

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 2018

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 (*'von Aussterben bedroht'*) in the most recent red lists for Schleswig-Holstein and Germany (Knief et al. 2010, Grüneberg et al. 2015). 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, Knief et al. 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 like it is found in Denmark (Holm 2018); 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 apparently 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.

Numbers of breeding ruff and dunlin in project sites

Ruff

Breeding ruffs were counted in most project sites except at Hauke-Haien Koog and Alte Sorge Schleife (Table 1). The 2018 survey data indicated a breeding population in the project sites this year in the magnitude of 60 females.

The size of the breeding population is estimated from the number of ruffs, in particular females, observed in the period between the last northern breeders have left the area and the first returning birds arrive – the so called ‘counting window’. Ruff females are very discrete breeders, above all in the incubation period when they usually flush in front of a visiting observer on a very short distance and sometimes not at all. Therefore, it takes a very intensive fieldwork directed at finding ruff females by criss-crossing meadows repeatedly to count breeding females in this way. This is usually not attainable due to the massive workload it involves. Females have never been shown to perform large-distance dispersal/movement late May or early to mid June, and from the present knowledge of their breeding strategy, the best available method to estimate the number of females that stay and attempt to breed in an area is to count the number of females present in the ‘counting window’.

Regularly, females ‘disappear’ during the breeding season. Usually, it is not possible to separate between females that laid eggs and later gave up due to predation or flooding, females that became invisible because they started incubating, and females that gave up breeding in the season in question, before they started laying eggs. In 2018, the unusually long, warm and dry period through May and most of June created difficult breeding conditions for such a wet meadow loving species, and in 2018 it is particularly likely that some female ruffs, that were attracted to the wet meadows early May in the first place, gave up breeding this year due to the unfavourable conditions created by the draught late May and June.

Dunlin

Breeding dunlins were counted in Rickelsbüller Koog and searched for in Beltringharder Koog and in the Eider Estuary (Table 2). During the standard counts in Rickelsbüller Koog 3 pairs were mapped. A Baltic dunlin was seen once – 28 May – in Karolinenkoog Vorland, but was not necessarily a local breeder.

Dunlin is only an exceptional breeder in Beltringharder Koog. In 2017 one pair was found breeding, but in 2018 there were no observations of dunlins with breeding behaviour.

Table 1. Breeding ruffs found in the Life Limosa project sites in the 2018 breeding season.

Ruff 2018

Site	Verified breeders		Probable breeders		Birds attempting to breed		Population 'questimate'
	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	n/a	13	11	13
Hauke-Haien Koog	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Beltringharder Koog, Arlauer Speicherbecken	0	0	0	0	2	1	2
Beltringharder Koog, central area	0	0	0	0	8	3	8
Beltringharder Koog, northern areas	0	0	0	0	3	3	3
Eiderdammflächen, Katinger Watt	0	0	0	0	2	0	2
Olversumer Vorland-Grüne Insel	0	0	0	0	0	0	0
Oldensworter Vorland	0	0	0	0	20	14	20
Karolinenkoog Vorland	0	0	0	0	0	0	0
Meldorfer Speicherkoog - Wöhrdener Loch	0	0	0	0	1	9	1
Meldorfer Speicherkoog - Odinsloch-Nordkoog West	0	0	0	0	1	4	1
Meldorfer Speicherkoog - Nordkoog East	2	0	0	0	2	0	2
Dithmarscher Speicherkoog Süd	0	0	0	0	8	1	8
Seether Ostermoor	0	0	0	0	0	0	0
Alte Sorge Schleife	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Project sites total	2	0	0	1	60	46	60
2017 Project sites total	5	2	0	9	25	31	31-33
2016 Project sites total	1	3-4	0	3	52-53	46+	49-51
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
Brigitte Klinner-Hötker (a few data also from Hermann Hötker, Dietrich Koch, Luis Schmidt)
Ole Thorup
Harro Müller
Ole Thorup and Volker Salewski

Table 2. Breeding dunlins found in the Life Limosa project sites in the 2018 breeding season.

Baltic dunlin 2018

Site	Verified breeders		Probable breeders			Baltic dunlin individuals/pairs seen at feeding sites only	Population 'questimate'
	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	0	0	0	0	3	0	3
Hauke-Haien Koog	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Beltringharder Koog, northern areas	0	0	0	0	0	0	0
Eiderdammflächen, Katinger Watt	0	0	0	0	0	0	0
Olversumer Vorland-Grüne Insel	0	0	0	0	0	0	0
Karolinenkoog Vorland	0	0	0	0	0-1	0	0-1
Project sites total	0	0	0	0	3-4	0	3-4

Observers:
Holger Bruns
Jutta Hansen
Brigitte Klinner-Hötker

Special inventories in 2018

My 2018 ruff and dunlin fieldwork within the Life Limosa project consisted of six inventories:

- A search for breeding dunlins in Rickelsbüller Koog, where all areas in the southern half with suitable breeding habitat were checked thoroughly for the species.
- A ruff survey in the NE part of Rickelsbüller Koog
- A ruff survey in and around the newly established polder in the S part of Rickelsbüller Koog
- A ruff survey in the Nordkoog of Meldorfer Speicherkoog in order to identify nesting habitat, breeding success and habitat use of the species in the area.
- A ruff survey in the central and the southern meadows in Speicherkoog Süd.
- A ruff survey in the project site at Seether Ostermoor in and around the recently established polders in order to check whether breeding ruffs were attracted to these wet features in an otherwise quite dry landscape. Vegetation and hydrology were monitored and evaluated for the ruff breeding potential in the area.

Dunlins in Rickelsbüller Koog

The best areas for breeding dunlins, including the three sites where three pairs were mapped during the standardized breeding bird surveys, were visited 31 May from very early morning till noon.

There were 26 dunlins in the new polder, but none of them showed any kind of breeding behaviour. They were all feeding in large feeding flocks of ringed plovers, curlew sandpipers, Temminck's stints and little stints. Furthermore, none of the dunlins had the size or plumage of Baltic dunlins, and hardly any breeding dunlins were observed during the visit.

No dunlins were found in the otherwise apparently favourable breeding habitat in the western parts of the central meadows.

Ruffs in the north-eastern parts Rickelsbüller Koog

For many years the NE parts of Rickelsbüller Koog have housed several ruffs during the entire breeding season, and supposedly several females are breeding here annually. However, very little is known about the exact nesting sites here: Over the years only one nest site has been localized – in a grassy 'island' inside a reed bed although nests have been searched for quite intensively in 2013, 2014 and 2015.

In 2018, all potential nest habitat in the area was visited late afternoon and evening on 30 May. Not one ruff was seen in the area. Later I learned that a lek was newly established approximately 6 km further north in Margrethekog in Denmark, which is the first time with lekking ruffs in Tøndermarsken-Margrethekog for 23 years (Clausen et al. 2016). This lek may have consisted of birds that earlier in May were found in NE Rickelsbüller Koog.

Ruffs in the new polder in Rickelsbüller Koog

A new polder has been established in a hitherto fairly dry section in the south-eastern part of Rickelsbüller Koog. Before the establishment of this polder, ruffs were never found in the breeding season in this section of the area. This polder and its surroundings were surveyed for ruffs in the morning of 31 May.

Despite the unusually very dry and hot May, the polder still functioned as a wetland with areas with shallow water. In total 2 males and 6 females were seen in this polder 31 May. 3 females followed the 2 males and were probably still mating. Two single females were feeding and may have been nesting somewhere locally. One female was flushed from a potential nesting site, but as the site, from where she was flushed, had several avocet families with small chicks, a nest search was avoided in order to minimize the disturbance of the avocet chicks.

Although no definite verification of breeding was obtained, the observations suggested that the polder is a promising area for breeding ruff.

Ruffs in eastern part of Nordkoog in Melderfer Speicherkoog

A ruff survey was performed morning and noon of 15 June in the meadows of the eastern part of Nordkoog in Melderfer Speicherkoog.

In the years before the Life Limosa project started, ruffs were virtually unknown as a breeding species in Melderfer Speicherkoog. Despite a fairly limited number of field visits to the area directed at finding breeding ruffs, breeding has been verified here almost annually.

The Nordkoog east of the Wöhrdener Hafenstrom was surveyed for ruff for the first time in 2016, and this year a ruff with a nest and a ruff with chicks were found on the two visits together with a large lek that was active late in the breeding season after some days with plenty of rain. In 2017, two female ruffs were flushed from nests, and two additional females with chicks were found on the three visits in the area. At the 2018 survey, two females were found with chicks (Figure 1), and this was in a year when the previous one and a half months had been extremely hot and dry, which in general created poor breeding conditions for ruff in NW Europe.

This underlines that this part of the Nordkoog must be a key site for breeding ruffs. All finds of nests and chicks of ruffs here have been within approximately 200 m from the coastline of a shallow coast or a deep gully, which is wet or moist in most situations when the adjacent meadows are dry (Figure 1).



Figure 1. The positions of nests and chick families found in Wöhrdener Loch and in Nordkoog in Melderfer Speicherkoog 2013-2018: Pink dots: chick families 2018, green dots: chick families 2013-2017 and yellow dots: nests 2013-2017.

The meadows are likely very favourable for breeding ruffs because they are with a poor soil with slow-growing and open grassy vegetation. This habitat is maintained by a quite light grazing by a mixture of cattle and sheep and a late mowing. Actions during the Life Limosa project have

improved the breeding habitat further: a tree line along the eastern edge of the meadows has been removed thereby reducing the predation risk by avian predators on the meadows, and several gullies has been blocked, thereby retaining more water in dry periods and prolonging favourable feeding conditions for the ruffs including in the core area of the species.

Ruffs in Dithmarscher Speicherkoog Süd

A full day ruff survey was performed 14 June in the meadows in Dithmarscher Speicherkoog Süd (military testing range). No ruff females were seen at the visit. In total 8 males were found. At this date the first returning males from more northern breeding sites can be present, and these observations do not indicate breeding. One male, however, behaved weakly nervous, as if he came from a female.

Compared to the previous years at the same time of the year, the meadows were much drier. Almost all meadowbird families were concentrated in four centres which together only constituted 10-15% of the area. The remaining area was basically without breeding meadowbirds. The vegetation structure all over looked more favourable to ruffs than in the previous years by being lower and more open, but the favourable vegetation structure was most likely counteracted by the very dry meadows due to the drought.

Earlier late May and early June inside the 'breeding window', Volker Salewski reported 8 females and 3 males, and some of these females may have incubated discretely 14 June somewhere in the area without being detected.

Ruffs in Seether Ostermoor

Two recently established polders in Seether Ostermoor provide wetlands and wet meadows in the ruff breeding season in late May till early July in an otherwise quite dry environment. These polders and the adjacent meadows were surveyed for ruff 13 June in the morning and noon. No ruffs were observed.

The water table at the visit 13 June was perfect in the southern polder with plenty of moist ground above water. Large parts of the polder had relatively long and dense vegetation, but there were several patches with apparently attractive vegetation height and structure for breeding ruffs. The southern polder housed a fine number of other meadow breeding shorebirds. There were 8 chick families of lapwings, one chick family of black-tailed godwit, 3 pairs of redshanks, at minimum 8 territories of common snipe and one pair of little ringed plovers.

The northern polder is much smaller and is surrounded by a fox enclosure fence. The vegetation was generally higher and denser in the northern polder and apparently less attractive for meadowbirds than in the southern polder and had a more prominent presence of reed. However, densities of meadow breeding shorebirds were comparable to the southern polder: 3 chick families of lapwings, one pair of redshank and two territories of common snipes were observed.

Acknowledgements:

Volker Salewski participated in the surveys in the Speicherkoogs and provided additional data collected during his black-tailed godwit work. Holger Bruns, Preben Clausen, Jutta Hansen, Brigitte Klinner-Hötcker and Harro Müller shared unpublished data and information. All the above mentioned people plus Oliver Granke, Hermann Hötcker and Walther Petersen-Andresen are thanked for inspirational ideas.

References:

Clausen, P., J.P. Hounisen, T. Asferg, O. Thorup, H.H. Nielsen & M.S. Vissing 2016: Ynglefugle i Tøndermarsken og Margrethe Kog 1975-2015. Evaluering af effekten af en intensiveret rævebekæmpelse og evidensbaserede anbefalinger til forvaltningstiltag. Aarhus Universitet, DCE. <http://dce2.au.dk/pub/SR160.pdf>

Grüneberg, C., H.-G. Bauer, H. Haupt, O. Hüppop, T. Ryslavy & P. Südbeck 2015: Rote Liste der Brutvögel Deutschlands. Ber. Vogelschutz 52: 19-67.

Holm, T. E. 2018: Overvågning af brushane (*Calidris pugnax*) som ynglefugl. Teknisk anvisning. Institut for Bioscience, Aarhus Universitet. http://bios.au.dk/fileadmin/bioscience/Fagdatacentre/Biodiversitet/TAA135_brushane_v2.pdf

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.

Knief, W., R. K. Berndt, B. Hälterlein, K. Jeromin, J. J. Kieckbusch & B. Koop 2010: Die Brutvögel Schleswig-Holsteins. Rote Liste. – Ministerium für Landwirtschaft, Umwelt und ländliche Räume des Landes Schleswig-Holstein.

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