

## **Spoonbills with coloured leg rings; a study of population dynamics; results after 20 years**

### *Introduction*

In 1982 a colour ring project started on Dutch Wadden Sea islands. The aim of the study was to collect more knowledge of population dynamics in Spoonbills and to detect bottlenecks in the population development.

In 1982 the Dutch Spoonbill breeding population was recovering after a period (1945-1960) with polluted feeding habitats (Pb and Cl). The birds colonized the Wadden Sea islands (1983-1993) because their former breeding sites were lost, the marshland was drained for agricultural use.

First question was where do they feed in spring. When arriving from Africa, the shallow seawater surrounding the Wadden Sea islands is too cold in February / March to contain little fish or shrimps. The birds migrated over a distance of 4500 kilometres and are supposed to start their reproduction on the islands. How could they do that?

Nestlings were ringed on four Wadden Sea islands, Texel, Vlieland, Terschelling and Schiermonnikoog and later also in new colonies more inland. In the same period a (international) network of field observers was built.

Now, twenty years later, the breeding population includes 800 different colour ringed individuals supposed to be alive. The ring readers network is spread out over the entire flyway (16 countries, 120 persons) and produce approx. 5.000 recoveries each year.

### *The population development in The Netherlands after the "1950" pollution.*

In 1960 the size of the population was declined until a little more then 150 breeding pairs in 5 breeding sites. The Dutch government made new laws in order to protect the environment. Nature protection organisations better protected the breeding sites against human disturbance. The population increased and the distribution changed. In 1990 there were 8 breeding sites containing together 450 breeding pairs. In 2000 there were 25 different breeding sites containing a little more then 1000 breeding pairs. In 2005 the Spoonbill was not a red data list species anymore.

### *Migratory route and speed*

Spoonbills migrate to their wintering sites and reverse to their breeding sites through Belgium, France, Spain, Morocco, Mauritania to the delta of the Senegal river. The distance is approximately 4500 kilometres and this takes 2.5 months time. Underway they stop-over at several sites, resting and feeding a while. It was found that Spoonbills have different migratory strategies; some make 2 or 3 large steps (up to 2000 km per step) in the flyway and rest 3-4 weeks at the staging sites, others make shorter steps (3-400 km) and rests (3-6 days) at the staging sites. The total time, needed for the whole migration route is in both cases more or less the same.

### *Family relations*

It was found that both partners share the tasks during the reproduction period. Both partners breed the eggs and feed the chicks later. After the young have fledged, they take care for them a short time, teach them how to forage successfully and where the safe sites are. In August the families are no more together and partners as well as young's are observed at different post breeding staging sites. They migrate and winter separately. In spring the adult males and

females come together in the neighbourhood of a colony and form a pair. A former pair was never found to pair again in a following year. The divorce rate is probably 100%. The duration of a partnership relation is only some months (April-August). However, ex partners breed at the same colony, year after year.

#### *Mortality factors*

Ringling activities in the colonies (disturbance) do not have a serious influence on the development of the colony or the survival of the chicks. A high percentage of all ringed young's were seen later alive and outside the colony. The survival from ringling to 100 days later was around 96% (N=4370). The colonies in which ringling activities took place developed very similarly to those where no chick was ringed.

Many juvenile Spoonbills die during their first migration southwards. In the period 1997-2002 studies were carried out in Western Africa (Mauritania and Senegal) and it was found that 35% of the young Spoonbills arrived in the winter quarters. The others died by disorientation, hunting activities or crashed to power lines.

Spoonbills spend their non-breeding period in Western Africa and are mature at an age of 3.5 years. Then, they return to the breeding sites for the first time. Approximately 33% of the ringed birds returned at an age of 4 to their birth area. The mortality during their stay in Western Africa (3.5 years) is thus around 5.7%

#### *Other aspects necessary for the ringling.*

Ringling activities in the colonies raised some arguments. Man set foot into the breeding colony and take the nestlings out of the nests in order to ring them and to take biometric measurements. This induces disturbance. However, results of the study indicated that disturbance is minimum. One outcome of the fieldwork is that most parents feed their chicks at certain moments of the day (10-11 H. and 16-18 H.). Ringling activities were planned at moments just before the feedings. In this way it was possible to minimize the number of young that empty their stomach during the ringling sessions. The loss of food is minimized in this way and thus also the negative effects of ringling.

#### *Local studies in other countries in the flyway*

Area managers carried out their own studies on Spoonbills using the colour ringed birds originating from Holland. The outcome of these studies allowed them to better understand how the area is functioning for Spoonbills and they were able to better manage the area for Spoonbills. Food availability was made better (Marais Sene – Morbihan) or the power lines were marked with red balls so that the number of crashes decreased (Brouage marsh – Charente Maritime) and no-hunting zones were established after a period with high hunting pressure in Loire Atlantique and north of Spain.

#### *Ringling is connecting people, world wide*

In this study the knowledge of the biology of the Spoonbill is increased. Ringling took place in Denmark, Germany, The Netherlands, France and Spain and the birds were observed in many other countries. In many areas the Spoonbill is better protected or the survival conditions for Spoonbills have improved. Other species (aquatic birds) may benefit from this as well. A network of Spoonbill observers, area managers and scientists is built up and they meet each other during workshops and seminars. Experience is exchanged and contacts between people, involved in the management of wetlands or coastal zones became much better.

Building a network was done in the East Atlantic flyway and now the same concept is used also in the East European Spoonbill population. Ringing started in 2000 in Greece and later also in Croatia, Romania, Czech-republic, Serbia & Montenegro and Hungary.

*International co-ordination is needed*

Nowadays ringing projects are carried out world wide and international co-ordination is needed. Tools like the web-site managed by Dirk Raes ([www.cr-birding.be](http://www.cr-birding.be)) are necessary and all new (colour) ringing projects should first contact the international co-ordinator. If not, the damage to existing project could be enormous and thus the damage to nature.

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