/or as national protected areas: • <u>Rapid habitat loss and fragmentation along the East Asian – Australasian Flyway</u> through reclamation of intertidal habitat for human settlement and industrial development, damming of rivers, *Spartina* invasions on mudflats, and the expansion of aquaculture. This rapid loss is predicted to continue [51,69]. Of special concern is the rapid habitat loss at the sole staging grounds in Bohai Bay, China [4,50,53] <u>Subspecies concerned</u>: *piersmai, rogersi*; • <u>Habitat fragmentation and loss at the two main East Atlantic Flyway non-breeding sites</u> National Park of Banc d'Arguin, Mauritania – through increasing residential and commercial developments, unsustainable fishery practices,, future oil and gas extraction. [70] Bijágos Archipelago, Guinea Bissau – potentially as a follow up to the prospecting for extractable oil and gas reserves close to the reserve, and a potential new shipping route through the reserve; <u>Subspecies concerned</u>: *canutus* • <u>Habitat fragmentation and loss at East Atlantic Flyway sites from road construction</u> – e.g. a major site for Red Knot was destroyed by the damming of Gilsfjordur, Iceland, with a road crossing, considerably reducing the tidal inflows. <u>Subspecies concerned</u>: *islandica, canutus*; • <u>Habitat fragmentation and loss at East Pacific flyway sites,</u> through reclamation of intertidal habitat for industrial development and urban development, *Spartina* invasions on mudflats, and the expansion of aquaculture. <u>Subspecies concerned</u>**:** *roselaari*;

- Current and potential habitat fragmentation and loss at West Atlantic flyway sites, through reclamation of intertidal habitat for industrial development, urban and tourism development, and the expansion of aquaculture and agriculture.
  Subspecies concerned: *rufa*;
- Potential habitat loss, and reduction of prey abundance and availability at the main *canutus* staging site in the Wadden Sea through continuous dredging of the River Elbe[1]
  Subspecies concerned: *canutus*;
- Reduction of prey abundance and availability through expanding aquaculture developments and increased harvesting of aquatic resources.[3,23,51,71-73]
  Subspecies concerned: *canutus, islandica, piersmai, rogersi, roselaari, rufa.*
- Habitat fragmentation and loss in the European non-breeding and staging sites through an increase in renewable energy projects, including offshore wind farms[70,74]
  Subspecies concerned: *canutus, islandica*
- Pollution of intertidal ecosystems by run-off from industrial, mining and port activities[51,70]
  Subspecies concerned: *canutus, islandica, piersmai, rogersi, rufa, roselaari.*
- Increase in disturbance due to the above mentioned activities as well as an increase in recreational activities e.g. on the US Atlantic Coast and Delaware Bay [51,70,75]
  Subspecies concerned: *canutus, islandica, piersmai, rogersi, roselaari, rufa*
- Increase in disturbance and mortality through hunting, also, or mostly, resulting from hunting of other species in the same habitat as well as the risk of confusion with other species
  Subspecies concerned: *canutus, islandica, rufa*
- Climate change induced sea level rise and the thawing of the permafrost will threaten both intertidal staging and non-breeding sites as well as the arctic breeding areas[70]
  Subspecies concerned: *canutus, islandica, piersmai, rogersi, roselaari, rufa*

There is urgency!

The particular urgency that is driving this proposal is the extremely concerning situation at the staging sites in Bohai Bay, China, in relation to the *C. c. piersmai* and *C. c. rogersi* subspecies, where both populations use only a few sites to refuel for northward migration[4]. Currently >60% of the population is concentrated on a small area of mudflat, increasing the risk of population collapse [50]. Both subspecies ultimately depend on sites that are highly threatened by reclamation projects [4]. Piersma *et al.* (in preparation) state that: *With annual survival rates in 2011-2012 of 0.62 for Red Knots* [C. c. piersmai*] (and annual breeding outputs of 0.18), we predict a halving of the population in four years. Only the immediate protection and safeguard of suitable staging grounds in the Yellow Sea region, during both northward and southward migration, may now help to prevent widespread extinction in the most species-rich flyway in the world.*

There is thus a probability that both populations will dramatically decline, towards a real risk of extinction within the next triennium if there is no concerted action, involving support by the CMS Parties, due to the current high rate of loss of intertidal habitat of importance for migratory shorebirds in general in the Yellow Sea and along the South East Asian coast. [4,50,69]

Furthermore, the *canutus* population is in need of urgent action due to the current speed of residential, commercial and industrial development at the West African non-breeding grounds leading to habitat loss and fragmentation. Together with the *islandica* population, *canutus* is still huntable in France.

The *rufa* population suffered a large decline in the 2000s caused by

	reduced food availability (horseshoe crab *Limulus polyphemus* eggs) at the major staging site in Delaware Bay, caused by increased harvests of horseshoe crabs [3]. The USA is now managing the horseshoe crab harvest, but disturbance and habitat loss are increasing rapidly in non-breeding and staging sites due to residential and tourism developments, despite most key sites for Red Knots being legally protected areas. Furthermore, despite the French government recently banning hunting of Red Knots in French Guiana, Martinique and Guadeloupe, illegal hunting still occurs, also elsewhere in the flyway, for example in northern Brazil.
Criterion iv (Confidence in the science)	**The strength of evidence is considered to be strong** Red Knots are among the best scientifically studied migratory shorebirds, see the list of peer-reviewed publications used as references and listed at the end of the document. All non-referenced statements present expert opinion collected by interviews and emails.
Criterion ii (Relevance) and **Criterion v** (Absence of better remedies)	**The problem is linked with migration.** Red Knots are long-distance migrants with an exceptionally concentrated distribution at only few key staging sites, e.g. Delaware Bay, USA; Wadden Sea, Netherlands, Germany, Denmark; Bohai Bay, China. They are especially dependent on a functional chain, with healthy ecosystems at non-breeding (wintering), staging and breeding sites, to be able to migrate, breed and moult. Many of the key sites are threatened by habitat fragmentation and loss, invasive species and the direct and indirect impacts of overharvesting marine resources. **The species conservation can only be secured through multilateral action:** The habitats visited by Red Knots are geographically separated, and often by huge distances. All subspecies visit several countries during the year, as described in section A above. Therefore, successful conservation requires an international, multilateral or flyway wide approach. **No conflicts with any CMS policies can be detected.** **There is an absence of better remedies.** A Concerted Action will be faster than a CMS Agreement, as action must be taken immediately to avert dramatic population declines. There is no better option for encouraging timely engagement of CMS Parties and non-Party range states, within the frameworks of the EAAFP, Arctic Migratory Bird Initiative (AMBI), AEWA, EAAF bilateral Migratory Bird Agreements, the Western Hemisphere Shorebird Reserve Network (WSHRN), the Atlantic Flyway Shorebird Initiative (AFSI) and the Western Hemisphere Shorebird Group (WHSG), to speed up conservation efforts for this species at a global scale.
Criterion vi (Feasibility) and **Criterion vii** (Likelihood of success)	**Listing the five subspecies for Cooperative Action is feasible** Because of the scale of the challenge and the speed with which habitat deterioration and loss is proceeding, especially in the Yellow Sea, there is a need to deploy every available tool that can add value to the flyway-wide efforts to prevent further declines in Red Knot populations. The listing of these subspecies for Cooperative Action helps to increase the imperative for CMS Party range states to engage with non-Party range states through flyway frameworks such as AEWA, EAAFP, AMBI, WHSRN, AFSI, WHSG and bilateral agreements, to encourage cooperative action for these sub species including the following: • Protect and appropriately manage key sites to avoid risks from (i) land claim of intertidal habitats (ii) gas and oil exploitation, (iii) the development of renewable energy projects, (iv) dredging activities to maintain shipping routes and ports), (v) the unsustainable use of aquatic resources and (vi) invasion by the alien cordgrass *Spartina*. • Legally protect the species in all range states, inform hunters of the issue of look-alike species and the conservation implications of taking the wrong species.

- Improve public awareness of the dependence of Red Knots on key staging sites and the impacts of disturbance on migratory shorebirds, at foraging sites and at roosting sites.

In addition, critical conservation actions identified by experts are:

For *piersmai* and *rogersi*, to

- Save and protect as much of the remaining habitat at the critical staging sites in Beipu, Nanpu and Zuidong, Bohai Bay, China, from further reclamation, cordgrass *Spartina* invasion, and ensure appropriate management.
- Effective management of shellfisheries at key sites.

For *canutus* and *islandica*

- Continue the ban on mechanical cockle fisheries in the Dutch Wadden Sea and stop all unsustainable fisheries (including for shrimps) in the Wadden Sea and other important European estuaries.
- Ensure adequate protection of European spring staging sites **(esp.** the German and Dutch Wadden Sea and in Norway and Iceland).
- Ensure protection from threats associated with oil and gas extraction and shipping.
- Ensure robust management plans with strong management committees to guarantee their implementation at key *canutus* non-breeding sites in West Africa, Banc d'Arguin, Mauritania and Bijagós Archipelago, Guinea-Bissau.

For *rufa*

- Continue efforts to recover the Horseshoe Crab *Limulus polyphemus* population in Delaware Bay, USA with the goal of recovering Red Knot populations.
- Ensure new coastal regulations to prevent habitat losses along the US Atlantic coast, and undertake habitat restoration at key sites e.g. Delaware Bay.
- Protect the mangrove wetlands in Maranhoa and Para, Brazil, from shrimp farming, to protect adjacent Red Knot beach habitats.
- Ensure the sustainability of all hunting activities along the migratory routes, especially in the Caribbean and northern South America.
- Increase social marketing campaigns at some Patagonian key sites in Argentina, and at Delaware Bay, USA, and develop them elsewhere (e.g. stopover sites used by recreational bathers throughout the Atlantic Coast during July to September) to address disturbance and build support for effective management of sites.

For *roselaari*

- Ensure that high quality stopover sites are available to Red Knots during northward and southward migrations.
- Establish long-term management plans for important non-breeding sites.
- Determine subspecies composition of Red Knots south of Mexico and identify significant non-breeding sites.

Monitoring and Research priorities:

1. Maintain and expand the existing *population monitoring systems* (e.g. annual high tide counts along the migration routes, breeding conditions survey in the Arctic, conditions at non-breeding sites) to obtain more reliable population and trend estimates of **all subspecies**.
2. Establish and maintain *monitoring systems of fitness parameters* such as breeding success and (seasonal) mortality rates of **all subspecies**.
3. Deploy *remote tracking systems* to identify the timing of migration and the use of (alternative) staging sites of **all subspecies**.
4. Undertake relevant basic ecological research to *identify the drivers of population declines* of **all subspecies**.
5. For *roselaari Red Knots*: (i) study fitness parameters for on the Seward Peninsula, Alaska, USA. Undertake summer surveys at Golfo de Santa

	Clara, to estimate the annual input of juvenile age class (breeding productivity in Alaska in 2010-2014 was extremely low and may be the primary factor influencing the population size and trend); (ii) identify migration routes, breeding, non-breeding and staging sites, as well as the timing of migration and the use of staging sites using VHF transmitters on Alaskan breeding birds to a) Determine the primary autumn staging area on the Yukon-Kusk. Delta, and b) estimate length of stay and use of Grays Harbor and Copper River Delta on spring migration; (iii) investigate invertebrate prey density and composition at Grays Harbor and Willipa Bay relative to *Spartina* invasion and management, and aquaculture development, and (iv) continue monitoring at spring migration sites, and development of a standardized approach to mark-recapture efforts (notably at Guerrero Negro and Grays Harbor). 6. Continue annual censuses and fieldwork to estimate annual survival and recruitment in Tierra del Fuego (Bahia Lomas in Chile, Bahia San Sebastian and Rio Grande in Argentina portions) as total Patagonian rufa population has declined from 52,000 in 2000 to 10,000 in 2013. On this downward trend the population faces extinction within the next 10-20 years[76] 7. Investigate why there is a lack of noticeable *horseshoe crab recovery* in Delaware Bay despite regulated harvests[77]. 8. Investigate the impact of *disturbance* at key refueling sites during late summer along the US Atlantic Coast and at Argentinean staging sites during northward migration. 9. Investigate the reasons for the rufa mortalities in Uruguay and southern Brazil reported as mass mortalities or finding of few carcasses per year[78] 10. Investigate the *use of intertidal habitats, especially in the Yellow Sea*, with a focus on the relationships between foraging, food resources and fine-scale habitat use, with a view to informing future habitat creation and restoration. Investigate whether current food resources in Bohai Bay are 'natural' or the result of a disturbed situation, as has recently been found for Red Knot (unpublished study by Beijing Normal University and the University of Groningen). 11. Investigate the effects of *pollutants* within the highly polluted intertidal habitats of the Yellow Sea and other key sites, with a focus on the accumulation of pollutants and consequences for survival and reproductive success. 12. Investigate the mechanistic and functional relationships of the *Banc d'Arguin ecosystem* to learn about future jeopardies to shorebird populations using this site[79]. **Likelihood of success.** The Red Knot migration system mainly covers four major flyways, the East Asian – Australasian Flyway (EAAF), East Atlantic Flyway (EAF), the West Atlantic Flyway (WAF), and the East Pacific Flyway (EPF) **East Asian – Australasian Flyway** The East Asian - Australasian Flyway Partnership EAAFP (of which China is the current chair) acts in conjunction with CMS in the EAAF. Due to the speed of habitat loss, the situation for shorebirds staging along the coast of China (a non CMS Party) has been of particular concern[50,69]. The chances of influencing this situation have changed for the better since CMS COP 10, due to the putting in place of new international frameworks, coordinated by the EAAFP, to support China in addressing the threat of habitat deterioration and loss: • The adoption of Resolution 28 *Conservation of the East Asian – Australasian Flyway and its threatened waterbirds, with particular reference to the Yellow Sea* at the IUCN World Conservation Congress 2012, with a 100% YES vote from 126 countries including China. • The launch of the China Coastal Wetland Conservation Blueprint Project in early 2014 by the Chinese Academy of Sciences, the Chinese State Forestry Administration and the Paulson Institute. • The forthcoming WWF-Hong Kong led EAAFP Shorebird Conservation Plan (to be adopted at the EAAFP Meeting of Partners in January 2015).

	• The launch in early 2014 of the Arctic Migratory Bird Initiative (AMBI) of the Arctic Council's Working Group on the Conservation of Arctic Fauna and Flora, (CAFF) for which Red Knot is selected as a priority species in the EAAF. This is intended to engage not only the Arctic Council range state, Russia, but also the permanent observer nations: China, South Korea, Japan, Singapore and India. In Australia, actions will be facilitated through the Action Plan for Australian Birds 2010 [55] by increasing the work with China to conserve the species under the bilateral Migratory Bird Agreement. **East Atlantic Flyway** AEWA acts for CMS in the EAF. In 2014, it launched its African Initiative. Since 2012, the Wadden Sea Flyway Initiative (WSFI) has launched two projects with focus on monitoring and capacity building in close cooperation with the BirdLife International/Wetlands International Conservation of Migratory Birds (CMB) project for West African coastal wetlands. For the most important non-breeding site within the EAF, Parc National du Banc d'Arguin (PNBA), the future of which is jeopardized by overfishing, future gas and oil exploitations and rapid human and industrial development along PNBA's borders, a Memorandum of Understanding to enhance conservation and research of shorebirds was signed between PNBA and the European Wadden Sea in early 2014 under the umbrella of the UNESCO World Heritage Convention. In the framework of AMBI and WSFI, a proposal is underway with a focus on Red Knots, to assist the Bijagós Archipelago, Guinea-Bissau, to resubmit its deferred nomination for inscription onto the World Heritage List, including through development of a Management Plan and Management Committee. Particularly in the Wadden Sea a fruitful exchange in information exists between these parties (Royal Netherlands Institute for Sea Research NIOZ, University of Groningen, Institute for Avian Research, University of Hamburg, Research Institute Senckenberg, University of Oldenburg, University of Kiel, Alfred-Wegener-Institute for Polar and Marine Research, National Park Authorities in Germany, WWF, Waddenvereiniging, BirdLife Netherlands, BirdLife Germany, Friends of the Earth Germany). **West Atlantic Flyway (WAF)** The Western Hemisphere Shorebird Reserve Network (WHSRN) supports a network of sites throughout the WAF that includes most of the key staging and non-breeding sites for *rufa* Red Knot, and an action plan has been developed for the subspecies [80]. The subspecies is a focal species of the Atlantic Flyway Shorebird Conservation Business Strategy initially developed for the east coast of North America, but now being expanded to cover the entire WAF as the Atlantic Flyway Shorebird Initiative. The goal of this initiative is to create a long-term platform for stability and recovery of focal species identified and to increase current shorebird population levels by 10-15 percent by 2020. In the framework of AMBI, a project is also under development to focus on habitat loss and degradation affecting *rufa* Red Knot in the Caribbean and northern South America. **East Pacific Flyway (EPF)** The Western Hemisphere Shorebird Reserve Network (WHSRN) supports a network of sites throughout the EPF that includes most of the key staging and non-breeding sites for *roselaari* Red Knot, and a concise conservation brief for the subspecies was included in Niles *et al.*2010 [80] The subspecies is a focal species of the Copper River Migratory Bird Initiative (CRIMBI) which spans the entire EPF, and the Pacific Flyway Shorebird Conservation Strategy that is currently under development.
Criterion viii (Magnitude of likely impact)	**The Cooperative Actions for these sub species will address multiple problems simultaneously affecting a whole suite of species that are threatened by habitat loss and deterioration.** • **For the EAAF:** At least 24 species dependent on the Yellow Sea are already listed by IUCN as being threatened with global extinction.[51] Of these, three Critically Endangered species, Spoon-billed Sandpiper *Eurynorhynchus pygmeus*, Black-faced Spoonbill *Platalea minor* and Chinese Crested Tern *Sterna bernsteini* already have CMS/EAAFP Species Action Plans. However, the range of all of these is restricted to

	Asia and does not reach the full extent of the EAAF, i.e. to Australasia. The Far Eastern Curlew *Numenius madagascariensis* and Great Knot *Calidris tenuirostris*, which are both listed by IUCN as Vulnerable were proposed to the 18th CMS Scientific Council meeting as Concerted Action species. Together with Bar-tailed Godwit *Limosa lapponica*, accepted by the 18th CMS Scientific Council meeting as a Cooperative Action species, all four can act as flagships for the species that use the full extent of the EAAF, from the Russian Arctic to Australasia, with absolute dependence on the Yellow Sea as a staging area. • **For the EAF:** Together with Bar-tailed Godwit *Limosa lapponica*, which was proposed to the 18th CMS Scientific Council meeting as a Cooperative Action species, the Red Knot can act as a flagship for all long-distance migratory species with an Arctic breeding range stretching between the Siberian Arctic in the east and the east Canadian Arctic in the west, and a non-breeding range as far south as South Africa. • **For the WAF and EPF:** The Red Knot can act as a flagship for medium- and long-distance migratory species, in addition to resident shorebird species of conservation concern that use the same sites as migratory Red Knot. Of 52 species (and 75 taxa) of North American breeding shorebirds 27 taxa are listed as in decline or apparent decline in the short term, including Red Knot ssp *rufa, islandica* and *roselaari* [60]. Many of the key staging and non-breeding sites for *rufa* Red Knot are also key sites for Semipalmated Sandpiper *Calidris pusillla*, currently proposed for listing on CMS Appendix I.
Criterion ix (Cost-effectiveness)	**Funding is required:** **a)** for the development of a global CMS/AMBI Action Plan for the Red Knot, that draws on existing action plans for the species, for example the Atlantic Flyway Shorebird Conservation Business Strategy of the Americas and the WWF Hong Kong Shorebird Conservation Plan for the EAAF, and ensures synergies in activities for Red Knot between flyways as well as along flyways. **b)** for implementation of the Action Plan, building on the flyway approach. **c)** for long-term demography monitoring projects for all subspecies in all flyways in order to detect population fluctuations at early stages. The Red Knot is THE global flagship species for long distance arctic migrant waterbirds dependent on intertidal habitats, using all the flyways of the world and using them from their most northerly to most southerly extent. It is the only species that has been selected as a priority by every flyway in AMBI.
Criterion x (Prospects for funding	**To date, funding for Red Knot conservation and research has tended to be fragmented, project by project, sometimes with competition between initiatives for funds.** By developing a global Action Plan involving all stakeholders, an objective assessment of priorities to deliver conservation benefits could be agreed upon. A key purpose of developing the Action Plan would be to provide the basis for an ambitious, large scale funding proposal, or suite of such proposals, flyway by flyway (or with an inter-flyway approach as there are synergies between flyways and comparing populations between flyways can be instructive). It is hoped that AMBI will provide access to an additional suite of funds not previously approached. Within its framework of technical and international cooperation, Germany closely cooperates with Parc National du Banc d'Arguin (PNBA) in Mauritania. Key activities are the strengthening of PNBA's management committees to ensure an effective implementation of its management plans, and conservation and research strategies as well as strengthening PNBA's positioning in international (conservation) networks and initiatives.
Criterion xi (Prospect for leadership)	**Australia might be well placed to lead CMS concerted action for this species in the EAAF given its importance especially for the *piersmai* subspecies.** • The Wadden Sea countries of Germany, Netherlands and Denmark, (which are also members or permanent observers to the Arctic Council) including via their Common Wadden Sea Secretariat, and Mauritania

	and Guinea Bissau, could act in partnership for the *canutus* subspecies. • Norway, as host of ca 20% adult *islandica* population on spring migration and co-chair of the AMBI, could be well placed to lead or support action for this population in the East Atlantic Flyway. • Argentina and Chile, given their importance for the long-distance migratory population of *rufa* Red Knot could be well placed to lead further concerted action for this subspecies.
Criterion xii (Potential for synergy)	**A key purpose of this action is to help provide an imperative** (in view of the vulnerability of this long distance migrant with a very concentrated distribution) for CMS Party Range states to contribute actions for the species in the framework of AMBI, the EAAFP (and by extension, Ramsar and the CBD), bilateral Migratory Bird Agreements, AEWA, WHSRN and AFSI
Criterion xiii (Stakeholder appeal)	**Shorebirds and their migrations are one of the most fascinating natural phenomena and generally appeal to the general public.** There is a high level of public awareness of this species in the Wadden Sea countries, Netherlands, Germany and Denmark, as well as in the Americas where the famous "moonbird" regularly makes the headlines of international and national media in several countries including newspapers such as the *New York Times* and BBC Mundo. The "moonbird" was a Red Knot colour marked in Tierra del Fuego in 1995. It has so far migrated an equivalent distance to the moon and back. It is the subject of a critically acclaimed book *Moonbird: A Year On The Wind With The Great Survivor B95*, by award-winning author Phillip Hoose. The importance of Eighty Mile Beach as a place for non-breeding shorebirds, and the fate of shorebird migration within the EAAF has recently been featured in the hugely successful BBC *Coast* Programme. Furthermore, given that it uses most of the major flyways of the world, being among the handful of migratory birds that travel from the furthest north to the furthest south, the Red Knot is THE flagship species for the concerns of Arctic migrant waterbirds, in the face of climate change and other threats in their breeding, non-breeding and staging areas.

C. Expected outcomes?

The Cooperative Action is expected to contribute towards the prevention of further declines in all Red Knot populations in the short to medium term, and to the species return to a favourable conservation status in the long term.

A CMS/AMBI global Action Plan for this species would help provide the necessary acceleration in action for this species, through improved coordination and synergies. No single framework can cater to the species on its own as two of the six Red Knot subspecies occur in the EAAF, another two in the Americas and the other two in the African Eurasian Flyway.

CMS currently has few Parties in the EAAF, and many of its objectives in the EAAF are achieved through an MOU with the EAAFP. This Concerted Action provides a mechanism for CMS to strengthen its contribution to the work of the EAAFP, through encouraging action from range states that are parties to both.

In the Americas, the Red Knot is the perfect species to pilot the implementation of the proposed CMS/Western Hemisphere Migratory Species Initiative (WHMSI) Americas Flyway Framework, as it links to the Ramsar Convention and, if all subspecies are considered, it brings a hemispheric perspective.

In the African-Eurasian Flyway, the Red Knot is the best species for developing improved synergies between AEWA, WSFI and AMBI.

D. Associated benefits?

The Cooperative Action for the Red Knot migration system is intended to benefit many other migratory waterbirds that depend on intertidal ecosystems along the EAAF, the EAF and the Americas Flyways.

The Red Knot is also the best flagship species for developing synergies between flyway initiatives to deliver truly coherent flyway conservation objectives. The story of the "moonbird" has inspired numerous articles in daily newspapers as well as reports on TV and radio, and has raised the awareness of the migration of shorebirds. It could also raise the awareness about the conservation importance of intertidal wetlands for shorebirds. Raising awareness of the importance of intertidal wetlands for shorebirds is a suitable tool to engage local populations in sustainable exploitation of aquatic resources (such as artisanal fisheries) which can also benefit conservation.

The regular waterbird censuses along the flyways engage, educate, and connect local communities (bird watchers, students and volunteers) across the globe.

Furthermore, the Red Knot, by directly connecting many coastal nations to the Arctic, can be used to raise awareness of the urgent plight of the Arctic, as climate change takes effect and it opens up to new threats as the

ice and permafrost melt.

E. Timeframe?

The Cooperative Action should commence immediately, to avert extinction in the EAAF and to maintain and restore populations in the EAF and Americas, through actions to conserve key non-breeding sites.

- **For the EAAF:** Cooperative Actions should start immediately, with more detailed discussions of a joint work programme at the Bilateral Migratory Bird Agreement meetings in November 2014 and EAAFP Meeting of Partners in January 2015 in Hokkaido. This should happen in conjunction with the expected discussion on the Shorebird Conservation Plan, Yellow Sea Task Force and Shorebird Working Group. Given the scale of the threats, this Action is likely to be needed to continue for at least the lifetime of the CMS Strategic Plan i.e. at least until 2023. Progress should be reviewed at each COP.
- **For the EAF:** Cooperative Action should start immediately, in the framework of a collaboration between AMBI, WSFI and the AEWA African Initiative and be reviewed at the AEWA Technical Committee meeting in March 2015 and AEWA MOP in late 2015.
- **For the Americas:** Concerted Action should continue for *rufa* and Cooperative Action should start immediately for the other sub-species, to help implement the Atlantic Flyway Shorebird Conservation Business Strategy and the Pacific Flyway Shorebird Business Plan and be reviewed by the Americas Flyway Framework of WHMSI/CMS.

F. Relationship to other CMS actions?

In the EAAFP, this Concerted Action should be undertaken in close association with that proposed for Great Knot and Far Eastern Curlew and the Cooperative Action proposed for Bar-tailed Godwit, and, as appropriate, the existing CMS/EAAFP Species Action Plans for Spoon-billed Sandpiper, Black-faced Spoonbill and Chinese Crested Tern.
In the EAF it should form a component of the AEWA African Initiative, providing a flagship, together with Bar-tailed Godwit for intertidal conservation in West Africa.
In the Americas it should form a key component of implementation of the Americas Flyways Framework.

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