Actitis balcanica sp. n. - a Late Pliocene Sandpiper (Aves: Scolopacidae) from Bulgaria

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Introduction

The genus *Actitis* Illiger, 1811 includes two species - the Common Sandpiper (*A. hypoleucos* L., 1758) from Palearctic and the Spotted Sandpiper (*A. macularia* L., 1766) from Nearctic. Both are migratory and breed in the Northern hemisphere. They winter mainly in the Temperate zone to the North and the South of the Equator. Sometimes the genus *Actitis* is placed in the genus *Tringa* L., 1758 (van GILS & WIERSMA, 1996).

Ecobiogeographical characterization of the Common Sandpiper *Actitis hypoleucos* (Linnaeus, 1758) - the closest species of the family

A. hypoleucos is chiefly a migratory species, but in S Europe it is resident. It breeds in a large territory from the northern parts of the Arctic zone to the southern parts of the Temperate zone.The sandy and stony coasts and river banks are the most common breeding grounds. It prefers small sandbanks, gravel or clay shore habitats. Where suitable habitats exist, it breeds in the mountains up to the tree-line. European populations make trans-Saharan migrations (HARRISON, 1982).

It tolerates heavy rains and day-and-night temperature amplitudes. The Common Sandpiper prefers more fast-running rivers and hill streams sloping down to 40 m/km. The nesting range covers mainly the river bank zone up to 50 m from the water.

The Common Sandpiper has disappeared in Denmark, the Netherlands and East Africa as a breeding species in 20th century. The breeding range is highly broken westwards the Poland and Romania (CRAMP & SIMMONS, 1983).

According to VOINSTVENSKIY (1960) *A. hypoleucos* is a species of the riverine landscape of the forest-steppe and the steppe zone. Genus *Actitis* penetrated the

European steppes as early as the Pliocene, where it nests along the river valleys and the shores of lakes.

Fossil records of *Actitis*

Brodkorb (1967) reports about Pleistocene records of *A. hypoleucos* from Italy and Azerbaijan. There are more abundant data on the Quaternary distribution of that species in the more recent literature:

Pleistocene: Late Pleistocene in the Adzhi-Koba Cave in Crimea (Voinstvenskiy, 1960; Baryshnikov & Potapova, 1992); Riss-Wurm Interglacial in Borosteni in Romania (Kessler, 1985); Late Pleistocene in Brillenhöhle in Germany (Boessneck & von den Driesch, 1973); Late Pleistocene in Riparo di Fumane in Italy (Cassoli & Tagliacozzo, 1994); Wurm III (28 000 B.P.) to Postglacial (ca. 4000 B.P.) in a series of sites in S France and Catalogna in Spain (Vilette, 1983); Tardiglacial in the Jean-Pierre 1 Cave (Mourer-Chauviré, 1994), Magdalenian in the Grotte du Rond-du-Barby (Mourer-Chauviré, 1974), Wurm III in La Ferrassie (Mourer-Chauviré, 1984), Epipaleolithic in the Villars-sous-Dampjoux (Thevenin et al., 1977), Middle Pleistocene in the Combe-Grenal a Domme in Arago in France (Mourer-Chauviré, 1975); Pleistocene in Crimea (Dementjev, 1960); Wurm (Aurignacian) in the Grotte de Fumane in N Italy (Bartolomei et al., 1992) and 400 - 1800 B.P. on the Fais Island in the Yap State of Micronesia (Steadman & Intoh, 1994).

Holocene: Arago in France (Mourer-Chauviré, 1975); Sites in the Pyrenees (Clot & Mourer-Chauviré, 1986),

The other species, *A. macularia*, is known only from one Pleistocene site - Haile in Florida (Brodkorb, 1967).

Bulgarian find of *Actitis*

The only record of that genus in the country comes from the Middle Villafranchian site near the town of Varshets. It represents a distal half of the right tarsometatarsus of an adult individual. Total length of the find - 12,6 mm. Some data on the site and the recovered vertebrate fauna were published by Boev (1992; 1995 a, b; in press).

Actitis balcanica sp. n.

Holotype: Tarsometatarsus dex. dist. (Fig. 1 - a, b). Collections of the Fossil and Recent Birds Department of the National Museum of Natural History,

Fig. 1. *Actitis balcanica* sp. n., tarsometatarsus dex. dist., NMNHS-45 (holotype): a - cranial view, b - medial view (Photographs: Boris Andreev)

Bulgarian Academy of Sciences, No NMMNHS - 45. Collected on 30 June 1993 by Z. Boev.

Paratypes: No additional material was collected and no paratypes were specified.

Locality: A ponor in a rocky hill, 6 km NNE of Varshets (43° 13' N, 23° 17' E).

Horizon: Unconsolidated, unstratified sediments accumulated in the filling of clay terra-rossa. The fossil bones are broken, sometimes making a kind of bone breccia.

Chronology: Middle Villafranchian. The associated fauna of mammals (SPASSOV, 1998; V. Popov - pers. comm.) attributes the site to the MN 17 zone according to the chronostratigraphical system of MEIN (1990).

Etymology: The name „*balcanica*" is given after the „Balkan Range" („Stara-Planina") - the main mountain chain of the Balkan peninsula.

Measurements: see Table 1, Fig. 2.

Table 1

Measurements of distal tarsometatarsus of fossil and recent *Actitis*

Specimen	a	b	c	d	e
Fossil					
Actitis balcanica sp. n. - NMNHS 45	1.7	1.2	2.7	1.3	1.0
Recent					
Actitis hypoleucos - UCBL 170/ 1	1.7	1.4	2.9	1.0	1.0
Actitis hypoleucos - NMNHS 1/ 1982	1.8	1.4	2.7	1.1	1.2
Pluvialis squatarola - UCBL 153/ 2	2.5	2.3	4.9	1.6	1.7
Pluvialis squatarola - UCBL 153/ 1	2.3	2.3	4.3	1.8	1.7
Pluvialis squatarola - UCBL 153/ 4	2.6	2.4	4.6	1.7	1.8
Pluvialis squatarola - UCBL 153/ 3	2.9	2.4	4.9	1.9	2.0
Pluvialis apricaria - UCBL 154/ 3	2.4	2.2	4.0	1.6	1.7
Pluvialis apricaria - UCBL 154/ 1	2.5	2.3	3.9	1.8	1.8
Pluvialis apricaria - UCBL 154/ 2	2.5	2.4	4.5	1.9	1.8
Tringa totanus - UCBL 171/ 2	2.6	1.8	4.2	1.8	ca. 1.4
Tringa totanus - UCBL 171/ 3	2.4	1.8	4.3	1.5	1.4
Vanellus vanellus - UCBL 144/ 3	3.0	2.5	5.1	1.9	2.0
Vanellus vanellus - UCBL 144/ 5	3.0	2.2	5.0	1.9	1.9
Vanellus vanellus - UCBL 144/ 6	3.1	2.5	5.3	2.0	2.0

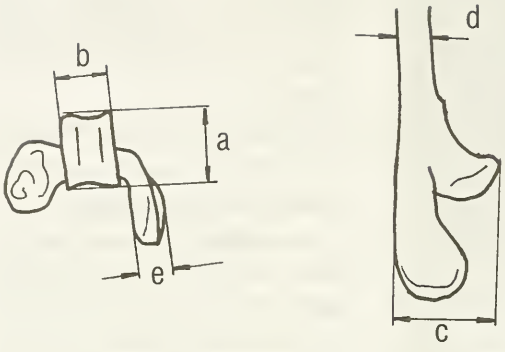

Fig. 2. The manner of measurings of distal tarsometatarsus of scolopacid species (Drawing: Vera Hristova)

Comparison: The holotype has the specific appearance of a small charadriid bird. It differs from the larger genera as *Pluvialis*, *Burhinus*, *Himantopus*, *Haematopus*, *Recurvirostra* and *Vanellus* by its much smaller size and the less developed relief of the trochlea metatarsi II, whose condiles are almost indistinguishable. The relief of the caudal side is better developed and the fossa metatarsi I is outlined very clearly. The specimen differs from *Tringa totanus* metrically and by the shallower relief of the trochlea metatarsi II. It resembles *Actitis hypoleucos* both dimensionally and morphologically.

Diagnosis: A Late Pliocene species of the genus *Actitis*, differing from *A. hypoleucos* by the shallower fossa on the lateral surface of the trochlea metatarsi II and the narrower trochlea metatarsi III.

Collections acronyms: NMNHS - National Museum of Natural History - Sofia; UCBL - Céntre des Sciences de la Terre at the Université Claude Bérnard - Lyon 1.

Comparative material examined: The find from Varshets was compared with skeletons of the following species: Collections of the UCBL: *Actitis hypoleucos* - 170/1; *Pluvialis squatarola* - 153/1; 153/2; 153/4; 153/3; *Pluvialis apricaria* - 154/2; 154/2; 154/3; *Tringa totanus* - 171/2; 171/3; *Vanellus vanellus* - 144/3; 144/5; 144/6; Collections of the NMNHS: *Actitis hypoleucos* - 1/1982.

Discussion

As seen from the above review, the earliest finds of the genus *Actitis* originate from the Late Pleistocene and come chiefly from the South-European sites (France, Spain, Italy, Crimea). The distal tarsometatarsus from Varshets provides the 19th find of the genus. It is the earliest record of the genus *Actitis* as a whole. As the larger part of the breeding range of the genus lies in the Palearctic Region and the earliest finds originate from Europe, we may consider the Pliocene South-European fresh-water shore habitats as the initial grounds, where the genus *Actitis* evolved. The proposed scheme for the evolution of this group of sandpipers is shown on Fig. 3. It is quite possible that *A. balcanica* was the direct ancestor of the recent *A. hypoleucus*.

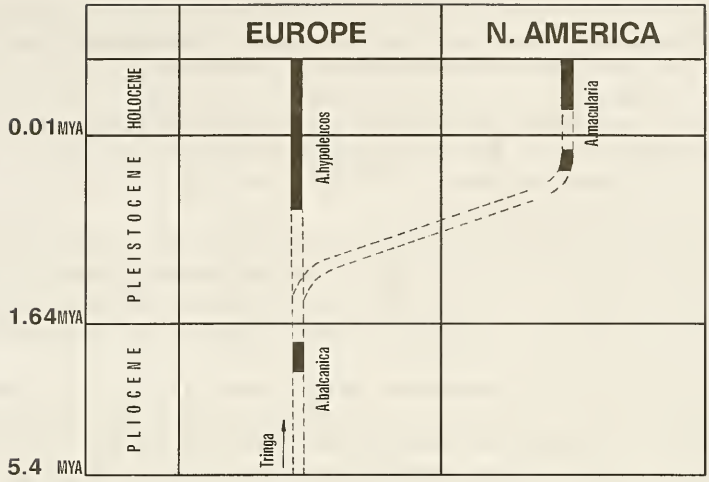

Fig. 3. Possible phylogeny and evolution of genus *Actitis* according to fossil data

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Actitis balcanica sp. n. - късноплиоценски късокрил кюкавец (Aves: Scolopacidae) от България

Златозар БОЕВ

(Резюме)

Описва се *Actitis balcanica* sp. n. по единствена фосилна находка (дистален десен тарзометатарзус) от средно-вилафранкското находище край гр. Вършец (MN зона 17, ок. 2,3 млн. г.). Това е най-старата находка на рода *Actitis* въобще. Новият вид се смята за възможен директен предшественик на *A. hypoleucos* и *A. macularia*. *Actitis balcanica* sp. n. е първият описан фосилен вид в рода. Известните досега 18 фосилни находки на *A. hypoleucos* произлизат предимно от южноевропейски страни (Франция, Испания, Италия, Крим), от което се предполага, че възможният център на възникване на рода е Южна Европа.

Диагноза: Късноплиоценски вид, отличаващ се от съвременния *A. hypoleucos* с по-плитката вдлъбнатина на латералната повърхност на trochlea metatarsi II и по-мясната trochlea metatarsi III.