

THE CONSERVATION OF WHIMBRELS (*NUMENIUS PHAEOPUS*) IN SOUTH-EAST HUNGARY

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Abstract

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The steppe-like puszta areas of south-east Hungary are of international importance as regards the migration of European *Numenius* species. The current paper summarizes the results of observations on more than 184 000 individual birds recorded on 411 occasions in the period 1950–1980. A total of 74 specimens were collected for taxonomic and stomach content analysis reasons. An accelerating negative tendency in the migration dynamics of *Numenius* species was explained by the loss of suitable habitats.

Key words: *alboaxillaris* race, conservation, *Numenius phaeopus*, south-east Hungary, stomach contents, taxonomy, Whimbrel

Introduction

Lakatos (1891) and Beretzka *et al.* (1959) have already demonstrated that the southeastern part of the Hungarian Great Plain plays a crucial role in the migration of curlew (*Numenius*) species in Europe. In line with my previous studies (Sterbetz, 1992; 1994) on Slender-billed Curlew (*Numenius tenuirostris*) and Curlew (*Numenius arquata*) I processed my data on the migration of Whimbrels. In the course of this work I tried to find answers to the following questions:

- Where do the Whimbrels which migrate through Hungary come from?
- How have migration dynamics changed between 1950 and 1980?
- What ecological factors influence the migration of Whimbrels?
- What kind of conservation management benefits Whimbrels?

Materials and methods

The migration of Whimbrels along the floodplain of the River Tisza is most concentrated in Csongrád and Békés counties in an area bordered by Szeged Fehértó (46° 25′–20° 10′), Pusztaszer (46° 34′–20° 05′), Csongrád (46° 42′–20° 10′) and Tótkomlós (46° 25′–20° 44′). My studies concentrated on the cca. 20x30 km area between Orosháza (46° 30′–20° 40′), Kakasszék (46° 33′–20° 36′) and Békéssámson (46° 25′–20° 38′). The study

area is a mixture of grazing land, low quality ploughed fields, and permanent and temporary alkali lakes. The numerous literature dealing with the natural characteristics of this region has been summarized previously (Sterbetz, 1975; *in prep.*). Until a few decades ago this area, known as Vásárhelyi-puszta, was continuous grazing land. As soil conditions only permitted extensive grazing and animal husbandry the area always attracted grassland and wetland birds.

Map

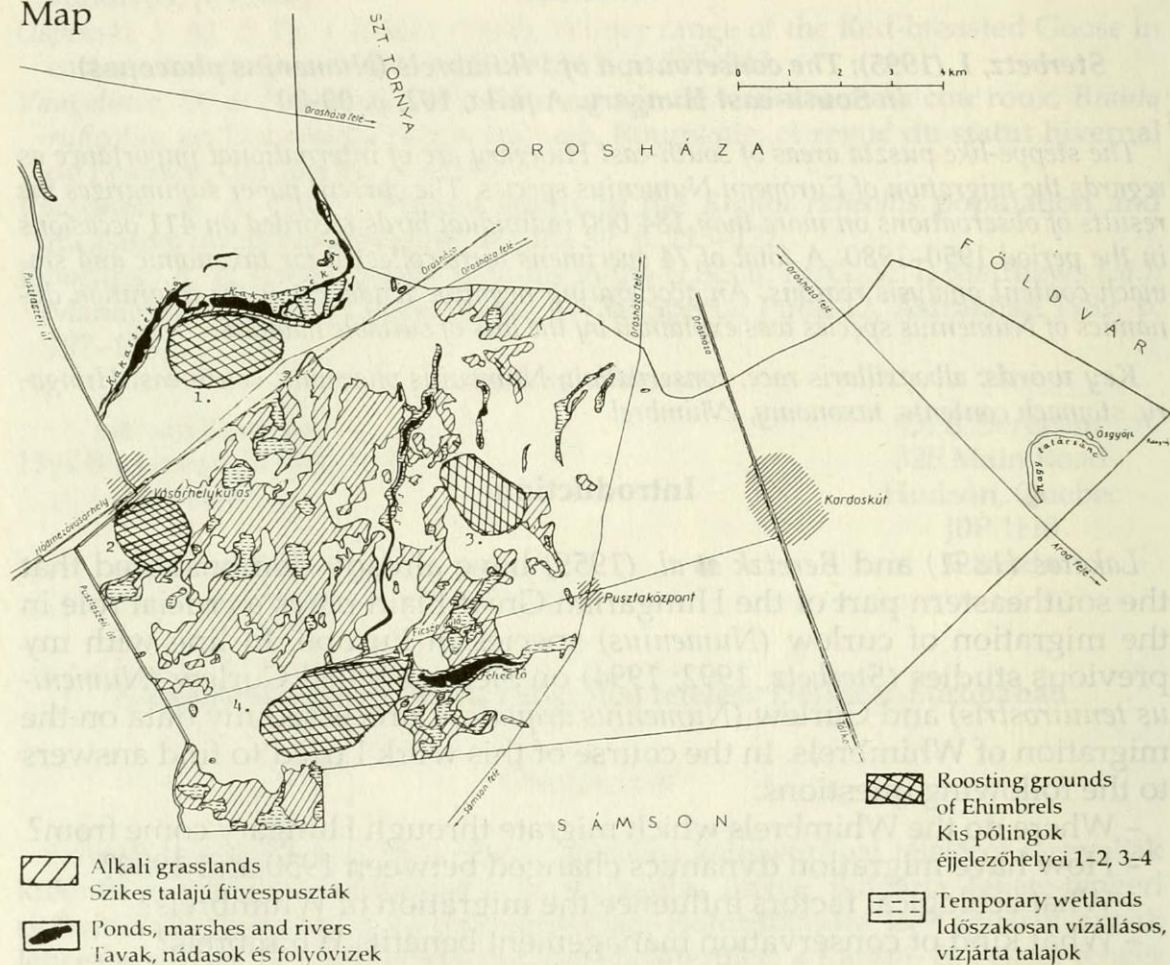


Figure 1. Vásárhelyi-puszta
1. ábra. Vásárhelyi-puszta

In this region Szeged Fehértó previously (1938–1949) provided me with the best opportunities to study Whimbrel migration since the largest flocks in the Carpathian basin gathered here. The conversion of the alkali steppes of Fehértó into fish-ponds was already in progress in the 1950s and due to this and other adverse changes in the environment the area became less suitable for Whimbrels. My emphasis lay on collecting those

data that would help practical nature conservation in the Vásárhelyi-pusztá area. Due to frequent interruptions, my earlier data from the Fehértó are useful for comparison. On the other hand, data collected between 1950 and 1980 from Vásárhelyi-pusztá were applicable for statistical processing. On 411 occasions I recorded a total of 184,871 Whimbrels. A total of 74 individuals were collected for taxonomic and stomach contents studies. Dr. Magdolna Ferencz and Dr. Mária Mészáros of the József Attila University (Szeged) assisted me in the analysis of stomach contents.

Results

Taxonomy

The ranges of the three Eurasian races of Whimbrel stretch from the Faeroes to the Yamal peninsula (Kumari, 1977). The exact origin of the Hungarian migrants is unknown since no ringing data are available. Only taxonomic data may provide some help in determining the exact breeding range of migrants which pass through Hungary. Earlier sources only mention the nominal race (*Numenius ph. phaeopus*) for Hungary. When Portenko (1937) discovered the presence of *N. ph. alboaxillaris* (Lowe, 1921) from the wooded and grassy steppes between the Volga and the Urals, it raised the question of its possible occurrence on migration in Hungary. According to Gladkov (Dementiev & Gladkov, 1951) individuals of the *alboaxillaris* race show completely white axillaries, and the undertail coverts and back are either white or only sparsely spotted. Males of this race have wing lengths exceeding 254 mm, for females those exceeding 252 mm are characteristic. Keve (in Beretzk et al., 1959) attempted to clarify the situation as regards races occurring in Hungary based on 58 specimens collected between 1945 and 1950. He identified 7 male and 12 female specimens of the oriental *alboaxillaris* race on the basis of measuring wing length. Axillaries were white in 19 cases and the back and undertail coverts corresponded in colour in five cases to those described by Gladkov. None of the birds, however, showed both the characteristics of the oriental race in wing length and in coloration.

A set of 74 specimens collected on the Vásárhelyi-pusztá between 1963–1969 were examined together with Keve. Wing lengths indicated the *alboaxillaris* race for 14 males and 16 females. In 8 cases the axillaries, in 11 specimens the back and the undertail coverts were pure white or only sparsely spotted. Again, none of the specimens showed both features simultaneously. Individuals of uncertain taxonomic status may be intergrades between the nominate and *alboaxillaris* race. The increase of such presumed intergrades from 21% of the Szeged material to 66% in the Vásárhelyi-pusztá, in just 13 years, was striking.

These two sets of specimens show that both the nominate race and the presumed intergrade form (or perhaps hybrids?) occur in Hungary. The mixing of the two races is probably ongoing at the border of the ranges of the two races, but the exact area and location of the overlap is not identifiable from the literature. The increasing proportion of intergrade forms of Whimbrel in Hungary indicates a westward shift in migration routes as indeed has happened with the *Numenius arquata orientalis* race of Curlew (Keve & Sterbetz, 1968, 1970; Sterbetz, 1994). The parallel is striking, since the breeding range of the *orientalis* race is also in the steppe zone of the Urals.

Migration dynamics in the south-east of the Great Plain

Whimbrels winter from the sub-tropical zone south to South Africa along the eastern and the Atlantic coasts of the African continent. Their return migration starts in March with the last individuals staying on in the wintering areas until early April. Post-breeding migration starts in late July.

Only a fraction of the birds counted in spring, if any at all, are detected during autumn migration in Hungary. The sporadic occurrence of Whimbrels in autumn was reported by Beretzky (1959) from 1933 on, the time when he began his field work at Szeged Fehértó.

Whimbrels do not have *per se* moulting grounds. According to Kumari (1977) moulting that begins on the breeding ground will only be completed in winter quarters and the next moult also begins there in February. Complete moult is attained gradually during migration and thus birds arrive at their nesting grounds already in fresh plumage. Birds collected by Poslavsky (1968) on the coastal region of the Caspian sea in April and May were in the middle of their moult, I also collected partially moulting specimens on the Vásárhelyi-puszta on the following dates: Kakasszék, March 22, April 12, September 1, 1966 and June 1, 1969; Békéssámson, April 24 and May 2, 1968.

Until the 1950's the migration at Szeged Fehértó involved large numbers of Whimbrels. The earliest date recorded is March 11 and migration reached its peak in late April and finished suddenly in early May. Maximum numbers of birds were estimated by Beretzky *et al.* (1959) to be 15-20 000 birds. Summer or autumn stragglers or migrants were only reported occasionally. My own data presented in Table 1 show similar dynamics at Vásárhelyi-puszta, where at the beginning of the study period the numbers of birds increased due to a change in migration stop-over selection from Szeged Fehértó to this area. The most outstanding migration peak was recorded very early, on April 4, 1958. Out of the 24 800

Table 1. Migration of Whimbrels at Vásárhelyi-pusztá between 1950-1980
1. táblázat. A kis póling vonulása a Vásárhelyi-pusztán 1950 és 1980 között

Month	No. of observation days	Total of individuals (% in brackets)	Daily maximum of Whimbrels observed	Daily average
Hónap	Megfigyelőnapok száma	Megfigyelt példány (zárójelben az arány)	A megfigyelt kis pólingok napi maximuma	napi átlaga
03.	82	26 247 (14,1)	16 030	320
04.	222	157 480 (85,1)	24 800	709
05.	42	576 (0,3)	315	13
06.	21	91 (0,0)	35	4
07.	18	181 (0,1)	150	10
08.	19	240 (0,1)	152	12
09.	4	15 (0,0)	8	4
10.	2	16 (0,0)	10	8
11.	1	25 (0,0)	25	25
Total: Összesen:	411	184 871 (100,0)		

Table 2. Roosting and feeding grounds of Whimbrels
2. táblázat. A kis pólingok éjjelező- és táplálkozóhelyei

Roosting grounds Éjjelezőhely	Feedings ground Táplálkozóhely	Direction Írány	Action radius Akciórádiusz (km)
Kakasszék	Gátér	north-west ÉNY	55
	Cserebökény	north-west ÉNY	30
	Szentes-Lapistó	north-west ÉNY	15
Székkutas	Szókehalom	north-east ÉK	5
	Pósahalom	north-east ÉK	3
	Bogárzó	north-east ÉK	5
Sóstó	Csomorkány	south-west DNY	15
	Pusztaföldvár	east K	10
	Kaszaper	east K	15
Kardoskút és Békéssámson	Csomorkány	west NY	5
	Tótkomlós	south-east DK	10
	Mezőhegyes	south-east DK	20
	Csanádpalota	south D	25
	Szóreg	south-west DNY	50
	Kübekháza	south-west DNY	45

individuals counted in the whole area 15 000 roosted in one flock where today the Kardoskút Reserve is situated. Data show the typical picture of Whimbrel migration on the Great Plain. More than 99% of birds are present in March–April and months from May to November were represented by a range of 0,1%. (My earliest observation was at Kakasszék on March 9, 1951, and the latest at Békéssámson on November 2, 1977).

Circadian activity by Whimbrels was analyzed by *Beretzka et al. (1959)* from, in those days, the predominantly natural habitats of Szeged Fehértó. I noted similar daily activity for the birds accumulating on Vásárhelyi-puszta. They formed V shaped or slanted line flocks and moved out to feeding areas around dawn, returning one hour before sunset. The birds fly considerably lower when returning to the roost. On warmer days they also return to drink at the roost during the day. Table 2 demonstrates the main direction of Whimbrel flocks towards feeding areas, their destination and the distances covered. Flocks roosting 4–5 km apart visited different feeding grounds. Only the birds moving S-SE-SW from Sóstó and Kardoskút mixed with other flocks originating from Bé-

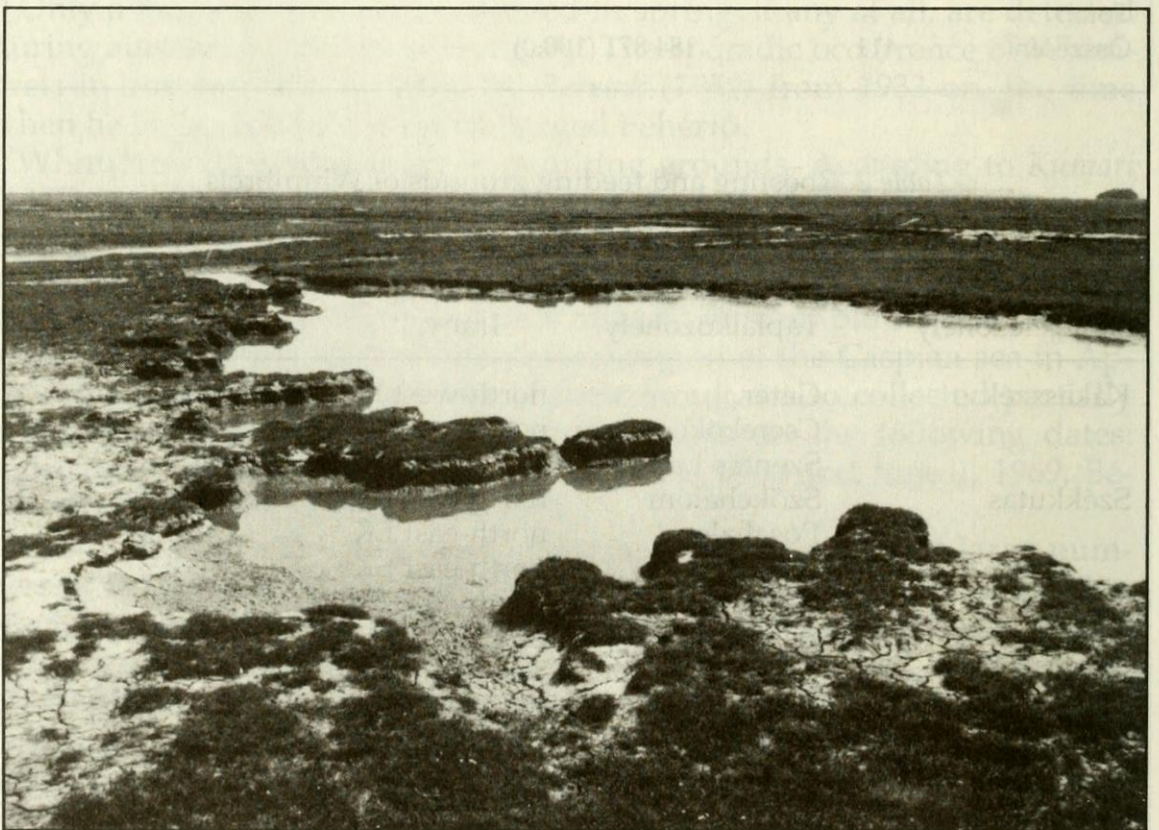


Fig. 2. Roosting ground of Whimbrels at Kardoskút (Photo: Dr. I. Sterbetz)
2. ábra. Kis pólingok éjjelezőhelye Kardoskúton (A szerző felvétele)

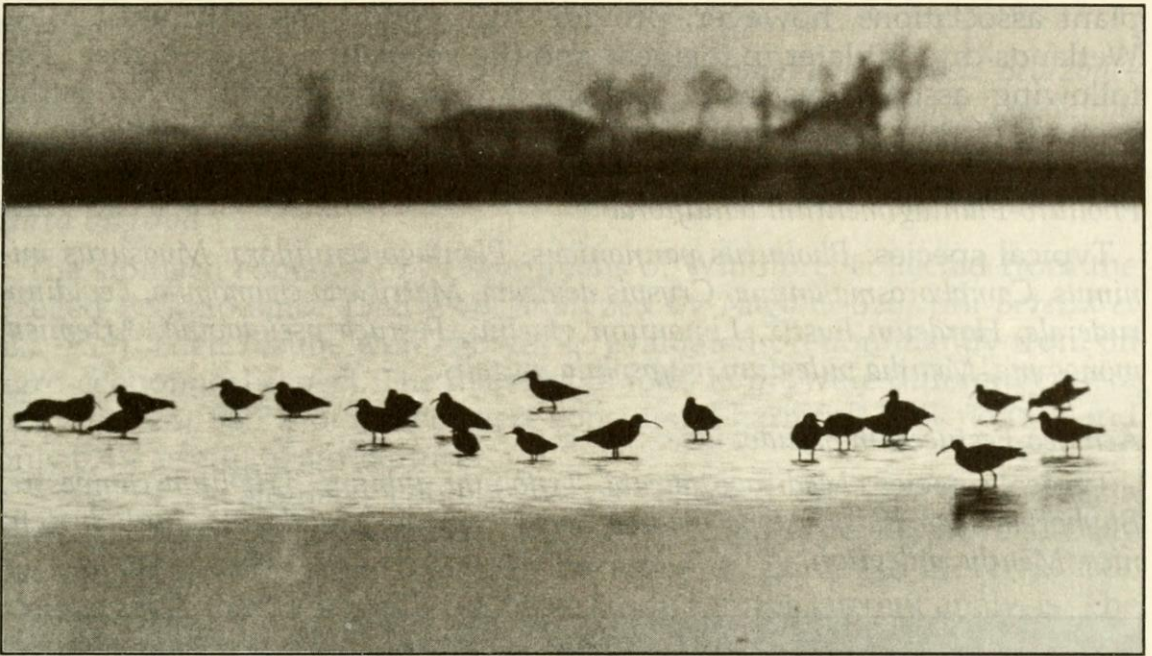


Fig. 3. Whimbrels gathered at drinking site (Kardoskút) (Photo: Dr. I. Sterbetz)
3. ábra. Ivóhelyen gyülekező kis pólingok (A szerző felvétele)

késsámson or Pitvaros puszta. (Pitvaros is also a significant staging ground but due to the lack of continuous sets of data from this area I excluded it from the discussion.) Remarkably, the action radius of Whimbrels sometimes exceeded that of Curlews by as much as 20–25 km.

Ecological character

The study area is meadow-solonec and solonchak-solonec grassland with some steppe characteristics. Its climate is characterized by seasonal extremities, by a cold winter with little snow and a hot, dry summer and 500–550 mm annual precipitation. Spring arrives earlier than in other regions of the country and vegetation appears also earlier than elsewhere. April, the crucial month in the migration of Whimbrels, is characterized by 46 mm average precipitation. Average daily maximum temperature is 16 °C, average median temperature is 11 °C, and average daily minimum is 5 °C (Péczely, 1972).

As opposed to Curlews which roost on the sand banks of alkali lakes, Whimbrels roost on short and wet grasslands. Such areas are available on those deeper spots of the puszta, where grass is somewhat shorter than the tarsus of the birds and is covered by cca. 5 cm of water. The

plant associations, however, provide such conditions only until May. Wetlands dry out later in the year and the vegetation grows higher. The following associations were described from the traditional roosting grounds of Whimbrels on the Vásárhelyi-puszta by Bodrogközy (1965).

Pholiuro-Plantagimentum tenuiflorae

Typical species: *Pholiurus pannonicus*, *Plantago tenuiflora*, *Myosurus minimus*, *Camphorosma annua*, *Cryspis aculeata*, *Matricaria chamomila*, *Lepidium ruderae*, *Hordeum hystix*, *Limonium gmelini*, *Festuca pseudovina*, *Artemisia monogyna*, *Mentha pulegium*, *Gypsophila muralis*.

Achilleo-Festucetum pseudovinae

Typical species: *Medicago falcata*, *Trifolium dubium*, *Trifolium campestre*, *Euphorbia cyparissias*, *Alopecurus pratensis*, *Festuca pseudovina*, *Inula britannica*, *Mentha pulegium*.

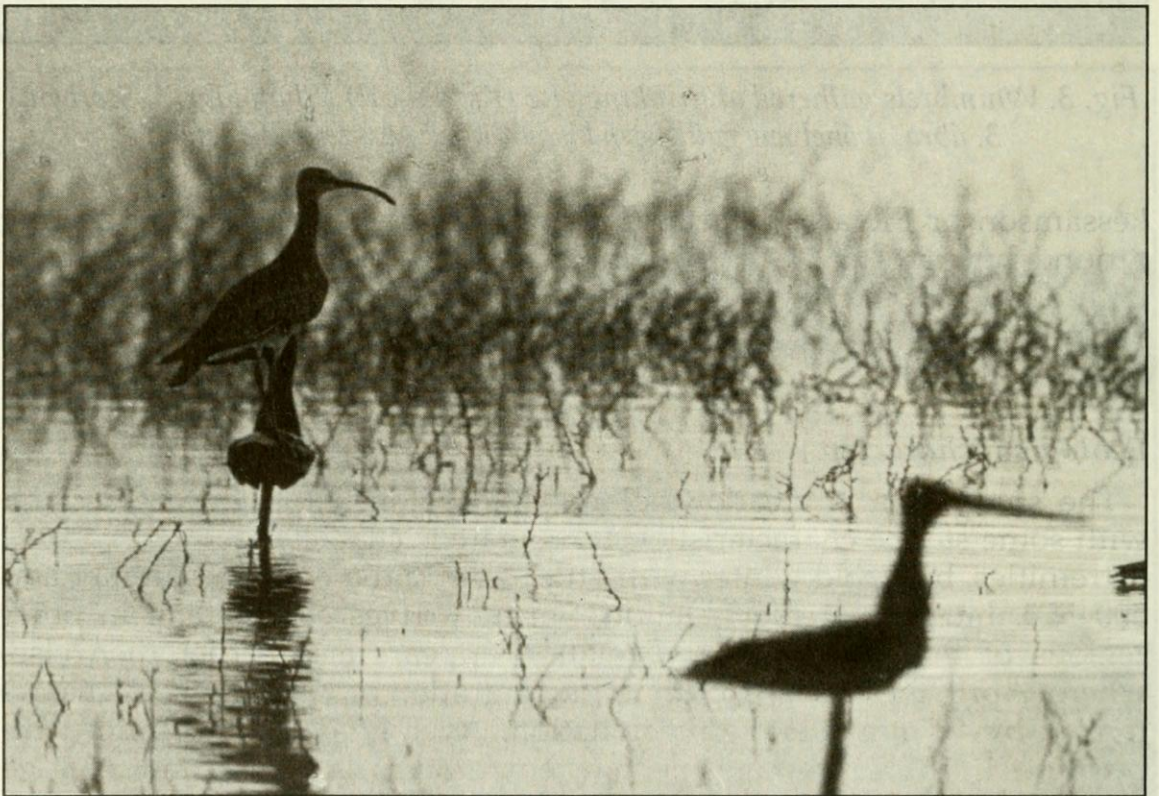


Fig. 4. Whimbrel on decoy put out for photography (Kardoskút)
(Photo: Dr. I. Sterbetz)

4. ábra. A fényképezéshez használt csalimadárra szállt a kis póling
(A szerző felvétele)

Artemisio-Festucetum pseudovinae

Typical species: *Artemisia maritima* ssp. *monogyna*, *Poa bulbosa*, *Scorzonerana cana*, *Gypsophila muralis*, *Trifolium angulatum*, *Hordeum hystrix*, *Limonium gmelini*, *Camphorosma annua*, *Marticaria annua*, *Festuca pseudovina*.

Data on food

The stomach contents of 71 specimens of Whimbrel collected from the Szeged Fehértó since 1945 were analyzed by Nagy & Szijj (in: Beretzka et al., 1959). Their results were, however, evaluated predominantly from an agro-economical aspect. The majority of food items were different genera of *Orthoptera*, 95.7% of insects were considered harmful, 3.9% neutral and only 0.4% useful to agriculture.

A set of 74 stomach contents were collected on Vásárhelyi-puszta between 1963–1969, of which 26 specimens from Kardoskút have already been evaluated (Sterbetz, 1988). In the hope of gaining a more realistic picture I included the results of those studies in the current analysis. The monthly distribution of specimens is demonstrated in Table 3.

3. táblázat. A vizsgált gyomortartalmak gyűjtés szerinti megoszlása
Table 3. Whimbrels examined for stomach contents by month

Month Hónap	No. of specimens Vizsgált minta száma
03.	6
04.	47
05.	7
06.	4
07.	6
08.	1
09.	2
10.	1
Total – Összesen	74

Different genera of prey animals (listed in Table 4) demonstrate a dominance of *Orthoptera* similarly to Fehértó. The frequency of *Rhyzotrogus aequinoctialis* may also be regarded dominant, for which phenomenon the period of April will probably provide an explanation. Some otherwise common pest insects of ploughed fields proved to be subdominant. The rather monotonous diet may be connected to the fact that migration is concentrated in April, when meadows offer crickets and plough fields *Melolonthidea* species, *Noctuidea* worms, *Cleonus* species, *Zabrus tenebroides*

Table 4. 74 Whimbrel stomach examination results
4. táblázat. 74 kis póling gyomortartalmának összesített eredménye

Food sources of animal origin Táplálékállatok megnevezése	No. of times found Előfordulások száma	No. of items Példányszám
<i>Gryllus sp.</i>	52	664
<i>Calliptamus italicus</i>	19	47
<i>Rhyzotrogus aequinoctialis</i>	18	401
<i>Dorcadion cervae</i>	8	122
<i>Noctuidae sp. worm</i> - hernyó	5	120
<i>Bothynoderes punctiventris</i>	5	98
<i>Gastropoda sp. debris</i> - törmelék	5	x
<i>Dorcadion fulvum</i>	4	7
<i>Zabrus tenebrioides</i>	3	9
<i>Harpalus sp.</i>	3	5
<i>Anisoplia austriaca</i>	2	21
<i>Scarabeidae sp.</i>	2	15
<i>Chitin debris</i> - kitintörmelék	3	x
<i>Cicindela sp.</i>	2	3
<i>Carabidae sp.</i>	1	7
<i>Opatrum sabulosum</i>	1	6
<i>Melolontha melolontha</i>	1	2
<i>Cleonus sp.</i>	1	1
<i>Hister sp.</i>	1	1

and *Dorcadion* species which can be collected *en mass* by the bill of Whimbrels. In 234 cases I have detailed notes on feeding grounds with the following distribution: short alkali grass steppe in 168 cases (71.8%), grain stubble in 25 cases (10.7%), early stage rape field in 21 cases (9%), maize sowings in 12 cases (5.1%), wasteland in 8 cases (3.4%). In summer and autumn Whimbrels feed exclusively on grasslands and stubble. It must be mentioned that ploughed fields neighbouring intact grasslands were exclusively selected for feeding. Shallow alkali lakes were only visited for drinking, no feeding birds were ever observed there.

Problems for nature conservation

With the construction of fish-ponds at Szeged Fehértó the number of Whimbrels fell to a small fraction of those from the 1940s. Some of the migrants moved temporarily to Vásárhelyi-puszta. Even though exact numerical trends cannot be drawn from my set of data, the five year totals of birds observed in the region show a significant decline, especi-

ally from 1971 on. Hunting was mentioned as a reason for this decline since it was a long-standing local tradition (*Lakatos, 1891*). The infamous activities of hunters serving markets had ceased by the turn of the century. From the 1930s to 1970, the year when *Numenius* species received full legal protection, curlew hunting around Szeged and Hódmezővásárhely was a sport activity for some 15-20 hunters for only a few days in every season. This moderate hunting pressure did not significantly influence the number of birds. The hunting of *Numenius* species in other parts of the country has never been significant.

The loss of the food supply due to agrochemical agents was also hypothesized but this is not supported by further evidence. The transformation of habitats, such as canalization, melioration of alkali steppes and high grassland vegetation due to a cessation in livestock grazing are, undoubtedly, key reasons in the decline of Whimbrels (*Sterbetz, 1995*). The decline of migrating birds mentioned previously strongly correlates with the development of such habitat changes.

Habitat decline due to a change in grazing practices is overwhelming on Hungarian alkali steppes. Considering such a large area this may be a reason for the shift in migration routes of Whimbrels. This hypothesis needs, however, further support.

To halt these negative trends the puszta protection program of the official Hungarian nature conservation body may provide the necessary results.

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A kis póling (*Numenius phaeopus*) természetvédelmi problémái Délkelet-Magyarországon

Sterbetz István

A szerző 1950 és 1980 közötti időszakban Orosháza és Békéssámson térségében, mintegy 20 x 30 km oldalhosszúságú, téglalap alakú mintaterületen tanulmányozta a kis póling vonulását. A gyomortartalom-vizsgálatok céljára 74 példány kis pólingot gyűjtöttek be (még a faj védetté nyilvánítása előtti időszakban). A taxonómiai vizsgálatok alapján a begyűjtött példányok közül 25 a faj törzsalakjának (*Numenius phaeopus phaeopus*), 49 példány pedig a faj törzsalakjának és a *Numenius haeopus alboaxillaris* Lowe, 1921 alfaj átmeneti alakjának bizonyult. Az alfajok közötti keveredés ténye alapján feltételezhető, hogy a Magyarországon átvonuló kis pólingok a két alfaj érintkező – esetleg átfedő (?) – költőterületéről származnak.

A szerző a vadászatot Magyarországon nem tekinti a kis pólingok állományát károsító tényezőnek. Az elvégzett gyomortartalom-vizsgálatok nem igazolták a kemizáció következtében esetlegesen fellépő időszakos táplálékhiányt a táplálkozóterületeken. A gyülekezőhelyek mezőgazdasági célú kiszárítása, a sztyepp jellegű növényzet intenzív használata (műtrágyázás, öntözés) és a legeltetés elmaradása azonban az élőhelyeket előnytelenül átalakító, káros folyamatok. A pólingfajok Magyarországon 1970 óta védettek. A természetvédelem programot dolgozott ki a sztyepp jellegű területek megőrzésére, azok természetközeli állapotának visszaállítására. Az élőhely-rekonstrukciós munkák remélhetőleg javítják majd a pusztai környezethez kötődő madárfajok létfeltételeit.