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Quaternary birds from Ostantsevaya Cave, Sakhalin Island
Четвертичные птицы пещеры Останцевая, остров Сахалин

Quaternary birds from the Southern Far East of Russia remain poorly studied (Panteleev, 1999). The region, however, is of great zoogeographical interest, and the study of Quaternary birds from this area is important because it may help to clear up the history of region's avian fauna.

Ostantsevaya Cave is the single locality with Pleistocene age avians on Sakhalin but there are only a few papers in existence concerning Holocene birds from this area (Panteleev, 1997 a, b; 2001; Alekseeva et al., 2000; Kirillova, 2003). The avian remains (with little exceptions from marine species) from Holocene deposits all originate from only 24 localities, the bulk of which are near the seashore. Ostantsevaya Cave, however (49°54' N, 143°20' E), is located in the center of the island, on the western flank of the Eastern Sakhalin Mountain Ridge. Excavations in the cave in 1994—1997 were led by S.V. Gorbunov (Regional museum of Tymovsk). In addition to birds, the numerous mammalian bones from the cave belong mainly to Brown Bear, Reindeer, and hares (Kirillova, pers. comm.). Two bones of **Gyrfalcon** *(Falco rusticolus)* were previously identified from these Cave deposits (Panteleev, 1997a) and a few radiocarbon dates were obtained recently from mammalian bones found in the main chamber of Ostantsevaya Cave (Kuzmin et al., 2005). These range from 12685 ± 140 to 8040 ± 85 RCYBP. Thus, the deposits of Ostantsevaya Cave are of Late Pleistocene — Early Holocene age.

So far, a total of 28 avian bones from 10 geologically unmarked layers have been identified. The majority of these remains are undamaged, and only a few bones have been identified up to genus, family, or order. The avian bones identified so far are assigned to 7 recent species (Table) and are dominated by the remains of woodland taxa. Exceptions are the bones of the **Snowy Owl** *(Nyctea scandiaca)*, the **Black-tailed Godwit** *(Limosa limosa)* — both open land dwellers,

Table
Таблица

The distribution of bird bones throughout the layers of Ostantsevaya Cave
Распределение костей птиц по слоям пещеры Останцевая

Layer	Species /Вид
1	*Nyctea scandiaca* (I acetabulum), *Hirundapus caudacutus* (1 femur, proximal part), *Picus canus* (1 ulna; 1 humerus)
2	*Oceanodroma* sp. (1 tibiotaisus), *Tetrastes bonasia* (1 humerus), Tetraonidae indet. (1 sternum, fragment), Galliformes indet. (1 carpometacarpus, distal part), *Hirundapus caudacutus* (1 sternum, fragment; 1 furcula)
3	*Picus canus* (1 humerus), *Nucifraga caryocatactes* (1 humerus; 1 carpometacarpus; 1 tibiotarsus), Corvidae indet. (coracoideum, ventral part)
5	*Picas canus* (1 coracoideum), *Nucifraga caryocatactes* (1 tibiotarsus)
8	*Lagopus* cf. *lagopus* (1 ulna, distal part), *Limosa limosa* (1 humerus, distal part)
9	*Nyctea scandiaca* (1 phalanx), *Picus canus* (1 basioccipitale)
10	*Picus canus* (1 ulna; 1 femur), *Nucifraga caryocatactes* (1 ulna)
11	*Picus canus* (1 mandibula), *Nucifraga caryocatactes* (1 tarsometatarsus, proximal part)
12	*Nucifraga caryocatactes* (1 tarsometatarsus)

and one bone of a **petrel** *(Oceanodroma* sp.), a typical oceanic taxon. Remains of the **Grey-headed Woodpecker** *(Picus canus)* and the **Spotted Nutcracker** *(Nucifraga caryocatactes)* are the most numerous; 8 bones of the former and 7 bones of the latter have been identified. The comparative abundance of these species throughout the layers of the cave deposits indicates the presence of the woodland habitats near the cave during the period of their accumulation. The Black-tailed Godwit can be seen in the central Sakhalin only during the period of migration, and the Snowy Owl is common here in winter (Nechaev, 1991). The remains of these species may originate from migrant or nomadic individuals, although we can't exclude the possibility of these species breeding on Sakhalin in the past. The Snowy Owl is a typical representative of the Pleistocene glacial steppe tundra and is very common in Pleistocene avifaunas (Ericson, Tyrberg, 2004). Such landscapes could remain near the cave during the end of Pleistocene and the beginning of Holocene. The representatives of *Lagopus* genus can not be identified based on the distal part of ulna. The **Ptarmigan** *(L. mutus)* is absent on Sakhalin today So we assigned the distal ulna found in layer 8 to the **Willow Grouse** *(L. lagopus),* although this bone might originate from *L. mutus,* if we assume the presence of that species on the island in the past. The predominance of the medium sized arboreal species remains allows us to advocate the natural type of accumulation of the bones. It seems to be unassociated with human activity, and could be caused by predators hunting or by occasional accumulation.

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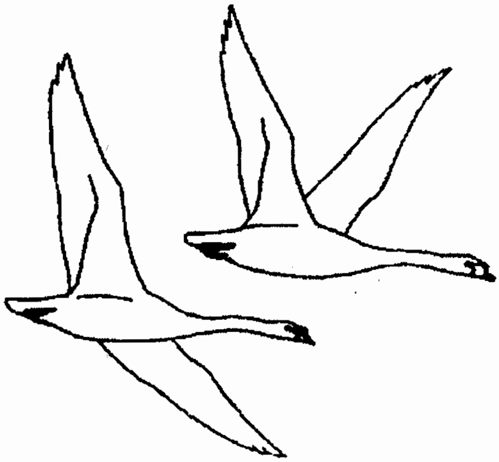

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