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International Single Species Action Plan for the Conservation of the Sociable Lapwing

Vanellus gregarius



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

Agreement on the Conservation of African-Eurasian
Migratory Waterbirds (AEWA)

**International Single Species Action Plan for the
Conservation of the Sociable Lapwing**

Vanellus gregarius

CMS Technical Series No. 28
AEWA Technical Series No. 47

May 2012

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Final draft: October 2011, approved by the 10th Conference of the Parties to CMS in November 2011

Final draft: May 2012, approved by the 5th Session of the Meeting of the Parties to AEWA

Review

This International Single Species Action Plan should be reviewed and updated every 10 years (first revision in 2022)

Geographical scope

This Single Species Action Plan shall be implemented in the following countries: Eritrea, Ethiopia, India, Iraq, Kazakhstan, Oman, Pakistan, The Russian Federation, Saudi Arabia, Sudan, Syrian Arab Republic, Turkey and Uzbekistan.

Credits

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Picture on the front cover: Sociable Lapwing (*Vanellus gregarius*) © Maxim Koshkin

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Preface

The first International Single Species Action Plan (SSAP) for the Conservation of the Sociable Lapwing was approved by the 2nd Session of the Meeting of the Parties to AEWA in 2002 and published in 2004. A revision of this SSAP under the auspices of AEWA and the Convention on Migratory Species (CMS) and led by Mr Rob Sheldon (RSPB), commenced with a workshop in March 2009 in Almaty, which was attended by the key range states. The resulting draft was circulated to the range states, the CMS Scientific Council and the AEWA Technical Committee in August 2011. The final draft was approved by the 10th Conference of the Parties to CMS in November 2011 and by the 5th Session of the Meeting of the Parties to AEWA in May 2012.

Executive Summary

Sociable Lapwing – a species under threat

The Sociable Lapwing (*Vanellus gregarius*) is globally threatened, being recognized as Critically Endangered by IUCN. It is listed in Column A of the action plan under the African-Eurasian Migratory Waterbird Agreement (AEWA) and in Annex I of the Convention on Migratory Species (CMS).

The Sociable Lapwing is a migratory species. It breeds in the central steppes of Kazakhstan with small numbers in Russia. The majority of the population migrate through south-west Russia, into Turkey and through a number of countries in the Middle East, before spending the winter in north-east Africa and the Arabian Peninsula. A small number of birds migrate south-east into Pakistan and north-west India.

On the breeding grounds, the species is strongly associated with domestic grazing animals. This association is due to the short sward that is the preferred nesting habitat, and possibly higher invertebrate availability on grazed steppe. Breeding attempts on ploughed fields have been infrequently recorded, and then with poor breeding success. Habitat selection during migration is poorly understood but there does appear to be a link to tilled land and short grazed steppe for feeding, with wetlands used for resting. Similar habitat preferences are reported from the wintering areas.

The Sociable Lapwing occurs in 13 Principal Range States that comprise the geographical scope of this single species action plan. The key threat for the species has been identified as hunting on the western migration route, with trampling of clutches through domestic livestock on the breeding grounds being a likely further threat. The development of legislation and enforcement of hunting regulations are the key measures that this Action Plan needs to implement. The loss and degradation of habitat across the breeding grounds, migration routes and wintering areas are an important but secondary threat to the species. The importance of potential future habitat loss and degradation should not be underestimated.

Action plan goal

To restore the Sociable Lapwing to a favourable conservation status and remove it from the threatened categories of the IUCN Red List, CMS Annex I and Column A of the AEWA Table 1.

Action plan objective

The objective of this Single Species Action Plan is to reverse the recent negative population trend leading to a population increase in the range of 8,000 - 10,000 breeding pairs by 2022.

Results required to deliver the Goal and Objective

Result 1. Baseline annual survival rate identified and increased by 2022

Result 2. Reproductive success is maximised through maintained nest survival rates higher than 35% (5-year rolling mean) and overall productivity higher than 0.75 fledged chicks per female (5-year rolling mean)

Result 3. All key sites along the flyways are protected and adequately managed

Result 4. All identified knowledge gaps are filled by 2022

Result 5. International cooperation is maximised through the full engagement of all principal range states in the framework of the Single Species Action Plan and AEWA

1. Biological Assessment

1.1. Taxonomy and biogeographic populations

Phylum: *Chordata*
Class: *Aves*
Order: *Charadriiformes*
Family: *Charadriidae*
Tribus: *Vanellinae*
Species: *Vanellus gregarius* (Pallas 1771)

Synonyms: Sociable Plover
Charadrius gregarius (Pallas 1771)
Chaetusia gregaria (Agassiz 1846)
Tringa keptuschka (Lepekhin 1774)
Tringa fasciata (Gmelin 1774)
Vanellus pallidus (Heuglin 1856) (nomen nudum)
Chettusia wagleri (Gray 1871)
Chettusia gregaria (Hartert 1920)

The Sociable Lapwing is a monotypic species; no studies have been conducted on the level of genetic variation across the distribution range, and there is no scientific evidence for distinct subpopulations. However, there are two distinct wintering areas (Figure 1). Birds wintering in north-east Africa and on the Indian subcontinent, respectively, have been assumed to originate from different populations in the West and East of the breeding range (assuming that an implicit migratory divide exists). However, recent satellite tagging work (Figure 2) suggests that there is exchange between populations across the breeding range; therefore the existence of migratory divide seems unlikely.

1.2. Distribution throughout the annual cycle

In January, birds are on their wintering grounds in Sudan, Oman and north-west India. Single birds and small flocks are regularly observed in Israel, Saudi Arabia, the United Arab Emirates and Iran.

In February, most birds stay in the wintering areas as mentioned above until mid-month and depart thereafter. They reach Iraq, the Syrian Arab Republic and northern Pakistan towards the end of the month.

In March, the last birds leave the wintering sites. In the Syrian Arab Republic and Turkey, important concentrations build up at stopover sites between 01–20 March, peaking around 10 March. In Iraq and Pakistan, birds pass through until the end of the month, with first birds observed in Kazakhstan in the last ten days.

In April, the first birds arrive on the breeding grounds in the first days of the month, while passage in Azerbaijan and Uzbekistan peaks and small numbers reach southern Russia and western Kazakhstan. Around mid-April, good numbers arrive in the southern breeding areas in Kazakhstan, starting incubation around the 20th of the month. By late April, birds are present throughout the breeding range.

In May, new birds arrive on the breeding grounds until the middle of the month, while significant numbers are already incubating in Kazakhstan. The first chicks hatch around 20 May in central Kazakhstan.

In June, many birds are still on nests in Russia and Kazakhstan, while most of the successful breeding pairs guard chicks. Throughout the month, flocks of moulting males gather at the breeding grounds. First chicks fledge towards the end of the month.

In July, fledged chicks and moulting adults gather in post-breeding flocks in the breeding areas, with first dispersal movements observed around mid-month. Around 20 July, strong migration starts with medium to large flocks passing through central Kazakhstan.

In August, most birds leave the breeding grounds; movements through Kazakhstan are slow and protracted, with first birds observed in Uzbekistan and at key Russian stopover sites (such as Manych lowlands).

In September, large numbers gather during the first two weeks at Manych in south-west Russia, with significant passage observed in the Caucasus region. Birds arrive at key stopover sites in Turkey and Uzbekistan during the second half of the month. The last birds depart from the breeding grounds, some are observed in southern Kazakhstan and Uzbekistan.

In October, some birds are still in south-west Russia, while large concentrations build up in Turkey, where the birds stop over until around 15 October. A few birds arrive at the wintering sites in India and Sudan in the last days of the month, and there is significant passage in Pakistan.

In November, the wintering areas are occupied during the whole month, with most of the records from the Indian subcontinent gathered in this period.

In December, birds are rather mobile at their wintering grounds in Sudan, Oman and north-west India. Single birds and small flocks appear in Israel, Saudi Arabia, the United Arab Emirates and Iran.

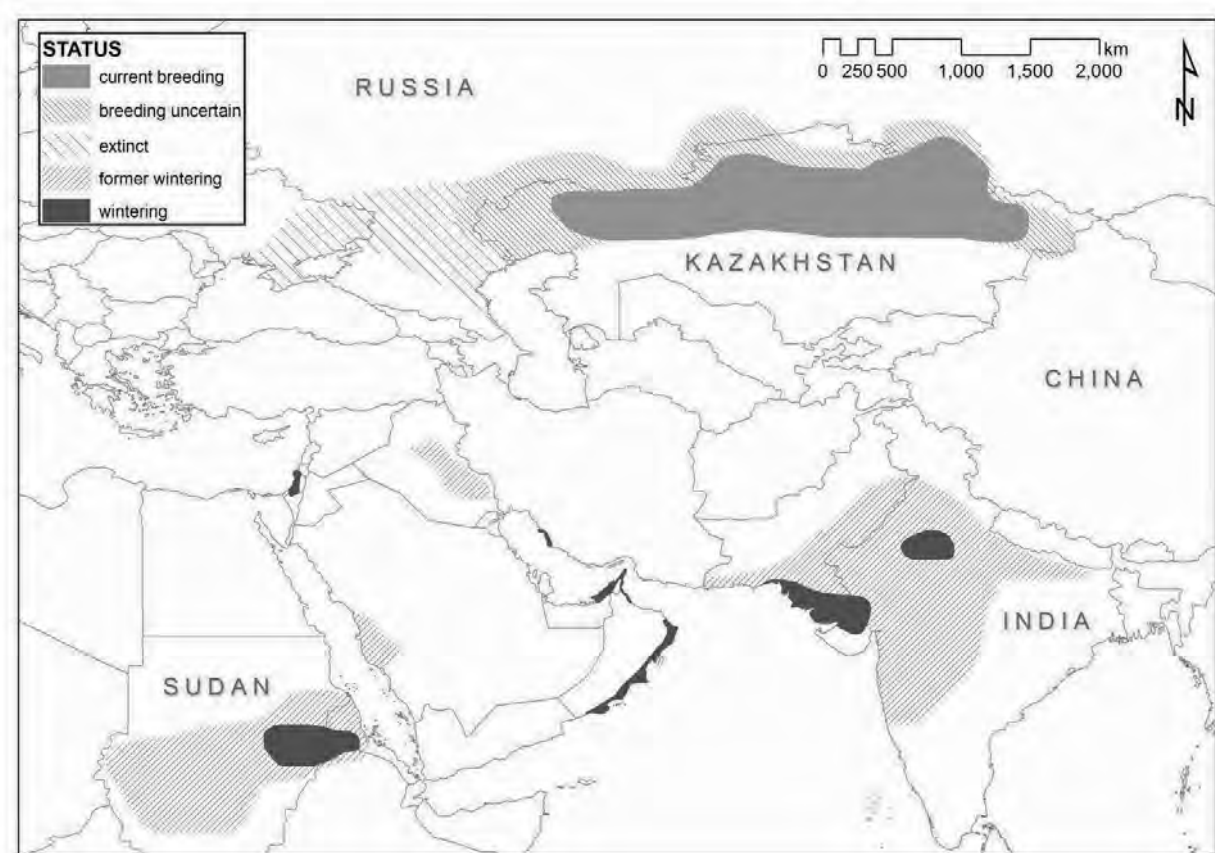


Figure 1. Current and historic breeding and winter distribution of the Sociable Lapwing, based on more than 2,000 records collected from various sources (RSPB unpublished data).

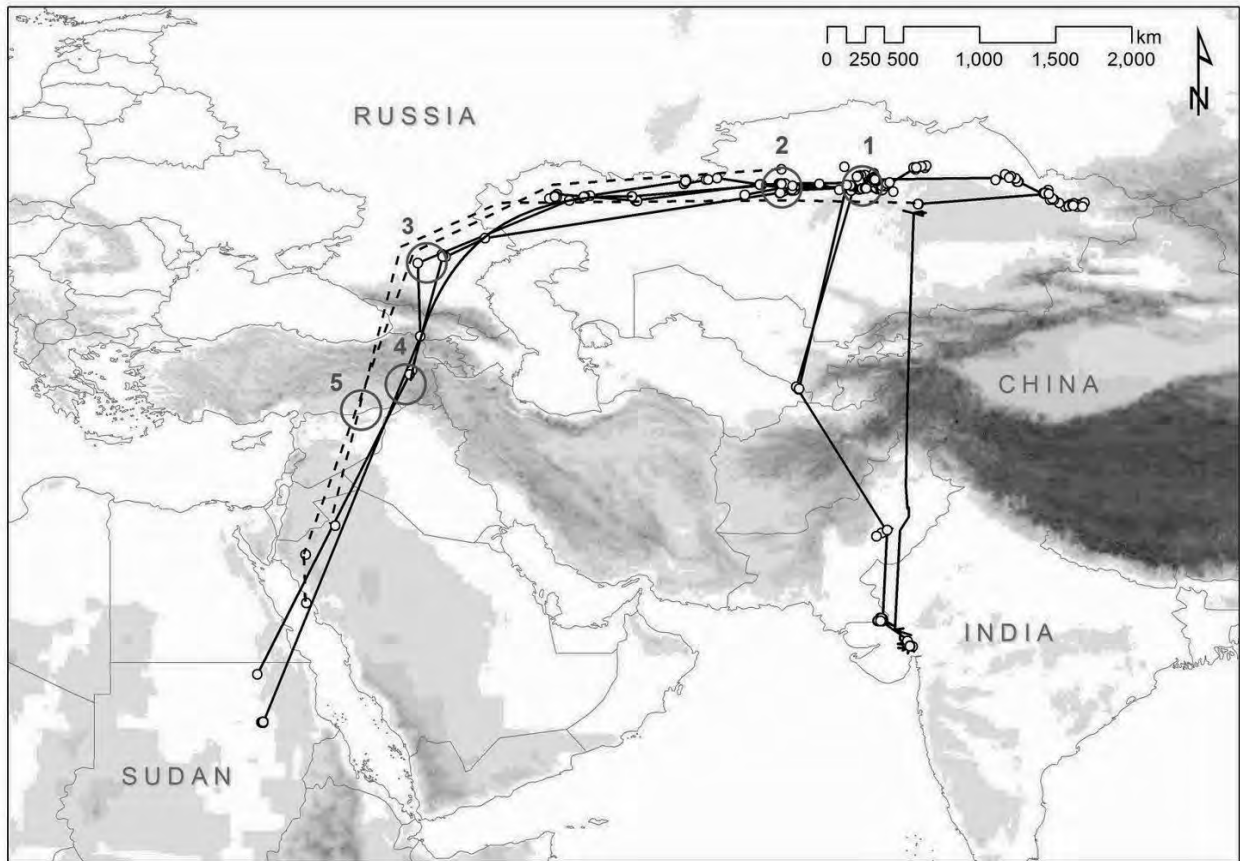


Figure 2. Main autumn migration routes of nine Sociable Lapwings fitted with satellite tags in 2007, 2008 and 2010. Dashed lines connect locations along a known flyway, but these routes are hypothetical.

Key stopover sites are marked by circles: 1) Tengiz-Korgalzhyn region, Kazakhstan 2) Torghay lowlands, Kazakhstan 3) Manych depression, Russia 4) Muş Plain, Turkey 5) Ceylanpınar IBA, Turkey and northern Syrian steppes.

1.3. Habitat requirements

1.3.1. Breeding habitat selection and use

A detailed study on habitat selection and use in Kazakhstan has been conducted (Kamp et al. 2009). Across the breeding range, Sociable Lapwings are strongly associated with domestic livestock (especially cattle, sheep and goats), as large grazers create suitable habitat conditions. Grazing intensity and density of Sociable Lapwing nests are strongly correlated in central Kazakhstan. Current grazing patterns are very much influenced by the fact that livestock is concentrated within a radius of 4–5 (max. 10) km around human settlements, thus most Sociable Lapwing colonies are found within this radius. A small number of birds was also recorded on recently burnt feather grass (*Stipa*) steppe and fallow or abandoned cereal fields.

Habitat is selected more often in the vicinity of wetlands and especially along rivers. This might be due to the fact that the birds migrate along rivers and thus discover suitable breeding habitat by rivers first, but also by the need for adults and chicks to drink and bathe on hot days.

On a smaller scale (colony level), vegetation height (very short, strongly grazed swards preferred), the cover of bare soil (optimum around 50%) and a high cover of animal dung (around 10%) are the most influential factors in habitat selection. The pronounced preference for strongly grazed areas may be driven mainly by vegetation height. Nests are often placed in dung piles. A possible camouflaging or insulating effect of the dung has been suggested, but food availability (dung beetles, *Diptera*) might also be higher where dung is abundant.

Formerly occupied habitats, such as ungrazed steppe and sparsely vegetated salt pans ('solonchaks'), seem to be virtually vacated now, possibly due to an absence of large grazing animals after the collapse of the nomadic pre-Soviet and later semi-nomadic Soviet livestock breeding system in 1991, which left vast expanses of steppe virtually ungrazed.

Co-evolution with wild ungulates has been suggested repeatedly, but it seems unlikely that these animals were able to create the preferred short swards at least during the last 50 years judging from their migration phenology, numbers and foraging behaviour (Bekenov 1998).

Breeding attempts on ploughed fields have been infrequently recorded (mostly in Russia and northern Kazakhstan), and then with poor breeding success.

1.3.2. Habitat selection and use at stopover sites

In recent years, larger flocks of birds stopping over in central Kazakhstan (up to 523 in July 2011) have been observed on sown wheat fields (J. Kamp, M. Koshkin pers. obs.). At the Russian stopover sites north of the Caucasus, the birds feed on grazed steppe and ploughed and tilled fields, but depart to freshwater and salt lakes to rest and roost (Field et al. 2007, Koshkin et al. 2010).

In Turkey, most birds were observed on arable fields with 10–12 cm high wheat seedlings or on ploughed fields without vegetation (some following ploughing tractors and feeding on invertebrates brought to the surface). Some birds also used extensively grazed steppe and lentil fields (Biricik et al. 2009). In some years, fallow cereal fields are used by large numbers of birds (Bozdogan et al. 2007).

In the north of the Syrian Arab Republic, mostly heavily grazed steppe areas with very sparse vegetation are visited (Hofland & Keijl 2008), rarely also semi-desert habitat and stony wadis (S. Jbour pers. comm.). Sociable Lapwings were frequently observed near seasonal pools (fedahs) with lush vegetation (partly grazed) after frequent rains during survey work in the Syrian Arab Republic in spring 2010 (H. Hmidan pers. comm.)

Smaller stopover sites in Russia and Kazakhstan were also found in pristine, mostly ungrazed steppe habitat.

Little is known of the stop-over sites en route for the birds that winter in the Indian sub-continent. Data collected from the recent satellite tracking suggest that the Indus Valley and surrounding areas with agricultural habitats and a mosaic of wetlands could be important.

1.3.3. Winter habitat selection and use

Most information on winter habitat selection is anecdotal or old. In Africa, in the second half of the 19th century, birds wintered mainly on burnt savannah and steppe, harvested cultivation (e.g. Sorghum) and cattle pastures (Heuglin 1871). Surveys in Sudan in January 2009 suggest that habitat use has not changed much since then. Flocks were discovered on rain-fed cultivated land, stubble fields, moderately grazed to severely overgrazed pastures and at road margins. Insects, but also seeds and watermelon pieces (falling from passing lorries) have been identified as food sources (I.M. Hashim and M.S. Fadlalla pers. comm.).

The current wintering areas in Sudan as revealed by satellite telemetry and field surveys coincide with areas of the highest livestock densities in Africa (Wint & Robinson 2007) suggesting a high importance of grazed habitat for the species also in the wintering areas.

In India, mostly arable land (ploughed, fallow, or with young cereal plants) is used, but birds are also observed wintering at wetlands (A. Rahmani pers. comm.).

1.4. Survival and productivity

1.4.1. Nest survival and causes of nest loss

Like most waders, Sociable Lapwings lay four (mean of 3.8 ± 0.1) eggs on average, in a shallow scrape on the ground and tend to nest in small colonies (range of 1-8 nests) (Watson et al. 2006).

There are few robust estimates of nest survival from sample sizes large enough to allow comparison with current studies of Sociable Lapwing nesting biology. Gordienko (1991) reports a nest loss of 44% (from 26 nests) during the 1980s in Naurzum Reserve, Kazakhstan.

More recently, in 2004, Watson et al. (2006) report an overall Mayfield nest survival rate of 19.3% from 58 nests in a study area centred on the settlement of Korgalzhyn, central Kazakhstan ($50^{\circ} 35' N$, $70^{\circ} 01' E$). Percentage survival estimates reported by Gordienko (1991) and Watson et al. (2004) are not directly comparable. However, Gordienko (1991) found that 44% of nests with eggs ($n = 26$) failed. The Watson et al. equivalent rate is 61% failure of nests found with eggs before hatch ($n = 56$); the difference in frequencies between the two studies is not significant ($\chi^2 = 2.4$, $P = 0.12$). Thus, there appears to have been little change in nest survival between the 1980s and the present.

Monitoring of nest survival has continued in the Korgalzhyn study area of Watson et al. between 2005 – 2012, with 1,078 nests located, for which the outcome was determined for 1,032 (Sheldon et al. in press). The overall daily nest survival rate across all nests in all years was 0.956 (95% CL: 0.952-0.959), equating to an overall nest survival rate of 28.4% across the 28-day laying and incubation period. However, the survival rate varies greatly from year to year (Figure 3). One hypothesis currently being investigated is that nest survival rates fluctuate in a cycle with vole numbers; in years of high vole numbers, nest survival rates are higher than in years when vole numbers are low since predators have an abundant alternative source of food.

In the long-term study of Sheldon et al. (in press) of 331 recorded nest failures, predation accounted for the greatest number of losses (63%) with trampling accounting for 20% of failures (Table 1). Causes of nest failure varied from year to year, with a higher than expected proportion of losses to trampling in 2008 and a lower than expected proportion in 2010 and 2011. Across all study sites, nests that were trampled were significantly closer to human settlements than nests that were predated, although the survival rate of nests that were closer to human settlements was generally better as predation rates were lower.

Data from 29 nest cameras showed that seven were predated, three were trampled and one was deserted (the eggs later taken by Rooks *Corvus frugilegus*). Of the seven losses to predation, the predators comprised Red Fox *Vulpes vulpes* (2), Souslik sp. *Citellus fulvus* and *Spermophilus major* (2) Long-eared Hedgehog *Hemiechinus auritus* (2) and Steppe Polecat *Mustela eversmanni* (1). The previous AEWA Sociable Lapwing International Single Species Action Plan (Tomkovich & Lebedeva 2004) noted that Rooks and/or domestic cats and dogs were key predators contributing to the decline in breeding numbers. However, no instances of predation by Rooks or cats/dogs were recorded on digital cameras, and in five years of intensive fieldwork, no nest loss could be attributed to these potential nest predators.

It is unlikely that the magnitude of the recent population decline can be wholly explained by low nest survival. However, attempts to manipulate grazing management (particularly sheep) in some key colonies may contribute to enhancing nest survival that may be beneficial at the population level.

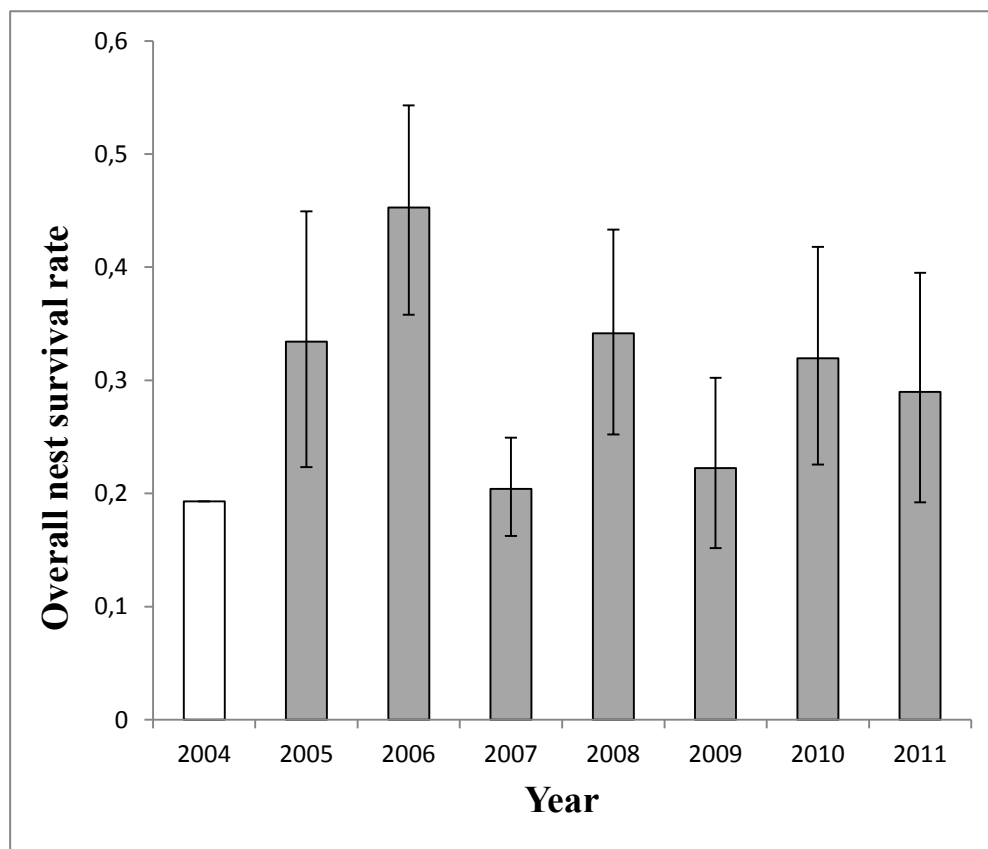


Figure 3. Annual nest survival rate from the long-term study area in central Kazakhstan. Data presented are model estimates with 95% CL (Sheldon et al. in press). The figure for 2004 indicates the nest survival rate reported by Watson et al. (2004).

Table 1. Causes of nest failure by year from the core study population in central Kazakhstan (Sheldon et al. in press).

Year	Predated	Trampled	Weather	Unknown	Deserted	Total
2005	24	5	0	6	3	38
2006	11	16	5	5	4	41
2007	53	14	0	10	3	80
2008	8	24	0	10	1	43
2009	51	10	0	2	2	65

Year	Predated	Trampled	Weather	Unknown	Deserted	Total
2010	51	3	0	0	2	56
2011	33	2	0	3	6	44
Total	231	74	5	36	21	367

1.4.2. Fecundity and annual survival

No historical data exist on chick survival from hatching through to fledging.

The long-term study of Sheldon et al. (in press) estimates mean annual fecundity from 0.75 to 1.55 chicks hatched per breeding female (Figure 4). The variation in annual fecundity was explained by the strong annual variation in nest survival rate, other factors such as first egg date, clutch size and partial clutch loss having little influence. Daily chick survival, estimated from 752 chicks ringed at the age of five days or less, was estimated at 0.983 (95% CL: 0.979-0.986), an estimate almost identical to that of Watson et al. (2006).

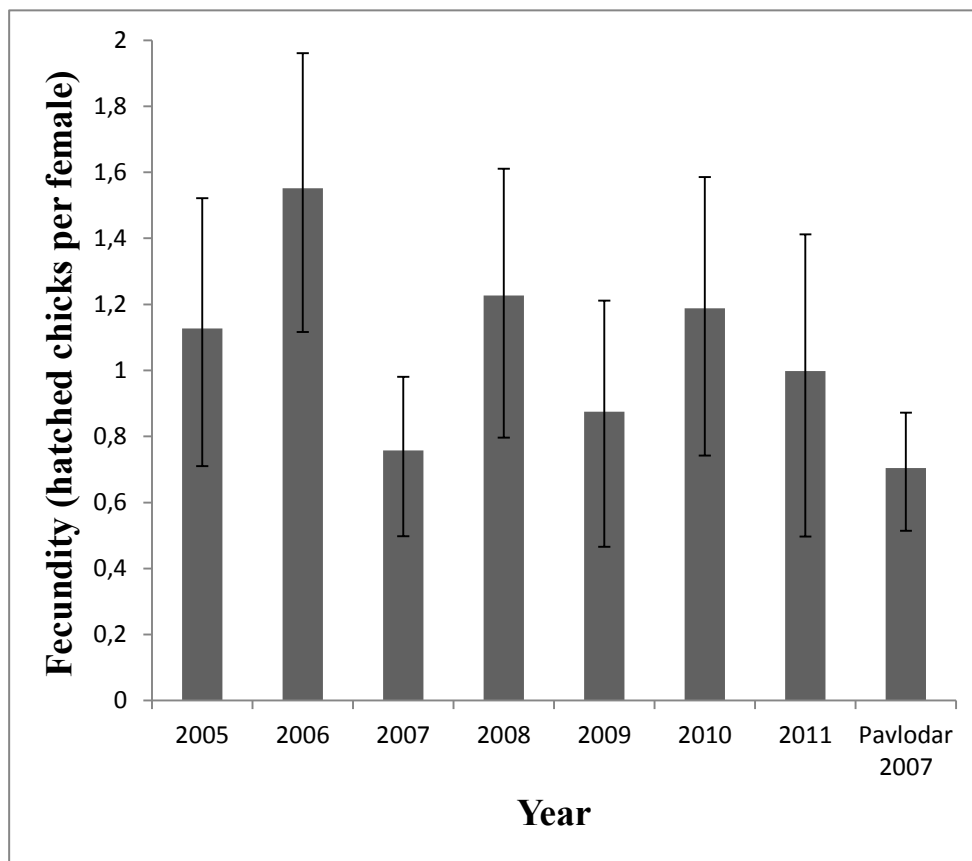


Figure 4. Annual estimates of fecundity (chicks produced per female) from a model incorporating nest survival, partial clutch loss and re-nesting probability. The error bars represent the likely extremes rather than specific confidence limits (Sheldon et al. in press)¹.

Between 2005 and 2011, 1,310 chicks and 132 adults (mostly females caught at the nest) were fitted with unique colour-ring combinations. Of these, 98 birds ringed as chicks (7.5%) and 35 birds ringed as adults (26.5%) were re-sighted in one or more subsequent years. Survival models (see Sheldon et al.

¹ Pavlodar is a province in north Kazakhstan.

in press for details of survival analysis) show that birds ringed as chicks had annually variable first-year survival, and birds ringed as adults had constant survival in the year after ringing, after which annual survival of birds ringed as chicks and as adults shared common annual survival estimates. Post-hatching survival to the following year ranged from 0.11 (95% CL: 0.05-0.23) in 2007-2008 to 0.59 (0.23-0.88) in 2009-2010 (mean across all years: 0.27, 95% CL: 0.16-0.42). Adult annual apparent survival ranged from 0.19 (0.08-0.39) in 2010-2011 to 0.82 (0.25-0.98) in 2009-2010 (mean across all years: 0.55, 95% CL: 0.47-0.62) (Sheldon et al. in press).

Estimates of population growth suggest that the Sociable Lapwing population is currently in decline. To reverse this decline changes in fecundity or first-year survival would need to more than double (+125%), whereas adult survival would need to increase by 30% (Sheldon et al. in press). To reverse the downward population trend, conservation measures aimed at tackling low adult survival are required.

1.5. Population size and trend

Table 2. Population size and trend by country

Country	Breeding numbers (ind)	Quality	Year of the estimate	Breeding population trend in the last 10 years	Quality	Maximum single counts, migrating/wintering birds in the last 10 years (ind)	Quality	Year of the estimate
<i>Kazakhstan</i>	3000 - 10800	3	2006	Stable or decreasing	2	2100	1	2009
<i>Russia</i>	100-120	3	2011	Stable or decreasing	3	1090	1	2009
<i>Turkey</i>	-	-	-	-	-	3200	1	2007
<i>Syria</i>	-	-	-	-	-	2000	1	2007
<i>Iraq</i>	-	-	-	-	-	20	1	2004
<i>Sudan</i>	-	-	-	-	-	38	1	2009
<i>Eritrea</i>	-	-	-	-	-	Unknown		
<i>Ethiopia</i>	-	-	-	-	-	Unknown		
<i>Oman</i>	-	-	-	-	-	100	1	2010
<i>Saudi Arabia</i>	-	-	-	-	-	Unknown*		
<i>India</i>	-	-	-	-	-	90	1	2011
<i>Pakistan</i>	-	-	-	-	-	Unknown*		
<i>Uzbekistan</i>	-	-	-	-	-	200	1	2012
Overall	3200-11200	3	2006	Stable or decreasing	2			

* satellite tagged birds tracked to these countries but no follow-up surveys undertaken to date.

Quality:

1 - Good (observed); based on reliable or representative quantitative data derived from comprehensive measurements.

2 - Good (estimated); based on reliable or representative quantitative data derived from sampling or interpolation.

3 - Medium (estimated); based on incomplete quantitative data derived from sampling or interpolation.

4 - Medium (inferred); based on incomplete or poor quantitative data derived from indirect evidence.

2. Threats

2.1. Overview of Species Threat Status

In the first AEWA Sociable Lapwing International Single Species Action Plan (Tomkovich & Lebedeva 2004), the following threats of high importance were listed:

- Reduced grazing by domestic livestock leading to decreased habitat availability;
- Predation by corvids;
- Trampling by sheep and cattle.

Grazing pressure has significantly increased since the year 2000, and large areas of apparently suitable habitat are unoccupied each year, thus reduced habitat availability is no longer considered a threat in Kazakhstan (Kamp et al. 2009). However, in Russia, grazing pressure has not been increasing throughout the same period. On the contrary, it has been decreasing especially in western and northern parts of the steppe zone of Russia (Orenburg, Chelyabinsk, Kurgan and Omsk Regions). As a result the former traditional breeding areas of Sociable Lapwing in those regions are largely unsuitable.

Predation by corvids has been ruled out as a major threat according to results of recent research on the breeding grounds (1.4.1, 1.4.2). Trampling by livestock (especially sheep) is considered an ongoing threat with minor effects on overall breeding success (1.4.1). However, future changes in livestock management could have a significant impact on breeding populations in the future, particularly through reducing breeding success.

Since the Tomkovich & Lebedeva (2004), hunting at stopover sites on the migration routes has been identified as a key threat to the species. Of particular concern is hunting during the migration when birds are returning to breed. Based on our current knowledge, hunting should be treated as the key threat to Sociable Lapwing.

2.2. Description of key threats

List of critical and important threats

(a) Direct threats, causing reduced hatching success and high mortality of chicks and adults

1. Hunting

Stopover/wintering sites

Importance: Critical

Large-scale hunting at stopover sites currently appears to be the most important threat influencing the species' survival. There is evidence from known stopover sites in north-eastern Syria and some areas in Iraq from 2008 and 2009 that Sociable Lapwings are widely taken by local hunters and visiting falconers from the Gulf States (Hofland & Keijl 2008; A. Aidek, S. Jbour, M. Salim and O. Al-Sheikly pers. comm). The hunting has been reported on spring migration when Sociable Lapwings congregate in large numbers; this is of particular concern as these are birds returning to breed in central Asia.

The reasons why Sociable Lapwings are targeted are unclear, but it seems that hunting pressure is a combination of subsistence hunting from locals and sport for visiting hunters. The species is considered to be quite an easy prey for falcons, probably replacing other bird species traditionally hunted (but now much depleted) such as Macqueen's (Asian Houbara) Bustard *Chlamydotis macqueenii* and sandgrouse *Pterocles spp.* Subsistence hunting of migratory waterfowl could be important in Pakistan, but there are no data to substantiate this.

2. Nest trampling by livestock

Breeding areas

Importance: Medium

Clutch trampling can reduce nest survival significantly in some years (section 1.4.1). Most trampling incidents are likely to be caused by sheep and goats due to the way dense flocks are driven at high speeds often in close proximity to breeding colonies. Horses and cattle seem to be of minor threat as these move mostly in loose herds and appear to avoid stepping on nests (J. Kamp pers. obs.).

3. Predation of eggs and chicks

Breeding areas

Importance: Low

Predation varies from year to year but does not appear to be a limiting factor in either nest or chick survival. Evidence collected from nest cameras suggests that nocturnal mammals are key predators, rather than domestic dogs or cats, and that corvids are not as important as previously thought.

(b) Indirect threats causing habitat loss and low reproductive success

1. Reduced habitat availability for the species

Breeding areas

Importance: High

A strong link between livestock grazing intensity and Sociable Lapwing nest density has been shown recently (Kamp et al. 2009), and livestock numbers are thus considered a proxy for the amount of habitat available for Sociable Lapwings. Animal stocks collapsed after the break-up of the Soviet Union in 1991, but numbers of all herded animals have been strongly increasing again in Kazakhstan since the year 2000 (Kazakhstan State Statistics Agency 2009). Modelling has shown that the amount of suitable habitat available for Sociable Lapwings is currently much greater than the area currently occupied (Kamp et al. 2009, Murzakhanov et al. 2008). This is caused by current low livestock mobility and concentration effects around villages, leading to increased grazing intensity compared to the Soviet era (Milner-Gulland et al. 2006). After 1991, high stock densities around villages were made possible by large-scale abandonment of the arable fields and seed grass land surrounding human habitation, which prevailed during the Soviet era.

The current situation is thus rather beneficial for the Sociable Lapwing in Kazakhstan and reduced habitat availability is not considered to be problematic in the short term (5–10 years). However, there is recent evidence for a likely decrease in available habitat within the next decade; livestock numbers in some regions of Kazakhstan are stagnating or even decreasing due to improving living standard (Kamp et al. 2011, 2012). Furthermore, mitigation measures to avoid overgrazing around settlements are being introduced in Kazakhstan leading to higher stock mobility and less grazing pressure. Kamp et al. (2011) modelled a 30% decline for Sociable Lapwing until 2020 based on quantitative targets to reduce grazing pressure in the Korgalzhyn region, central Kazakhstan.

Stopover/wintering sites

Importance: Medium

Whilst there appear to be few immediate threats to stopover and wintering sites, there are potential changes that may impact on habitat availability in the future. Continued expansion of urban and agricultural areas in Kazakhstan and Russia may reduce habitat suitability for birds congregating in post-breeding flocks and in the early stages of migration. However, the mobility of Sociable Lapwings suggests that this is not an immediate threat. Indeed, some areas managed intensively for agriculture,

for example, arable fields around Manych wetlands in south-west Russia, appear to be well used by both foraging and roosting Sociable Lapwings (Sheldon pers. obs).

Increased spread of tree planting on the Asian wintering grounds, India and Pakistan, is a potential threat due to the species' preference for open habitats in which to forage and roost. For example, there has been significant effort on raising plantations in northern Pakistan, particularly Gilgit Baltistan Province, since the mid-1980s.

Future land use change linked to irrigation schemes could see substantial changes in habitat suitability; however, it is unclear whether some of these changes could be detrimental or indeed beneficial. There is some observational evidence from Turkey, that Sociable Lapwings utilize irrigated crops for feeding, and locations of satellite-tagged birds in Saudi Arabia are in areas of irrigated wheat crops.

There is the potential threat of increased disturbance from oil and gas exploration across the Sociable Lapwing range. It is likely that there will be increased exploration in the Middle East and parts of Sudan, as well as north-western part of India.

2. Degradation of habitat

Stopover/wintering site

Importance: Medium

The key threat leading to habitat degradation is a combination of changing rainfall patterns and the subsequent grazing conditions. Notably, in the Syrian steppes some areas where significant numbers of birds were recorded in 2007 appear to have been degraded through intensive grazing and drought conditions, and few birds were located there in 2010 (H. Hmidan pers. comm.). Similarly, on the wintering grounds in Sudan, substantial changes in vegetation cover have been observed between survey years (2008 and 2009) (I. M. Hashim pers. comm.). The impact that this may be having on Sociable Lapwings is unclear, but could result in birds returning to the breeding grounds in poor condition - this requires further research.

The number of irrigation projects has increased in countries such as Turkey, India and Pakistan and this may lead to a change in habitat quality. Conversely, irrigation could be a potential benefit and this needs further monitoring and research.

(c) Knowledge limitations

Breeding areas

1. Low return rate of colour-ringed birds. **High**

Potentially hunting pressure leads to loss of colour-ringed birds or colour-ringed birds might return to other areas – movements within the breeding range are not fully understood.

2. Future trends in land use and their implications for habitat availability are poorly understood. **High**

Possible scenarios of land use change have been developed recently and linked to Sociable Lapwing population development, but only for a restricted area.

3. The generality of the results on breeding biology and species' survival based on data collected in a relatively small study area in central Kazakhstan is not clear. **Medium**

4. The limits of the species' distribution are not clear and large knowledge gaps on numbers and distribution still exist. **Medium**

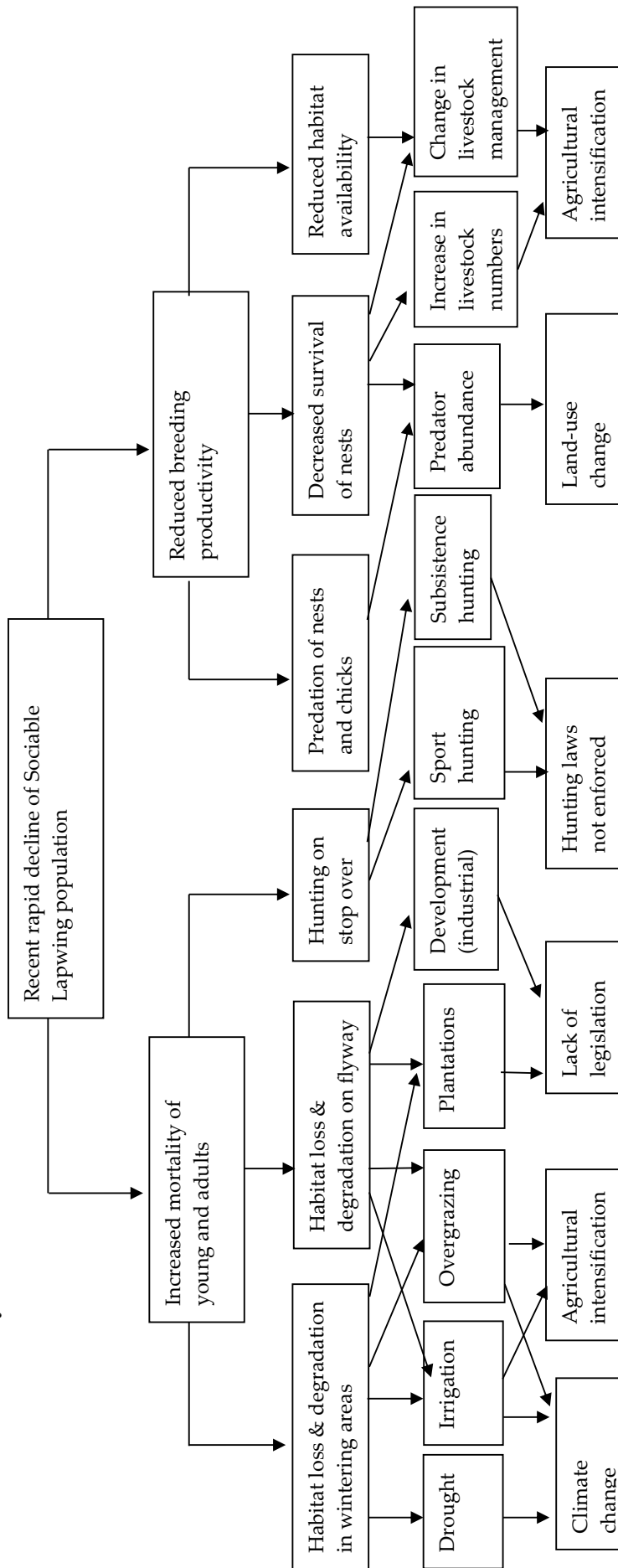
Stopover/wintering sites.

1. The current hunting pressure has not been quantified reliably, future trends in hunting pressure are not clear. **Critical**
2. Locations of potential further wintering and stopover sites are unknown, especially on the eastern flyway. **Critical**
3. The migration strategy is not fully understood especially regarding differences in spring and autumn migration. **High**
4. Knowledge on movements within the wintering areas is poor. **High**
5. Knowledge of the species' ecology during migration and wintering is poor. **Medium**
6. The species has not been identified as a high priority conservation species in all range states. **Critical**

Demographic parameters are insufficiently known to undertake Population Viability Analysis - PVA (High)

1. Robust population estimate is missing.
2. Estimates of annual survival of adults and juveniles are currently lacking due to a low number of resightings of marked individuals.
3. Generation length is not known.
4. The existence and size of a non-breeding population is unknown.

2.3 Problem tree analysis



Level 1: Mechanism through which the threats operate

Level 2: Specific threats

Level 3: Immediate causes of threats

Level 4: Root causes of threats

3. Policies and Legislation Relevant for Management

3.1. International conservation and legal status of the species

Table 3 (page 21) shows the international conservation designations and legal status of the Sociable Lapwing under both the European and global instruments and mechanisms

Table 4 (page 22) summarizes the applicability of European and intergovernmental instruments to the principal range states for the Sociable Lapwing as of May 2012.

3.2. National policies, legislation and ongoing activities

Kazakhstan - the species is listed in the Red Data Book of Kazakhstan and hunting of the species is prohibited.

Russia – the species is listed in Category 1 –endangered species, in the Red Data Book of Russia, and is also listed in a number of regional Red Data books. Sociable Lapwing is also listed in the Russia-India Agreement on Migratory Birds.

India – the species is protected through Schedule IV of the Wildlife (Protection) Act, 1972, and thus hunting and trapping is illegal.

Pakistan – there is no national legislation that covers Sociable Lapwing in Pakistan, but the species is protected in some provincial legislation.

Turkey – the species is protected from hunting through national legislation. The Terrestrial Hunting Law gives the power to the Central Hunting Committee (MAK) to determine game species lists and bag sizes, and the MAK has put the Sociable Lapwing on the protected list.

Syrian Arab Republic – the species is protected from hunting through national legislation (although this is rarely enforced).

Iraq – the species is not currently protected through national legislation, but it is hoped to be included in future legislation.

Uzbekistan – the species is listed in the Red Data Book of the Republic of Uzbekistan in category 2 (VU:R) - vulnerable, naturally rare, migratory species.

Oman – information not located.

Saudi Arabia – the species is protected through the national Hunting Law of 1978 (amended in 2000). The hunting of migratory species was banned in 2006.

Eritrea – the species is protected by national wildlife law that limits hunting, but Sociable Lapwing is not specifically mentioned.

Ethiopia – the species is not covered by national legislation due to poor knowledge of its occurrence and distribution.

Sudan – the species is not currently protected through national legislation although there are plans to add it to Schedule 1 of the Wildlife Act.

Ongoing conservation activities are focussed on two areas at present:

1) Monitoring and research activities

Much of the ongoing monitoring and research activity is summarized in section 1 of this Action Plan. This work has largely been funded through two significant grants from the UK Government's Darwin Initiative. From 2006 to 2009, the project, *Conserving a flagship steppe species: the critically endangered Sociable Lapwing*, focussed on the breeding grounds of Kazakhstan with low level work in some range states.

Between 2009 and 2011, the project, *Tracking the Sociable Lapwing: conservation beyond the breeding grounds*, concentrated efforts on the migration routes and wintering grounds.

Monitoring and research work is continuing with the support of BirdLife International's *Preventing Extinctions Programme*. Swarovski Optik and RSPB have been Species Champions for the Sociable Lapwing since 2008 and will continue until at least 2013. Regular monitoring has been undertaken in Kazakhstan, Russia, Turkey, the Syrian Arab Republic, Iraq, Sudan and India since 2006. Some work has been undertaken in Eritrea. Much of this work is ongoing with support from Swarovski Optik and is being expanded to other countries within the species' range.

2) Awareness raising

Through the above-mentioned Darwin Projects, a large amount of public awareness raising has been undertaken and is continuing. One key tool is the use of the Amazing Journey website (<http://www.birdlife.org/sociable-lapwing>) that is tracking satellite tagged birds from Kazakhstan to the wintering grounds. This interactive website encourages birdwatchers and the general public to submit their own records of Sociable Lapwing. This website is supported through Swarovski Optik and its management and upkeep is ongoing.

Publicity material has been produced in local languages in Turkey, the Syrian Arab Republic, Iraq and India, and more is planned as part of ongoing activities.

Table 3. Summary of the International conservation and legal status of the Sociable Lapwing

Global Status (IUCN Red List) ¹	AEWA ²	Bonn Convention ³	CITES	Bern Convention ⁴	EU Birds Directive ⁵
Critically Endangered	A1a, 1b & 1c	I	Not listed	II	I

Source:

¹ www.iucnredlist.org

² AEWA Agreement Text: http://www.unep-aewa.org/documents/agreement_text/eng/2012-2015/aewa_agreement_text_2013_2015_final.pdf

³ Migratory species that have been categorized as being in danger of extinction throughout all or a significant proportion of their range. For more details see the Convention text (http://www.cms.int/documents/convtxt/cms_convtxt.htm).

⁴ Give special attention to the protection of areas that are of importance (Article 4) and ensure the special protection of the species (Article 6). For more details see the Convention text (<http://conventions.coe.int/Treaty/Commun/QueVoulezVous.asp?NT=104&CM=8&DF=&CL=ENG>).

⁵ The species shall be subject to special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. For more details see the Directive text (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:020:0007:0025:EN:PDF>).

Table 4. Summary of applicability of major international conservation instruments to principal range states for the Sociable Lapwing

Principal range state for Sociable Lapwing	Member state bound by EU Directives and policies	Beneficiary of EU European Neighbourhood Policy	Party to AEWA	Party to CMS	Party to Bern	Party to CBD	Party to Ramsar
Eritrea	No	No	No	Yes	N/a	Yes	No
Ethiopia	No	No	Yes	Yes	N/a	Yes	No
India	No	No	n/a	Yes	N/a	Yes	Yes
Iraq	No	No	No	No	N/a	Yes	Yes
Kazakhstan	No	No	No	Yes	N/a	Yes	Yes
Oman	No	No	No	No	N/a	Yes	Yes
Pakistan	No	No	n/a	Yes	N/a	Yes	Yes
Russian Federation	No	Strategic partnership	No	No	Yes	Yes	Yes
Saudi Arabia	No	No	No	Yes	N/a	Yes	No
Sudan	No	No	Yes	No	N/a	Yes	Yes
Syrian Arab Republic	No	Yes	Yes	Yes	N/a	No	Yes
Turkey	Candidate	No	No	No	Yes	Yes	Yes
Uzbekistan	No	No	Yes	Yes	N/a	Yes	Yes

4. Framework for Action

This section identifies and defines the overall conservation **Goal**, the **Objectives**, the **Results** and the **Actions** of the Plan.

Goal

Restore the Sociable Lapwing to a favourable conservation status and remove it from the threatened categories of the IUCN Red List, CMS Annex I and Column A of the AEWA Table 1.

Objective

The objective of this Single Species Action Plan is to reverse the recent negative population trend leading to a population size of 8,000-10,000 breeding pairs by 2022.

Results

Result	Indicator	Means of verification
1. Baseline annual survival rate identified and increased by 2022	Annual adult survival rate estimated through analysis of existing data Ongoing colour-ringing and re-sighting undertaken annually until 2022 and subsequently re-analysed	Scientific papers published by 2013 and 2022 Annual written reports from ongoing colour-ringing activities in Kazakhstan Annual written reports from survey teams across the migratory routes and wintering grounds
2. Reproductive success is maximized through maintained nest survival rates higher than 35% (5-year rolling mean) and overall productivity higher than 0.75 fledged chicks per female (5-year rolling mean).	Five-year rolling mean of nest survival is >35% Five-year rolling mean of chick survival is >0.75 fledged chicks per female	Scientific paper published in 2013 Annual written reports from ongoing monitoring in Kazakhstan
3. All key sites along the flyways are protected and adequately managed	National hunting or conservation legislation is in place across all range states and includes protection for Sociable Lapwing All key sites identified and management plans written Important Bird Area network managed favourably for Sociable Lapwing	Ratified hunting and conservation legislation within principal range states National Species Action Plans identify key sites and conservation actions
4. All identified knowledge gaps are filled by 2022	Knowledge gaps filled by 2022	Papers published in peer-reviewed journals Annual monitoring and expedition reports

Result	Indicator	Means of verification
<p>5. International cooperation is maximized through the full engagement of all principal range states in the framework of the Single Species Action Plan and AEWA</p>	<p>All principal range states are members of AEWA and/or CMS</p> <p>The AEWA Sociable Lapwing International Working Group (SLIWG) is active and includes all principal range states</p> <p>National Action Plans based on this plan are established and implemented</p>	<p>Progress reports by the UNEP/AEWA Secretariat</p> <p>AEWA SLIWG to meet in 2015 and 2020</p> <p>National Action Plans published and on the SLIWG web-site</p> <p>AEWA SLIWG to meet in 2015 and 2020</p>

Table 5. Results and actions

Priority Scale:	Time scale:
Essential	Immediate: to commence within the next year
High	Short: to commence within the next 3 years
Medium	Medium: to commence within the next 5 years
Low	Long: to commence within the next 10 years
	Ongoing: an action that is currently being implemented and should continue
	Completed: an action that was completed during preparation of the action plan

Result	Action	Priority	Timescale	Organisations responsible
1. Baseline annual survival rate identified and increased by 2022	Action 1.1 Analyse data from colour-ring project in Kazakhstan Applicable to: KZ	Essential	Immediate	RSPB and ACBK
	Action 1.2 Minimize the loss of Sociable Lapwings by hunting along the flyways through creation/efficient enforcement of legislation Applicable to: SY, IQ, TU, PK	Essential	Immediate	Government institutions in charge of nature conservation and hunting
2. Reproductive success is maximized through maintained nest survival rates higher than 35% (5-year rolling mean) and mean chick survival higher than 0.75 fledged chicks per female (5-year rolling mean).	Action 2.1 To reduce the number of nest trampling incidents during breeding season through improved livestock management Applicable to: KZ, (RU)	High	Short	Government institutions in charge of nature conservation and livestock

Result	Action	Priority	Timescale	Organisations responsible
	<p>Action 2.2 Additional key breeding sites are identified across the breeding range</p> <p>Applicable to: KZ (RU)</p>	High	Medium	ACBK
3. All key sites along the flyways are protected and adequately managed	<p>Action 3.1 Protect and manage known key staging areas</p> <p>Applicable to: All range states</p> <p>Action 3.2 Ensure that Sociable Lapwing habitat requirements are included in relevant governmental land-use policies in breeding and wintering areas</p> <p>Applicable to: KZ, RU, IN, SD, SA, ER, ET, OM, PK</p>	High	Medium/long	Government institutions in charge of nature conservation
	<p>Action 3.3 Assess the effectiveness of the existing protected area network across the range states</p> <p>Applicable to: All range states</p>	High	Medium	RSPB
	<p>Action 3.4 Ensure that Sociable Lapwing is declared a priority conservation species in the relevant legislation of all the range states for enhanced protection</p> <p>Applicable to: All range states</p>	Medium	Medium	Government institutions in charge of nature conservation.
4. All identified knowledge gaps are filled by 2022	<p>Action 4.1 Identify additional staging areas and stop-over sites on the western flyway</p>	High	Short/medium	Government institutions in charge of nature conservation. National and International

Result	Action	Priority	Timescale	Organisations responsible
	Applicable to: KZ, RU, TU, SY, IQ Action 4.2 Identify the route and key staging areas on the eastern flyway	High	Short/medium	Government institutions in conservation NGOs Government institutions in charge of nature conservation. National and International conservation NGOs
	Applicable to: KZ, IN, PK Action 4.3 Evaluate the extent of hunting pressure in the Syrian Arab Republic and Turkey	Essential	Immediate	Government institutions in charge of nature conservation and hunting National and International conservation NGOs
	Applicable to: SY, IQ Action 4.4 Identify further wintering sites in Sudan and elsewhere in north-east Africa, the Middle East and India	High	Short/medium	Government institutions in charge of nature conservation. National and International conservation NGOs
	Applicable to: SU, ER, ET, IN Action 4.5 Further research on the demographic parameters	Medium	Medium	Government institutions in charge of nature conservation. National and International conservation NGOs
	Applicable to: all range states Action 4.6 Research on the migration strategy through satellite tracking and colour ringing birds on the breeding grounds	Essential	Immediate	Government institutions in charge of nature conservation. ACBK
	Applicable to: KZ Action 4.7 Identification of new breeding areas through satellite tracking of birds caught on the wintering grounds	Medium	Medium	Government institutions in charge of nature conservation. National and International conservation NGOs
	Applicable to: SU, IN			

Result	Action	Priority	Timescale	Organisations responsible
	<p>Action 4.8 Conduct coordinated counts of breeding areas in Kazakhstan and Russia to improve the world population estimate</p> <p>Applicable to: KZ, RU</p>	High	Short	Government institutions in charge of nature conservation. National and International conservation NGOs
	<p>Action 4.9 Determine the effects of possible land-use changes on breeding numbers and distribution</p> <p>Applicable to: KZ, RU</p>	Medium	Medium	Government institutions in charge of nature conservation. National and International conservation NGOs
	<p>Action 4.10 Determine the effects of possible land-use changes in the wintering grounds</p> <p>Applicable to: SU, IN, ET, ET, SA, PK, OM</p>	Low	Long	Government institutions in charge of nature conservation. National and International conservation NGOs
	<p>Action 4.11 Identify the current climate space of Sociable Lapwing in Kazakhstan and Russia to predict the potential impacts of climate change on future distribution</p> <p>Applicable to: KZ, RU</p>	Low	Long	Government institutions in charge of nature conservation. National and International conservation NGOs
	<p>Action 4.12 Identify the ecological requirements on the stop-over sites and wintering grounds</p> <p>Applicable to: All range states</p>			Government institutions in charge of nature conservation. National and International conservation NGOs
5. International cooperation is maximized through the full engagement of all principal range states in the framework	<p>Action 5.1 Accession to AEWA of all principal range states</p>	High	Short	Government institutions in charge of nature conservation. UNEP/AEWA Secretariat

Result	Action	Priority	Timescale	Organisations responsible
of the Single Species Action Plan and AEW A	<p>Applicable to: IQ, KZ, RU, TU, ER, OM</p> <p>Action 5.2 Maintain the active work of the AEW A Sociable Lapwing International Working Group to coordinate the implementation of the Single Species Action Plan</p> <p>Applicable to: all range states</p>	Essential	Immediate	Government institutions in charge of nature conservation. UNEP/AEW A Secretariat

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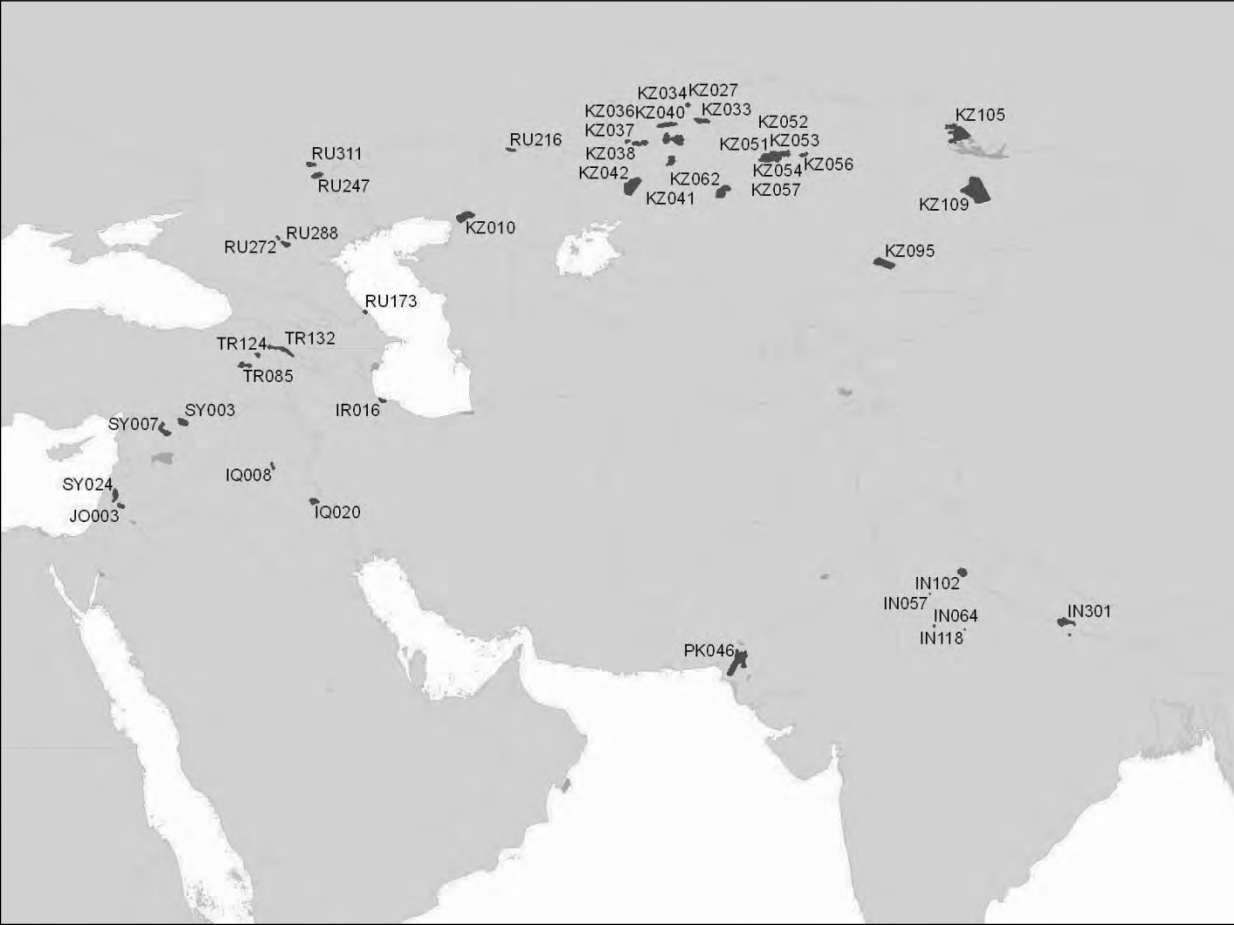
ANNEX 1

List of all IBAs that have Sociable Lapwing as a qualifying feature.

IBA name	Code	Latitude	Longitude
Corbett Tiger Reserve	IN102	29.58	78.91
Dihaila Jheel and other wetlands	IN141	25.69	78.16
Flamingo city	IN085	24	69.86
Keoladeo National Park and Ajan Bande	IN064	27.15	77.51
Kurra Jheel	IN118	27.01	79.1
Naliya Grassland (Lala Bustard Wildlife Sanctuary)	IN091	23.5	68.75
Okhla Bird Sanctuary	IN057	28.55	77.3
Valmiki Tiger Reserve and Saraiyaman Lake	IN301	27.3	84.14
Mongol Daguur	MN066	49.71	115.25
Ogii Lake	MN042	47.76	102.7
Handrop Shandoor National Park	PK006	36.08	72.53
Indus Waterfowl Refuge	PK015	31.83	70.9
Kinjhar (Kalri) Wildlife Sanctuary	PK048	24.93	68.05
Kirthar National Park (including Hub Dam)	PK046	25.75	67.5
Lal Sohanra National Park	PK028	29.36	71.95
Manchar Lake	PK045	26.41	67.65
Pugri Lake	PK040	27.3	68.05
Taunsa Barrage Wildlife Sanctuary	PK026	30.7	70.83
Ucchali Wetland Complex	PK024	32.55	72.01
Aktubek	KZ057	50.21	69.5
Amangeldy	KZ052	50.56	69.85
Amankaragay Forest	KZ034	52.43	63.95
Chingiztau Mountains	KZ109	48.41	79.66
Ertis Ormany (Shaldai Forest)	KZ105	51.83	78.83
Irgiz-Turgay Lakes	KZ042	48.66	62.13
Korgalzhyn State Nature Reserve	KZ051	50.41	69.23
Koybagar-Tyntyugur Lake System	KZ033	52.65	65.63
Kulykol-Taldykol Lake System	KZ036	51.39	61.9
Kumdykol-Zharlykol Lake System	KZ056	50.58	70.88
Lower reaches of the Emba River	KZ010	46.98	53.56
Naurzum State Nature Reserve	KZ040	51.51	64.28
Sarykopa Lake System	KZ041	50.21	64.13
Semey Ormany (Semipalatinsk Forest)	KZ107	50.68	79.96
Shoshkaly Lake System	KZ027	53.66	64.93
Tounsor Hollow Lakes	KZ037	51.26	62.38
Ulytau Mountains	KZ062	48.4	66.68
Vicinity of Korgalzhyn village	KZ054	50.58	70.05
Zharsor-Urkash Salt Lakes	KZ038	51.34	62.75
Zhumay-Mayshukyr Lake System	KZ053	50.71	69.88
Zhusandala	KZ095	44.45	74.95
Birsuat		52.16	60.35

IBA name	Code	Latitude	Longitude
Blagoveschenskaya (Kulunda lake and vicinity)		53	79.66
Uzkaya Steppe		51.51	80.26
Bulunkul and Yashilkul lakes and mountains	TJ014	37.83	73
Gizilagach State Reserve	AZ048	39.08	49.05
Bulukhta area	RU247	49.33	46.16
Kulaksay lowland	RU216	50.73	55.83
Lysyi Liman lake and valley of Vostochniy Manych river	RU272	45.8	44.08
Stepnovski saltmarshes	RU311	50	45.75
Mouth of Samur river	RU173	41.86	48.5
Anzali Mordab complex	IR016	37.41	49.46
Miankaleh Peninsula and Gorgan Bay	IR023	36.83	53.75
Haur Al Suwayqiyah	IQ020	32.7	45.91
Samara dam	IQ008	34.25	43.83
Hula valley	IL002	33.08	35.61
Jezre'el, Harod and Bet She'an valleys	IL008	32.58	35.33
Western Negev	IL015	31.16	34.66
Zevulun valley	IL004	32.88	35.1
Aqaba	JO017	29.42	35.07
Mafrag - Irbid plain	JO003	32.49	36.04
Shaumari	JO010	31.75	36.68
Masirah island	OM017	20.41	58.78
Sun Farms, Sohar	OM005	24.31	56.75
Al-Ha'ir	SA014	24.38	46.82
Dawmat al-Jandl wetland	SA002	29.81	39.88
Buhayrat al-Assad	SY007	36	38.11
Golan Heights	SY024	33	35.75
Tadmur desert and mountains	SY018	34.5	38.3
Tual al-'Abba	SY003	36.41	39.33
Digdaga - Hamraniyah	AE002	25.66	55.91
Dzheiran Ecocentre	UZ017	39.6	64.65
Krasnoarmeiskiye waste lands	RU425	43	47.4
Salt lakes "Manych"	RU420	44.43	46.35
Southern part of Chograisiki reservoir	RU288	45.46	44.43
Agri plain	TR124	39.66	43
Bulanik and Malazgirt plains	TR085	39.18	42.15
Ceylanpinar	TR213	36.93	39.81
Igdir Plain	TR132	39.86	44.51

Distribution of IBAs that have Sociable Lapwing as a qualifying feature.



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