

Tertiary Avian Localities of Ukraine

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Abstract: Tertiary avian record in Ukraine is rich. Most of the localities are late Miocene and Pliocene in age.

Key-words: Aves, Tertiary, Eocene, Oligocene, Miocene, Pliocene, Ukraine.

INTRODUCTION

Research of the Tertiary birds in the territory of today's Ukraine started in the middle 19th century (Nordmann 1847, 1850-1860, Eichwald 1850). Subsequently, a variety of authors published remarks on these birds, but no systematic research has been done. Summaries of the earlier studies were presented by Vojinstvens'kyj (1967), and Dubrovo and Kapelist (1979).

A problem poses the correlation of Ukrainian deposits with those in western and central Europe. Age of several localities has been determined as to the MN-zones (Gabunia 1979, Tobien 1981, Mein 1990, Fejfar and Heinrich 1990). A comparison of these data for the late Neogene with the epoques used by Dubrovo and Kapelist (1979) is as follows:

Late Pliocene (Chaprov Formation)	– MN 17
Late Pliocene	– MN 16
Middle Pliocene	– MN 14-15
Early Pliocene (Pontian)	– Ø
Late Miocene (Meotian)	– MN 11-13
Late Miocene (late Sarmatian)	– Ø.

From this comparison it follows, that Pontian is synonymous with the Meotian in Ukraine, and corresponds to the Turolian of Mein (1990), i.e. to MN 11-13. Second, it is probable that late Sarmatian in Ukraine is referable to the Vallesian of Mein (1990), i.e. to MN 9-10. It should be noted, that differences between mammal zones are much less distinct in eastern Europe than in the western one. Taman Formation, superceding the Chaprov Formation, was considered as belonging to the late Pliocene by Dubrovo and Kapelist (1979), but is early Pleistocene (Biharian) in age (Tobien 1981, Fejfar and Horáček 1983, Nikiforova and Aleksandrova 1987).

The stratigraphy of the Neogene follows Mein (1990). Museum acronyms are as follows:

- GIK: Geological Institute, Ukrainian Academy of Sciences, Kyjiv, Ukraine
GUN: Novorosijsk State University, Novorosijsk, Ukraine
KGI: Institute of Mining, Krivoj Roh, Ukraine
OGU: Odesa State University, Odesa, Ukraine
PIN: Paleontological Institute, Russian Academy of Sciences, Moskva, Russia
PINK: Paleontological Institute, Ukrainian Academy of Sciences, Kyjiv, Ukraine
SKM: National History Museum, Simferopol', Ukraine
ZIN: Zoological Institute, Russian Academy of Sciences, St. Peterburg, Russia
ZINK: Zoological Institute, Ukrainian Academy of Sciences, Kyjiv, Ukraine.

LIST OF LOCALITIES

(1) KYJIV (Kiev)

Location: in the then Eismann's factory in Kyjiv City, Kyjiv District. Late Eocene, MP ? (Aver'janov *et al.* 1990).

Avifauna: Several bones, attributed to the Graculavidae (*Kievornis*) (Rogovič 1875, Aver'janov *et al.* 1990). Deposited in ZIN. Type locality of *Kievornis rogovitshi* Aver'janov *et al.* 1990.

(2) VOROCHTA

Location: Nadvornaja County, Ivano-Frankovsk District. Oligocene, MP ? (cf. Čerkašenko and Ljaščuk 1960, Ljaščuk 1962).

Avifauna: An unidentified avian egg (Čerkašenko and Ljaščuk 1960, Ljaščuk 1962). Its whereabouts is unknown.



Fig. 1. Tertiary avian localities of Ukraine. The numbering of the localities corresponds with that in the text. Scale bar = 200 km.

(3) DELJATIN

Location: Nadvornaja County, Ivano-Frankovsk District. Early Miocene, MN ?3 (cf. Vjalov 1966).

Avifauna: Avian footprints, attributed to the ichnogenus *Avipeda* (Vjalov and Flerov 1952, Vjalov 1965, 1966). Their whereabouts is unknown. Type locality of the ichnospecies *Avipeda phoenix* Vjalov 1965, and *Avipeda filiportatis* Vjalov 1966.

(4) KOSOV

Location: Kosov County, Ivano-Frankovsk District. Early Miocene, MN ?3 (cf. Tkačenko *et al.* 1967).

Avifauna: Unidentified avian footprints (Vjalov and Flerov 1952, Tkačenko *et al.* 1967). Their whereabouts is unknown.

(5) NADVORNAJA

Location: Nadvornaja County, Ivano-Frankovsk District. Early Miocene, MN ?3 (cf. Dubrovo and Kapelist 1979).

Avifauna: Unidentified avian footprints (see Dubrovo and Kapelist 1979). Their whereabouts is unknown.

(6) SLOBODA (Rungurskaja Sloboda)

Location: Kolomyja County, Ivano-Frankovsk District. Early Miocene, MN ?3 (cf. Dubrovo and Kapelist 1979).

Avifauna: Unidentified avian footprints (Vjalov 1951). Their whereabouts is unknown.

(7) KRIVOJ ROH (Krivoj Rog)

Location: Krivoj Roh County, Dnepropetrovsk District. Late Miocene, MN 9-10 (cf. Dubrovo and Kapelist 1979).

Avifauna: Bones, attributed to the Anatidae (indet.) (see Dubrovo and Kapelist 1979).

Deposited in ZINK.

(8) KERČ' PENINSULA 1

Location: Crimea. Late Miocene, MN 9-10 (cf. Dubrovo and Kapelist 1979).

Avifauna: Unidentified avian bones (see Dubrovo and Kapelist 1979). Deposited in ZINK.

(9) KUBANKA

Location: Kominternovskoe County, Odesa District. Late Miocene, MN 9-10 (cf. Dubrovo and Kapelist 1979).

Avifauna: Remains of an ostrich, *Struthio* (Vojinstvens'kyj 1967). Deposited in ZINK (?).

(10) SOKOLOV (Sokolov sand quarry, Sokolovskij pesčannyj kar'er)

Location: Krivoj Roh County, Dnepropetrovsk District. Late Miocene, MN 9-10 (cf. Dubrovo and Kapelist 1979).

Avifauna: Bones of the Podicipedidae (*Podiceps*), Phasianidae (*Plioperdix*), Accipitridae (*Aquila*), and Anatidae (*Anas*) (Vojinstvens'kyj 1967). Deposited in KGI.

(11) TJAGINKA

Location: Berislav County, Cherson District. Late Miocene, MN 9-10 (cf. Dubrovo and Kapelist 1979).

Avifauna: Remains of an ostrich, *Struthio* (Vojinstvens'kyj 1967). Deposited in ZINK.

(12) JUR'YVKA (Jur'evka)

Location: Bratskoe County, Nikolaev District. Late Miocene, MN 9-10 (cf. Dubrovo and Kapelist 1979).

Avifauna: Egg of an ostrich, *Struthio* (Pidopličko 1956). Deposited in ZINK.

(13) APOSTOLOVO (Všivoe, Vyšiva, Pokrovsk, Novo-Pokrovsk, Pokrovka)

Location: Apostolovo County, Dnepropetrovsk District. Late Miocene, MN 9-10 (cf. Dubrovo and Kapelist 1979).

Avifauna: Egg of an ostrich, *Struthio* (Aleksiev 1916, Roščin 1959, 1962, Michajlov 1988). Deposited in OGU. Type locality of *Struthio alexejevi* Roščin 1962.

(14) ANDREEVKA

Location: Berezanka County, Nikolaev District. Late Miocene, MN 11-13 (cf. Dubrovo and Kapelist 1979).

Avifauna: Unspecified bird remains (Dubrovo and Kapelist 1979). Their whereabouts is unknown.

(15) BELKA

Location: Ivanovka County, Odesa District. Late Miocene, MN 11-13 (cf. Dubrovo and Kapelist 1979).

Avifauna: Bones, attributed to the Struthionidae (*Struthio*), and Phasianidae (“*Gallus*”) (Vojinstvens’kij 1967). Deposited in ZINK.

(16) HREBENYKY (Grebeniki, Grebenniki)

Location: Velikaja Michajlovka County, Odesa District. Late Miocene, MN 11 (Gabunia 1979, Mein 1990).

Avifauna: Bones of the Struthionidae (*Struthio*), Anatidae (*Proanser*), and Ergilornithidae (*Amphipelargus*) (Voznesens’kij 1937, Burčak-Abramovič 1939, 1949, 1951, 1953a,b, Umans’kaja 1979a, Kuročkin 1981). Deposited in ZINK (incl. types of *Palaeostruthio sternatus*, *Proanser major*, and *Urmiornis ukrainus*). Bones of *Struthio brachydactylus* were deported by German army in 1944 (Burčak-Abramovič 1949, 1953a) and their present whereabouts is unknown. Type locality of *Struthio brachydactylus* Burčak-Abramovič 1939, *Struthio brachydactylus* Burčak-Abramovič 1949, *Palaeostruthio sternatus* Burčak-Abramovič 1953a, *Proanser major* Umans’kaja 1979a, and *Urmiornis ukrainus* Kuročkin 1981.

(17) ŽOVTEN’ (Petroverovka)

Location: Širjaevo County, Odesa District. Late Miocene, MN 11-13 (cf. Dubrovo and Kapelist 1979).

Avifauna: Bones of the Struthionidae (*Struthio*), and Phasianidae (“*Gallus*”) (Ganea and Kuročkin 1967). Deposited in OGU.

(18) IL'INKA

Location: Beljaevo County, Odesa District. Late Miocene, MN 11-13 (cf. Dubrovo and Kapelist 1979).

Avifauna: Eggshell fragments and bones of the Struthionidae (*Struthio*), and Corvidae (*Corvus*) (Burčak-Abramovič 1953a, Vojinstvens'kyj 1967). Deposited in ZINK.

(19) KUJAL'NIK HARBOUR (Kujal'nickij liman)

Location: Kominternovskoe County, Odesa District. Late Miocene, MN 11-13 (cf. Dubrovo and Kapelist 1979).

Avifauna: Bones of the Struthionidae (*Struthio*), and Accipitridae (*Aquila*) (Laskarev 1912, Pržemysskij 1912, 1914, Alekseev 1916, Korotkevič 1961, 1972, Kuročkin and Lungu 1970). Their whereabouts is unknown.

(20) NOVA EMETIVKA (Novaja Emetovka)

Location: Beljaevo County, Odesa District. Late Miocene, MN ?13 (cf. Umans'kaja 1979a).

Avifauna: Bones of the Struthionidae (*Struthio*), and Otidae (*Miootis*) (Voznesens'kyj 1939, Burčak-Abramovič 1939, 1953a, Ganea and Kuročkin 1967, Vojinstevns'kyj 1967, Burčak-Abramovič and Vekua 1971, Umans'kaja 1979a). Deposited in ZINK. Type locality of *Miootis compactus* Umanskaja 1979a.

(21) NOVOELISAVETOVKA (Novo-Elizavetovka, Novo-Elisavetovka)

Location: Širjaevo County, Odesa District. Late Miocene, MN 11 (Mein 1990), or MN 12 (Gabunia 1979).

Avifauna: Bones of the Struthionidae (*Struthio*), Phasianidae ("*Gallus*"), and Picidae (*Picus*) (Alekseev 1916, Burčak-Abramovič 1939, Vojinstvens'kyj 1967, Kuročkin and Lungu 1970, Umans'kaja 1981). Deposited in GUN (incl. type of *Struthio novorossicus*), and ZINK (type of *Picus peregrinabundus*). Type locality of *Struthio novorossicus* Alekseev 1916, and *Picus peregrinabundus* Umans'kaja 1981.

(22) NOVOUKRAINKA

Location: Razdel'naja County, Odesa District. Late Miocene, MN 11-13 (cf. Dubrovo and Kapelist 1979).

Avifauna: Remains of an ostrich, *Struthio* (Vojinstvens'kyj 1967). Deposited in ZINK.

(23) SNIGIREVKA

Location: Snigirevka County, Nikolaev District. Late Miocene, MN 11-13 (cf. Dubrovo and Kapelist 1979).

Avifauna: Egg of an ostrich, *Struthio* (Burčak-Abramovič 1953a). Deposited in ZINK.

(24) ČEBOTAREVKA (Morozivka, Morozovka, Čerevičnoe, Čerevičnyj)

Location: Beljaevo County, Odesa District. Late Miocene, MN 11-13 (cf. Dubrovo and Kapelist 1979).

Avifauna: Eggshell fragments of the Struthionidae (*Struthio*), and bones of the Gaviidae (*Gavia*), Anatidae (*Anas*), Falconidae (*Falco*), Ergilornithidae (*Amphipelargus*), and Strigidae (*Bubo*, *Athene*) (Vojinstvens'kyj 1967, Umans'kaja 1973, 1979b, 1981, Kuročkin 1981, Michajlov 1988). Deposited in PINK (*Amphipelargus*), and ZINK. Type locality of *Gavia paradoxa* Umans'kaja 1981, *Falco medius* Umans'kaja 1981, and *Bubo longaevus* Umans'kaja 1979b.

(25) NIŽNIJ STRUTYN'

Location: Rožnjatov County, Ivano-Frankovsk District. Miocene, MN ? (Dubrovo and Kapelist 1979).

Avifauna: Avian footprint, attributed to *Avipeda* (Vjalov 1960, 1965, 1966). Its whereabouts is unknown. Type locality of *Avipeda sirin* Vjalov 1965.

(26) MALYNIVCY (Malinivka, Malinovka, Malinowka, Podlesnoe, Bezymjannaja balka)

Location: Novaja Odessa County, Nikolaev District. Late Miocene, MN ?13 (cf. Roščin 1962).

Avifauna: Egg of an ostrich *Struthio* (Brandt 1873, 1874, 1885, Mäklin 1873, Nathusius 1886, Bakulovskij 1892, Bensley 1921, Burčak-Abramovič 1953a, Schönwetter 1960: 8-10, Roščin 1962). Its whereabouts is unknown, but Burčak-Abramovič (1953a) mentioned a fragment deposited in ZINK, and a cast is perhaps preserved in ZIN. Type locality of *Struholithus chersonensis* Brandt 1873.

(27) NAUMOVKA

Location: Saki County, Crimea. Late Miocene, MN 11-13 (cf. Dubrovo and Kapelist 1979).

Avifauna: Unspecified bird remains (Dubrovo and Kapelist 1979). Deposited in SKM.

(28) NOVAJA SLOBODKA (Slobodka)

Location: Odesa County, Odesa District. Late Miocene, MN 11-13 (cf. Dubrovo and Kapelist 1979).

Avifauna: Bones of the Phalacrocoracidae (*Pliocarbo*), and Accipitridae (*Aegypius*) (Tugarinov 1940, Burčák-Abramovič 1958, Ganea and Kuročkin 1967, Vojinstvens'kyj 1967). Deposited in PIN. Type locality of *Pliocarbo longipes* Tugarinov 1940. Birds were for the first time mentioned from this locality by Widhalm (1886), who named the following new taxa: *Haliaeetus fossilis odessana* var. *major*, *Haliaeetus fossilis odessana* var. *media*, and *Haliaeetus fossilis odessana* var. *minor*. There is considerable doubt on the application of the binomial nomenclature in his paper (Lambrecht 1933). Unfortunately, I was not able to get the original of this Widhalm's publication to check it.

(29) ODESA – SURROUNDINGS

Location: Old collections from unspecified sites around Odesa City, said to be Pontian, i.e. late Miocene, MN 11-13, in age (Dubrovo and Kapelist 1979).

Avifauna: Bones, attributed to the Gaviidae (*Gavia*), Pelecanidae (*Pelecanus*), Phalacrocoracidae (*Phalacrocorax*, *Pliocarbo*), Anatidae (*Cygnus*), and Accipitridae (*Aquila*) (see Dubrovo and Kapelist 1979). Deposited in ZINK (?).

(30) ŠKODOVA GORA (Škodova Hill)

Location: Odesa County, Odesa District. Late Miocene, MN 11-13 (cf. Dubrovo and Kapelist 1979).

Avifauna: Bone(s) of a cormorant, *Pliocarbo* (Vojinstvens'kyj 1967). Deposited in ZINK.

(31) KAMENSKOE

Location: Vasil'evka County, Zaporož'c District. Early Pliocene, MN 14 (Mein 1990).

Avifauna: Bones of the Anatidae (*Anser*), and Phasianidae (*Gallus*) (Vojinstvens'kyj 1967). Deposited in ZINK.

(32) KERČ' PENINSULA 2

Location: Crimea (cf. Loc. Nr. 8). Early Pliocene, MN 14-15 (cf. Dubrovo and Kapelist 1979).

Avifauna: Unspecified remains of birds (Dubrovo and Kapelist 1979). Their whereabouts is unknown.

(33) VOJNIČEVO (Voiničevo, Kučurgan)

Location: Odesa District. Early Pliocene, MN 14 (Mein 1990).

Avifauna: Eggshell fragments of the Struthionidae (*Struthio*), and bones of the Phasianidae (*Plioperdix*, *Gallus*), Rallidae (indet.), Otidae (*Otis*), and Strigidae (*Bubo*)

(Burčák-Abramovič 1953a, Vojinstvens'kyj 1967, Bocheński and Kuročkin 1987a). Deposited in ZINK and/or GIK.

(34) ODESA – CATACOMBS (*Odessa catacombs*)

Location: Odesa City, Odesa District. Early Pliocene, MN 15 (Howell 1980, Tobien 1981, Mein 1990). Note that this is a complex locality, because bones were excavated at many different places in the extensive catacombs (cf. Tret'jakov 1941). However, exact localities were never given in literature. Fortunately enough, all the sites within the Odesa catacombs seem to be of the same age.

Avifauna: Eggshell fragments of the Struthionidae (*Struthio*), and bones of the Pelecanidae (*Pelecanus*), Phalacrocoracidae (*Pliocarbo*), Ciconiidae (*Leptoptilus*), Accipitridae (*Vultur*), Falconidae (*Falco*), Phasianidae (“*Gallus*”, *Plioperdix*), Otididae (*Otis*), Gryzajidae (*Gryzaja*), Scolopacidae (*Tringa*), Strigidae (*Asio*), Turdidae (*Oenanthe*), and Corvidae (indet.) (Grycaj 1938, 1939, Zubareva 1939, 1948, Burčák-Abramovič 1939, 1953a, b, Tugarinov 1940, Serebrovs'kyj 1941, Tret'jakov 1941, Vojinstvens'kyj 1959, 1967, Kuročkin 1985, Michajlov 1988, Michajlov and Kuročkin 1988). Deposited in ZINK (incl. types) and OGU. Type locality of *Pliogallus coturnoides* Tugarinov 1940, *Ammoperdix ponticus* Tugarinov 1940, *Chlamydotis pliodeserti* Serebrovs'kyj 1941, *Otis gryzaja* Vojinstvens'kyj 1967, *Gryzaja odessana* Zubareva 1939, and *Asio pigmaeus* Serebrovs'kyj 1941.

(35) KOTLOVINA

Location: Reni County, Odesa District. Late Pliocene, MN 16 (Gabunia 1979), or MN 17, with a possible admixture of MN 16 (Dubrovo and Kapelist 1979).

Avifauna: Bones of the Struthionidae (*Struthio*), and Gryzajidae (*Gryzaja*) (Kuročkin and Chozackij 1972, Bocheński and Kuročkin 1987b). Deposit in PIN, and ZINK.

(36) DOLINSKOE

Location: Reni County, Odesa District. Late Pliocene, MN 16-17 (cf. Dubrovo and Kapelist 1979).

Avifauna: Remains of an ostrich, *Struthio* (Dubrovo and Kapelist 1979). Deposited in GIK and/or OGU (see Dubrovo and Kapelist 1979).

(37) KRYŽANOVKA 1 (*Kryžanovka – lower horizon*)

Location: Kominternovskoe County, Odesa District. Late Pliocene, MN 17 (cf. Dubrovo and Kapelist 1979).

Avifauna: Bones, attributed to the Phasianidae (*Perdix*, *Plioperdix*), Rallidae (*Crex*), and Otididae (*Otis*) (see Dubrovo and Kapelist 1979). Deposited in GIK (?).

(38) OBITOČNOE

Location: Primorsk County, Zaporož'c District. Late Pliocene, MN 17 (cf. Dubrovo and Kapelist 1979).

Avifauna: Bones of the Phasianidae (*Perdix*), and Picidae (*Dendrocopos*) (Vojinstvens'kyj 1967). Their whereabouts is unknown.

DISCUSSION

Ukrainian deposits of the late Miocene to Pliocene age yielded rich avifauna. The remains are mainly of steppe, arboreal and fresh-water birds.

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