13. Preliminary data on the ecological density of *Eremias arguta* from grindul Chituc (Danube Delta Biosphere Reserve – Romania)

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ABSTRACT. In August 2007 the author recorded the *Eremias arguta* specimens occurrring on the first row of high dunes from the coastal area of the central part of grindul Chituc. On the respective transact of about 3,2 km length there were present 371 individuals of *Eremias arguta*, representing an average of one lizard at every 8,5 m (roughly). On the respective, stripelike and very narrow habitat type (having a total surface of about 12,650 m^2) the average density of the *Eremias arguta* was 293.3 specimens / ha.

KEY WORDS: *Eremias arguta*, reptiles, ecological density, coastal dunes, Romania

INTRODUCTION

The first data on the occurrence of *Eremias arguta* in Romania was provided by Kirițescu, based on specimens captured at the very beginning of the XXth century, by R. von Dombrovsky, in site nearby lake Sinoe [9] (the same record is mentioned in some other works published by Mertens [13], Kirițescu [10] etc.). In 1911, Grigore Antipa confirmed the presence of *Eremias arguta* from the sand-dunes of the Danube Delta [1]. In his work published in 1934, Mihai Băcescu provides data on a specimen of *Eremias arguta* captured nerby Enisala [2], probably in a site of the actual territory of the Danube Delta Biosphere Reserve (DDBR). Some years later, Băcescu also indicates grindul Caraorman and grindul Letea as sites from where reptiles, including *Eremis arguta*, were captured either in June 1935 or July 1937 [3].

In the monographical work of the series Fauna Republicii Populare Române published in 1961, the authors (Ion Fuhn and Ştefan Vancea) indicate the presence of *Eremias arguta* in the Razim-Sinoe lagoonary complex (at Periteaşca) and in the Danube Delta (at Sfântu Gheorghe), respectively at Mamaia - a site just few km soutward of the Danube Delta Biosphere Reserve [8]. In a paper published in the same year, Fuhn and Vancea provides data on the years when *Eremias arguta* specimens were captured at Mamaia (1958), on grindul Letea marine levee (at C. A. Rosetti in 1958, in Letea – Cardon area in 1951 and 1952, and at Letea in 1959), on grindul Caraorman marine levee (1957), respectively at Periteaşca (1956) [7].

Other areas from the DDBR where *Eremias arguta* was observed are: Gura Portiței [15], grindul Chituc marine levee [15], Histria [16], grindul Perişor [11], Vadu [6] and grindul Lupilor (Zsolt Török, unpublished data).

The publications with data on *Eremias arguta* are mostly faunistical ones. The monographical works of Călinescu [4] and Fuhn and Vancea [7] includes information on the morphology, biology, ecology etc. of the species, without referring to the abundance of the species. Some of the papers provide data on the relative frequency of the species in various marine levees of the lagoonary area [11] or more generally, on country level [5], few of the papers include information on the number of specimens captured [3] or observed [12] in the present territory of the DDBR.

The present paper shows the result of a study on the density of *Eremias arguta* population from grindul Chituc marine levee.

METHODS

In August 19th, 2007 the author has counted the specimens of *Eremias arguta* that occurred on a transact along the easternmost stripe of vegetated dunes from the central-eastern part of grindul Chituc (location of the transact is indicated by the with arrow in **Fig. 5**). The investigation was carried out between 11.00 -

14.00 hours. There was recorded each *Eremias arguta* specimen, being recorded the distance between the individuals and the relative age of the respective specimens (adult, subadult and juvenile) according to their size.

THE STUDY AREA

Grindul Chituc is a marine levee of about 7,700 ha [19], located in the southernmost part of the DDBR (see **Fig. 1**). Most part of the surface of the marine levee is flooded for more than 3 months / year [18] (see **Fig. 2**). Soils of various types [14] (**Fig. 3**) and having various degrees of salt-concentration [17] (**Fig. 4**) have elongated, stripe-like shapes, oriented from north-east to south-west (but only in the southern part of grindul Chituc being parallel with the longitudinal axe of the marine levee and with the Black Sea shore). The different vegetal associations, adapted to the peculiarities of drainage (inundability), soil-type and soil-salinity, are also occurring roughly as stripes, as it is seen in sattelitary images (**Fig. 5**).

The investigated transact was on the sandy dunes, parallel to the Black Sea shore, roughly to 50 m distance from the shore-line. The vegetation is represented by scattered bushes of *Leymus sabulosus*, *Artemisia* sp., *Salsola* sp., *Eryngium maritimum*. Very rarely occur on this dunes other species, like *Crambe maritima*, *Gypsophila perfoliata*, *Argusia sibirica* etc.

The starting point of the transact was the end of the road which leads to the northern end of the only concrete road. The ending point of the transact was the path from the closest fishery station located at abot 3,2 km northward of the starting point of the transact (**Fig. 6**).

RESULTS AND DISCUSSIONS

Acording to the measurements, the total lenght of the transact was 3,162 m. This distance does not include the width of the 13 roads that intersected the transact (usually these are about 4 - 5 m wide roads).

On the transact we have recorded a total number of 371 specimens of *Eremias arguta*, out of which:

- 354 specimens were adults;
- 9 specimens were subadults;
- 7 specimens were juveniles;
- one specimen was not included into neither of these categories (being observed for a period too short for a proper assessment).

Taking into account the fact that these specimens were recorded along the transact having a total length of 3,162 m, this menas that at each about 8,5 m there was recorded an individual of *Eremias arguta* on the external row of high, vegetated sand-dunes from the respective sector of grindul Chituc.

Although the lizards were using as shelter the bushes, some specimens were present even at about 2 m left or rigth from the ”central” row of vegetation (which usually was on the top of the respective sand-dunes. This means that the investigated habitat, populated by the respective 371 specimens, has a total surface of 12,648 m^2. This means that in the respective peculiar habitat type, the average density of the lizards was 293.3 specimens / ha.

We have to mention that *Eremias arguta* specimens were also recorded outside of the investigated transact, mostly toward the central part of the marine levee, but at less than 200 m from the Black Sea shore. Practically, *Eremias arguta* occurs only from the row of sand-dunes investigated by us till the edge of the areas with dense vegetation (dominated usually by *Juncus* sp.).

CONCLUSIONS

In the transact of 3,162 m length and about 4 m width, placed along the first row of high dunes from the coastal area of the central part of grindul Chituc, there were recorded 371 specimens of *Eremias arguta*. This is representing an average number of one lizard at every 8,5 m of the respective elongated, stripe-like section of the sand dunes, meaning 293.3 specimens / ha.

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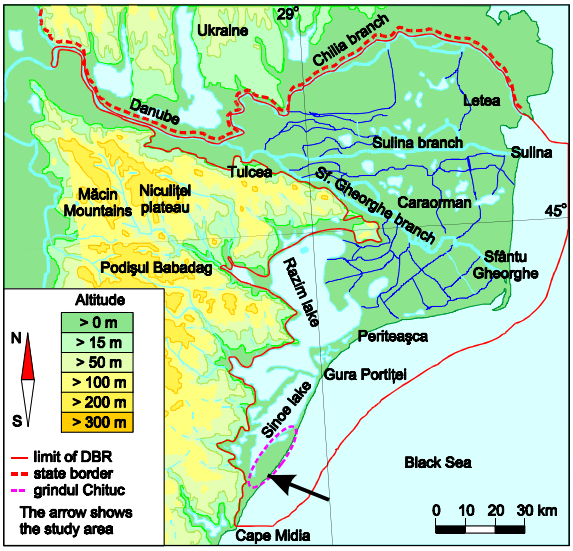

Fig. 1. Geographical position of grindul Chituc and the investigated transact.

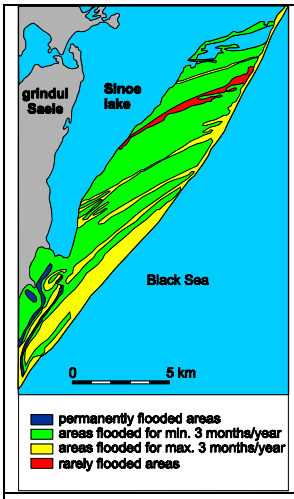

Fig. 2. Inundability of grindul Chituc [18]

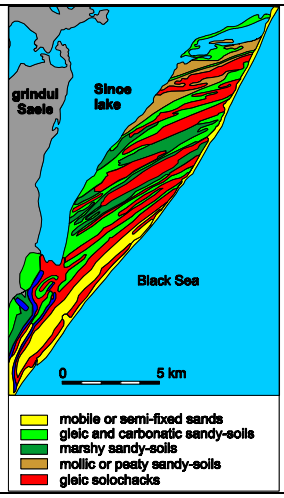

Fig. 3. Soils of grindul Chituc [14]

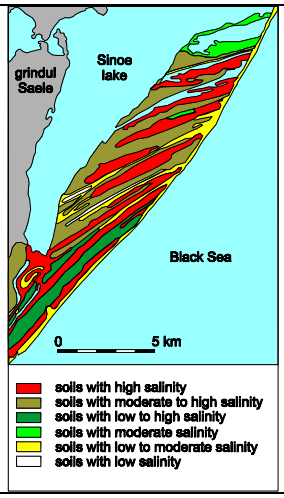

Fig. 4. Salinity of soils from grindul Chituc [17]

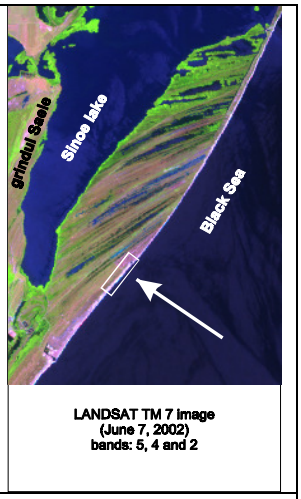

Fig. 5. Sattelite image of grindul Chituc area

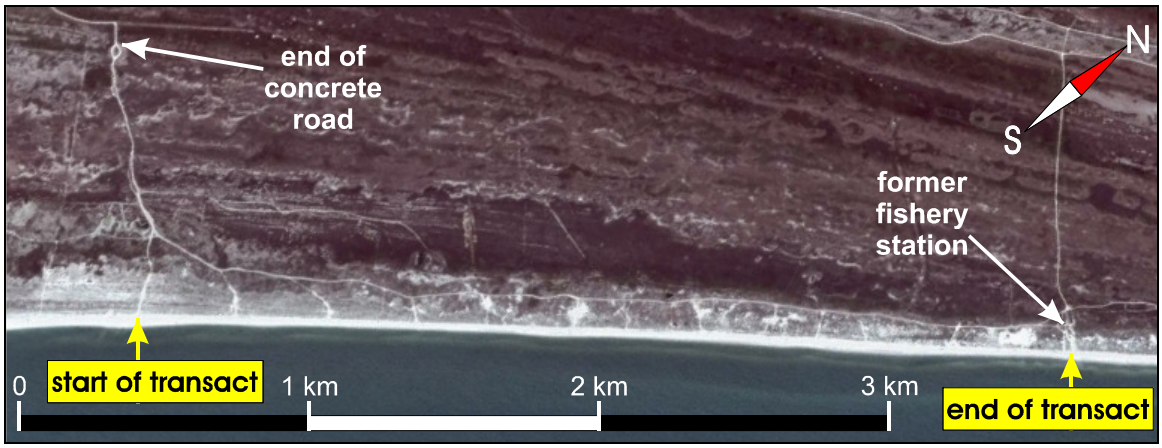

Fig. 6. Sattelitary image of the study area with the extremes of the investigated transact

Note. Source for support-image: GoogleEarth.