

# **Life – Limosa Schleswig-Holstein**

**Conservation studies of**

**Ruff (*Calidris pugnax* – Kampfläufer)**

**and**

**Baltic dunlin (*Calidris alpina* – Alpenstrandläufer)**

**in Schleswig-Holstein**

**Ole Thorup**

**Reporting field work 2016**

## Introduction:

Ruff and Baltic dunlin are two of the rarest and most threatened breeding bird species in Germany, and both are red listed as critically endangered in the most recent red lists for Schleswig-Holstein and Germany. In contrast to most other endangered bird species, the level of knowledge of the two species is low, and at the time of the start of the Life Limosa project it had for years even been questioned, whether the two species were breeders in Schleswig-Holstein any longer (LANU 2008, LLUR 2010).

There are no monitoring programmes in Schleswig-Holstein directed specifically at ruff or dunlin, and the two species are covered in their key areas by observing presence or absence in pre-described periods during multispecies mappings, only (e. g. Hälterlein et al. 1995). Additional observations of breeding behaviour are collected unsystematically. Furthermore, ruffs have a prolonged breeding season with a peak after most other meadowbirds are being surveyed (e. g. Thorup 2016), their behaviour in the breeding season during the egg and chick phases is very discrete apart from a short period during the early chick rearing, and they tend to breed away from the highest concentrations of other – more conspicuous – meadowbirds. Hence, there is not collected sufficient information from the standard monitoring programmes to evaluate the population status or to identify the exact breeding sites including nest and chick rearing areas, crucial information in order to safeguard proper management in the core breeding areas of the two species.

As part of the Life Limosa project in Schleswig-Holstein, more detailed knowledge about breeding of the two species is collected, in order to obtain better knowledge of their population status and to understand and thereby improve their breeding conditions.

The monitoring programmes in Schleswig-Holstein (as well as e.g. in Denmark and southern Sweden) are primarily based on the assumption that there is a correlation between the presence of ruffs in the period between the northwards migration ends and the return of the southward migrants starts, and the numbers of ruffs that are actually breeding. In the Wadden Sea of Schleswig-Holstein this period is approximately 20 May-8 June in males, and 20 May-16 June in females; Hälterlein et al. (1995) restricted the period further to 28 May-10 June for both sexes. As ruffs are rarely seen in this period away from sites with potentially suitable breeding habitat for the species, the special ruff inventories performed within the Life Limosa project will also collect information that may verify or disprove this assumption and thereby make it possible qualitatively to improve future monitoring of ruff populations.

## Breeding ruff and dunlin at project sites

### Ruff

Breeding ruffs were counted at all project sites except at Wöhrdener Loch in the northern part of Meldorfer Speicherkoog (Table 1). The 2016 survey data indicate a breeding population in the project sites in the magnitude of 50 females. Strikingly different from previous years, one of the best sites in former years Arlau Speicherbecken had no breeders in 2016, most likely because the area was very dry late May - early June.

Table 1. Breeding ruffs found in the Life Limosa project sites in the 2016 breeding season.

#### Ruff 2016

Site	Verified breeders		Probable breeders		Birds attempting to breed		Population 'guestimate'
	Females with chicks or chick clutch seen	Additional females with nest	Additional females from nest habitat empty nest bowl found	Additional females in nest habitat	Females seen between 20 May and 16 June	Males seen between 20 May and 8 June	
Rickelsbüller Koog	0	0	0	0	18	16	18
Hauke-Haien Koog	0	0	0	0	2	6	2
Beltringharder Koog, Arlauer Speicherbecken	0	0	0	0	0	0	0
Beltringharder Koog, central area	0	2	0	2	12	11	12
Beltringharder Koog, northern areas					2	1	2
Eiderdammflächen, Katinger Watt	0	0	0	0	5	6	3
Olversumer Vorland-Grüne Insel	0	0	0	0	0	1	0
Oldensworter Vorland	0	0	0	0	0	5	0
Karolinenkoog Vorland	0	0	0	1	1	0	1
Meldorfer Speicherkoog - Wöhrdener Loch	n/a	n/a	n/a	n/a	n/a	0	n/a
Meldorfer Speicherkoog - Nordkoog	1	1	0	0	10	n/a	10
Dithmarscher Speicherkoog Süd	0	0	0	0	1-2		1-2
Seether Ostermoor	0	0-1	0	0	0	n/a	0-1
Alte Sorge Schleife	0	0	0	0	1	0	1
<b>Project sites total</b>	<b>1</b>	<b>3-4</b>	<b>0</b>	<b>3</b>	<b>52-53</b>	<b>46+</b>	<b>49-51</b>
2014 Project sites total	6-7	2	0	1	44-45	38+	43
2013 Project sites total	3	3	1	2	18	20	19

Observers:
Holger Bruns
Jutta Hansen
Julia Schütze, Ole Thorup, Brigitte Klinner-Hötter and Hermann Hötter
Ole Thorup, Brigitte Klinner-Hötter and Hermann Hötter
Ole Thorup and Volker Salewski
Ole Thorup

## Dunlin

Breeding dunlins were counted in Rickelsbüller Koog and searched for at former breeding sites in Beltringharder Koog and in the Eider Estuary (Table 2). The standard counts in Rickelsbüller Koog revealed the best dunlin breeding season for years with 5 pairs mapped, and three of these were pairs that hatched chicks (Jutta Hansen).

Table 2. Breeding dunlins found in the Life Limosa project sites in the 2016 breeding season.

### Baltic dunlin 2016

Site	Verified breeders		Probable breeders			Baltic dunlin individuals/pairs seen at feeding sites only	Population 'gestimate'
	Birds with chicks or chick clutch seen	Additional birds with nest	Additional pairs/individuals in nest habitat empty nest bowl found	Males/pairs with territorial behaviour	Additional pairs/individuals in nest habitat		
Rickelsbüller Koog	3	0	0	0	2	0	5
Hauke-Haien Koog	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Beltringharder Koog	0	0	0	0	0	0	0
Eiderdammflächen, Katinger Watt	0	0	0	0	0-1	0	0-1
Olversumer Vorland-Grüne Insel	0	0	0	0	0	0	0
Karolinenkoog Vorland	0	0	0	0	0	0	0
Project sites total	3	0	0	0	2-3	0	5-6

Observers:

Holger Bruns

Jutta Hansen

Brigitte Klinner-Hötker and Ole Thorup

## Special inventories in 2016

The 2016 ruff and dunlin fieldwork within the Life Limosa project consisted of five inventories:

- A ruff survey with identification of nesting sites, nesting habitat and habitat use of ruff in areas of Beltringharder Koog, where ruffs are regularly seen in the breeding season.
- Two ruff surveys of the Nordkoog of Meldorfer Speicherkoog in order to clarify whether ruffs were breeding in the area, and if this was the case to identify nesting habitat and habitat use of the species in the area.
- A ruff survey of the hay meadows and wetter parts of the cattle pastures in Speicherkoog Süd.
- A ruff survey in the southern parts of the project site at Alte Sorge Schleife in and around the recently established polders after the termination of the northward migration of the species. If ruffs were still here, nests would be searched for and information of potential nesting habitat and habitat use of the ruffs would be collected. Additionally, vegetation and hydrology in both this area and areas further to the north were monitored and evaluated for the ruff breeding potential in the area.
- A ruff survey in the project site at Seether Ostermoor in and around the recently established polders after the termination of the northward migration of the species. If ruffs were still here, nests would be searched for and information of potential nesting habitat and habitat use of the ruffs would be collected.

## Ruffs in Beltringharder Koog

30 May and 1 June, three areas with regular presence of ruffs in Beltringharder Koog in the breeding season were surveyed thoroughly for the species. 30 May meadows and wetlands in the central part of Beltringharder Koog south of Lüttmoordamm were visited most of the day. 1 June, Arlau Speicherbecken was visited in the morning, and the NW parts of Beltringharder Koog at noon and in the early afternoon.

Arlau Speicherbecken has been the project area with most registrations of ruffs with nests and chicks during 2013-2015. In 2016, however, no ruffs were seen in the area during the visit 1 June, and no ruffs were found here during other fieldwork during the breeding season either. In contrast to previous years, the Speicherbecken was very dry in early June 2016, and the 'islets' with higher, soft grass, that were used as nest habitat 2013-2015, were all weakly developed and did not seem to constitute favourable nest habitat this year.

In the central part of Beltringharder Koog, approximately 12 females and 11 males were seen in total 30 May. One of the females was flushed from a nest, and another three females behaved in a way that indicated that they were close to their nest (Figure 1). The other females were together with small groups of males that lekked and courted in some periods, and were feeding in others. Three sites were repeatedly used as leks (Figure 1), and there was some exchange of males between the northern and the central lek(site) and between the central and the southern lek(site).

In addition to the 12 females seen at the visit to the central parts 30 May, Julia Schütze saw 2 females the same day in the northern part, at the shore of a large claypit. At the visit 1 June, no ruffs were seen in the NW part. However, not all the meadows adjacent to the northern claypit were visited on that date.



Figure 1. Positions of one ruff nest, three additional likely nest sites of ruffs and three ruff leks in the central part of Beltringharder Koog, 30 May 2016.

## Ruffs in Nordkoog of Meldorfer Speicherkoog

The Nordkoog in Meldorfer Speicherkoog was visited 14 and 16 June and 7 and 11 July. 14 June late afternoon and evening, the meadows adjacent to the west shore of Wöhrdener Hafenstrom were mapped and visited, whereas the meadows east and north of Wöhrdener Hafenstrom were visited 16 June in the morning and at noon, and 7 July at noon and in the early afternoon. 11 July, Volker Salewski made an additional visit.

The meadows around the lek west of Wöhrdener Hafenstrom (Figure 2) were heavily grazed down by sheep and most of the area had too short vegetation to provide nest opportunities for ruffs. There were a couple of small 'islands', only, with longer vegetation within 2-300 m distance from the lek, consisting of a few hundred square-metres each, and they were thoroughly searched through for nests without any success. West of Wöhrdener Hafenstrom there were not seen other ruffs than the 5 lekking males 14 June. In the almost 2 hours of observation they did not attract any females, and no females were seen on the meadows elsewhere either. However, a flock of six males and four females passed over low and they landed hidden somewhere on the meadows east of Wöhrdener Hafenstrom.

Not least due to the observation of male and female ruffs landing here 14 June, it was decided to perform the first survey in the Life Limosa project focussed on ruffs of the meadows east of Wöhrdener Hafenstrom 16 June. Usually, the first males returning from more northerly and easterly breeding areas on their autumn migration are seen in the northern Wadden Sea from around 8-10 June, and therefore it was impossible on this date to distinguish males that had stayed locally all summer from males that had returned from elsewhere. In total 80 males were counted, and of these up to 30 males at one time were seen dancing on two quite stationary leks (shown on figure 2). There may have been some exchange of males on the leks, and some other males were seen following females and dancing in front of them, so probably many more than 30 males showed breeding/mating behaviour during that morning. In contrast, no southwards migration of females is suspected to have started 16 June, and the 10 female ruffs seen are most likely all local breeders. One female was flushed from its nest (Figure 2) and stayed nervously near its nesting site during our visit, the other 9 birds were seen together with males and were all courted intensively.

At the visit 7 July, one female was seen together with two males near the former nest site of the nest found 16 June. Most likely the nesting female had lost its eggs or chicks in the mean time, although it is also possible that the chicks hatched shortly after 16 June, and the mother could then have left the chicks still alive before 7 July – ruff mothers usually leave their still-flightless chicks when the chicks are 7-15 days old.

11 July, Volker Salewski found an alarming female (Figure 2) at a site that was also visited 7 July, and this clutch must thus have hatched between 7 and 11 July. With a laying time of 4 days and 22 days of incubation this clutch must have been initiated between 11 and 15 June, and laying thus coincided with the intensive display activity among the ruffs observed 14 and 16 June.

Large parts of the meadows east of Wöhrdener Hafenstrom had suitable vegetation height and structure for ruff nests at the time of the visit 16 June: the vegetation was rather poor and open, and the height of the grass was diverse between approximately 2 cm and 15-18 cm. The potential as ruff breeding habitat is high, and potential breeding habitat is widespread in this area. The present



management including the density of cattle grazing seems optimal for ruff and meadowbirds with similar habitat demands like black-tailed godwit and redshank.

Heavy rain in the days before the visit 7 July resulted in flooding of a large proportion of the meadows, and an estimated 40-60% of the area was covered with 0.5-3 cm of water at the visit. The known ruff nest site, however, was above the water, but flooding may have caused that some other nests of ruffs and of other meadowbirds did drown and got lost in the early days of July.



Figure 2. Position of the two ruff females with documented breeding and of three ruff leks in Nordkoog of Meldorfer Speicherkoog in 2016.



## **Ruffs in Dithmarscher Speicherkoog Süd**

The majority of the meadows in Dithmarscher Speicherkoog Süd (military testing range) was covered by a full day ruff survey 15 June.

There were seen no ruff females with breeding behaviour. One flock with 6 males and one female flew over, and a possibly different female flew up from the meadow on a long distance and never returned, although the site was checked again a couple of hours later. Another 5 males were feeding on the mudflats in a pool on the meadow.

The one or two females seen may very likely have attempted to breed earlier in the season. At the time of the visit 15 June, there were extensive areas with apparently favourable vegetation height and structure for ruffs. The meadows were relatively dry, though. In general there were small numbers of meadowbirds alarming with chicks in the area, and the families were almost all concentrated in two small areas. This probably indicates a high predation pressure at the site in 2016, which may also have influenced the bad result of the ruff survey.

## **Ruffs in Seether Ostermoor**

Two recently established polders in Seether Ostermoor now provide wetlands and wet meadows in the ruff breeding season in late May till early July. These polders and adjacent meadows were surveyed for ruff 31 May in the morning. No ruffs were observed, but suitable ruff nesting habitat was found locally, in particular in the south-east corner of the southern polder. A water level at 2.5 to 5 cm lower than the present level in the southern polder would have provided substantially more favourable nesting habitat for ruff and meadowbirds with similar demands. A system with fine-tuning the water level to predetermined levels during the breeding season could improve breeding conditions at the site, as a few cm up or down can make a huge difference.

22 June, Volker Salewski flushed a female ruff at the site. It may have been a migrant bird feeding in a ditch but it cannot be excluded that it was a breeding bird flushed from a nest.

## Ruffs in Alte Sorge Schleife

In the southern part of the Alte Sorge Schleife project area three polders have been established in 2015 in order to provide wet meadows and wetlands during the breeding season of the meadowbirds including the breeding season for late breeders like the ruff. The three polders and adjacent meadows were surveyed for ruff 31 May in the afternoon and early evening. One female ruff was flushed from the wetland of the largest of the two western polders. It did not show any breeding behaviour, but as it was seen on a date when no migrants are suspected to be present at our latitudes, it is very likely a ruff that attempted to breed locally.

An observation of a ruff in the core breeding season in a fresh inland wetland is quite exceptional nowadays. Although the bird showed no signs of actually being breeding, the presence of the bird here at this date may be a first indication of a significant improvement of the management of the site for the species.

In the autumn 2014, a focal area for ruff was proposed in the north-eastern part of Alte Sorge Schleife project area, selected due to favourable vegetation (in particular *Carex*) as ruff nest habitat (Figure 3, yellow hatching). In this area and adjacent meadows (Figure 3, red hatching) the hydrology was checked in the ruff breeding season 2015 and 2016. In 2015, on 27 May, the water level was found to be too low to be favourable for ruff, as the water level in the ditches was between 40 and 70 cm below the soil surface of the adjacent meadows. In 2016 the situation improved markedly. 31 May the water level in the ditches of the area was approximately 30 cm higher than in the same period in 2015; the water level in the ditches was between 10 and 40 cm below the soil surface of the adjacent meadows, an attractive water level for breeding ruff.



Figure 3. Alte Sorge Schleife NE. Yellow hatching depicts a suggested ruff focal area appointed autumn 2014 according to favourable vegetation type, height and structure. Red hatching depicts an area where hydrology was evaluated 27 May 2015 and 31 May 2016.

### **Acknowledgements:**

Thank you to Holger Bruns, Dominic Cimiotti, Niels Damm, Hauke Drews, Oliver Granke, Jutta Hansen, Hermann Hötker, Heike Jeromin, Brigitte Klinner-Hötker, Jutta Leyrer, Natalie Meyer, Volker Salewski, Luis Schmidt and Julia Schütze for unpublished data and information, for sharing inspirational ideas and for logistic support.

### **References:**

Hälterlein, B., D. M. Fleet, H. R. Henneberg, T. Menneböck, L. M. Rasmussen, P. Südbeck, O. Thorup & R. Vogel 1995: Anleitungen zur Brutbestandserfassung von Küstenvögeln in Wattenmeerbereich. – Wadden Sea Ecosystem No. 3, CWSS, TMAG, Joint Monitoring Group for Breeding Birds in the Wadden Sea, Wilhelmshaven.

LANU 2008: Europäischer Vogelschutz in Schleswig-Holstein. Arten und Schutzgebiete. – Landesamt für Natur und Umwelt des Landes Schleswig-Holstein.

LLUR 2010: Die Brutvögel Schleswig-Holsteins. – Landesamt für Landwirtschaft, Umwelt und ländliche Räume des Landes Schleswig-Holstein.

Thorup, O. 2016: Timing of breeding in Ruff *Philomachus pugnax*: a crucial parameter for management and use of wet grassland in Western Europe. – Wader Study 123(1): 49-58.