

Satellite Tracking Provides Insight into the Migration Ecology and Conservation Needs of the Globally Threatened Sociable Lapwing

Johannes Kamp is an ecologist at the University of Muenster (Germany) and focuses on data management and analyses in the Sociable Lapwing project. Ruslan Urazaliev is the national coordinator of the project for Kazakhstan. Paul F. Donald of BirdLife International has been coordinating the project since its beginning.



Photo by Paul F. Donald



Large flock of Sociable Lapwings at stopover site in Turkmenistan.

The Sociable Lapwing (*Vanellus gregarius*) is a shorebird that breeds across the vast steppe grasslands of Eurasia. A range contraction and a precipitous and accelerating population decline were observed during the 1990s. This led to a reclassification of the species as Critically Endangered on the global IUCN red list in 2004. As the main threats were thought to occur on the breeding grounds, a research and conservation project was initiated in a remaining stronghold in Kazakhstan in 2004. Teams of the Royal Society for the Protection of Birds (RSPB) and ACBK, Kazakhstan's BirdLife partner, have since monitored the survival of the population. However, it turned out that nest and chick survival were sufficiently high to maintain a stable population. The main habitat of the species, heavily grazed steppe swards created by domestic livestock, had declined in extent, but there were no indications that habitat availability was a limiting factor.

So what was the reason then for the drop in numbers? An analysis of the return rates of color-ringed birds suggested that adult survival was rather low. Fewer and fewer birds returned to the breeding grounds, perhaps indicating problems during migration or on the wintering grounds. However, the wintering grounds and migration routes of the species were all but unknown. To shed light on the year-round distribution, the first three Argos PTTs were fitted to birds caught on the breeding grounds in 2007, and another 26 birds have since been equipped with tags.

The growth in knowledge achieved by the tracking was enormous. The migration routes of the species were quickly established: a western one runs through the Middle East and brings birds to their wintering quarters in Sudan, and an eastern route leads to Pakistan and India. The quality of the received coordinates was high enough to track down the birds on the ground. Through BirdLife International's global network, survey teams formed along the routes. In an inspiring, concerted effort, the teams managed to find tagged individuals at many remote sites that were often difficult to access (e.g. in Sudan, Russia, Turkey, Syria, Pakistan, and Central Asia). It came as a big surprise that some of these sites held massive concentrations of a bird that was thought to be close to extinction. The lapwings would stay weeks at stopover sites to

refuel, and then leap forward to the next site, sometimes covering 1400 km non-stop. In 2015, the so far largest migration roost was discovered at Lake Talimarzhan. Here, at the border of Uzbekistan and Turkmenistan, a total of between 6000 and 8000 birds were counted in October. These flocks might represent up to 50% of the world population, highlighting the importance of such sites for the survival of the species.

Unfortunately, excessive spring hunting of the converging flocks at these bottlenecks became also apparent, especially in the Middle East — perhaps explaining the low return rates to the breeding sites in Kazakhstan. In response, awareness raising campaigns were launched targeting hunters and local land users. First successes are now visible, and main stopover sites were declared as no-hunting zones, for example in Turkey.

Satellite tracking also shed light on the migration ecology of the species: tracked birds were little site-faithful on the breeding range and would return to areas up to 600 km apart



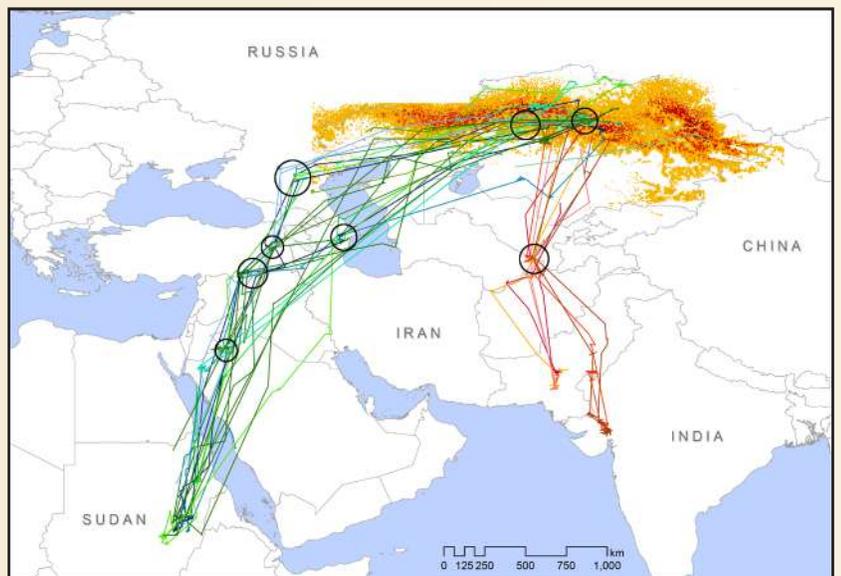
Adult male Sociable Lapwing on the breeding grounds equipped with 5g Solar PTT.

Photo by Johannes Kamp

in subsequent years. This strategy is perhaps an adaptation to the unpredictable weather and grazing levels on the steppe grasslands. On migration and in winter, birds often selected habitats similar to those on the breeding grounds, an example of 'niche tracking' through the annual cycle.

Follow the tracked birds on our project blog:
<http://sociable-lapwing.birdlife.org/>

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Modelled breeding distribution (orange tones), migration routes, and key stopover sites (circles).