

Quaternary birds of the Baikal region, East Siberia

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Abstract. Avian remains were described from one mid-Pleistocene and 10 late Pleistocene to Holocene localities of the Baikal region in Siberia. Together, 21 species were identified. Most of them still inhabit the area, but *Apus melba* has now its nearest known locality in western Kirghizia, and *Struthio asiaticus* became extinct.

Aves, late Quaternary, East Siberia

INTRODUCTION

The Quaternary history of the bird fauna of the Baikal region in Siberia is rather poorly known yet. Previously, bird remains were mentioned from the middle Pleistocene locality Zasuchino in Zabajkal'e (Kalmykov 1986), and late Pleistocene archaeological sites of Mal'ta and Krasnyj Jar' in the Angara basin (Ermolova 1978), and Bol'shoj Jakor' in the Vitim basin (Belousov et al. 1990). Ermolova (1978) reported also on a few bird remains from the Holocene archaeological sites of Lenkovka (Mesolithic), and Rutino and Serovo (Neolithic). All of them lay in the Angara basin. East of Lake Baikal, only undated (Pleistocene to Holocene) eggshell remains of the extinct ostrich *Struthio asiaticus* Milne-Edwards, 1871 were described, mostly from surface dune deposits (Tugarinov 1930a,b, 1933, Sosnovskij 1932, Ivan'ev 1958a,b, 1964, Ivanov 1960, Gajdučenko & Tivanenko 1978, Imetchenov & Kalmykov 1988, Michajlov & Kuročkin 1988).

In the present paper, we report on the avian remains from one mid-Pleistocene, and 10 late Pleistocene to Holocene localities of the Baikal region. These bird remains are deposited in the Buryat Institute of Social Sciences, Ulan-Udè (loc. Ust'-Kjachta 17), and in the Buryat Geological Institute in Ulan-Udè (all other localities). Avian taxa are arranged according to Voous (1977). Minimum numbers of individuals were calculated after Grayson (1984). Bird remains were identified by J. Mlíkovský, stratigraphical data are by F. Chenzychenova and A. Filippov. For accompanying mammal faunas see Chenzychenova et al. (1991), and Chenzychenova (1994, in prep.).

RESULTS

1. Igetej

LOCALITY. At Bratsk dam, Irkutsk Province, Russia. The bones were collected in 1990 by F. Chenzychenova from the upper part of grey sands underlying cultural horizons. Age of the locality is younger half of the the Middle Pleistocene, according to the morphology of *Dicrostonyx* and *Lagurus* teeth (Chenzychenova 1994).

BIRD FAUNA. Cf. *Calidris* sp.: distal part of a juvenile tarsometatarsus, belonging to a very small species; MNI = 1. The identification is tentative. *Passeriformes* indet.: several bones of very small, mostly juvenile passerines. Two partial premaxillae belong to a single species of an unidentified insectivorous bird. MNI = 2.

2. Mal'ta (Transeja)

LOCALITY. At Belaja river, Irkutsk Province, Russia. The bones were collected in 1993 by F. Chenzychenova and G. Šuspanova from grey dayish soil. Estimated age is the end of the late Pleistocene.

BIRD FAUNA. *Lagopus lagopus* (Linnaeus): mandible, furculum, femur dex., 4 tibiotarsi sin., 4 tarsometatarsi (3 sin., 1 dex.); MNI = 3.

3. Char'jaska 2

LOCALITY. In Tugnuj basin, Republic of Buryatia, Russia. The bones were collected in 1986 and 1987 by F. Chenzychenova from grey sandy loam. Two layers were distinguished, both dated at the end of the late Pleistocene.

BIRD FAUNA (upper layer). *Fringilla montifringilla* Linnaeus: prox. part of humerus dex.; MNI = 1.

BIRD FAUNA (lower layer). *Passeriformes* indet.: A few bones of small passerines.

4. Ust'-Kjachta 17

LOCALITY. In Kjachta County, Republic of Buryatia, Russia. The bones were collected in 1992 by F. Chenzychenova and V. Tašak in black sandy loam from layer 3 (cultural horizon). Age of the layer has been radiometrically estimated at $11\,600 \pm 155$ years BP (SO AN 3091, Tašak 1993).

BIRD FAUNA. *Struthio asiaticus* Milne-Edwards, 1871: eggshell fragments (Tašak 1993). *Delichon urbica* (Linnaeus): humerus dex.; MNI = 1.

5. Kurtun 1

LOCALITY. On Ol'chon island, Irkutsk Province, Russia. The bones were collected in 1991 by F. Chenzychenova and I. Grebnev from layer 1 of these cave deposits. They are Holocene in age.

BIRD FAUNA. *Lagopus lagopus* (Linnaeus): tarsometatarsus dex.; MNI = 1.

6. Brekčievaja

LOCALITY. At Kitoj river, Irkutsk Province, Russia. The bones were collected in 1986 and 1989 by A. Filippov, A. Kutuzov and O. Morozov from red clays (cave deposits) at the depths of 0–10 cm (layer A), and 50–90 cm (layer B). They are Holocene in age.

BIRD FAUNA (layer A). *Tetrao tetrix* Linnaeus: scapula dex.; MNI = 1. *Columba* sp.: coracoid sin., humerus sin.; MNI = 1. The bones fall in the size class of *Columba livia* Gmelin and *Columba rupestris* Pallas, both of which occur in the area. These species cannot be distinguished osteologically and, moreover, are recently known to interbreed widely (Berezovikov & Ščerbakov 1990, Doržiev 1991, Fomin & Bold 1991). *Apus melba* (Linnaeus): 2 humeri (1 sin., 1 dex.); MNI = 1. Greatest length of the measurable humerus was 17.4 mm.

BIRD FAUNA (layer B). *Falco* cf. *tinnunculus* Linnaeus: prox. part of humerus sin.; MNI = 1. *Tetrao tetrix* Linnaeus: dist. part of coracoid sin., dist. part of ulna sin.; MNI = 1. *Gallinago* sp.: prox. part of humerus sin.; MNI = 1. The bone appears to be slightly larger than that of *Gallinago gallinago* (Linnaeus).

7. Tonta

LOCALITY. At Tonta river, Irkutsk Province, Russia. The bones were collected in 1987–1989 by A. Filippov from cave deposits of grass, rock debris and brown soil at depth of 1.5–1.8 m. They are late Holocene in age.

BIRD FAUNA. *Hirundo rustica*: humerus dex., dist. humerus dex, prox. ulna, 4 juv. tarsometatarsi; MNI = 2.

8. Kadilinskaja

LOCALITY. In Primorskij Range, Irkutsk Province, Russia. The bones were collected in 1989 by A. Filippov from cave deposits of grass, rock debris and dark brown and grey soils. Several layers were discerned, including bird-yielding Nr. 4 (Ka-68), 5 (Ka-21), 7 (Ka-72), and 6–8 (Ka-87), all of which are late Holocene in age.

BIRD FAUNA. *Hirundo rustica*: Ka-21: coracoid dex., prox. coracoid sin., prox. humerus sin., dist. humerus dex., carpometacarpus sin., prox. carpometacarpus sin.; MNI = 2. Ka-68: 2 carpometacarpus sin. (1 juv.), 8 juv. tarsometatarsi; MNI = 5. Ka-72: tarsometatarsus; MNI = 1. Ka-87: juv. tarsometatarsus; MNI = 1.

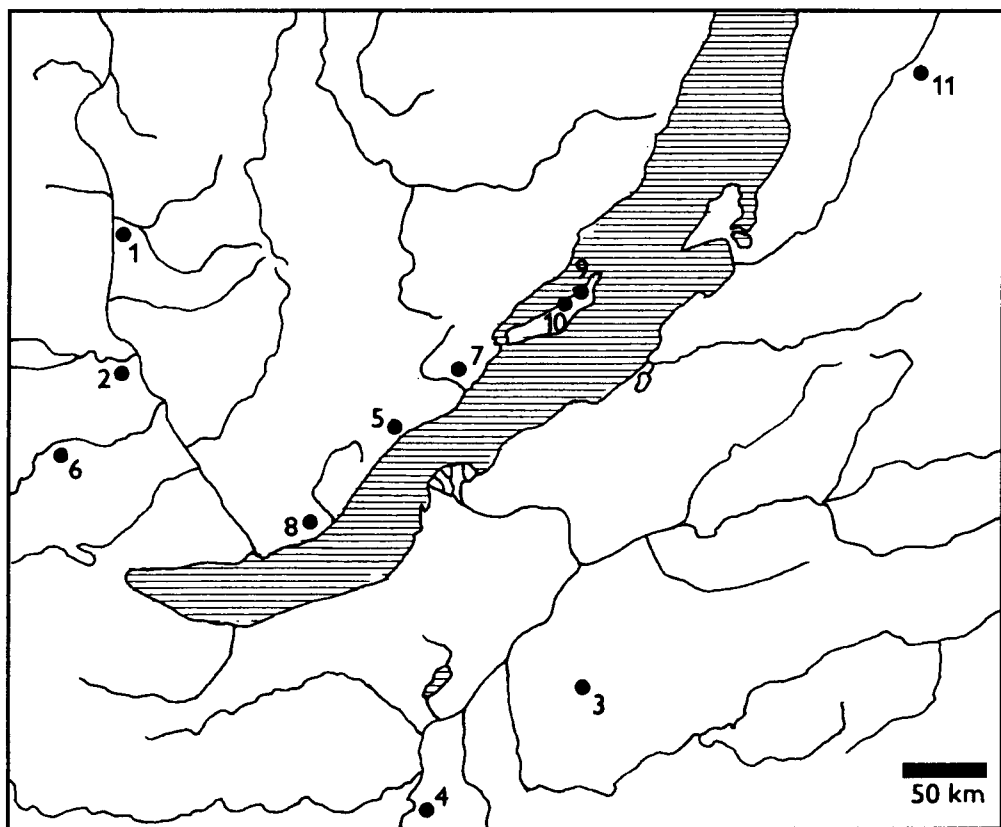


Fig. 1. Quaternary avian localities in the Baikal region, East Siberia. 1 – Igetej, 2 – Mal'ta, 3 – Char'jaska 2, 4 – Ust'-Kjachta 17, 5 – Kurtun 1, 6 – Brckčievaja, 7 – Tonta, 8 – Kadilinskaja, 9 – Šamanskaja, 10 – Boro-Chuchan, 11 – Barguzin Valley.

9. Šamanskaja

LOCALITY. On the Ol'chon island in Lake Baikal, Irkutsk Province, Russia. The bones were collected in 1989 by A. Filippov from cave deposits of light brown clays and sands with gruss. Bird yielding layers include those at the depths of 0–0.1 m (surface, Ša-33), 0.7–0.8 m (Ša-22), and 0.8–0.9 m (Ša-16). They are late Holocene in age.

BIRD FAUNA (Ša-33). *Corvus monedula*: carpometacarpus sin.; MNI = 1.

BIRD FAUNA (Ša-22). *Actitis hypoleucos*: coracoid dex.; MNI = 1.

BIRD FAUNA (Ša-16). *Carpodacus erythrinus*: humerus dex.; MNI = 1. *Carduelis* sp.: symphyisial part of mandible, belonging to a small species; MNI = 1.

10. Boro-Chuchan

LOCALITY. On Ol'chon island, Irkutsk Province, Russia. The bones were collected in 1989 by A. Filippov from cave deposits with gruss, rock debris and brown-grey soils. Their age was estimated at 2500–4000 years BP.

BIRD FAUNA. *Falco tinnunculus*: dist. humerus dex.; MNI = 1. *Corvus monedula*: carpometacarpus sin.; MNI = 1.

11. Barguzin valley

LOCALITY. At Barguzin river, Republic of Buryatia, Russia. The bones were collected in 1981 and 1984 by M. Erbaeva and F. Chenzychenova from undated (late Pleistocene – Holocene) surface dune deposits at two sites, called Kilometer 122, and Kilometer 125.

BIRD FAUNA (Kilometer 122). *Anas* sp. (large): prox. parts of 2 coracoidea sin., 2 carpometacarpus dex.; MNI = 2. *Anas* sp. (small): carpometacarpus sin.; MNI = 1. *Aythya cf. ferina* (Linnaeus): coracoid sin., prox. part of coracoid sin.; MNI = 1. *Fulica atra* Linnaeus: dist. part of tarsometatarsus dex.; MNI = 1.

BIRD FAUNA (Kilometer 125). *Circus cyaneus* (Linnaeus): dist. part of tarsometatarsus sin.; MNI = 1. Anatidae indet.: phalanx I digiti majoris; MNI = 1. *Pica pica* (Linnaeus): prox. part of humerus sin.; MNI = 1.

DISCUSSION

Avian remains recovered from the late Pleistocene to Holocene localities at Lake Baikal are too scarce so far to allow for taphonomical or ecological interpretations. Also, none of the investigated bones has shown any pathological modifications.

One record is highly interesting from the zoogeographical point of view. Two humeri of *Apus melba*, found in the Holocene deposits of Brekčievaja cave, mean that the area of this swift was much more expanded in the near past. Today, this species is distributed in the Palearctic from SW Europe to Kirghizia, where it is a typical bird of south Palearctic mountains (Stepanjan 1990). This record indicates, that the ornithogeographic classifications of south Palearctic mountains, which are based on Recent distributional data (Beme 1975, Banin 1988), may be biased by Holocene extinctions.

One of the species, *Struthio asiaticus*, is extinct. This ostrich was widespread in Asia till the Holocene (Lambrecht 1933, Burčak-Abramovič 1953). Its distribution has never been mapped properly, but the data available indicate, that *S. asiaticus* reached in the Quaternary the northern border of its distribution at 53° N near Bogatovsk in Kujbyšev Province in the European part of Russia (Pidopličko & Goldin 1964), and at 52° N at southern Lake Baikal in Siberia (various localities; Tugarinov 1930a,b, 1933, Sosnovskij 1932, Ivan'ev 1958a,b, 1964, Ivanov 1960, Gajdučenko & Tivanenko 1978, Imetchenov & Kalmykov 1988, Michajlov & Kuročkin 1988,

Tašak 1993, this paper). It is unknown, when the ostrich disappeared from the Baikal region. Tašak (1993) documented, that it lived there at least till the latest Pleistocene (ca. 11 600 yr BP). Gajdučenko & Tivanenko (1978) provided evidence, that the ostrich survived in the Lake Baikal region till the Holocene, but their record is not dated more closely. On the other hand, there is no historical record of the ostrich in this region (Bold et al. 1991, Fomin & Bold 1991).

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