

WHITE-TAILED LAPWING (*Vanellochettusia leucura*) IN LAKE SYSTEMS OF SYRDARYA RIVER'S DELTA (CARTMA LAKE)

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Abstract: This article generalizes data of authors collected in course of birds count at Cartma lake, in period of 2014-2016. Distribution, quantity, ecology of white-tailed lapwing (*Vanellochettusia leucura*) is considered in details. White-tailed lapwing is a medium-sized wader; body structure largely resembles black-sided lapwing but the size is slightly lesser. At present time, on territory of Kazakhstan, the white-tailed lapwing is nesting at wetland stations of middle and downstream (from border with Uzbekistan to North Aral sea), system of lakes in delta of Syr-Darya river, in the north part of Caspian sea. Quantity of white-tailed lapwing on studied Cartma lake is determined in limits of 30-150 specimen; this is the result of season nature of countings, area of studied water body surface. A characteristic feature of this species is a peculiar voice, descriptively translated as "chetyre, chetyre" ("four, four" in Russian), increasing at approach to nesting sites. Analysis of special literature on ornithology of eastern site of Aral sea and lakes of Syr-Darya river delta showed that for two hundred years period, white-tailed lapwing mostly adheres to constant habitats. Nesting station is located in shore zone, at sandbars and isles.

Key words: Cartma lake, wetlands, white-tailed lapwing, distribution of avifauna, food specialization of birds, E.A. Eversmann.

1 Introduction

During birds counting in 2014-2016, authors recorded distribution of 67 species of avifauna in limits of lake Cartma (Sihanova and Rahimov, 2016; Sihanova and Rahimov, 2017); grouping of ornithofauna in unit of upper classification-taxonomy range at level of bird taxons is shown in fig 1 (Sihanova & Rahimov, 2017).

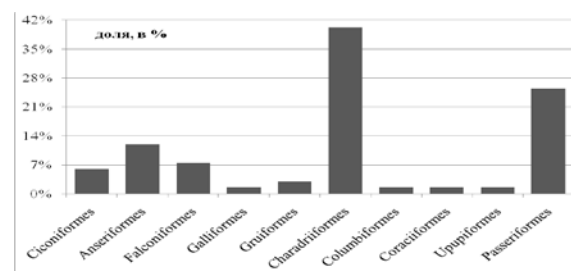


Fig 1. Proportion of avifauna taxons forming ornithocoenosis of Cartma lake (2014-2017).

According to Fig. 1, in lake system of Syr-Darya river delta, Charadriiformes represents more than 40% of avifauna population [3]. Dominating position in Charadriiformes structure is held by fauna of waders; in bird population of Aral sea and lake system in Syr-Darya river delta they represent one of major groups, both nesting and migrating and estivating. Seasonal distribution of shown classification-taxonomy range is represented by warm season, from spring to autumn. Comparatively larger species wealth among waders is characteristic for white-tailed lapwing *Vanellochettusia leucura* (Licht, 1823). Due to absence on information on distribution, quantity, ecology of white-tailed lapwing in contemporary period of recovering of lake system of Syr-Daryaa river delta in available literature, authors arranged scientific expeditionary visits on Cartma lake in period of 2014-2016 (Sihanova & Rahimov, 2017; Ryabitsev et al, 2014).

For Aral sea region (between Kuvan-Darya and Jana-Darya, old beds of Syr-Darya river downstream), white-tailed lapwing is mentioned for the first time in the work of E. Eversmann [4], Mediterranean endemic of Central Asia (Sihanova and Rahimov, 2017), nesting area of species lies by the border of Syr-Darya river downstream (Ryabitsev et al, 2014), rare endemic species of aquatic avant delta swamp ecosystems Asia (Sihanova & Rahimov, 2017).

White-tailed lapwing is a representative of Charadriiformes taxon, typical wader of medium size, met mostly in wetlands. Its voice is loud, scream, reminds words "chetyre, chetyre, chetyre", may increase at approach to nesting station. Distribution of white-tailed lapwing in Kazakhstan is rather sporadic and includes limited areas of wetlands in desert zone; these are mostly the valley of middle and downstream of Syr-Darya (from state border with the Republic of Uzbekistan to North Aral sea), lake systems of Syr-Darya river delta, north shore of Caspian sea (Dolgushyn, 1962; Aye & Schwiezer, 2012). White-tailed lapwing builds its nests in shoreline, more frequently on sandbars and isles (Yudin, 1965; Mayr & Amadon, 1951; Villalobos Antúnez & Bozo, 2010). The nest itself represents a small notch or even surface paved by dry grass or branches of tamarix (*Tamarix ramosissima*). In general, shore zone of Cartma is a destination of choice for nesting and feeding of this species.

White-tailed lapwing can be found at Cartma lake in warm time of year, from spring to autumn. Usually, lapwing shares the habitat with other waders; these are black-winged stilt *Himantopus himantopus*, collared pratincole *Glareola pratincola*. Shore zone of studied water body as habitat of stated three species may be divided in the following way (from shore to central part of lake): dry shore - collared pratincole, immersible shore - white-tailed lapwing, shore shelf - black-winged stilt (Sihanova and Rahimov, 2016; Sihanova and Rahimov, 2017; Eversmann, 1868; Ryabitsev et al, 2014; Dolgushyn, 1962; Okriashvili, 2017). This community is a result of trophic specialization, beak evolution and feet length. Sharpness, unrelenting attention and loudness of white-tailed lapwing are also significant; this is a signal at approach of strangers (human or animal) (Dolgushyn, 1962; Yudin, 1965; Mayr and Amadon, 1951) This property of white-tailed lapwing is especially useful for collared pratincole, a very trustful bird that may allow a man to approach for a close distance.

2 Object And Methods Of Study

Cartma lake is located in eastern part of North Aral sea (Aral area of Kyzylordinskaya region of the Republic of Kazakhstan); it functions in composition of coastal left-shore lake system of Syr-Darya river delta. Water body was in drained condition from 1988 to 2009; short-term supplies of water in this period were caused by fragmentary increase of Syr-Darya river flow. Water-level stabilization of the water body begun in 2010. Maximum possible area of the lake is 14 km² (Sihanova & Rahimov, 2016; Sihanova & Rahimov, 2017). During bird-counting in period of 2014-2016, area of open water surface varied in limits of 5-8 km² (Sihanova & Rahimov, 2016; Sihanova & Rahimov, 2017; Eversmann, 1868).

At present time, the water-body experiences gradual reduction of open water surface due to activity of heavy reed bed (*Phragmites australis*), that move from east shore in direction of central part of the lake, increasing area of growth zones every year (Sihanova and Rahimov, 2017). Withing year, leaves of *Phragmites australis*, characterized by expressed evapotranspiration (Ryabitsev et al, 2014 Dolgushyn, 1962) serve as additional source of water mass reduction. Average depth of the lake is 1-1.5 m, maximum possible index is 2 m. Shoreline is slightly rugged due to plain type of relief, length of perimeter is 12-14 km (Sihanova & Rahimov, 2016; Sihanova & Rahimov, 2017; Eversmann, 1868; Ryabitsev et al, 2014 Dolgushyn, 1962).

Bird counts were conducted at daytime, at relatively warm and clear weather. Methodical basis of routed counts was composed of works of Yu.S. Ravkin (Ravkin, 1967), with correction for open location. Method: routed count, photographing and viewing of objects (Sihanova and Rahimov, 2016; Sihanova and Rahimov, 2017; Eversmann, 1868). It should be noted that transects were routed not only by habitual shore line; boar routes across the lake were also placed. Minimum allowable distance of

each route - 5 km, speed - 2.5 km/h, duration - 2 hours. Counter's equipment included field diary, field guide on birds of Kazakhstan. Optical means used included 8-fold binoculars and camera. At species definition were used field guides and reference books of V.K. Ryabitsev. (Ryabitsev et al, 2014), multi-volume edition "Birds of Kazakhstan" (Dolgushyn, 1962), as well as books of foreign ornithologists (Gavrilov & Gavrilov, 2005; Svensson, 2010; Wassink & Cocksford, 2015).

3 Results And Discussion

Season dynamic of white-tailed lapwing quantity composition registered during bird counting in 2014-2016 may be traced in Table 2 below.

Table 2. Number of white-tail lapwing specimen at Cartma lake

No.	Counting season	Year of counting	Number of specimen
1.	Spring	2014	80
2.		2015	120
3.		2016	142
4.	Summer	2014	31
5.		2015	143
6.		2016	150
7.	Autumn	2014	42
8.		2015	36
9.		2016	42

According to presented Table 2, lesser number of birds was observed in 2014, during summer counting (31 specimen) and in autumn season of 2015 (36 specimen). Maximum possible quantity of counted birds (1560 specimen) was registered in summer of 2016. IN general, increase of birds numbers in 2014-2016 was observed in spring (from 80 to 142 specimen) and summer season (from 31 to 150 specimen). Registration of autumn season birds shows quite another picture: 42 specimen recorded in 2014 and 2016, while in 2015 record shows 36 specimen. During counting is 2014-2016, this season was characterizes by general emasculation of quantity composition of white-tailed lapwing. Partial shallowing of the water body up to limits of reed growth zone, with further depletion of waders food base stocks due to drainage of shore zone soil may serve as the reason for this. This phenomenon should be studied in details. First, water body shallowing is a result of anthropogenic factor - regulating of Syr-Darya river flow with increase of water pass into North Aral sea (+42 m by Baltic system) though Aklakskiy hydro-hub that provides flow of Cartma lake, as well as of natural process, evapotranspiration of Phragmites australis. Second, thick reed growths are bot included in habitat environment of Aral Sea region waders; here dominate representatives of Ciconiiformes, Passeriformes and duck hawk from Falconiformes taxon (Kovshar, 2012), Respectively, feed base of Cartma lake waders is limited by boarders of water body shore zone (littoral, sublittoral) beyond reed growth. Preparation of white-tailed lapwing to autumn migration and flying to wintering, matching terms of counting conduction is also significant.

In order to compare nesting and distribution of white-tailed lapwing in Aral sea region (Kazakhstan, east part), as well as trace changes in behavior of this species, a summary was composed on the basis of literary sources. With taking into account of the fact that E.A. Eversmann conducted counting of birds from downstream of Syr-Darya river in 1820 (Eversmann, 1868), presented summary covers an interval of approximately 200 years (Table 3).

Table 3. White-tail lapwing nesting and distribution nature in Aral sea region (Kazakhstan part)

No.	Publications	Nesting and distribution nature
1.	Eversmann (1866)	B (nesting)

2.	Bostanzhoglo (1911)	nm (mentioned in bird list in publication but not met)
3.	Zarudniy (1916)	MB (migration and nesting)
4.	Spangenberg, Feygin (1936)	M (migration)
5.	Dolgushin (1962)	B (nesting)
6.	Covshar (2012)	B (nesting)
7.	Berezovikov (2015)	B (nesting)
8.	Varshaavskiy (2015)	B (nesting)
9.	Out data (2014-2016)	B (nesting)

V.N. Bostanzhoglo, in his fundamental study, mentions white-tailed lapwing in general list of birds in region but notes that he did not meet it during counting (Bostanzhoglo, 1911). In publication of Ye.P. Spangenberg, G.A. Feygin, white-tailed lapwing in valley of Syr-Darya river and at east shore of Aral sea is marked by coding "M" - species met in location during spring and autumn migrations (Spangenberg and Feygin, 1936). Stated work is a result of lowland Kazakhstan avifauna study initiated by authors in period of 1924-1932, and it is rather possible that in that period white-tail lapwing was not nesting at studied territory.

While analyzing provided summary (Table 3) we may suggest that white-tail lapwing in general adheres to outlined tendency in distribution at east Aral sea region (Sihanova and Rahimov, 2016; Sihanova & Rahimov, 2017). We think that this circumstance may be connected with the statement that birds are extremely conservative at selection of habitat and have an extremely poor ecological adaptiveness in comparison with mammals (Sihanova & Rahimov, 2017).

4 Summary

1. In territory of Kazakhstan, white-tailed lapwing *Vanellochettusia leucura* is met in wetlands of desert zone, particularly in middle and downstream of Syr-Darya river valley; in lake systems of Syr-Darya river delta, including the studied object, Cartma lake; on the shore of North Aral sea and northern shore of Caspian sea.
2. In period of bird counting conduction, 2014-2016, white-tailed lapwing was domination quantitatively in summer season of 2016; the lowest number is registered in summer of 2014.
3. Comparative analysis of literature on ornithology of Aral sea region in Kazakhstan had shown that white-tailed lapwing maintained its nesting areal and generally adhere the distribution stated in cited sources.

5 Conclusion

Last regression of Aral sea starter in 60s of XX century had changes biological variety of the whole Aral sea region. Implementation of ecological project PPCCAM (regulation of Syr-Darya river bed and North Aral sea) conducted in 2005, promoted preserving of wetlands in lake system of Syr-Darya river delta and North Aral sea. In result, gradual restoring of biological variety of Kazakhstan part of Aral sea region is observed. After process of restoring started, birds were among the first to populate this territory; birds are good indicators of environment conditions. In current period, study of quantity composition dynamics and ecology of avifauna of Aral sea region is one of tasks of priority. Lake Cartma included in lake system of Syr-Darya river delta was the object of this study. It is a place of ornithofauna stops during spring and autumn migrations. Taxon Charadriiformes dominates in structure of bird fauna of the lake. Subject of study is white-tail lapwing, wader distributed in Kazakhstan territory in limits of middle and downstream and lake system of Syr-Darya river. Ecology, quantitative composition of white-tailed lapwing in region is insufficiently exposed in literature. In result of bird counting, gradual growth of white-tailed lapwing in spring and summer season in 2014-2016 wqas observed.

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