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Tetrapod localities from the Triassic of the SE of European Russia

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Abstract

Fossil tetrapods (amphibians and reptiles) have been discovered at 206 localities in the Lower and Middle Triassic of the southern Urals area of European Russia. The first sites were found in the 1940s, and subsequent surveys, from the 1960s to the present day, have revealed many more. Broad-scale stratigraphic schemes have been published, but full documentation of the rich tetrapod faunas has not been presented before. The area of richest deposits covers some 900,000 km² of territory between Samara on the River Volga in the NW, and Orenburg and Sakmara in the SW. Continental sedimentary deposits, consisting of mudstones, siltstones, sandstones, and conglomerates deposited by rivers flowing off the Ural Mountain chain, span much of the Lower and Middle Triassic (Induan, Olenekian, Anisian, Ladinian). The succession is divided into seven successive svitas, or assemblages: Kopanskaya (Induan), Staritskaya, Kzylsaiskaya, Gostevskaya, and Petropavlovskaya (all Olenekian), Donguz (Anisian), and Bukobay (Ladinian). This succession, comprising up to 3.5 km of fluvial and lacustrine sediments, documents major climatic changes. At the beginning of the Early Triassic, arid-zone facies were widely developed, aeolian, piedmont and proluvium. These were replaced by fluvial facies, with some features indicating aridity. At the end of the Middle Triassic, deltaic and lacustrine-marsh formations were dominant, indicating more humid conditions. The succession of Early to Mid Triassic tetrapod faunas documents the recovery of life after the end-Permian mass extinction. The earliest faunas consist only of small, aquatic tetrapods, in low-diversity, low-abundance assemblages. Climbing the succession through the Early Triassic, more terrestrially adapted tetrapods appear, and larger herbivorous and carnivorous reptiles come to dominate in the Mid Triassic as ecosystems were rebuilt.

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1. Introduction

Triassic deposits are best developed in the south of European Russia, where they follow a long succession of Permian sediments (Newell et al., 1999). The

Triassic is exposed along the valleys of the Ural, Sakmara, and Samara rivers and their tributaries, as well as along the left-bank (eastern) tributaries of the Volga, from the foreland fold belt of the Urals in the east (100 km to the east of Orenburg) to the Samara meridian in the west (Fig. 1).

This area is remarkable for the concentration of Permo-Triassic tetrapod localities. The terrestrial vertebrate faunas provide a basis for the division and correlation of continental red-bed formations from Eastern

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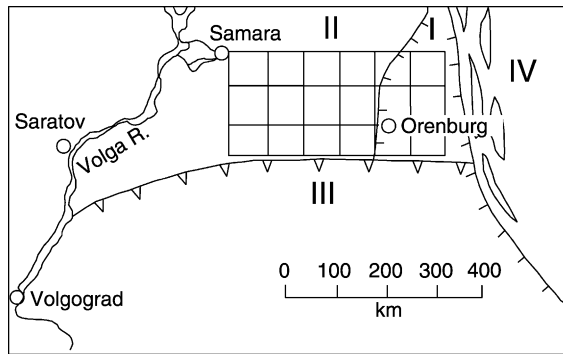


Fig. 1. Geographical setting of the South Urals region. Triassic tetrapod-bearing localities are located in the grid area (shown in more detail in Fig. 17). Abbreviations for major zones: (I) the Cis-Ural Trough; (II) the southeastern slope of the Volga-Ural Antecline; (III) the Peri-Caspian Depression; (IV) the Ural Mountain fold system.

Europe. The history of attempts to refine the stratigraphic division of the continental Triassic in the SE of European Russia demonstrates that increases in the number of tetrapod localities has made stratigraphic division more reliable and more refined.

An early scheme for dividing the Permian–Triassic according to tetrapods was proposed by Efremov (1937) and Efremov and V'yushkov (1955). When the scheme was initiated, the number of localities was relatively small, only 13. Later research by Garyainov and Ochev (1962) revealed 32 more, resulting in changes to the biostratigraphic scheme. The scheme was further refined after Blom (1968) discovered 30 tetrapod localities in the Samara Region. In the course of detailed geological survey, a group of geologists from the Geology Research Institute, the University of Saratov, led by V.P. Tverdokhlebov, discovered over 130 localities and revised those of Blom. Tverdokhlebov (1966, 1970, etc.) has combined the data on terrestrial vertebrates and the results of facies-cyclic analyses from numerous sections to lay the foundations of a Triassic regional scheme, which is presented here. During the course of this work, substantial new materials of tetrapods were acquired.

Tetrapod remains were identified and described, and the most significant locations excavated by V.G. Ochev (University of Saratov) and M.A. Shishkin (Paleontological Institute, Moscow). In addition, tetrapod faunas were described by L.P. Tatarinov, A.G. Sennikov, N.N. Kalandadze, I.V. Novikov (Paleonto-

logical Institute, Moscow); fish remains were studied by M.G. Minikh and A.V. Minikh (Geology Institute, the University of Saratov).

Ochev and Shishkin reviewed the tetrapod remains from the southeastern part of European Russia, and elaborated and revised Efremov's biostratigraphic scheme (Shishkin and Ochev, 1967, 1985; Ochev and Shishkin, 1985). They established the Triassic of the Southern Cis-Urals as a standard for global correlation of coeval continental deposits (Ochev and Shishkin, 1989; Novikov, 1991b; Shishkin and Ochev, 1985). The history of fossil collecting in the Permian–Triassic of the Urals is described by Ochev and Surkov (2000), Triassic tetrapod biostratigraphy in Russia is reviewed by Shishkin et al. (2000), and the amphibian and reptile faunas by Sennikov (1995b). The amphibian and reptile groups are reviewed by various authors in Benton et al. (2000).

The information presented here has not been collected together in print, in any language. Limited information of this kind is available in Efremov and V'yushkov (1955) and Blom (1968), but these authors list only a quarter or so of the localities that are now known. Subsequent publications, in Russian, offer limited glimpses of the new data, but they are far from comprehensive, and nothing is available in English. The present paper is a comprehensive catalogue of all known vertebrate-bearing localities from the famous South Urals region, giving basic information on geographic location, sedimentology, fossil finds, and age. This is fundamental for an understanding of the sequence of recovery after the end-Permian mass extinction, and for comparison with the Karroo faunas from South Africa.

A note on names. We have attempted to transliterate all Russian place names and author names according to a standard Anglo-Russian scheme (Kielan-Jaworowska, 1993; Benton, 2000). Here and there, older 'Germanic' transliterations of author names survive by convention, for example in the names of authors of taxa—compare Ochev (Anglo-Russian transliteration) and Otschev (Germanic transliteration).

2. Geological structure

The SE of European Russia is geologically heterogeneous. The eastern part of the region (to the east of

the Orenburg meridian) belongs to the Cis-Ural Marginal Trough (South Cis-Urals), and the western part constitutes the southeastern slope of the Volga-Ural Antecline, forming a part of the East European Platform (Fig. 1).

The Cis-Ural Trough runs north–south. It opens broadly into the Peri-Caspian Depression to the south of the Ural River valley. The Trough is as wide as 110 km there, narrowing sharply northwards, and its overall length is about 400 km. The southern part of the Cis-Urals Trough is peculiar for intensive salt tectonism accompanied by diapirism which accounts for the complicated mosaic structure of the Trough. Upper Permian, Lower and in part Middle Triassic sediments occur in the inter-dome blocks. As a result of rapid facies changes, complicated disruptive tectonics, and intensive dislocation of the rocks, comparisons of the sections (even in adjacent blocks) require a complex approach to interpreting their stratification, by combining biostratigraphic and facies-cyclic methods (Tverdokhlebov, 1982). Above the arched salt uplifts, subsident structures were formed, characterized by local sedimentation starting from the second half of the Middle Triassic. The eastern boundary of the Cis-Ural Marginal Trough, separating it from the foreland fold belt of the Urals, is well defined, as it runs along the regional tectonic suture that may be traced throughout the Trough.

The western boundary of the Volga-Ural Antecline runs along the flexure bend associated with a salt rampart (gypsum and Kungurian beds). Over two-thirds of the area considered, the platform part, lies within the southeastern slope of the Volga-Ural Antecline. A general gentle slope, only some fractions of a degree, southwards towards the Peri-Caspian Depression, is observed there. Fairly complete sections of the Triassic occur along the river valleys and ravines, allowing facies changes to be traced over vast areas.

In spite of the fact that the Triassic stratigraphic zones are hundreds of metres thick in the Cis-Ural Trough and only tens of metres thick in the platform part of the area, the sediments possess common features. Both in the Trough and in the platform area, the dynamics, cyclicity and facies compositions of the Triassic formations are determined by the activity of the folded Urals, the main source of clastic material and of water during the whole interval of deposition (Tverdokhlebov, 1971a,b).

3. Stratigraphy

In European Russia, the Triassic is represented by all three divisions, Lower, Middle, and Upper (Fig. 2). Locations of tetrapod-remains provide a basis for biostratigraphic division of the Lower and Middle Triassic deposits; unfortunately none are found in the Upper Triassic, so no scheme for its division is presented.

3.1. Conventions in stratigraphy

There has been much confusion in the past over comparisons of Russian and international systems of stratigraphy. According to the Russian system, rock units, and geological time, are subdivided into svitas, gorizonts, and other subdivisions (e.g. podgorizont, supergorizont). Sometimes these units are anglicized, for example gorizont as horizon and svita as suite. Another solution has been to equate the Russian divisions with international units, for example, gorizont with horizon, and svita with formation. These approaches, however, mask the fundamental differences between the Russian and the international approaches to stratigraphy, and we prefer to retain transliterated versions of the Russian terms in order to avoid confusion.

According to the Russian Stratigraphic Code (Zhamoida, 1977), gorizonts are the main regional stratigraphic units, identified primarily from their palaeontological characteristics, and they do not pertain to lithostratigraphic units. The gorizont may unite several svitas, or parts of svitas, or deposits of different facies in various districts that are clearly contemporaneous on the basis of included fossils. Svitas, on the other hand, are largely lithostratigraphic units, given a locality name that is close to their characteristic exposure. The definition of a svita incorporates a mix of field lithological observations and biostratigraphic assumptions. Fuller details may be found in Zhamoida (1977) and Benton (2000).

There is often difficulty in rendering the names of gorizonts and svitas into English, whether to transliterate directly from the Russian, or to anglicize to some extent. For example, the lowest svita of the Triassic may be rendered as Kopanskaya, Kopanski, Kopanskian, Kopanskayan, and probably in many other ways. After discussion among the editors of

EPOCH	STAGE	CENTRAL EUROPE	SOUTH-EAST EUROPEAN RUSSIA	
			GORIZONT	SVITA
MIDDLE TRIASSIC	LADINIAN	LETTEN-KÖHLE	BUKOBAY	BUKOBAYAN
	ANISIAN	MUSCHELKALK	DONGUZ	DONGUZ
LOWER TRIASSIC	OLENEKIAN	BUNTSANDSTEIN	YARENSKIAN	PETROPAVLOVSKAYA
			UST-MYLIAN	GOSTEVSKAYA
	SLUDKIAN		KZYLSAISKAYA	
	RYBINSKIAN		STARITSKAYA	
	INDUAN		VOKHMIAN	KOPANSKAYA
		VETLUGIAN SUPERGORIZONT		

Fig. 2. Stratigraphic scheme of the Lower and Middle Triassic of southeast European Russia.

Benton et al. (2000), the following convention was adopted: (1) to use an anglicized adjectival ending for Gorizont and Supergorizont terms, and (2) to use a transliterated adjectival form of the place name for svitas (except for those named from Tatar terms, such as Donguz and Bukobay). So, we refer to the Kopanskaya Svita, which corresponds to the Vokh-

mian Gorizont. Further details are given by Benton (2000).

3.2. Sedimentology

The continental Upper Permian of the South Urals consists of four main facies types, in ascending order,

mudflat, sandy distributary, small gravelly channel, and large gravelly channel fluvial systems (Newell et al., 1999). Fluvial processes were dominant, with the size of channels and grain size increasing up-section. The mudflat and small gravelly channel associations represent deposits of a small prograding terminal fan (100–150 km long) characterized by downslope decreases in channel size caused by evaporation and infiltration.

The overlying large gravelly channel association, which begins at the base of the Triassic, represents a complete change in sedimentary style with a massive increase in discharge. The thick conglomeratic units formed large-scale alluvial fans (Fig. 3) that were part of a much larger terminal fan, some 900 km long. The abrupt change in the size of the basin and the incoming of coarse-grained alluvial fans all along the western margin of the Urals probably resulted from a change toward a more arid climate, with higher sediment yield and greater peak discharges in a drainage basin with reduced vegetation cover.

These massive changes in style of sedimentation at the Permo-Triassic boundary, noted before by Tverdokhlebov (1971a,b) and Newell et al. (1999), have been seen independently in the continental Karroo succession in South Africa (Ward et al., 2000). The changes have been linked to the end-Permian environmental cataclysm, with poisoning of the atmosphere and stripping of vegetation and soil from the land following the massive Siberian basalt eruptions (Wignall, 2001).

3.3. The Lower Triassic

The Lower Triassic is represented by the Vetlugian Supergorizont and the Yarenskian Gorizont. In the sequence of tetrapod complexes, the Vetlugian Supergorizont is associated with the *Benthosuchus*–*Wetlugasaurus* (temnospondyl) fauna, and the Yarenskian Gorizont with the *Parotosuchus* fauna.

The Vetlugian Supergorizont comprises the Kopanskaya, Kzylsaiskaya and Gostevskaya svitas, corresponding to the Vokhmian, Rybinskian and Ust-Mylian gorizonts (Tverdokhlebov, 1970; Novikov et al., 1990). Each of the zones mentioned contains a peculiar faunal group of tetrapod remains which provide reliable dating of the host deposits. Generally, throughout the Vetlugian, the ratio of

aquatic to terrestrial forms (90%) remains the same, but the sizes and diversity of amphibians increase substantially from the Kopanskaya to the Gostevskaya.

3.3.1. Kopanskaya Svita (Vokhmian Gorizont)

The beginning of Triassic sedimentation throughout the eastern part of the East European Platform is associated with intensive uplift of the Urals. A continuous chain of fans was formed along the foreland, and a vast hilly proluvial plain, or ‘bajada’, developed (Tverdokhlebov, 1998).

Triassic sedimentation in the Cis-Ural Trough commenced when alluvial fans had been formed. The Kopanskaya Svita at the tops of the alluvial fans consists mainly of boulder or pebble conglomerates (Fig. 4). At the periphery of the alluvial fans, sediments consist of fine pebbles–gravel to sand–silt–clay mixtures (pattums) and clays whose thicknesses do not exceed 250 m. In the west, in the platform part of the area, zonal sedimentation took place; some undrained depressions were fed from local sourcelands. Proluvium deposits and aeolian formations typical of arid zones accumulated (Fig. 5). The Kopanskaya Svita is 800-m thick in the Cis-Ural Trough, and 50–120-m thick in the platform area.

Starting from the second half of Kopanskaya time, the climate became slightly less arid. Streams from the high glacier-covered Urals had acquired a permanent character and caused the formation of great alluvial plains to the west of the ‘bajada’; fluvial deposits accumulated on all sides. In the platform area, fluvial bed thicknesses are close to normal, at 25–30 m. The high aridity of the Kopanskaya climate did not simply determine the nature of sedimentary deposition, but it may have exerted a direct influence on the life of the time. No macroflora has been found in beds of this age in the eastern part of European Russia, and palynomorphs are extremely rare. Whether this is a gap in preservation, or represents the absence of plants is not clear.

The drainage extended over enormous areas which may have had limited plant cover, which is reflected in the reduced tetrapod fauna (Fig. 6). This was dominated by an aquatic community (Sennikov, 1996). Terrestrial reptiles make up only about 10% of the fauna (Ochev, 1992). The ecological niches for

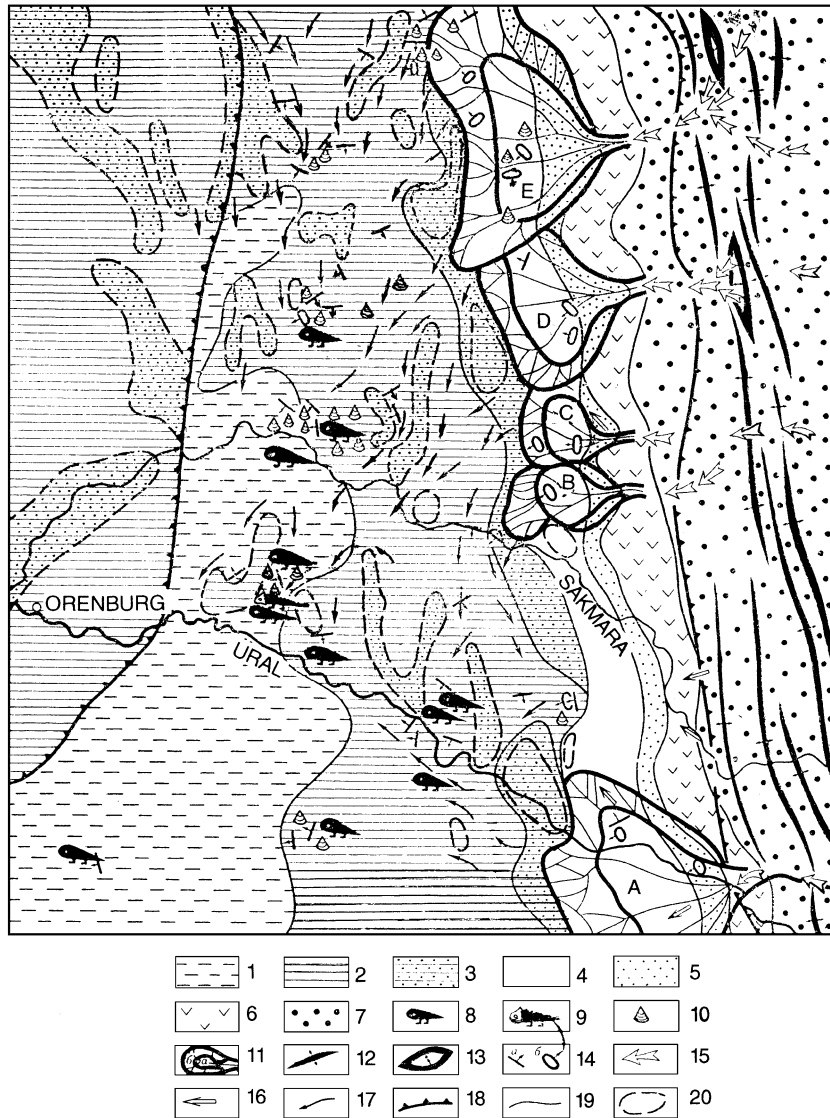


Fig. 3. Palaeogeomorphological map of the western margin of the southern Urals, around the Orenburg area and the Ural and Sakmara rivers in Middle Blyumental (Middle Induan) time. Symbols: (1) sediments of lacustrine–alluvial plains; (2) sediments of alluvial plains; (3) sediments of alluvial plains, periodically exposed to denudation; (4) sediments of proluvial plains; (5) low folded hills; (6) medium folded hills; (7) high folded hills; (8) amphibians; (9) reptiles; (10) phyllopods; (11) alluvial fans (a, proximal part; b, distal part); (12) sediments of coarse anticlinal folds and related ridge sediments; (13) coarse synclinal structures and related mountain-edge depressions; (14) directions of flow (a, based on dominant slopes of cross-beds; b, based on orientations of oblique pebbles); (15) main orientation of clastic material; (16) secondary orientation of erosion; (17) conjectured orientations of river flow; (18) boundaries of the Pre-Ural Depression; (19) boundaries of palaeogeomorphological zones; (20) boundaries of areas of uplifted blocks. The five major alluvial fans are indicated: (A) Giryal; (B) Novokulchumov; (C) Dubovskii; (D) Novochebenkov; (E) Nakaz. (Modified from Tverdokhlebov, 1971a,b.)

large herbivores and predators remained unoccupied. Small temnospondyls, *Tupilakosaurus* sp., are most characteristic of the first half of Kopanskaya time; a

single find of the temnospondyl *Benthosuchus uralensis* has been made. Starting from the second half of Kopanskaya time, larger temnospondyls, represented

(a)



(b)



Fig. 4. Distal alluvial fan facies of the Kopanskaya Svita, Vokhmian Gorizont, at Astrakhanovka I (locality 12), Orenburg Region, South Cis-Urals. (a) Section through coarse-grained channel sands of an advancing alluvial fan lobe. (b) Thin channel sandstones where isolated bones were found. (Photographs from the Saratov-Bristol Palaeontological Expedition of 1995.)

by *Wetlugasaurus samariensis*, occur in the platform area, i.e., in the areas remote from the alluvial fans, in conditions of relatively stable river systems.

3.3.2. Staritskaya Svita (Rybinskian Gorizont)

In Staritskaya time, a vast area in the SE of the East European Platform, lying between the Ural Ridge in

the east and the present Volga valley in the west, was characterized by alluvial sedimentation (Fig. 7A). The svita is composed mainly of fluvial sandstones (Fig. 7B), poorly sorted and with abundant, diversely rounded fragments of local rocks resulting from lateral erosion in streams. The fluvial deposits possess all the features characteristic of arid zones: large thicknesses

(a)



(b)

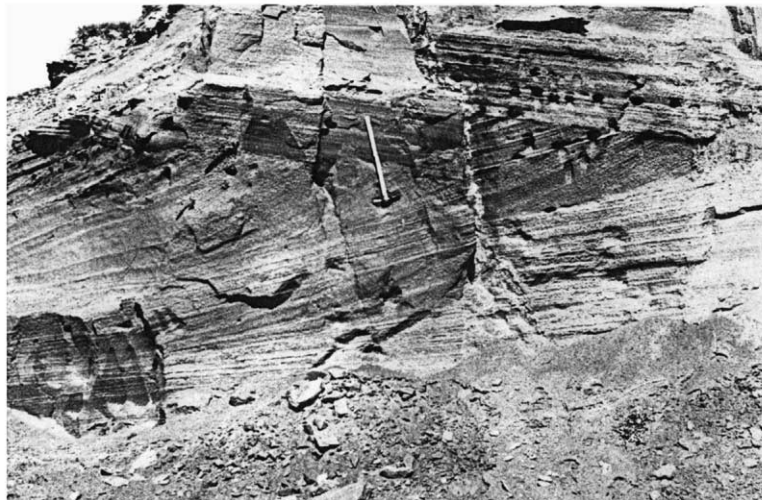


Fig. 5. Aeolian sandstone facies of the Kopanskaya Svita, Vokhmian Gorizont at Elshanka I (locality 169) in the Obshchy Syrt Region, South Cis-Urals. (a) Section through several dune sets on the road above the village. The holes are nesting sites of house martins. (b) Large-scale cross-bedding in the aeolian sandstones. (Photograph (a) by V. Tverdokhlebov, (b) from the Saratov-Bristol Palaeontological Expedition of 1995.)

of obliquely laminated series, substantial silty–clay admixtures (turbid flows), and clay–rock interlayers broken with desiccation cracks. Staritskaya sediments are up to 370-m thick in the Cis-Ural Trough and 25–30-m thick in the platform area.

The temnospondyl *Benthosuchus sushkini* is most characteristic of the Staritskaya Svita. Species of the

temnospondyl genus *Thoosuchus* are also common; they form a *Benthosuchus–Thoosuchus* grouping typical of the Rybinskian Gorizont (Fig. 8).

3.3.3. Kzylsaiskaya Svita (Sludkian Gorizont)

The composition and structure of this unit (Fig. 9) is almost identical to the Staritskaya Svita, except for

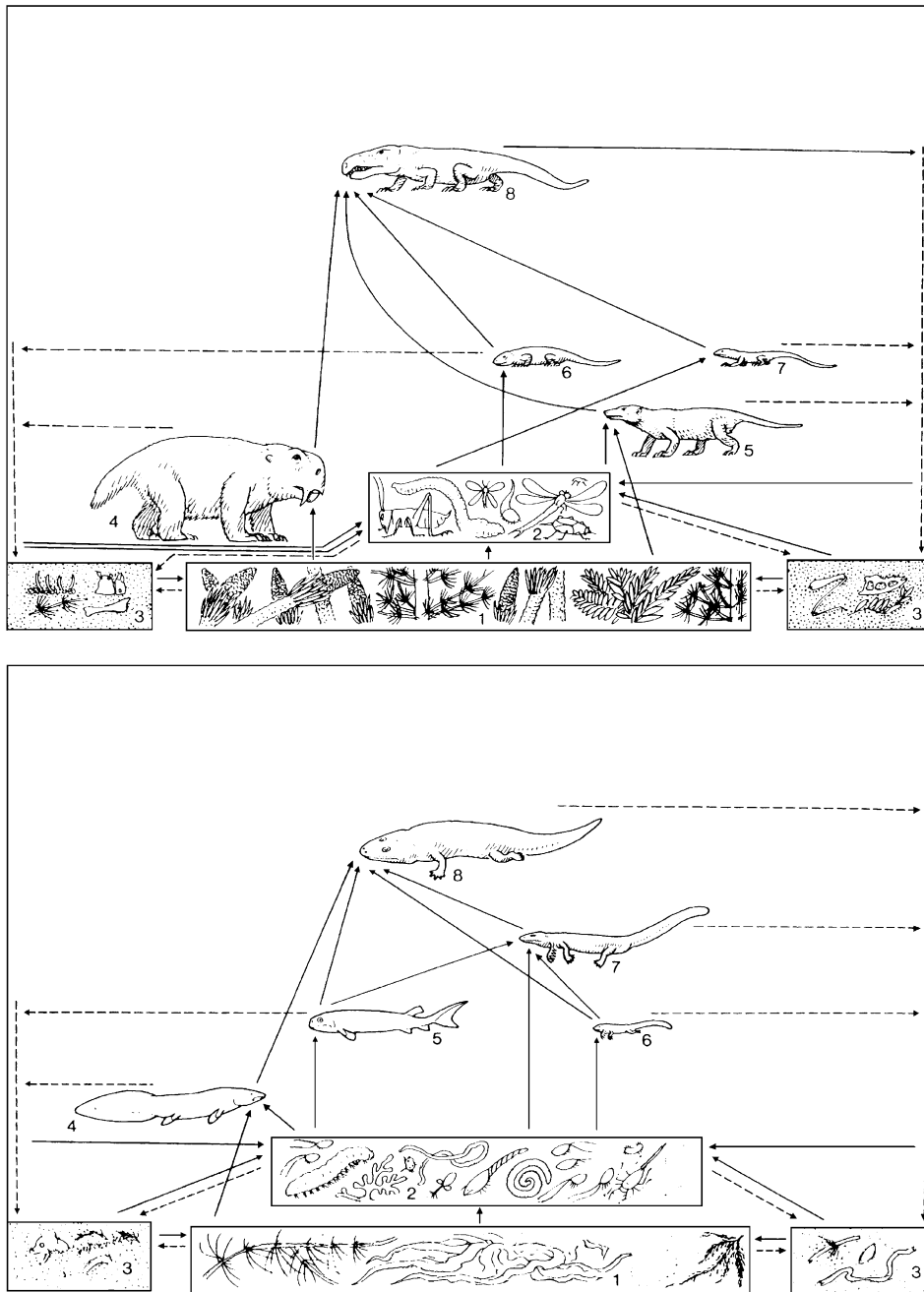


Fig. 6. Reconstructed food web for the terrestrial (top) and aquatic (bottom) components of the Lower Veltuga Community (Vokhmian Horizont; Early Triassic, Induan) of eastern Europe. Lines with arrows indicate the movement of energy through the community: solid lines show feeding pathways, and dashed lines show decay pathways. Terrestrial component: (1) plants; (2) invertebrates; (3) plant and animal detritus; (4) *Lystrosaurus*; (5) *Scalopognathus*; (6) procolophonid *Phaanthosaurus*; (7) *Blomosaurus*; (8) *Vonhuenia*. Aquatic component: (1) plants; (2) invertebrates; (3) plant and animal detritus; (4) dipnoan *Gnathorhiza*; (5) palaeonisciform; (6) larval temnospondyl; (7) *Tupilakosaurus*; (8) *Luzocephalus*. (Courtesy of A.G. Sennikov.)

(a)



(b)

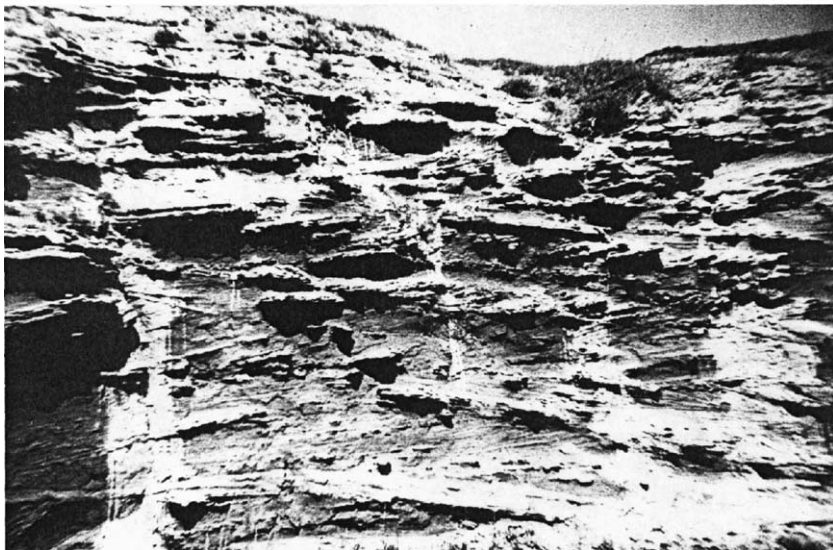


Fig. 7. Fluvial facies of the Staritskaya Svita, Rybinskian Gorizont. (a) Overview of Markovka II (locality 102) showing Staritskaya sediments at the base, overlain by Kzylsaiskaya Svita sediments. (b) Cross-bedded channel sandstone units at Mechet IV (locality 182). (Photographs by V. Tverdokhlebov.)

an obvious increase in the number of clay interlayers in the uppermost part. The Kzylsaiskaya Svita is up to 350-m thick in the Cis-Ural Trough and up to 30-m thick on the platform.

In the platform area, the fluvial deposits proper are often replaced by deltaic sediments in the uppermost part of the section. Compared to the fluvial deposits, the deltaic sediments contain much more organic

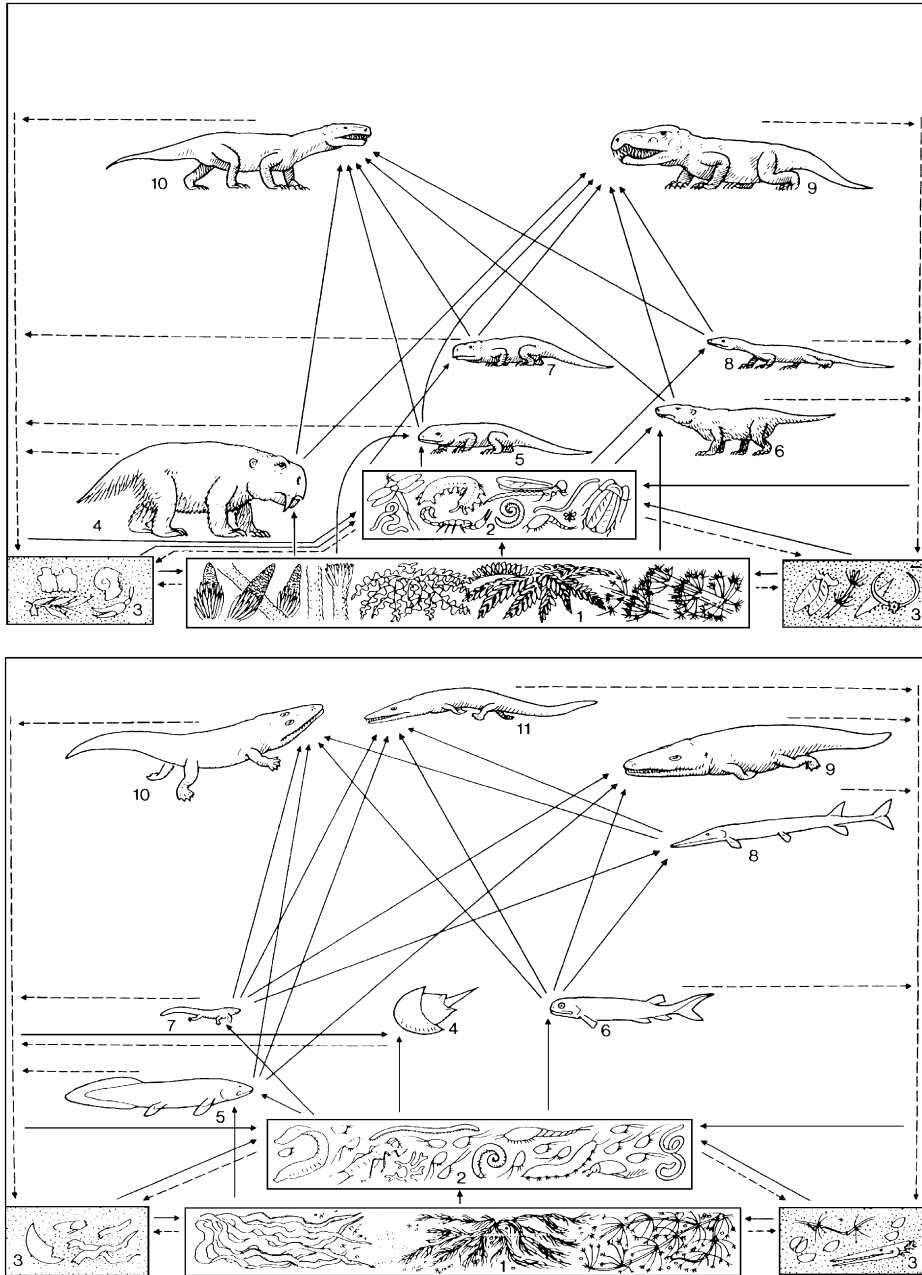


Fig. 8. Reconstructed food web for the terrestrial (top) and aquatic (bottom) components of the Upper Vetluga Community (Rybinskian and Sludkian horizons; Early Triassic, Olenekian) of eastern Europe. Lines with arrows indicate the movement of energy through the community: solid lines show feeding pathways, and dashed lines show decay pathways. Terrestrial component: (1) plants; (2) invertebrates; (3) plant and animal detritus; (4) dicynodont; (5) procolophonid *Tichvinskia*; (6) therocephalian, (7) *Scharshengia*; (8) prolacertiform *Boreapricea*; (9) *Chasmatosuchus*; (10) *Tsylosuchus*. Aquatic component: (1) plants; (2) invertebrates; (3) plant and animal detritus; (4) limulid; (5) dipnoan *Gnathorhiza*, (6) palaeonisciform; (7) larval temnospondyl; (8) *Saurichthys*; (9) *Wetlugasaurus*; (10) *Benthosuchus*; (11) *Thoosuchus*. (Courtesy of A.G. Sennikov.)

(a)



(b)



Fig. 9. Fluvial facies of the Kzylsaiskaya Svita, Sludkian Gorizont. (a) General appearance, as exposed at Kamenny Yar I (locality 87), with Kopanskaya Svita sediments at the base, and Kzylsaiskaya Svita sediments at the top. (b) Fluvial bedding and cross-bedding at Andreyevka (locality 28). (Photographs by V. Tverdokhlebov.)

matter, and the characteristic reddish-brown colour of the svita is changed to grey.

The tetrapod fauna of the Kzylsaiskaya Svita is sometimes grouped with that of the preceding Stariskaya Svita, as the Upper Vetluga Community (Fig. 8).

The temnospondyl *Wetlugasaurus angustifrons* is the most characteristic tetrapod in the Kzylsaiskaya Svita. This stratigraphic level is also associated with *Wetlugasaurus kzilsajensis*, *Benthosuchus bashkiricus*, *Angusaurus succedaneus*, *Angusaurus dentatus*, and

Prothoosuchus blomi, which allow confident correlation of the Kzylsaiskaya Svita with the Sludkian Gorizont.

3.3.4. Gostevskaya Svita (Ust-Mylian Gorizont)

The Gostevskaya Svita beds are reliably defined only in the west of the area, on the left-bank region of the lower course of the Samara, where the unit is about 30-m thick. They are missing from the section in the Cis-Ural Trough. The lower part of the Gostevskaya Svita is composed of grey sands with conglomerate lenses, clays and siltstones; the upper part (Fig. 10) is dominated by siltstones and variegated clays, mainly of red tints. In the uppermost part of the section, persistent interlayers of greenish-grey clays appear. The Gostevskaya Svita beds constitute a complex of lacustrine–deltaic accumulations.

The vertebrates from the Gostevskaya Svita (Novikov et al., 1990, 1998) are the temnospondyls *Wetlugasaurus* cf. *malachovi* and *Angusaurus succedaneus*, and the basal archosaurs *Chasmatosuchus* sp. and *Tsylmosuchus* sp.

3.3.5. Petropavlovskaya Svita (Yarenskian Gorizont)

During Petropavlovskaya time, orogenic movements were renewed in the Urals, and there was a marine transgression from the direction of the Cis-

Caspian (Tverdokhlebov, 1987). This placed the mountain region closer to the basin of sedimentation, with an associated dramatic increase in clastic deposition. In the area of the Cis-Ural Trough and the southeastern slope of the Volga-Ural anticline, a vast deltaic belt was formed, framing the Peri-Caspian syncline from the north. The syncline was a marine basin at that time. Because of the proximity of the mountainous Urals, the deltaic formations of the Petropavlovskaya Svita are noted for coarse-grained beds. Normal basin deposits are virtually absent, reduced because lake basins were rapidly filled with deltaic clastics. The Petropavlovskaya Svita is up to 400-m thick in the trough, and no more than 800 m in the platform area.

Petropavlovskaya sections in the Cis-Ural Trough and in the platform area are similar. The Svita is represented by alternating units of obliquely laminated sandstones and finer, sub-horizontally bedded rocks (Figs. 11 and 12A). The sandstones are grey, reddish-grey, variegated, often rich in pebbles and conglomerate lenses; the clasts consist of igneous and metamorphic rocks from the Urals. Pebble sizes diminish gradually westwards with increasing distance from the Ural Mountains. The pebbles represent fluvial sediments from delta branches. Sub-horizontally (or conformably dipping) layered clays, siltstones, and fine-grained clayey sandstones are reddish-yellow,

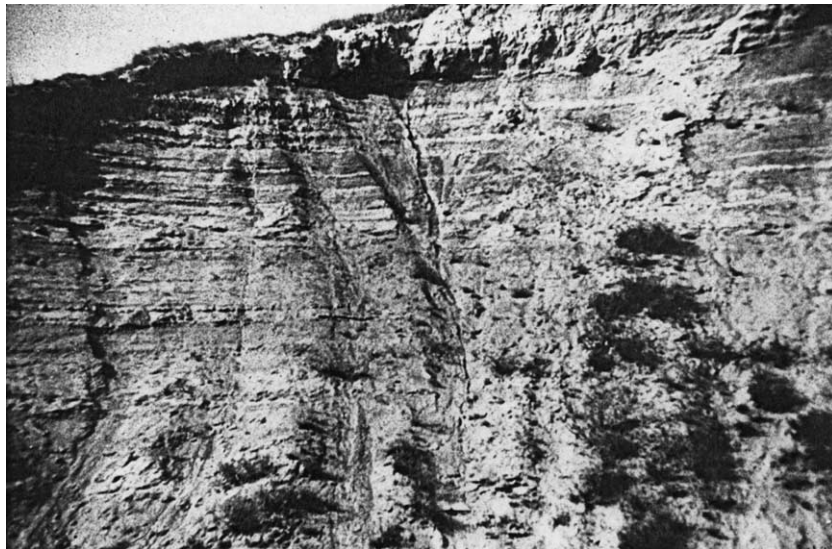


Fig. 10. Lacustrine–deltaic sediments, red and green variegated clays, of the Gostevskaya Svita at Mechet I (locality 179). (Photograph by V. Tverdokhlebov.)

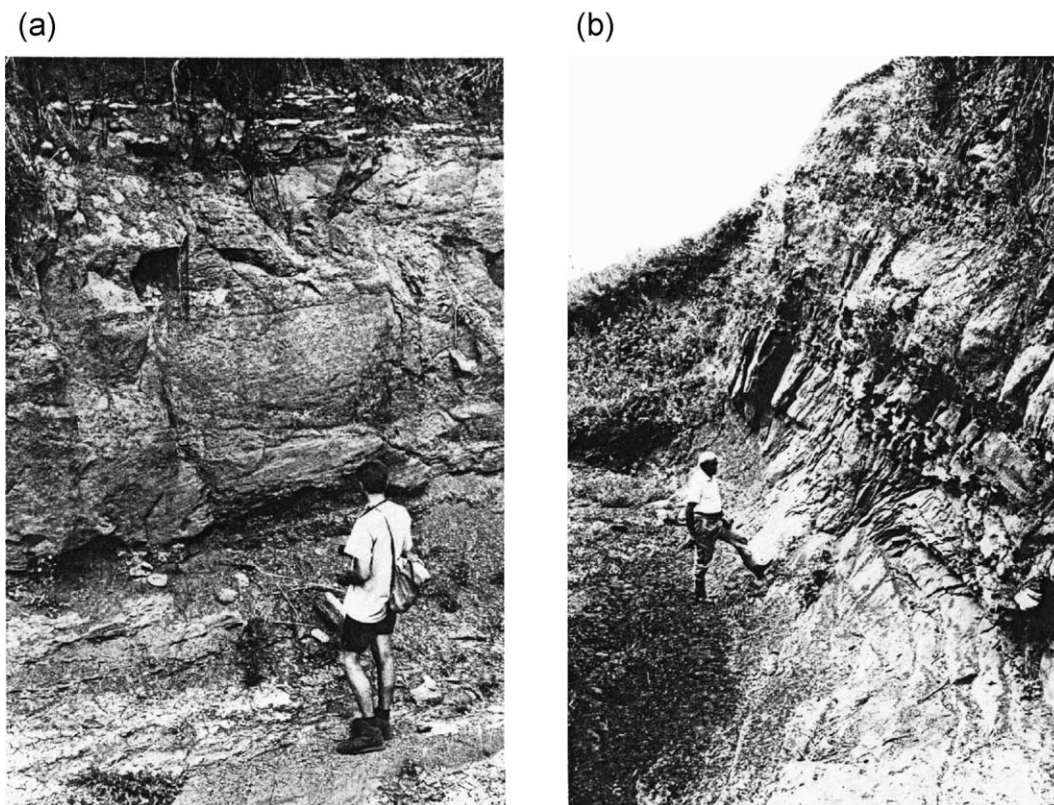


Fig. 11. Channel facies of the Petropavlovskaya Svita, Yarenskian Gorizont, at the type locality, Petropavlovka II (locality 20), Orenburg Province, South Cis-Urals. (a) Cyclical siltstone and sandstone units. (b) Channel lag at the base of a thick channel sand body, which is capped by finer-grained overbank deposits. Disarticulated bones occur in the channel lag. (Photographs from the Saratov-Bristol Palaeontological Expedition of 1995.)

reddish-brown, or grey in colour (Fig. 12B). These are deposits from delta flood-plains and delta fronts.

The availability of variegated rocks and fossils of the pleuromeian macroflora and microspore complexes testify to significant improvements in the conditions for plant growth. The tetrapod fauna reacted correspondingly (Fig. 13). Temnospondyls, parotosuchids and trematosaurus replaced their smaller predecessors, the wetlugasaurus and thoosuchines; the niche for large predators became occupied for the first time in the Triassic, by the archosauroid *Garjainia*.

Like the Yarenskian Gorizont, the Petropavlovskaya Svita all over European Russia is characterized by the *Parotosuchus* fauna. The following tetrapods have been identified from various localities in the area considered: the temnospondyls *Parotosuchus oren-*

burgensi, *P. orientalis*, and *Yarengia* sp., the procolophonids *Burtensia burtensis*, *Kapes majmeskulae*, and the basal archosaurs *Garjainia prima*, *G. triplicostata*, and *Jaikosuchus magnus*.

3.4. The Middle Triassic

After a break in sedimentation early in the Mid Triassic, lasting for part of the Anisian, and which occurred throughout the whole of European Russia, deposition resumed only in the Cis-Ural region. Two major sedimentation cycles are recognized in the South Cis-Urals associated with tectonic activity of the Urals, the Donguz and the Bukobay, with the *Eryosuchus* and *Mastodonsaurus* faunas corresponding, respectively. The Donguz and Bukobay Svitas

(a)



(b)

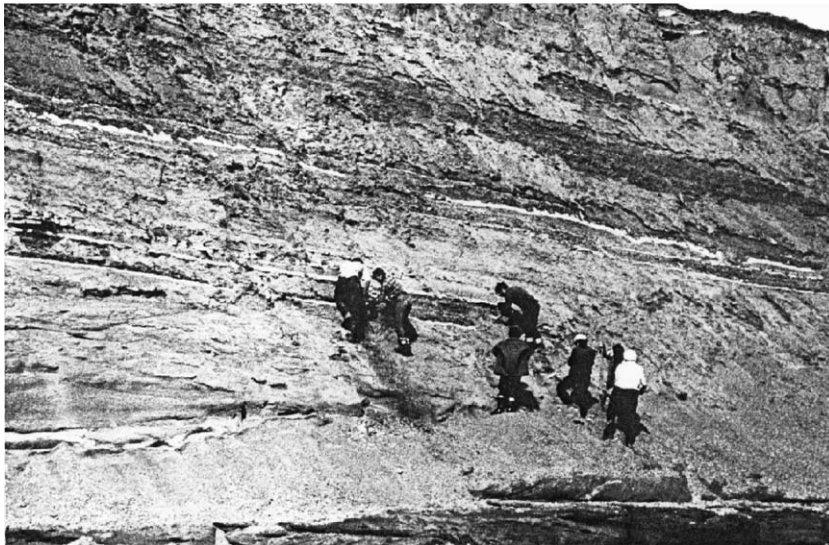


Fig. 12. Contrasting facies of the Petropavlovskaya Svita, Yarenskian Gorizont, Orenburg Province, South Cis-Urals. (a) Cyclical fine-grained sandstone and mudstone beds close to sites where a well-preserved procolophonid skull was found at Petropavlovka II (locality 20). (b) Fine-grained, laminated, lacustrine facies at Mescheryakovka I (locality 37). (Photographs from the Saratov-Bristol Palaeontological Expedition of 1995.)

from the South Cis-Urals are ranked as regional horizons for the whole of European Russia.

3.4.1. Donguz Svita (Donguz Gorizont)

The beginning of the Donguz Svita is associated with a short, abrupt resumption of tectonic activity in

the Urals and the ubiquitous establishment of an alluvial regime. The Donguz Svita is 175-m thick in the stratotype section, and the maximum thickness in the central zone of the Cis-Ural Trough is about 400 m.

The basal member of the Donguz Svita is represented by grey and brownish-grey, coarse-grained

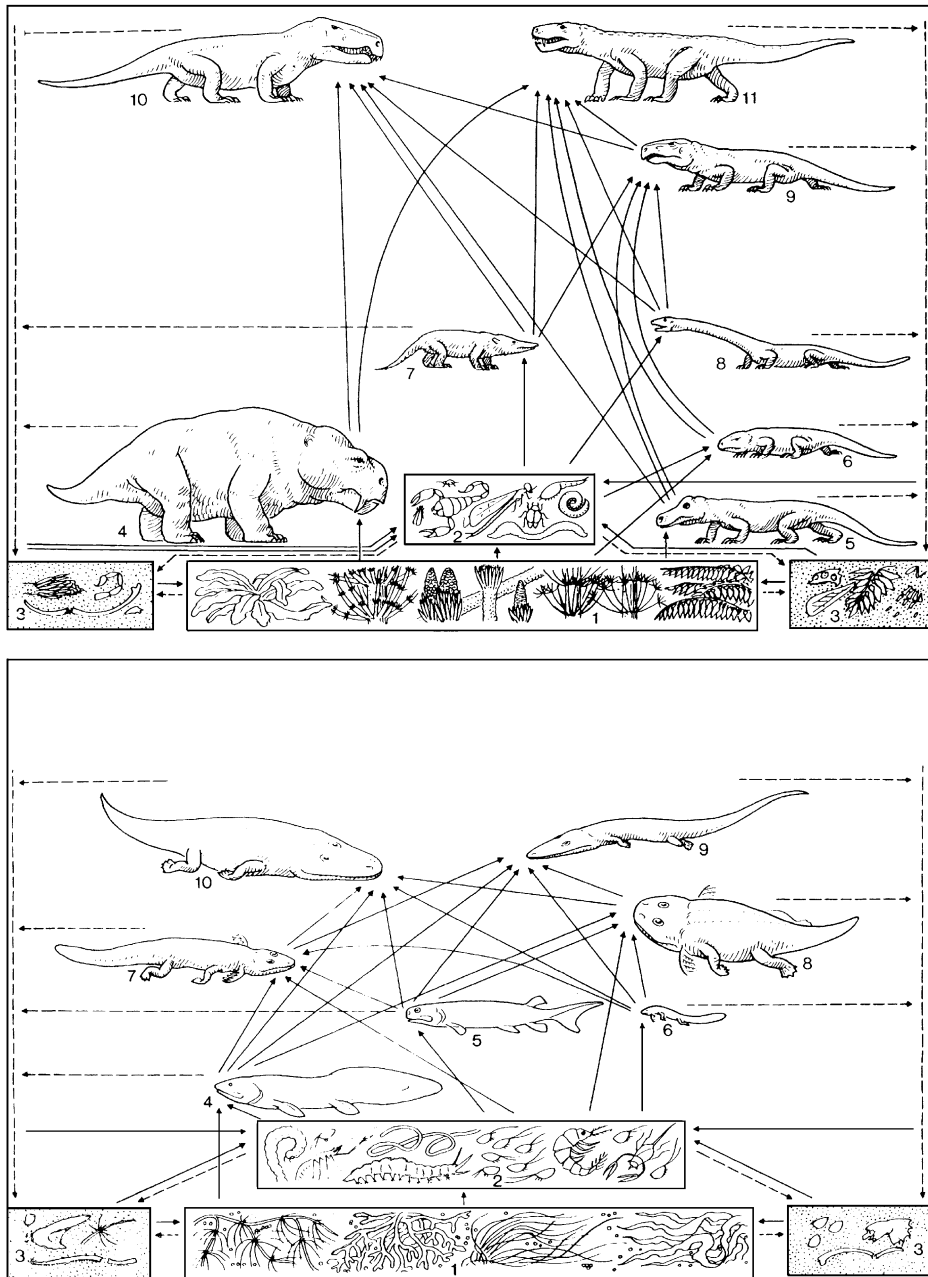


Fig. 13. Reconstructed food web for the terrestrial (top) and aquatic (bottom) components of the Yarenskian Community (Early Triassic, Olenekian) of eastern Europe. Lines with arrows indicate the movement of energy through the community: solid lines show feeding pathways, and dashed lines show decay pathways. Terrestrial component: (1) plants; (2) invertebrates; (3) plant and animal detritus; (4) dicynodont; (5) *Doniceps*; (6) procolophonid *Tichvinskia*; (7) *Silphedosuchus*; (8) prolacertiform; (9) *Gamosaurus*; (10) *Garjainia*; (11) *Vytshgedosuchus*. Aquatic component: (1) plants; (2) invertebrates; (3) plant and animal detritus; (4) dipnoan *Gnathorhiza*; (5) palaeonisciform; (6) larval temnospondyl; (7) *Batraschosuchooides*; (8) *Melanopelta*; (9) *Yarengia*; (10) *Parotosuchus*. (Courtesy of A.G. Sennikov.)

fluvial sandstones, with clay and siltstone fragments and pebbles of Ural rocks (Fig. 14a). Fluvial beds are also observed at the bases of some cycles in the eastern part of the Trough.

Under the influence of the Mid Triassic marine transgression from the Caspian region, the alluvial plain in most of the South Cis-Urals was transformed into a lacustrine–deltaic one, with clays and siltstones as dominant sediments (Fig. 14b). The Donguz clays are characterized primarily by a wide range of colours:

red, brown, grey, crimson, lilac, violet, yellow, etc. In spite of this diversity of colours, the dominant colours change by layers, with gradual or sharp transitions. All these facts testify to seasonal climatic fluctuations reflected in the contents of the organics in sediments and water, and related to the relative abundance of FeO, Fe₂O₃, and MnO₂ (Tverdokhlebov, 1969). The clays are often enriched in carbonate concretions characteristic of arid soils and subsoils. Clay deposits in the lower half of the section are dominated by

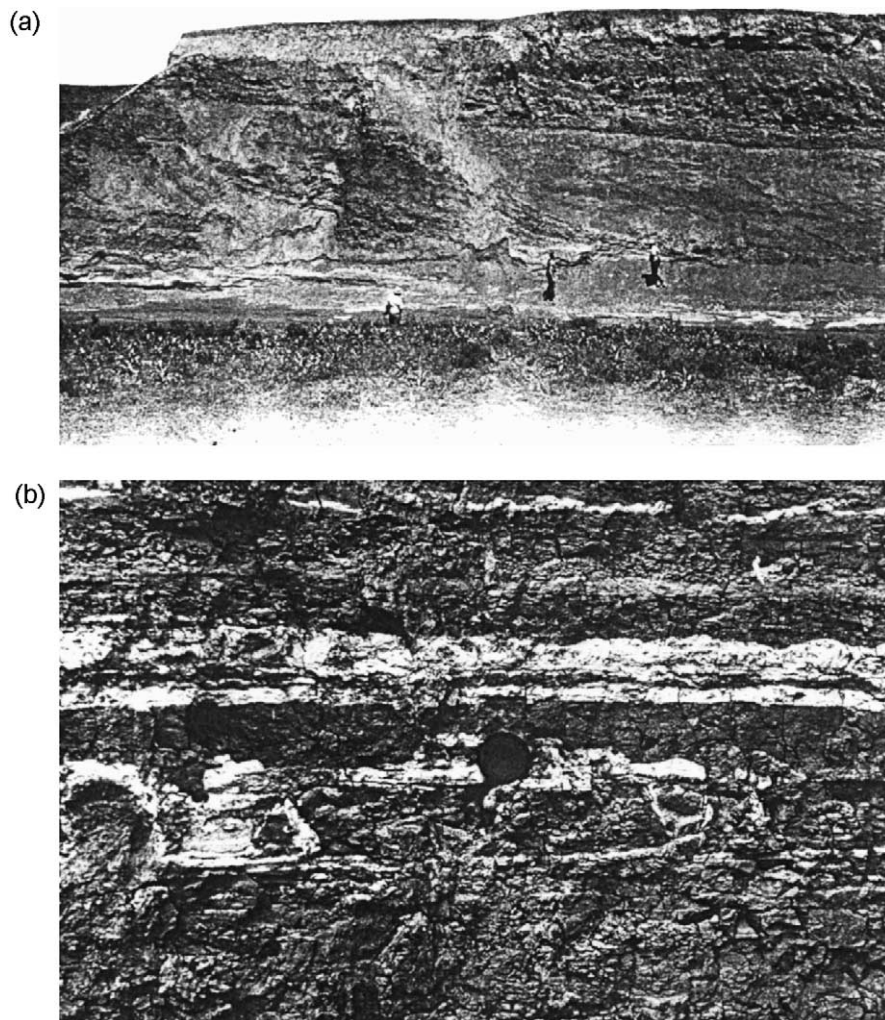


Fig. 14. Contrasting sedimentary facies in the Donguz Svita, Donguz Gorizont. (a) Coarse fluvial sandstone facies from near the base of the unit at Donguz I (locality 36). (b) Detail of laminated fine-grained lacustrine–deltaic sediments at Perovka (formerly Donguz XII, locality 35). (Photographs by V. Tverdokhlebov.)

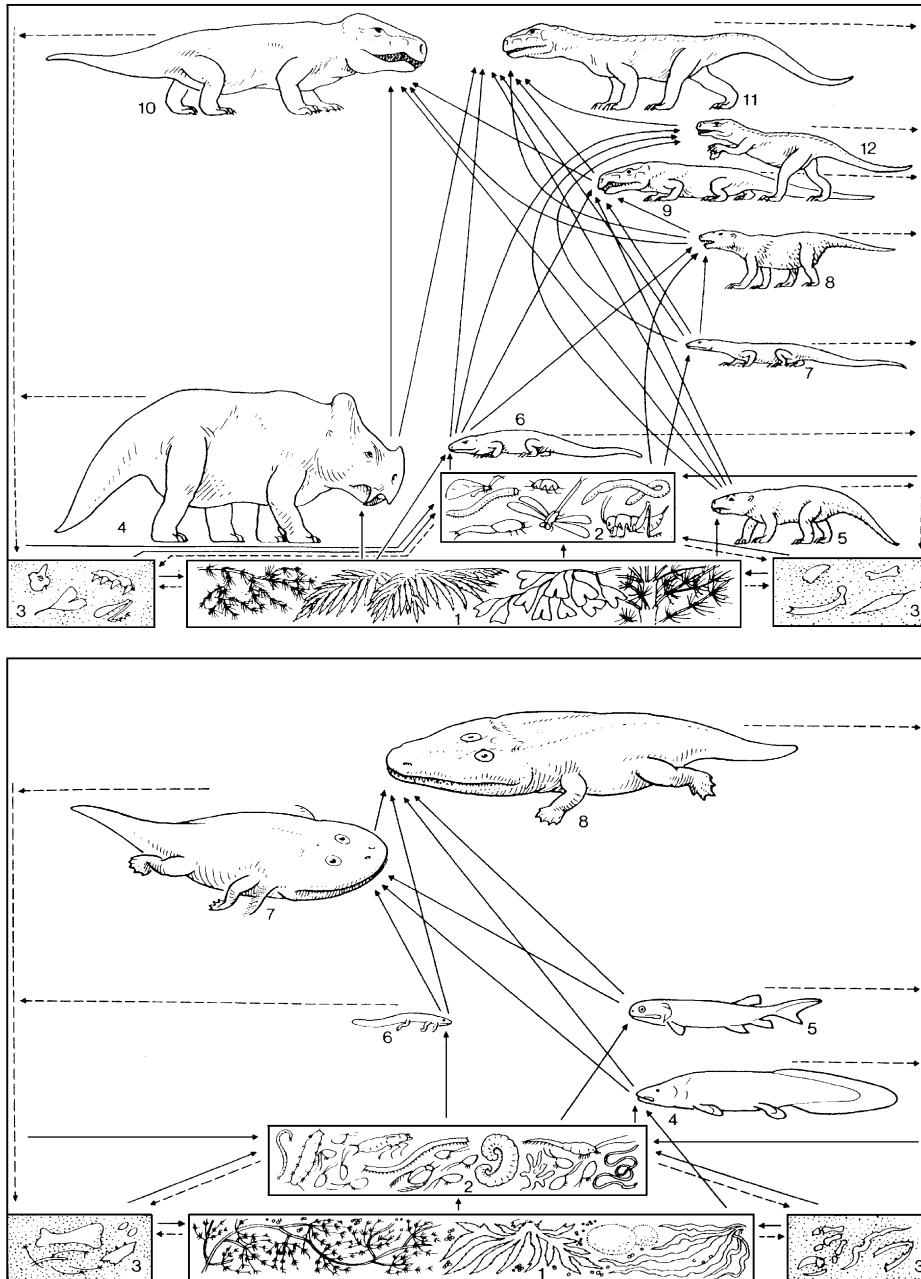


Fig. 15. Reconstructed food web for the terrestrial (top) and aquatic (bottom) components of the Donguz Community (Mid Triassic, Anisian/Ladinian) of eastern Europe. The aquatic community is shared with the Bukobay Community (Fig. 16). Lines with arrows indicate the movement of energy through the community: solid lines show feeding pathways, and dashed lines show decay pathways. Terrestrial component: (1) plants; (2) invertebrates; (3) plant and animal detritus; (4) *Rhadiodromus*; (5) *Antecosuchus*; (6) procolophonid *Kapes*; (7) prolacertiform; (8) *Dongusaurus*; (9) *Sarmatosuchus*; (10) *Erythrosuchus*; (11) *Dongusuchus*; (12) *Dorosuchus*. Aquatic component: (1) plants; (2) invertebrates; (3) plant and animal detritus; (4) dipnoan *Ceratodus*; (5) palaeonisciform; (6) larval temnospondyl; (7) *Plagiosternum*; (8) gigantic capitosauroids. (Courtesy of A.G. Sennikov.)

deltaic flood plain deposition; upwards, they are gradually substituted by deposits from large, shallow lakes, estuarine ponds and constantly present deltaic accumulations.

The seasonal character of sedimentation is obvious, as well as episodic manifestations of wet and dry seasons. The former resulted in intensive floods, bringing about huge, highly turbid water masses and avalanche deltaic sedimentation; the latter caused desiccation of vast areas.

The majority of tetrapod remains are associated with deltaic alluvial fans. The Donguz tetrapod fauna differs substantially from those preceding. All the ecological niches were occupied at that time, including those for large herbivores and predators. The terrestrial faunal community was at its prime, exceed-

ing the aquatic fauna by a factor of three in the number of genera (Ochev, 1992; Sennikov, 1996).

The climatic change and the subsequent change in vegetation cover was conducive to the sharp increase in diversity and size of the terrestrial vertebrates. Wider development of relatively stable lake basins and estuarine ponds was favourable for vegetation.

In the eryosuchian fauna of the Donguz Svita (Fig. 15), eryosuchians and plagiosaurids were most common among the amphibians; basal archosaurs, theriodonts, and dicynodonts were rather diverse. The following remains occur most often, the temnospondyls *Eryosuchus tverdochlebovi*, *E. garjainovi*, *E. antiquus*, *Plagiosternum paraboliceps*, and *Plagioscutum ochevi*, and the basal archosaurs *Sarmatosuchus otschevi*, *Uralosaurus magnus*, *Vjushkovisaurus efre-*

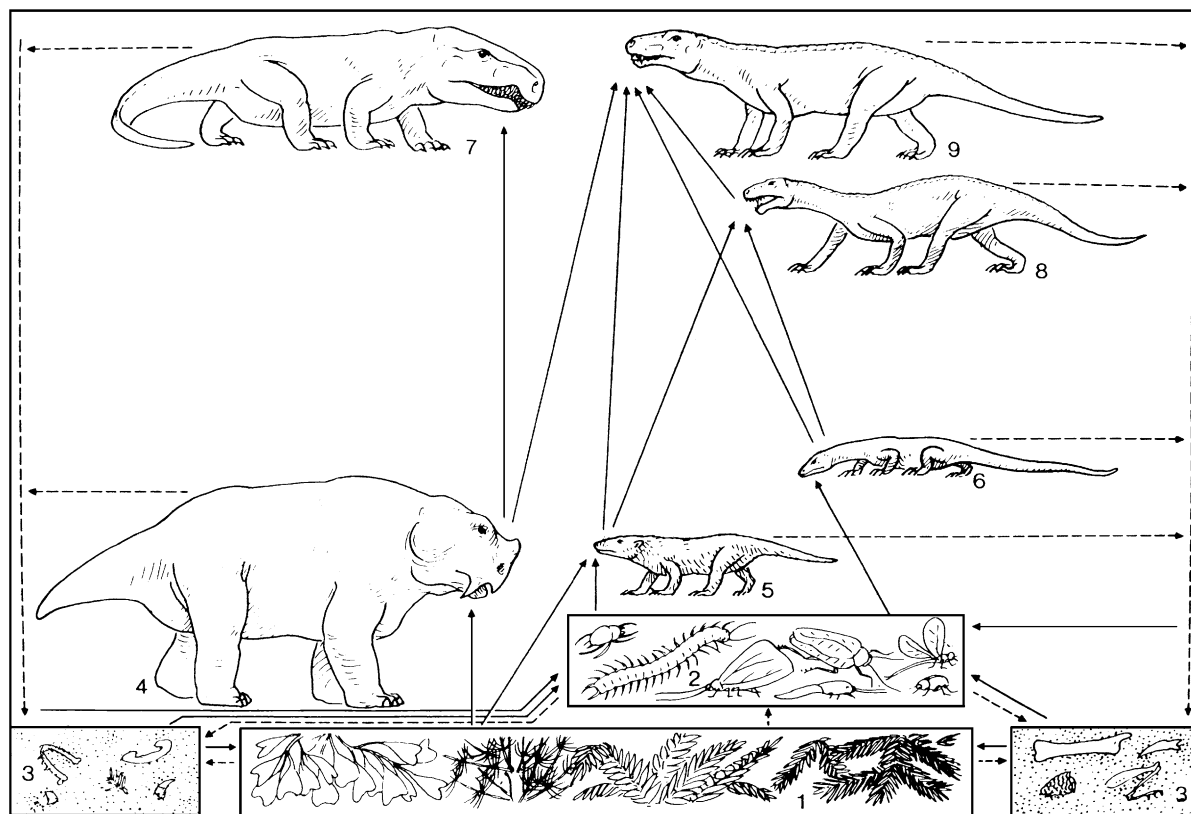


Fig. 16. Reconstructed food web for the terrestrial component of the Bukobay Community (Mid Triassic, Ladinian) of eastern Europe. Lines with arrows indicate the movement of energy through the community: solid lines show feeding pathways, and dashed lines show decay pathways. (1) plants; (2) invertebrates; (3) plant and animal detritus; (4) *Elephantosaurus*; (5) theriodont; (6) prolacertiform *Malutinisuchus*; (7) *Chalishevia*; (8) *Eregosuchus*; (9) *Jushatyria*. (Courtesy of A.G. Sennikov.)

movi, *Dongusia colorata*, and *Dorosuchus neoetus* (Gower and Sennikov, 2000).

3.4.2. Bukobay Svita (Bukobay Gorizont)

The beginning of Bukobay sedimentation is similar to that of the Donguz Svita; it is characterized by a ubiquitous but brief development of an alluvial regime. The alluvial–deltaic basal sand member (from 7- to 15-m thick) is observed throughout the South Cis-Urals; this member was previously considered an independent svita. In Bukobay time, throughout the Cis-Urals Trough, the outburst of diapir formation had terminated, and exogenic settlement structures, semi-closed lacustrine-marsh plains, were being formed. Apart from these, Bukobay deposits have been removed by later processes. The Bukobay Svita is 450-m thick in the stratotype section, while the maximum thickness in the axial zone of the Cis-Ural Trough is as much as 700 m.

The Bukobay Svita is roughly similar all over the South Cis-Urals, consisting of rhythmically deposited clays and siltstones of lacustrine-marsh origin. The rocks are diversely coloured, with a colour range similar to that of the Donguz Svita. However, interlayers of dark grey clays occur frequently, with coalified plant remains, rare lignite lenses and abundant leaf flora. The bases of major rhythms consist of fluvial and deltaic sandstones, grey, medium, and fine-grained, with fine pebbles and gravels of Ural flints and quartz. These sandstones often contain remains of terrestrial vertebrates, bivalves, and fossilized wood.

In the first half of Bukobay time, oxidizing sedimentation dominated; in wet periods (with flourishing vegetation) this was interrupted by a reducing environment. A reducing environment was dominant in the last third of Bukobay time, when grey-coloured sediments accumulated. Nothing was left of climatic aridity in Bukobay time, except for some seasonal manifestations. A more humid scytophyllic flora appeared in Donguz time, which enabled the evolution of herbivorous tetrapods and transformed all the food chains correspondingly.

The ratio of terrestrial to aquatic tetrapod communities is similar to that of Donguz time (Figs. 15 and 16). Within the *Mastodonsaurus* fauna the following temnospondyls are most common: *Mastodonsaurus tor-*

vus, *Bukobaja enigmatica*, *Plagioscutum caspiense*, *Plagiosternum danilovi*, *Malutinisuchus gratus*, and *Energosuchus garjainovi*.

3.5. The Upper Triassic

Miospore complexes are the only criteria for distinguishing and dividing the Upper Triassic deposits of the Cis-Urals. Three zones are recognized, corresponding to the Carnian, Norian and Rhaetian stages, representing the full span of the Upper Triassic. They comprise grey clays, siltstones and sandstones, and total up to 300 m in thickness. The Russian Upper Triassic has not yielded tetrapod remains and is not considered further here.

4. List of tetrapod stratigraphic distributions

Most specimens of fossil amphibians and reptiles are located in the collections of the Paleontological Institute, Russian Academy of Sciences, Moscow (PIN); Saratov State University, Saratov (SGU), and the Centralny Nauchno-Issledovatel'skii Geologo-Razvedochny Muzei, Saint Petersburg (CNIGR).

4.1. Kopanskaya Svita

Amphibia

Family Tupilakosauridae Kuhn, 1960: *Tupilakosaurus* sp.

Family Capitosauridae Watson, 1919: *Wetlugasaurus samariensis* Sennikov, 1981 (holotype, PIN 4627/1 (SGU 1277/1), skull; description: Sennikov, 1981, pp. 144–147); *Wetlugasaurus* sp.; Capitosauridae fam. indet.

Family Benthosuchidae Efremov, 1937: *Benthosuchus uralensis* (Otschev, 1958) (holotype, PIN 4165/1 (SGU 104/245), skull; description: Ochev, 1972, pp. 158–172).

Batrachomorpha fam. indet.

Temnospondyli fam. indet.

Reptilia

Family Procolophonidae Seeley, 1888: *Phaanthosaurus* sp.; Procolophonidae gen. indet.

Family Prolacertidae Parrington, 1935: *Microcnemus* (?) sp.

Family Proterosuchidae Huene, 1908: *Chasmatosuchus* sp.

Pseudosuchia fam. indet.

4.2. Staritskaya Svita

Amphibia

Family Benthosuchidae Efremov, 1937: *Benthosuchus sushkini* (Efremov, 1929) (holotype, PIN 2243/1; description: Bystrov and Efremov, 1940, pp.12–102); *Benthosuchus* sp.

Family Capitosauridae Watson, 1919: *Wetlugasaurus* sp.

Family Trematosauridae Watson, 1919: *Trematogmen otschevi* Getmanov, 1982 (holotype, PIN 4200/1 (SGU 1599/2), incomplete skull; description: Getmanov, 1982, pp. 104–108); *Thoosuchus tardus* Getmanov, 1989 (holotype, PIN 4000/1, occipital part of the skull; description: Getmanov, 1989, p. 23); *Thoosuchus* (?) sp.

Temnospondyli fam. indet.

Reptilia

Family Procolophonidae Seeley, 1888: *Tichvinskia* sp.

Family Proterosuchidae Huene, 1908: *Chasmatosuchus* sp.

Pseudosuchia fam. indet.

Rhynchocephalia fam. indet.

4.3. Kzylsaiskaya Svita

Amphibia

Family Benthosuchidae Efremov, 1937: *Benthosuchus bashkiricus* (Otschev, 1958) (holotype, PIN 4165/1 (SGU 104/245), skull; description: Ochev, 1972, pp. 172–174); *Benthosuchus* sp.

Family Trematosauridae Watson, 1919: *Prothoosuchus blomi* Getmanov, 1989 (holotype, PIN 2423/1, incomplete skeleton; description: Getmanov, 1989, pp. 28–30); *Prothoosuchus samariensis* Getmanov, 1989 (holotype, PIN 3997/1, incomplete skeleton; description: Getmanov, 1989, p. 30); *Thoosuchus tuberculatus* Getmanov, 1989

(holotype, 4197/1, skull; description: Getmanov, 1989, pp. 25–26); *Thoosuchus* sp.

Family Capitosauridae Watson, 1919: *Wetlugasaurus angustifrons* Ryabinin, 1930 (holotype, CNIGR 3417/1, skull; description: Ryabinin, 1930); *Wetlugasaurus kzilsajensis* Ochev, 1972 (holotype, PIN 4171/1, skull fragments; description: Ochev, 1972, pp. 5–25); *Wetlugasaurus* sp.; *Parotosuchus* (?) sp.

Temnospondyli fam. indet.

Reptilia

Family Procolophonidae Seeley, 1888: *Samaria concinna* (Ivachnenko, 1983) (holotype, PIN 3362/1, skull; description: Novikov, 1991a, p. 82); *Tichvinskia* (?) sp.

Family Proterosuchidae Huene, 1908: *Exilisuchus tubercularis* Ochev, 1979 (holotype, SGU 104/2371 (PIN 4171/25), left ilium; description: Sennikov, 1995b, pp. 15–16); *Exilisuchus* (?) sp.; *Chasmatosuchus* sp.

Family Rauisuchidae Huene, 1942: *Tsylmosuchus* sp.

4.4. Gostevskaya Svita

Amphibia

Family Trematosauridae Watson, 1919: *Angusaurus dentatus* Getmanov, 1989 (holotype, PIN 4196/1, skull; description: Getmanov, 1989, pp. 32–33); *A. succedaneus* Getmanov, 1989 (holotype, PIN 2428/1, skull; description: Getmanov, 1989, pp. 32–33); *Angusaurus* sp.; *Prothoosuchus* sp.; *Trematosaurus* sp.

Temnospondyli fam. indet.

Family Plagiosauridae Jaekel, 1913: Plagiosauridae gen. indet.

Reptilia

Family Sphenodontidae Cope, 1869 (?): *Scharschengia* sp.

Family Proterosuchidae Huene, 1908: *Chasmatosuchus* sp.

Family Rauisuchidae Huene, 1942: *Tsylmosuchus jakovlevi* Sennikov, 1990 (holotype, PIN 4332/1, cervical vertebra; description: Sennikov, 1995b, pp. 32–34); *Tsylmosuchus* sp.

4.5. Petropavlovskaya Svita

Dipnoi

Family Ceratodontidae Gill, 1872: *Ceratodus multicristatus* Vorob'eva, 1968 (holotype, PIN 953/1035, dental plate; description: Vorob'eva and Minikh, 1968).

Amphibia

Family Capitosauridae Watson, 1919: *Parotosuchus orenburgensis* (Konzhukova, 1965) (holotype, PIN 951/42, skull; description: Otschev, 1972, pp. 46–61); *P. orientalis* (Otschev, 1966) (holotype, PIN 4172/1 (SGU 104/222), incomplete skull; description: Ochev, 1972, pp. 62–95); *Parotosaurus* sp.; *Wetlugasaurus* sp.

Family Trematosauridae Watson, 1919: *Trematosaurus* sp.; Trematosauridae gen. indet.

Family Yarengiidae Shishkin, 1960: *Yarengia* sp.

Family Brachyopidae Lydekker, 1885: *Batrachosuchoides* sp.

Family Plagiosauridae Jaekel, 1913: *Melanopelta* sp.

Family Rhytidosteidae Huene, 1920: *Rhytidosteus uralensis* Shishkin, 1994 (holotype, PIN 2394/17, lower jaw fragment; description: Shishkin, 1994, pp. 98–103).

Temnospondyli fam. indet.

Family Bystrowianidae Vjuschkov, 1957: *Bystrowiana* sp.; Bystrowianidae gen. indet.

Reptilia

Family Procolophonidae Seeley, 1888: *Burtensia bur-tensis* (Otschev, 1958) (holotype, PIN 3362/1, dentary; description: Otschev, 1958, p. 488; Novikov, 1991a, p. 74); *Kapes majmesculae* (Otschev, 1968) (holotype, PIN 4365/5 (SGU 104/3824), dentary; description: Ochev, 1968, p. 299; Novikov, 1991a, pp. 79–80).

Family Proterosuchidae Huene, 1908: *Exilisuchus tubercularis* Ochev, 1979 (holotype, SGU 104/2371 (PIN 4171/25), left ilium; description: Sennikov, 1995b, pp. 15–16).

Family Erythrosuchidae Watson, 1917: *Garjainia prima* Otschev, 1958 (holotype, PIN 2394/5 (SGU 104/3-43), skull and part of the skeleton;

description: Ochev, 1958; Sennikov, 1995b, p. 19); *G. triplicostata* (Huene, 1960) (holotype, PIN 951/59, occipital part of the skull; description: Sennikov, 1995b, pp. 19–20); *Garjainia* sp.

Family Rausisuchidae Huene, 1942: *Jaikosuchus magnus* (Otschev, 1979) (holotype, PIN 951/65 (SGU 104/3516), cervical vertebra; description: Sennikov, 1995b, p. 43).

Prolacertidae gen. indet.

Archosauria fam. indet.

Family Galesauridae Lydekker, 1889: Galesauridae gen. indet.

Family Silphedestidae Houghton and Brink, 1954: *Silphedosuchus orenburgensis* Tatarinov, 1974 (holotype, PIN 951/00 incomplete skull; description: Tatarinov, 1977, pp. 87–90).

4.6. Donguz Svita

Dipnoi

Family Ceratodontidae Gill, 1872: *Ceratodus recticristatus* Vorob'eva, 1963 (holotype, PIN 951/544, dental plate; description: Vorob'eva and Minikh, 1968); *C. gracilis* Vorob'eva and Minikh, 1968 (holotype, PIN 2430/509, dental plate; description: Vorob'eva and Minikh, 1968); *C. bucobaensis* Minikh, 1977 (holotype, SGU 104-B/35, dental plate; description: Minikh, 1977); *C. jechartiensis* Minikh, 1977 (holotype, SGU 104-B/711, dental plate; description: Minikh, 1977).

Amphibia

Family Capitosauridae Watson, 1919: *Eryosuchus antiquus* Otschev, 1966 (holotype, PIN 2973/65 (SGU 104/3515), fragment of the lower jaw; description: Ochev, 1972, pp. 153–154); *E. garjainovi* Otschev, 1966 (holotype, PIN 2865/63 (SGU 104/3521), skull; description: Ochev, 1972, pp. 137–151); *E. tverdochlebovi* Otschev, 1966 (holotype, PIN 4166/89 (SGU 104/3090), incomplete skeleton; description: Ochev, 1972, pp. 106–137); *Eryosuchus* sp.

Family Mastodontosauridae Lydekker, 1885: *Bukobaja* sp.

Family Plagiosauridae Jaekel, 1913: *Plagioscutum ochevi* Shishkin 1986 (holotype, PIN 4230/80,

clavicle; description: Shishkin, 1987, pp. 34–42); *Plagiosternum paraboliceps* (Konzhukova, 1955) (holotype, PIN 415/5, skull fragment; description: Shishkin, 1987, pp. 18–20).

Family Bystrowianidae Vjuschkov, 1957: Bystrowianidae gen. indet.

Reptilia

Family Procolophonidae Seeley, 1888: *Kapes sirotinus* Novikov, 1991a (holotype, PIN 1579/23 (SGU 104/3824), dentary; description: Novikov, 1991a, p. 80).

Family Proterosuchidae Huene, 1908: *Sarmatosuchus otschevi* Sennikov, 1994 (holotype, PIN 2865/68, disarticulated skeleton; description: Sennikov, 1994).

Family Erythrosuchidae Watson, 1912: *Uralosaurus magnus* (Ochev, 1980) (holotype, PIN 2973/70 (SGU 104/3516), left pterygoid; description: Sennikov, 1995b, p. 25).

Family Euparkeriidae Huene, 1920: *Dorosuchus neotetus* Sennikov, 1989 (holotype, PIN 1579/61, pelvis fragment and limbs; description: Sennikov, 1995b, pp. 454–55).

Family Rauisuchidae Huene, 1942: *Dongusia colorata* Huene, 1940 (holotype, PIN 268/2, dorsal vertebra; description: Sennikov, 1995b, p. 41); *Dongusuchus efremovi* Sennikov, 1988 (holotype, PIN 952/15-1, left femur; description: Sennikov, 1995a,b, p. 36); *Vjuschkovisaurus berdjanensis* Otschev, 1982 (holotype, PIN 2865/62, SGU 104/3871, part of skeleton; description: Sennikov, 1995b, pp. 43–44).

Family Traversodontidae Huene, 1936: *Antecosuchus ochevi* Tatarinov, 1974 (holotype, PIN 1579/53, right maxilla; description: Tatarinov, 1974, pp. 213–215); *Scalenodon boreus* Tatarinov, 1974 (holotype, PIN 2973/1, tooth; description: Tatarinov, 1974, p. 211).

Family Nothogomphodontidae Tatarinov, 1974: *Nothogomphodon danilovi* Tatarinov, 1974 (holotype, PIN 2865/1, anterior part of the skull; description: Tatarinov, 1974, pp. 172–175).

Family Bauriidae Broom, 1911: *Dongusaurus schepe-tovi* Vjuschkov, 1964 (holotype, PIN 952/1, right dentary; description: Tatarinov, 1974, pp. 177–180).

Family Kannemeyeriidae Huene, 1948: *Rhadiodromus klimovi* (Efremov, 1958) (holotype, PIN

159/1, posterior part of the skull and incomplete skeleton; description: Kalandadze, 1970, pp. 52–53); *Rabidosaurus cristatus* Kalandadze, 1970 (holotype, PIN 952/100, skull; description: Kalandadze, 1970, pp. 54–55); *Nasoplanites danilovi* Surkov, 1999 (holotype, SGU 161/37, premaxilla; description: Surkov, 1999, pp. 302–303); *Cristonasus koltaeviensis* Surkov, 1999 (holotype, SGU 161/29, premaxilla; description: Surkov, 1999, pp. 303–304); *Calleonasus furvus* Kalandadze, 1985 (holotype, PIN 525/266, nasal; description: Kalandadze and Sennikov, 1985, p. 84; Surkov, 1999, p. 306); *Uralokannemeyeria vjuschkovi* Danilov, 1973 (holotype, SGU D-104/1, skull; description: Danilov, 1971, p. 132).

Family Shansiodontidae Cox, 1965: *Rhinodicynodon gracile* Kalandadze, 1970 (holotype, PIN 1579/50, skull and incomplete skeleton; description: Kalandadze, 1970, p. 55; Surkov, 1998); *Parvobestiola bashkiriensis* Surkov, 1999 (holotype, SGU 161/188, part of the skull roof; description: Surkov, 1999, pp. 304–305).

Dicynodontia fam indet.: *Edaxosaurus edentatus* Kalandadze, 1985 (holotype, SGU D-104/4-1, maxilla; description: Kalandadze and Sennikov, 1985, p. 82).

4.7. Bukobay Svita

Dipnoi

Family Ceratodontidae Gill, 1872: *Ceratodus buco-baensis* Minikh, 1977 (holotype, SGU 104-B/35, dental plate; description: Minikh, 1977); *C. oren-burgensis* Minikh, 1977 (holotype, PIN 2430/507, dental plate; description: Minikh, 1977).

Amphibia

Family Mastodonsauridae Lydekker, 1885: *Mastodonsaurus torvus* Konzhukova, 1955 (holotype, PIN 415/1, lower jaw fragment; description: Ochev, 1972, pp. 176–196); *Mastodonsaurus* sp.; *Bukobaja* sp.

Family Cyclotosauridae Shishkin, 1964: *Cyclotosaurus*(?) sp.

Family Plagiosauridae Jaekel, 1913: *Plagioscutum caspiense* Shishkin, 1986 (holotype, PIN 4121/11,

left clavicle; description: Shishkin, 1987, pp. 34–42); *Plagiosternum danilovi* Shishkin 1986 (holotype, PIN 2867/17, skull fragment; description: Shishkin, 1987, pp. 20–34).

Capitosauridae gen. indet.

Reptilia

Family Prolacertidae: *Malutinisuchus gratus* Otschev, 1986 (holotype, PIN 4188/125 (SGU 104/401), cervical vertebra; description: Ochev, 1986a,b, pp. 172–174).

Family Erythrosuchidae Watson, 1912: *Chalishevia cothurnata* Otschev, 1980 (holotype, PIN 4366/1, anterior part of the skull; description: Sennikov, 1995b, pp. 25–27); *Chalishevia* sp.

Family Rauisuchidae Huene, 1942: *Ergosuchus garjainovi* Otschev, 1986 (holotype, PIN 4188/9, cervical vertebra; description: Sennikov, 1995b, pp. 39–40); *Jushatyria vjuschkovi* Sennikov, 1985 (holotype, PIN 2867/5, maxilla; description: Sennikov, 1995b, pp. 44–46).

Theriodontia fam. indet.

Dicynodontia fam. indet.: *Elephantosaurus jachimovitschi* Vjushkov, 1969 (holotype, PIN 525/25, part of the skull roof; description: V'yushkov, 1969, pp. 105–106); *Elatosaurus facetus* Kalandadze, 1985 (holotype, PIN 2867/1; nasal; description: Kalandadze and Sennikov, 1985, p. 83; Surkov, 1999, p. 307).

5. List of tetrapod localities

The localities are numbered 1–206, according to a long-standing catalogue held at the Geological Institute in Saratov. Their distribution is indicated in Fig. 17.

5.1. Drainage basin of the right bank of the Sakmara River

1. STARY TURAI

Geographic location. Orenburg Region, 22 km NNW of Tulgan town, on right bank of a tributary of the Tugustemir River (Sakmara drainage basin).

Host rocks. Buff-grey, cross-bedded sandstone with lens of conglomerate.

Faunal assemblage. Amphibia: the left femur of a large Temnospondyli indet.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

2. PETROVSKOE

Geographic location. Bashkortostan, 25.5 km south of Kumertau town, on right bank of the Tugustemir River (Sakmara drainage basin).

Host rocks. Reddish-brown, variably grained sandstone, pebbles.

Faunal assemblage. Fishes: indeterminate remains. Amphibia: fragments of palatine, jugal and dermal bones of Temnospondyli indet.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

3. YAZLAV

Geographic location. Bashkortostan, 22 km NNE of Oktyabrsky town, the watershed of the Bolshoy Yushatir and Kargasa rivers (Sakmara drainage basin) (Garyainov et al., 1967; Shishkin et al., 1995).

Host rocks. Brown-grey conglomerate and reddish-brown, variably grained sandstone.

Faunal assemblage. Dental plate of dipnoan, *Ceratodus multicristatus* Vorob'eva. Amphibia: armour plate of Batrachomorpha indet.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

4. MUPARTALOVO

Geographic location. Bashkortostan, 20 km NE of Oktyabrsky town, right bank of the Bolshoy Yushatir River (Sakmara drainage basin).

Host rocks. Brown, variably grained sandstone.

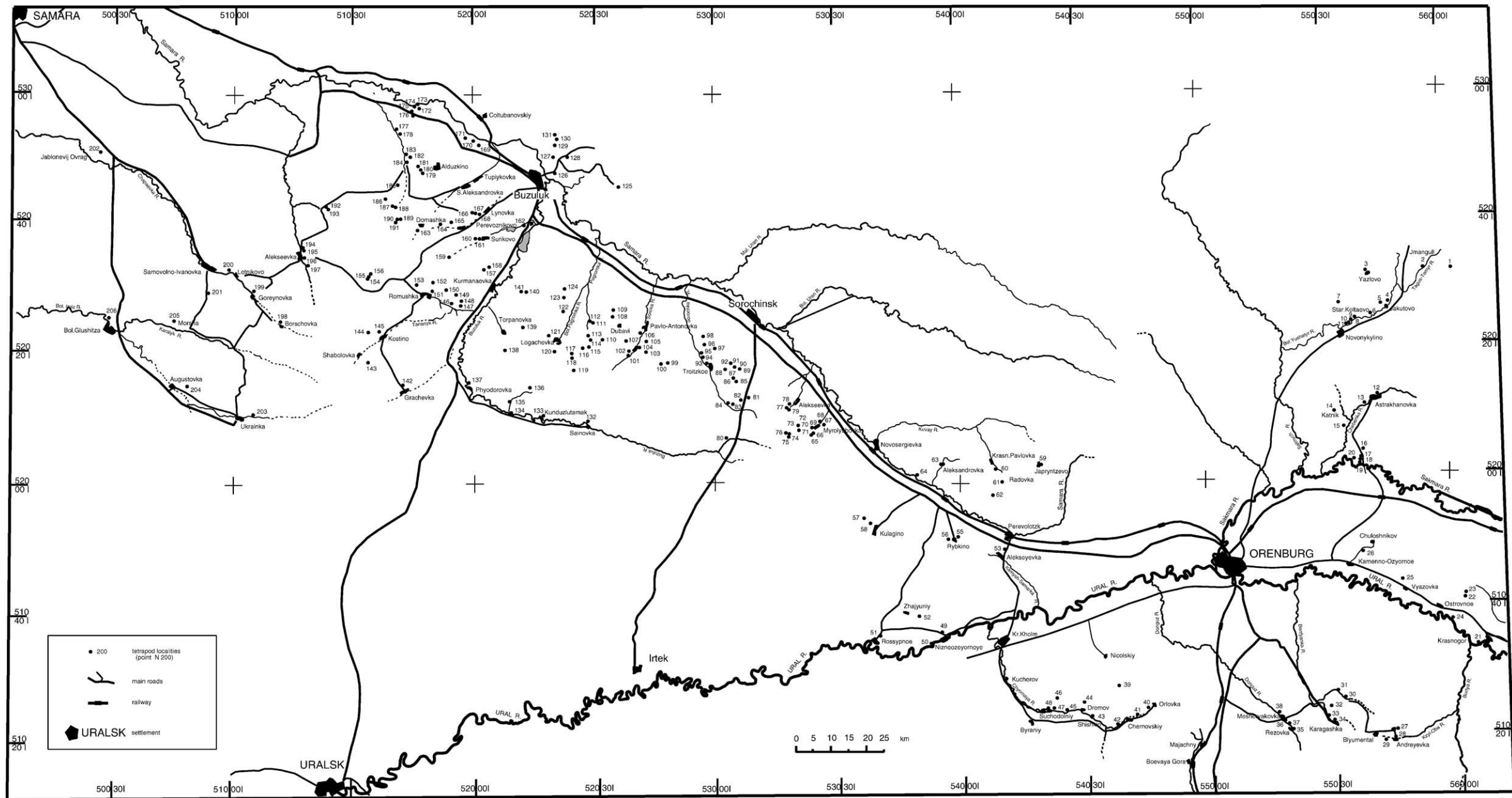


Fig. 17. Map showing the tetrapod-bearing localities of the southeastern part of European Russia.

Faunal assemblage. Yarengiidae: palatine fragment of *Yarengia* sp. Capitosauridae: exoccipitals of *Parotosuchus* (?) sp. Erythrosuchidae: *Garjainia* (?) sp.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

5. YAKUTOVO

Geographic location. Bashkortostan, 17.5 km NW of Oktyabrsky town, right bank of the Bolshoy Yushatir River (Sakmara drainage basin).

Host rocks. Reddish-brown, variably grained, cross-bedded sandstone.

Faunal assemblage. Capitosauridae: the skull fragment of *Wetlugasaurus* sp., Benthosuchidae: palatine of *Benthosuchus bashkiricus* Otschev, Amphibia: some fragments of skull and clavicle of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

6. KZIL-MAYAK

Geographic location. Bashkortostan, 10.6 km ENE of Oktyabrsky town, right bank of the Bolshoy Yushatir River (Sakmara drainage basin).

Host rocks. Reddish-brown, variably grained, cross-bedded sandstone.

Faunal assemblage. Capitosauridae: upper jaw fragment of a large *Parotosuchus* sp.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

7. BAKAS

Geographic location. Bashkortostan, 9.8 km NNW of Oktyabrsky town, left bank of the Bolshaya Kuyurgasa River (Sakmara drainage basin) (Garyainov et al., 1967; Shishkin et al., 1995).

Host rocks. Reddish-buff, variably grained, cross-bedded sandstone.

Faunal assemblage. Capitosauridae: the skull fragments of *Parotosuchus* sp. Erythrosuchidae: tibiae and humerus of *Garjainia* (?) sp.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

8. STAROKOLTAEVO I

Geographic location. Bashkortostan. 10 km NE of Oktyabrsky town, right bank of the Bolshoy Yushatir River (Sakmara drainage basin) (Efremov and V'yushkov, 1955; Shishkin et al., 1995; Ivakhnenko et al., 1997).

Host rocks. Grey, medium-grained sandstone.

Faunal assemblage. Mastodonsauridae: skull of *Mastodonsaurus* (?) *torvus* (Konzhukova, 1955); Plagiosauridae: *Plagiosternum danilovi*, *Plagioscutum caspiense* (Shishkin, 1986, 1987); Erythrosuchidae: *Chalishevia* sp.; Rausisuchidae: *Jushatyria vjuschkovi*, *Energosuchus garjainovi* (Sennikov, 1995a,b; Shishkin et al., 1995); Anomodontia: *Elephantosaurus jachimovitschi* (V'yushkov, 1969), *Elatosaurus facetus* (Kalandadze and Sennikov, 1985).

Stratigraphic level. Bukobay Svita. Middle Triassic.

Burial conditions. Channel deposits and tributary channels.

Storage. Institute of Paleontology, Moscow.

9. STAROKOLTAEVO II

Geographic location. Bashkortostan, 9 km NE of Oktyabrsky town, right bank of the Bolshoy Yushatir River (Sakmara drainage basin) (Efremov and V'yushkov, 1955; Shishkin et al., 1995; Ivakhnenko et al., 1997).

Host rocks. Grey, cross-bedded, variably grained sandstone with small pebbles of silica rocks and quartz.

Faunal assemblage. Plagiosauridae: vertebra and ribs of *Plagioscutum ochevi* (Shishkin, 1987); some fragments of dermal bones, lower jaw, teeth of Capitosauridae indet.; vertebrae and teeth of Archosauria indet.; remains of Dicynodontia indet.

Stratigraphic level. Donguz Svita. Middle Triassic.

Burial conditions. Tributary channel deposits.

Storage. Saratov State University.

10. STAROKOLTAEVO III

Geographic location. Bashkortostan. 7.5 km NE of Oktyabrsky town, 2 km west Starokoltaevo village, right bank of the Bolshoy Yushatir River (Sakmara drainage basin). (Efremov and V'yushkov, 1955; Shishkin et al., 1995; Ivakhnenko et al., 1997).

Host rocks. Buff-grey, variably grained sandstone with the large-scale cross-bedding.

Faunal assemblage. Fishes: *Ceratodus recticristatus*; Capitosauridae: *Eryosuchus* sp.; Plagiosauridae: *Plagioscutum ochevi* (Shishkin, 1987), *Plagiosternum paraboliceps*; Erythrosuchidae: *Uralosaurus magnus*; Rauisuchidae: *Vjuschkovisaurus berdjanensis*, *Dongusuchus efremovi* (Ochev, 1986a,b; Sennikov, 1995a,b); Kannemeyeriidae: *Rhadiodromus klimovi*, *Rabidosaurus cristatus*, *Nasoplanites danilovi*, *Cristonasus koltaeviensi*, *Calleonasus furvus*; Shansiodontidae: *Parvobestiola bashkiriensis* (Kalandadze, 1970; Kalandadze and Sennikov, 1985; Shishkin et al., 1995; Surkov, 1999).

Stratigraphic level. Donguz Svita. Middle Triassic.

Burial conditions. Deltaic deposits.

Storage. Institute of Paleontology, Moscow.

11. STAROKOLTAEVO IV

Geographic location. Bashkortostan, 7 km NE of Oktyabrsky town, 3 km west of Starokoltaevo village, right bank of the Bolshoy Yushatir River (Sakmara drainage basin) (Efremov and V'yushkov, 1955; Shishkin et al., 1995; Ivakhnenko et al., 1997).

Host rocks. Red-buff, medium-grained, cross-bedded sandstone.

Faunal assemblage. Capitosauridae: *Eryosuchus* (?) sp.; Plagiosauridae: *Plagiosternum paraboliceps* (Shishkin, 1967; Shishkin et al., 1995).

Stratigraphic level. Donguz Svita. Middle Triassic.

Burial conditions. Deltaic deposits.

Storage. Institute of Paleontology, Moscow.

12. ASTRAKHANOVKA I (Fig. 4)

Geographic location. Orenburg Region, right bank of Chebenka River (Sakmara drainage basin), opposite eastern outskirts of Astrakhanovka village (Garyainov

et al., 1967; Tverdokhlebov, 1966; Shishkin et al., 1995).

Host rocks. Lilac-grey, medium-grained, cross-bedded sandstone.

Faunal assemblage. Tupilakosauridae: vertebrae, ribs, fragments of the skull of *Tupilakosaurus* sp.; small limb bones of Reptilia indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

13. ASTRAKHANOVKA II

Geographic location. Orenburg Region, right bank of Chebenka River (Sakmara drainage basin), 2 km SW of Astrakhanovka village (Garyainov et al., 1967; Tverdokhlebov, 1966; Shishkin et al., 1995).

Host rocks. Buff-brown, medium-grained, cross-bedded sandstone.

Faunal assemblage. Yarengiidae: the palatine fragment of *Yarengia* sp.; Capitosauridae: fragments of clavicle, jaws, skull roof of *Parotosuchus* (?) sp. Diapsida: (?)Thecodontia indet.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

14. BATIK

Geographic location. Orenburg Region, 11 km SW of Astrakhanovka village, right bank of Chebenka River (Sakmara drainage basin).

Host rocks. Grey, variably grained sandstone with small pebbles of silica and quartz.

Faunal assemblage. Amphibia: remains of a large individual of Trematosauridae indet.; Erythrosuchidae: *Garjainia* sp.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Tributary channel deposits.

Storage. Saratov State University.

15. SERGEEVKA

Geographic location. Orenburg Region, 10 km SW of Astrakhanovka village, right tributary of Chebenka

River (Sakmara drainage basin) (Garyainov et al., 1967; Shishkin et al., 1995).

Host rocks. Grey, fine-grained sandstone with pebbles of clay.

Faunal assemblage. Capitosauridae: fragments of the quadratojugal, dentary and vertebrae of *Parotosuchus* sp.; Erythrosuchidae: *Garjainia* sp.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Tributary channel deposits.

Storage. Saratov State University.

16. BEREZOVY I

Geographic location. Orenburg Region, 3.3 km north of Petropavlovka village, Berezovy stream (Sakmara drainage basin).

Host rocks. Reddish-buff, medium-grained, cross-bedded sandstone.

Faunal assemblage. Fishes: dental plate of *Ceratodus multicristatus* Vorob'eva. Capitosauridae: supraoccipital of *Parotosuchus* (?) sp. Erythrosuchidae: fragment of jaw of *Garjainia* sp.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Deltaic channel deposits.

Storage. Saratov State University.

17. BEREZOVY II

Geographic location. Orenburg Region, 0.6 km north of Petropavlovka village, Berezovy stream (Sakmara drainage basin).

Host rocks. Red-buff, medium-grained sandstone.

Faunal assemblage. Capitosauridae: the clavicle imprint of *Parotosuchus* (?) sp.; Erythrosuchidae: *Garjainia* sp.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

18. BEREZOVY III

Geographic location. Orenburg Region, 0.2 km north of Petropavlovka village, Berezovy stream (Sakmara drainage basin).

Host rocks. Red-buff, medium-grained sandstone.

Faunal assemblage. Capitosauridae: fragment of the skull roof and interclavicle of *Wetlugasaurus* sp. (Ochev, 1972a).

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

19. PETROPAVLOVKA I

Geographic location. Orenburg Region, southern outskirts of Petropavlovka village, right bank of the Sakmara River (Tverdokhlebov, 1966; Shishkin et al., 1995; Ivakhnenko et al., 1997).

Host rocks. Buff and buff-grey, variably grained, cross-bedded sandstone.

Faunal assemblage. Capitosauridae: supraoccipital of *Parotosuchus orientalis* (Ochev, 1972, 1995); exoccipital of *Parotosuchus* (?) sp.; Yarengiidae: pterygoid of *Yarengia* (?) sp.; Procolophonidae: fragments of dermal bones, ribs, jaws, and autopodium of *Kapes majmesculae* (Ivakhnenko, 1979; Novikov, 1991a; Ochev, 1968); Erythrosuchidae: *Garjainia* sp.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Tributary channel deposits.

Storage. Institute of Paleontology, Moscow.

20. PETROPAVLOVKA II (Figs. 11 and 12A)

Geographic location. Orenburg Region, 2.6 km NNW of south outskirts of Petropavlovka village, right bank of the Sakmara River (Shishkin et al., 1995; Ivakhnenko et al., 1997).

Host rocks. Grey, medium-grained, cross-bedded sandstone.

Faunal assemblage. Amphibia: *Eryosuchus* sp.

Stratigraphic level. Donguz Svita. Middle Triassic.

Burial conditions. Deltaic deposits.

Storage. Saratov State University.

5.2. Area between the Ural and Sakmara Rivers

21. KRASNOGOR

Geographic location. Orenburg Region, 2.5 km west of Krasnogor village, right bank of the Ural River (Tverdokhlebov, 1967, 1970).

Host rocks. Red-buff, variably grained sandstone.

Faunal assemblage. Benthosuchidae: fragments of lower jaws, ulna, and right clavicle of *Benthosuchus* sp.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

22. BELOGORY I

Geographic location. Orenburg Region, 4.5 km west SW of Belogory village (Ural drainage basin) (Garyainov et al., 1967; Tverdokhlebov, 1967, 1970; Ochev, 1972; Shishkin et al., 1995).

Host rocks. Red-buff, medium-grained, cross-bedded sandstone.

Faunal assemblage. Benthosuchidae: *Benthosuchus* sp.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

23. BELOGORY II

Geographic location. Orenburg Region, 4.5 km west SW of Belogory village (Ural drainage basin) (Tverdokhlebov, 1967, 1970).

Host rocks. Red-buff, medium-grained, cross-bedded sandstone.

Faunal assemblage. Capitosauridae: skull fragment of *Wetlugasaurus* sp.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

24. OSTROVNOE

Geographic location. Orenburg Region, 55 km east of Orenburg, 4.6 km SE of Ostrovnoe village, right bank of the Ural River (Garyainov et al., 1967; Tverdokhlebov, 1966; Shishkin et al., 1995).

Host rocks. Red-buff, raspberry-coloured clays, with yellow and grey spots.

Faunal assemblage. Amphibia: interclavicle of a large individual of Capitosauridae indet.

Stratigraphic level. Bukobay Svita. Middle Triassic.

Burial conditions. Lake deposits.

Storage. Saratov State University.

25. GRYAZNUSHKA

Geographic location. Orenburg Region, 42 km east of Orenburg, 2 km north of Vyazovka village (Ural drainage basin) (Garyainov et al., 1967; Tverdokhlebov, 1966; Shishkin et al., 1995).

Host rocks. Red-buff, medium-grained, cross-bedded sandstone.

Faunal assemblage. Tupilakosauridae: vertebrae, ischium, the skull roof bone of *Tupilakosaurus* (?) sp.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

26. KAMENKA

Geographic location. Orenburg Region, 30 km east of Orenburg, 5 km NE of Kamlenno-Ostrovnoe village (Ural drainage basin). (Garyainov et al., 1967; Tverdokhlebov, 1966, 1970; Shishkin et al., 1995).

Host rocks. Buff-grey, variably grained, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Benthosuchidae: remains of *Benthosuchus* cf. *sushkini*, *Benthosuchus* sp. (Ochev, 1972).

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Saratov State University.

5.3. Drainage basin of left bank of the Ural River

5.3.1. Drainage basins of the Kzyl-Oba, Berdyanka and Donguz rivers, Nikolka ravine

27. BLYUMENTAL

Geographic location. Orenburg Region, 0.5 km east of Blyumental village (drainage basin of left bank of the Ural River) (Tverdokhlebov, 1970; Ivakhnenko et al., 1997)

Host rocks. Buff-brown, medium-grained, cross-bedded sandstone with pebbles of clays.

Faunal assemblage. Benthosuchidae: skull of *Benthosuchus uralensis* (Ochev, 1958, 1972); Proterosu-

chidae: spinal process of *Chasmatosuchus* sp.; Prolacertidae: vertebra of *Microcnemus* (?) sp.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

28. ANDREEVKA (Fig. 9B)

Geographic location. Orenburg Region, upper reaches of Kzyl-Oba River, opposite Andreevka village (drainage basin of left bank of the Ural River).

Host rocks. There are two fossiliferous levels each composed of buff-grey, medium-grained cross-bedded sandstone, and separated by a layer of red clay.

Faunal assemblage. Lower fossiliferous level. Capitosauridae: skull fragment of *Wetlugasaurus kzilsajensis* (Ochev, 1958, 1972); Proterosuchidae: ilium of *Exilisuchus tubercularis* (Ochev, 1979); Upper fossiliferous level. Capitosauridae: skull of *Parotosuchus orientalis* (Ochev, 1958, 1972); Rhytidosteidae: skull fragment of *Rhytidosteus uralensis* (Shishkin, 1994); Brachyopidae: lower jaw fragment of *Batrachosuchoides* sp.; Bystrowianidae: vertebra of *Bystrowiana* sp.; Erythrosuchidae: *Garjainia* sp.

Stratigraphic level. Lower fossiliferous level: Kzyl-saiskaya Svita. Lower Triassic. Upper fossiliferous level: Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Institute of Paleontology, Moscow.

29. KZYL-SAY

Geographic location. Orenburg Region, 0.5–1 km west of Andreevka village, the Kzyl-Say ravine (drainage basin of left bank of the Ural River). There is a series of fossil-bearing points at the same stratigraphic level (Ivakhnenko et al., 1997).

Host rocks. Grey, buff-grey, red-buff, cross-bedded sandstone with gravel and pebbles of silica and quartz.

Faunal assemblage. Fishes: *Ceratodus multicristatus* (Minikh, 1977); Capitosauridae: remains of *Parotosuchus orientalis*, *Wetlugasaurus* sp. Rhytidosteidae: *Rhytidosteus uralensis*; Brachyopidae: *Batrachosuchoides* sp., Plagiosauridae: *Melanopelta* sp.; Bystrowianidae gen. indet. (Shishkin, 1967; Ivakhnenko et

al., 1997); Procolophonidae: *Burtensia burtensis* (Otschev) (Ivakhnenko, 1979). Erythrosuchidae: *Garjainia prima*; Proterosuchidae: *Exilisuchus tubercularis*; Prolacertidae gen. indet.; Theriodontia: two teeth of Galesauridae indet. (Tatarinov, 1974).

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Saratov State University; Institute of Paleontology, Moscow.

30. BELYAEVSKY I (BUKOBAY V)

Geographic location. Orenburg Region, 7.5 km east of Belyaevsky village, right bank of the Bukobay ravine (drainage basin of left bank of the Ural River) (Shishkin et al., 1995; Ivakhnenko et al., 1997).

Host rocks. Yellow-grey, fine-grained sandstone.

Faunal assemblage. Fishes: *Ceratodus bucobaensis*, *C. orenburgensis* (Minikh, 1977); Mastodonsauridae: *Mastodonsaurus torvus*, *Bukobaja* sp.; Cyclotosauridae: *Cyclotosaurus* (?) sp. (Ochev, 1972); Prolacertidae: *Malutinisuchus gratus*; Erythrosuchidae: *Chalis-hevia cothurnata*; Rausisuchidae: *Energosuchus garjainovi* (Ochev, 1986a,b; Sennikov, 1995b); femur of Theriodontia indet.

Stratigraphic level. Bukobay Svita. Middle Triassic.

Burial conditions. Tributary channel deposits.

Storage. Saratov State University, Institute of Paleontology, Moscow.

31. BELYAEVSKY II (BUKOBAY VII)

Geographic location. Orenburg Region, 6 km ENE of Belyaevsky village, right bank of the Bukobay ravine (drainage basin of left bank of the Ural River) (Shishkin et al., 1995; Ivakhnenko et al., 1997).

Host rocks. Grey, fine- to medium-grained, cross-bedded sandstone.

Faunal assemblage. Mastodonsauridae: vertebrae of *Mastodonsaurus* sp.; Erythrosuchidae: *Chalishevia cothurnata* (Ochev, 1980).

Stratigraphic level. Bukobay Svita. Middle Triassic (stratotype).

Burial conditions. Tributary channel deposits within lake deposits.

Storage. Saratov State University; Institute of Paleontology, Moscow.

32. BERDYANKA II

Geographic location. Orenburg Region, 3.5 km SW of Belyaevsky village, right tributary of the Berdyanka River (drainage basin of left bank of the Ural River) (Garyainov and Ochev, 1962; Shishkin et al., 1995, Ivakhnenko, 1997).

Host rocks. Buff-yellow, fine-grained, cross-bedded sandstone with lenses of conglomerate, clay, and siltstone.

Faunal assemblage. Lenses of conglomerate contain: Fishes: dental plates of *Ceratodus recticristatus*, *C. gracilis* (Vorob'eva and Minikh, 1968; Minikh, 1977). Lenses of clay contain: Capitosauridae: *Eryosuchus garjainovi*; Plagiosauridae: *Plagioscutum ochevi* (Ochev, 1966, 1972; Ochev and Shishkin, 1967). Carbonate concretions in sandstone contain: Proterosuchidae: *Sarmatosuchus otschevi* (Sennikov, 1994, 1995b); Rausisuchidae: fragments of postcranial skeleton of *Vjuschkovisaurus berdjanensis* (Ochev, 1982); Nothogomphodontidae: *Nothogomphodon danilovi*; Traversodontidae: *Antecosuchus ochevi* (Tatarinov, 1974).

Stratigraphic level. Donguz Svita. Middle Triassic.

Burial conditions. Deltaic deposits (distributary and deltaic flat).

Storage. Institute of Paleontology, Moscow.

33. BERDYANKA I

Geographic location. Orenburg region, 3.4 km south of Belyaevsky village, right tributary of the Berdyanka River (drainage basin of left bank of the Ural River) (Ochev and Shishkin, 1964; Garyainov and Ochev, 1962; Tverdokhlebov, 1967; Shishkin et al., 1995; Ivakhnenko, 1997).

Host rocks. Red-buff, sand clays with lenses of sand.

Faunal assemblage. Amphibia: *Plagioscutum ochevi* (Shishkin, 1987); Procolophonidae: *Kapes sirotinus* (Novikov, 1991a); Euparkeriidae: *Dorosuchus neotetus* (Sennikov, 1989); Traversodontidae: *Antecosuchus ochevi* (Tatarinov, 1974); Kannemeyridae: *Rhadiodromus klimovi*; Shansiodontidae: *Rhinodicynodon gracile* (Kalandadze, 1970).

Stratigraphic level. Donguz Svita. Middle Triassic.

Burial conditions. Deltaic flat deposits. The skeleton of *Rhadiodromus* was found upside down, and three skeletons of *Rhinodicynodon* were buried with their backs turned upward (Shishkin et al., 1995).

Storage. Institute of Paleontology, Moscow.

34. KARAGACHKA

Geographic location. Orenburg Region, right bank of the Karagachka River opposite Karagachka village (drainage basin of left bank of the Ural River) (Garyainov and Ochev, 1962; Shishkin et al., 1995; Ivakhnenko et al., 1997).

Host rocks. Green-grey to buff-red, medium-grained, cross-bedded sand.

Faunal assemblage. Capitosauridae: *Eryosuchus antiquus*; Plagiosauridae: *Plagiosternum paraboliceps* (Ochev, 1966, 1972; Shishkin, 1987); Erythrosuchidae: skull fragments of *Uralosaurus magnus* (Ochev, 1980); Traversodontidae: tooth of *Scalenodon boreus* (Tatarinov, 1974); Kannemeyridae: skull and skull fragments of *Uralokannemeyeria vjuschkovi* (Danilov, 1973); Anomodontia: *Edaxosaurus edentatus* (Kalandadze and Sennikov, 1985).

Stratigraphic level. Donguz Svita. Middle Triassic.

Burial conditions. Tributary channel deposits.

Storage. Saratov State University; Institute of Paleontology, Moscow.

35. PEROVKA (Fig. 14b)

Geographic location. Orenburg Region, right bank of the Donguz River opposite Perovka village (drainage basin of left bank of the Ural River) (Donguz XII, Ochev and Shishkin, 1964; Tverdokhlebov, 1967; Shishkin et al., 1995; Ivakhnenko et al., 1997).

Host rocks. Brown-buff, uneven sand and silt clays.

Faunal assemblage. Fishes: dental plates of *Ceratodus bucobaensis*, *C. recticristatus* (Vorob'eva and Minikh, 1968; Minikh, 1977); Capitosauridae: *Eryosuchus tverdokhlebovi*, *E. garjainovi* (Ochev, 1966, 1972); Plagiosauridae: *Plagioscutum ochevi* (Shishkin, 1987); Mastodontosauridae: *Bukobaja* sp. (Ochev, 1972); Rausisuchidae: *Dongusuchus efremovi* (Sennikov, 1988, 1995a,b).

Stratigraphic level. Donguz Svita. Middle Triassic.

Burial conditions. Deltaic deposits.

Storage. Saratov State University; Institute of Paleontology, oscar.

36. DONGUZ I (Fig. 14a)

Geographic location. Orenburg Region, 1 km NW of Perovka village, right bank of the Donguz River (drainage basin of left bank of the Ural River) (Efremov and V'yushkov, 1955; Garyainov and Ochev, 1962; Ochev and Shishkin, 1964; Tverdokhlebov, 1967; Shishkin et al., 1995; Ivakhnenko et al., 1997).

Host rocks. Grey, fine- to medium-grained sandstone with lenses of conglomerate and interlayers of siltstone.

Faunal assemblage. Fishes: dental plates of *Ceratodus jechartiensis*, *C. recticristatus*, *C. gracilis* (Vorob'eva and Minikh, 1968; Minikh, 1977); Capitosauridae: *Eryosuchus tverdochlebovi* (Ochev, 1966, 1972); Plagiosauridae: *Plagioscutum ochevi* (Shishkin, 1987); Bystrowianidae gen. indet.; Rausuchidae: *Dongusia colorata* (Huene, 1940), *Dongusuchus efremovi* (Sennikov, 1988, 1995a,b); Euparkeriidae: *Dorosuchus neoetus* (Sennikov, 1989); Kannemeyeriidae: *Rhadiodromus klimovi*, *Rabidosaurus cristatus* (Efremov, 1940, 1951; Kalandadze, 1970); Bauriidae: *Dongusaurus schepe-tovi* (V'yushkov, 1964).

Stratigraphic level. Donguz Svita. Middle Triassic.

Burial conditions. Deltaic deposits (Efremov, 1940; V'yushkov, 1949).

Storage. Saratov State University; Institute of Paleontology, Moscow.

37. MESCHERYAKOVKA I (Fig. 12B)

Geographic location. Orenburg Region, 0.3 km south of Mescheryakovka village, right bank of the Donguz River (drainage basin of left bank of the Ural River) (V'yushkov, 1949; Efremov and V'yushkov, 1955; Tverdokhlebov, 1967; Shishkin et al., 1995).

Host rocks. Red, medium-grained, cross-bedded sandstone.

Faunal assemblage. Capitosauridae: palatine fragment of *Parotosuchus* sp.; Procolophonidae: jaw of *Burtensia burtensis* (Novikov, 1991a).

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Tributary channel deposits.

Storage. Institute of Paleontology, Moscow.

38. MESCHERYAKOVKA II (DONGUZ IX)

Geographic location. Orenburg Region, 0.6 km NW of Mescheryakovka village, right bank of the Donguz River (drainage basin of left bank of the Ural River) (Garyainov and Ochev, 1962; Tverdokhlebov, 1967; Ochev, 1980; Shishkin et al., 1995).

Host rocks. Red-buff, medium-grained sandstone with pebbles and gravel.

Faunal assemblage. Capitosauridae: skull fragment of *Parotosuchus orenburgensis*; Brachyopidae: lower jaw fragment of *Batrachosuchoides* sp.; armour plate of *Batrachomorpha* indet.; Erythrosuchidae: numerous bone fragments of *Garjainia* sp.; Rausuchidae: vertebra of *Jaikosuchus magnus* (Sennikov, 1990).

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

39. NIKOLSKOE

Geographic location. Orenburg Region, 8.5 km SSW of Nikolskoe village, upper reaches of Nikolka stream (left tributary of the Ural River).

Host rocks. Red-buff, medium-grained cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Tupilakosauridae: vertebrae of *Tupilakosaurus* sp.; the lower jaw of Capitosauridae indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

5.3.2. Drainage basin of the Chernaya River

40 ORLOVKA

Geographic location. Orenburg Region, 7.5 km WSW of Orlovka village, upper reaches of the Chernaya River.

Host rocks. Red-buff, variably grained, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Benthosuchidae: lower jaw fragment and pterygoid of *Benthosuchus* sp.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

41. CHERNOVSKOE I

Geographic location. Orenburg Region, tight bank of the Chernaya River, opposite Chernovsky village.

Host rocks. Red-buff, medium-grained, cross-bedded sandstone.

Faunal assemblage. Amphibia: lower jaw fragment, clavicle, dermal bones of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

42. CHERNOVSKOE II

Geographic location. Orenburg Region, 2.5 km SW of Chernovsky village, right bank of the Chernaya River.

Host rocks. Red-buff, medium-grained, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Amphibia: lower jaw fragment and clavicle of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

43. SHISHKIN

Geographic location. Orenburg Region, 1.8 km NW of Shishkin village, right bank of the Chernaya River, opposite Chernovsky village.

Host rocks. Grey, medium-grained, cross-bedded sandstone with pebbles of chert and quartz.

Faunal assemblage. Amphibia: clavicle fragment of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

44. DREMOV I

Geographic location. Orenburg Region, 2 km north of Dremov village, Vychlyaniy ravine, right tributary of the Chernaya River (Tverdokhlebov, 1970).

Host rocks. Buff-grey, medium-grained, large-scale cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Amphibia: fragments of pterygoid, skull, lower jaws, femur, ribs, dermal bones of *Temnospondyli* indet.; Reptilia: rib fragments of a small reptile.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Tributary channel deposits.

Storage. Saratov State University.

45. DREMOV II

Geographic location. Orenburg Region, 3.7 km west of Dremov village, right bank of the Chernaya River.

Host rocks. Red-buff, medium-grained sandstone with lenses of conglomerate.

Faunal assemblage. Capitosauridae: pterygoid fragment of *Wetlugasaurus* sp.; Amphibia: fragment of the lower jaw, two clavicles, and interclavicle of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

46. SUKHODOLNY I

Geographic location. Orenburg Region, 1.6 km north of Sukhodolny village, right bank of the Chernaya River.

Host rocks. Buff-red, fine- to medium-grained sandstone with small pebbles and lenses of conglomerate.

Faunal assemblage. Capitosauridae: pterygoid fragment of *Wetlugasaurus* sp.; Amphibia: two fragments of clavicle and skull roof of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

47. SUKHODOLNY II

Geographic location. Orenburg Region, 3.5 km east of Sukhodolny village, right bank of the Chernaya River.

Host rocks. Red-buff fine- to medium-grained sandstone with lenses of conglomerate.

Faunal assemblage. Amphibia: fragments of rib, lower jaw, and dermal bones of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

48. SUKHODOLNY III

Geographic location. Orenburg Region, 0.9 km NW of Sukhodolny village, right bank of the Chernaya River.

Host rocks. Red-buff, medium-grained, cross-bedded sandstone with pebbles and lenses of conglomerate.

Faunal assemblage. Trematosauridae: lower jaw of *Trematosaurus* (?) sp.; Plagiosauridae: dermal bones of Plagiosauridae indet; Reptilia: small ribs of Reptilia indet.

Stratigraphic level. Gostevskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

5.4. Area between the Ural-Samara rivers, right bank of the Upper Samara River

5.4.1. Drainage basin of the right bank of the Ural River

49. NIZHNEOZERNOE I

Geographic location. Orenburg Region, 2.5 km north of Nizhneozernoe village, right bank of the Ural River.

Host rocks. Lilac-buff, fine- to medium-grained, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Benthosuchidae: tabular and lower jaw of *Benthosuchus* sp.; Amphibia: fragments of jaw, rib, dermal bones of *Temnospondyli* indet. Diapsida: rib of small Archosauria indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

50. NIZHNEOZERNOE II

Geographic location. Orenburg Region, 3.5 km west of Nizhneozernoe village, right bank of the Ural River.

Host rocks. Lilac, fine- to medium-grained, large-scale cross-bedded sandstone.

Faunal assemblage. Trematosauridae: skull fragments of *Thoosuchus* sp.; Capitosauridae: scapulocoracoid of *Wetlugasaurus* (?) sp.; Amphibia: fragments of the lower jaw, dermal bones femur, and ischium of *Temnospondyli* indet.; Reptilia: limb bones of a small reptile.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

51. RASSYPNOE

Geographic location. Orenburg Region, 1.5 km NE of Rassypnoe village, right bank of the Ural River (Efremov and V'yushkov, 1955; Shishkin et al., 1995; Ivakhnenko et al., 1997).

Host rocks. Red clays, uneven sand with lenses of grey, fine-grained sand.

Faunal assemblage. Capitosauridae: *Parotosuchus orenburgensis*; Erythrosuchidae: *Garjainia triplicostata*; Rausisuchidae: *Jaikosuchus magnus*; Silphedestidae: *Silphedosuchus orenburgensis*.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Delta plain deposits.

Storage. Institute of Paleontology, Moscow.

52. ZAZHUVNIY

Geographic location. Orenburg Region, 3.5 km east of Zazhuvniy village, right bank of the Zazhuvniy River, right tributary of the Ural River.

Host rocks. Brown-buff, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Capitosauridae: fragment of the skull roof of *Wetlugasaurus* (?) sp.; Reptilia: two vertebrae and some unidentified remains of a small reptile.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

53. PEREVOLOTZKOE

Geographic location. Orenburg Region, 4 km south of Perevolotzk town, upper reaches of Kamysh-Samarka rivers, right tributary of the Ural River.

Host rocks. Grey, variably grained sand with gravel.

Faunal assemblage. Tupilakosauridae: numerous vertebrae and dermal bone fragments of *Tupilakosaurus* sp.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Proluvial plain deposits.

Storage. Saratov State University.

54. KYNDELYA I

Geographic location. Orenburg Region, 12.5 km west of Perevolotzk town, upper reaches of Kyndelya River, right tributary of the Ural River.

Host rocks. Lilac-grey, variably grained, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Benthosuchidae: tabular and left branch of the lower jaw of *Benthosuchus* (?) sp.; Amphibia: ischium and neural arch of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

55. KYNDELYA II

Geographic location. Orenburg Region, 1.5 km NE of Rybkino village, upper reaches of Kyndelya River, right tributary of the Ural River.

Host rocks. Lilac-buff, medium- to coarse-grained sandstone with lenses of conglomerate.

Faunal assemblage. Benthosuchidae: supraoccipital and right and left branches of the lower jaw of *Benthosuchus* sp.; Amphibia: femur, ulnae, interclavicle, rib fragments and dermal bones of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

56. RYBKINO

Geographic location. Orenburg Region, 1 km north of Rybkino village, upper reaches of Kyndelya River, right tributary of the Ural River.

Host rocks. Buff-red, fine-grained, large-scale cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Amphibia: humerus of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

57. KULAGINO I

Geographic location. Orenburg Region, 1 km NW of Kulagino village, Kyndelya River drainage basin (right tributary of the Ural River).

Host rocks. Yellow-brown, medium-grained, cross-bedded sandstone with pebbles of clay.

Faunal assemblage. Capitosauridae: skull fragments and a lower jaw of a large *Parotosuchus* (?) sp.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Distributary channel deposits.

Storage. Saratov State University.

58. KULAGINO II

Geographic location. Orenburg Region, 4 km NW of Kulagino village, Kyndelya River drainage basin (right tributary of the Ural River).

Host rocks. Brown, medium-grained, large-scale cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Amphibia: palatine, lower jaw, and femur of *Temnospondyli* indet.; Proterosuchidae: vertebra of a large *Chasmatosuchus* (?) sp.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

5.4.2. *Drainage basin of the right bank and the uppermost reaches of the Samara River*

59. YAPRINTZEVO

Geographic location. Orenburg Region, right bank of Gryaznushka River (right tributary of the Samara River), opposite Yaprintzevo village.

Host rocks. Buff, variably grained, small-scale cross-bedded sandstone.

Faunal assemblage. Amphibia: fragments of jugal and maxilla of Temnospondyli indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. The proluvial plain deposits.

Storage. Saratov State University.

60. KRASNAYA PAVLOVKA

Geographic location. Orenburg Region, 2.1 km south of Krasnaya Pavlovka village, Kuvay drainage basin, right tributary of the Samara River.

Host rocks. Buff-red, medium-grained, large-scale cross-bedded sandstone with pebbles and gravel.

Faunal assemblage. Amphibia: humerus and dermal bones of Temnospondyli indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

61. RADOVKA

Geographic location. Orenburg Region, 1.8 km SW of Radovka village, Samara drainage basin.

Host rocks. Grey-buff, variably grained, large-scale cross-bedded sandstone with gravel and small pebbles.

Faunal assemblage. Amphibia: right tabular, vertebra, fragments of lower jaw, dermal bones and ribs of Temnospondyli indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

62. KAPITONOVKA

Geographic location. Orenburg Region, 2 km NE of Kapitonovka village, Samara drainage basin.

Host rocks. Red-buff, medium-grained sandstone with lenses of conglomerate.

Faunal assemblage. Amphibia: fragment of neural arch and dermal bones of Temnospondyli indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

63. ALEKSANDROVKA

Geographic location. Orenburg Region, near Aleksandrovka village, upper reaches of the Samara River.

Host rocks. Red-buff, medium-grained sandstone with chert, quartz, and pebbles of red clay and limestone.

Faunal assemblage. Amphibia: skull fragments, clavicle, femur and dermal bones of Temnospondyli indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

64. KOZLOVKA

Geographic location. Orenburg Region, 1 km from Kozlovka village, right bank of the Samara River.

Host rocks. Red-buff, variably grained sandstone with gravel and numerous small pebbles.

Faunal assemblage. Amphibia: rib fragments, tooth and dermal bones of Temnospondyli indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

5.4.3. *Drainage basin of the left bank of the Samara River*

65. MYROLYUBOVKA I

Geographic location. Orenburg Region, 2.5 km SW of Myrolyubovka village, upper reaches of Vetlyanka River (left tributary of the Samara River).

Host rocks. Red-buff, medium-grained sandstone with gravel and small pebbles.

Faunal assemblage. Amphibia: skull fragments of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

66. MYROLYUBOVKA II

Geographic location. Orenburg Region, 1.7 km south of Myrolyubovka village, small ravine, a tributary of the Vetlyanka River (left bank of the Samara River).

Host rocks. Red-buff, fine-grained, cross-bedded sandstone.

Faunal assemblage. Amphibia: interclavicle of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

67. MYROLYUBOVKA III

Geographic location. Orenburg Region, near to northern outskirts of Myrolyubovka village, right ravine of the Vetlyanka River (right tributary of the Samara River).

Host rocks. Reddish-lilac, large-scale cross-bedded sandstone and conglomerate.

Faunal assemblage. Procolophonidae: lower jaw of *Tichvinskia* (?) sp.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

68. VETLYANKA I

Geographic location. Orenburg Region, 0.65 km NW of Myrolyubovka village, right bank of the Vetlyanka River (right tributary of the Samara River).

Host rocks. Grey, medium-grained cross-bedded sandstone with gravel and numerous pebbles of chert and quartz.

Faunal assemblage. Capitosauridae: fragment of the lower jaw of *Wetlugasaurus* sp. or *Parotosuchus* (?)

sp.; Proterosuchidae: fragment of a large femur of *Chasmatosuchus* (?) sp.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

69. VETLYANKA II

Geographic location. Orenburg Region, 0.4 km west of Myrolyubovka village, left bank of the Vetlyanka River.

Host rocks. Red-buff, fine-grained, cross-bedded sandstone with gravel and pebbles.

Faunal assemblage. Benthosuchidae: lower jaw of *Benthosuchus* (?) sp.; Amphibia: fragments of dermal bones, neural arch, and ilium of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

70. VETLYANKA III

Geographic location. Orenburg Region, 1.1 km west of Myrolyubovka village, Vetlyanka River (right tributary of the Samara River).

Host rocks. Grey conglomerate with pebbles of chert, quartz and numerous pebble fragments of red clays and sandstone.

Faunal assemblage. Amphibia: lower jaw and skull fragments of *Temnospondyli* indet.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

71. MOKROVETLYANSKOE I

Geographic location. Orenburg Region, 4 km WSW of Myrolyubovka village, left bank of the Vetlyanka River (right tributary of the Samara River).

Host rocks. Reddish-brown, fine-grained, cross-bedded sandstone with pebbles of clay.

Faunal assemblage. Amphibia: vertebrae and skull fragment of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

72. MATVEEVKA I

Geographic location. Orenburg Region, 2.5 km east of Matveevka village, right bank of the Vorobyovka River (left tributary of the Samara River).

Host rocks. Red-buff, medium-grained, cross-bedded sandstone with conglomeratic lenses.

Faunal assemblage. Amphibia: fragment of a skull bone of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

73. MATVEEVKA II

Geographic location. Orenburg Region, 1.7 km east of Matveevka village, right ravine of the Vorobyovka River (left tributary of the Samara River).

Host rocks. Buff-brown, fine-grained sandstone, with conglomeratic lenses.

Faunal assemblage. Amphibia: skull fragments, lower jaws, clavicle of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Saratov State University.

74. MATVEEVKA III

Geographic location. Orenburg Region, 1.2 km south of Matveevka village, right bank of the Vorobyovka River (left tributary of the Samara River).

Host rocks. Red-buff, fine-grained, cross-bedded sandstone with conglomeratic lenses.

Faunal assemblage. Amphibia: palatine fragments, lower jaws, ilium, jugal, dermal bones of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Distributary channel deposits.

Storage. Saratov State University.

75. MATVEEVKA IV

Geographic location. Orenburg Region, 3 km SSE of Matveevka village, upper reaches of the Vorobyovka River (left tributary of the Samara River).

Host rocks. Buff-grey, red-buff, medium-grained, cross-bedded sandstone.

Faunal assemblage. Capitosauridae: palatine fragment of *Wetlugasaurus* (?) sp.; Amphibia: fragments of dermal bones of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

76. VOROBYOVSKOE I

Geographic location. Orenburg Region, 2.3 km south of Matveevka village, upper reaches of the Vorobyovka River (left tributary of the Samara River).

Host rocks. Buff-grey, fine-grained, cross-bedded sandstone with conglomeratic lenses.

Faunal assemblage. Amphibia: fragment of the lower jaw of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

77. VOROBYOVSKOE II

Geographic location. Orenburg Region, 0.8 km SW of Alekseevka village, left bank of the Vorobyovka River (left tributary of the Samara River).

Host rocks. Red-brown, fine-grained, cross-bedded sandstone with conglomeratic lenses.

Faunal assemblage. Amphibia: some lower jaw fragments, ilium, cleithrum and dermal bones of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

78. VOROBYOVSKOE III

Geographic location. Orenburg Region, 2.3 km SW of Alekseevka village, Vorobyovka River (left tributary of the Samara River).

Host rocks. Lilac-grey, fine- to medium-grained, cross-bedded sandstone with conglomeratic lenses.

Faunal assemblage. Amphibia: femur and rib fragments of *Temnospondyli* indet.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Deltaic channel deposits.

Storage. Saratov State University.

79. ALEKSEEVSKOE

Geographic location. Orenburg Region, 2 km SSW of Alekseevka village, left bank of the Vorobyovka River (left tributary of the Samara River).

Host rocks. Buff-grey, medium-grained, cross-bedded sandstone with conglomeratic lenses.

Faunal assemblage. Amphibia: skull and rib fragments, ilium of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

80. NOVO-GEORGIEVKA

Geographic location. Orenburg Region, 1 km NE of Novo-Georgievka village, upper reaches of the Buzuluk River.

Host rocks. Greyish, medium-grained sandstone with large pebbles of clay.

Faunal assemblage. Capitosauridae: fragment of supraoccipital *Wetlugasaurus* (?) sp., Amphibia: interclavicle, and rib fragments of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Deltaic channel deposits.

Storage. Saratov State University.

81. POKROVKA I

Geographic location. Orenburg Region, 3 km NNE of Pokrovka village, upper reaches of the Sorochka River (left tributary of the Samara River).

Host rocks. Grey, fine-grained sandstone.

Faunal assemblage. Trematosauridae: palatine fragment of *Trematosaurus* (?) sp.

Stratigraphic level. Gostevskaya Svita. Lower Triassic.

Burial conditions. Deltaic channel deposits.

Storage. Saratov State University.

82. POKROVKA II

Geographic location. Orenburg Region, 2 km NW of Pokrovka village, upper reaches of the Sorochka River (left tributary of the Samara River).

Host rocks. Grey, medium-grained, cross-bedded sandstone with numerous pebbles of sandstone and clay and conglomeratic lenses.

Faunal assemblage. Amphibia: lower jaw of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Deltaic channel deposits.

Storage. Saratov State University.

83. POKROVKA III

Geographic location. Orenburg Region, 3 km west of Mikhaylovka-I village, right bank of the Sorochka River (left tributary of the Samara River).

Host rocks. Lilac-grey, fine- to medium-grained, cross-bedded sandstone with conglomeratic lenses.

Faunal assemblage. Benthosuchidae: lower jaw of *Benthosuchus* sp., Amphibia: clavicle, skull fragments, ilium, ribs of *Temnospondyli* indet.; Proterosuchidae: limb bones of *Chasmatosuchus* (?) sp.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

84. MIKHAYLOVSKOE

Geographic location. Orenburg Region, 3 km SE of Mikhaylovka village, right bank of the Sorochka River (left tributary of the Samara River).

Host rocks. Red-brown, medium-grained, large-scale cross-bedded sandstone with debris of clay, siltstone and sandstone.

Faunal assemblage. Amphibia: skull fragment of *Temnospondyli* indet.; Proterosuchidae: limb bones of *Chasmatosuchus* (?) sp.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

85. KAMENNY YAR I

Geographic location. Orenburg Region, 7.5 km SE of Troyitzkoe village, Kamenny Yar ravine (right tributary of the Sorochka River) (Ivakhnenko et al., 1997).

Host rocks. From the top: (1) Grey, buff-grey, red-buff, medium-grained, cross-bedded sandstone with conglomeratic lenses and pebbles of siltstone and clay. Thickness 6 m. Erosive contact. (2) Overlapping red-buff, lilac-grey, cross-bedded sandstone with conglomeratic lenses. Thickness 6.5 m.

Faunal assemblage. (1) Trematosauridae: skull fragment, lower jaw and clavicle of *Thoosuchus tuberculatus*; Amphibia: neural arch of a large *Temnospondyli* indet.; Proterosuchidae: limb fragment of *Exilisuchus* (?) sp. (2) Amphibia: skull fragment and humerus of a small *Temnospondyli* indet.; Rauisuchiidae: vertebra of *Tsylmosuchus* sp.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University, Institute of Paleontology, Moscow.

86. KAMENNY YAR II

Geographic location. Orenburg Region, 6.8 km SE of Troyitzkoe village, Kamenny Yar ravine (right tributary of the Sorochka River) (Ivakhnenko et al., 1997).

Host rocks. Red-buff, fine- to medium-grained, large-scale cross-bedded sandstone with pebbles of sandstone, siltstone and clay.

Faunal assemblage. Benthosuchidae: skull fragments of *Benthosuchus* (?) sp.; Trematosauridae: fragments of dermal bones of *Thoosuchus* (?) sp.; Proterosuchidae: vertebra of a small *Chasmatosuchus* sp.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

87. KAMENNY YAR III (Fig. 9A)

Geographic location. Orenburg Region, 5.5 km east of Troyitzkoe village, Kamenny Yar ravine (right tributary of the Sorochka River) (Ivakhnenko et al., 1997).

Host rocks. From the bottom: (1) Grey, medium-grained, large-scale cross-bedded sandstone with conglomeratic lenses. Thickness 8 m. Erosive contact. (2) Overlapping red-buff, medium-grained, large-scale cross-bedded sandstone with numerous pebbles of sandstone, chert and clay. Thickness 12 m.

Faunal assemblage. (1) Tupilakosauridae: rib fragments of *Tupilakosaurus* (?) sp.; Amphibia: fragments of dermal bones, palatine, lower jaws, femur, ulna and ilium of *Temnospondyli* indet. (2) Benthosuchidae: tabular of *Benthosuchus* sp.

Stratigraphic level. (1) Kopanskaya Svita, lower Triassic. (2) Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. (1) Distributary channel deposits. (2) Channel deposits.

Storage. Institute of Paleontology, Moscow.

88. KAMENNY YAR IV

Geographic location. Orenburg Region, 4 km east of Troyitzkoe village, Kamenny Yar ravine (right tributary of the Sorochka River) (Ivakhnenko et al., 1997).

Host rocks. Red-buff, fine- to medium-grained, cross-bedded sandstone with conglomeratic lenses and pebbles of sandstone, siltstone, chert and clay.

Faunal assemblage. Amphibia: skull fragments, lower jaws, neural arch and vertebra *Temnospondyli* indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

89. SUKHUSHKA I

Geographic location. Orenburg Region, 8 km SW of Spasskoe village, Sukhushka ravine (right tributary of the Kamenny Yar ravine).

Host rocks. Grey, buff-grey, fine-grained, cross-bedded sandstone with conglomeratic lenses.

Faunal assemblage. Capitosauridae: lower jaw fragment of *Parotosuchus* (?) sp.; Amphibia: fragments of dermal bones and ribs of Temnospondyli indet.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Distributary channel deposits.

Storage. Institute of Paleontology, Moscow.

90. SUKHUSHKA II

Geographic location. Orenburg Region, 9.2 km west, SW of Spasskoe village, Sukhushka ravine (right tributary of the Kamenny Yar ravine).

Host rocks. Buff-grey, fine-grained, cross-bedded sandstone with conglomeratic lenses.

Faunal assemblage. Capitosauridae: scapulocoracoid of *Wetlugasaurus angustifrons*, Amphibia: skull fragments of Temnospondyli indet.; Reptilia: ribs of a reptile.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

91. SUKHUSHKA III

Geographic location. Orenburg Region, 10 km WSW of Spasskoe village, Sukhushka ravine (right tributary of the Kamenny Yar ravine).

Host rocks. Red-buff, fine-grained, cross-bedded sandstone with conglomeratic lenses

Faunal assemblage. Amphibia: fragments of lower jaw, dermal bones and ribs of Temnospondyli indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

92. TROYITZKOE

Geographic location. Orenburg Region, 1.2 km NE of Troyitzkoe village, Sukhushka ravine (right tributary of the Kamenny Yar ravine).

Host rocks. (1) Grey, large-scale cross-bedded sandstone and conglomerate. Thickness 8 m. (2) Red-buff,

cross-bedded sandstone and conglomerate. Thickness 4.5 m.

Faunal assemblage. (1) Benthosuchidae: palatine fragment *Benthosuchus* sp.; Amphibia: tabular, jaw and rib fragments of Temnospondyli indet. (2) Benthosuchidae: skull fragment of *Benthosuchus* sp.; Amphibia: fragments of dermal bones and rib of Temnospondyli indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. (1) Distributary channel deposits. (2) Channel deposits.

Storage. Institute of Paleontology, Moscow.

93. FEDOROVKA I

Geographic location. Orenburg Region, 3.4 km SE of Fedorovka village, right bank of the Sorochka River.

Host rocks. Lilac-grey fine- to medium-grained, large-scale cross-bedded sandstone with conglomeratic lenses.

Faunal assemblage. Amphibia: lower jaw of Temnospondyli indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Dry delta deposits.

Storage. Saratov State University.

94. FEDOROVKA II

Geographic location. Orenburg Region, 1.7 km SE of Fedorovka village, right bank of the Sorochka River.

Host rocks. From bottom to top: (1) Buff-grey and red-buff, medium-grained, large-scale cross-bedded sandstone with conglomeratic lenses. Thickness 10 m. Erosive contact. (2) Buff-grey and red-buff, fine-grained, cross-bedded sandstone with small conglomeratic lenses. Thickness 10 m.

Faunal assemblage. (1) Amphibia: ilium of Temnospondyli indet.; Reptilia: vertebra of a small reptile. (2) Capitosauridae: scapulocoracoid of *Wetlugasaurus* sp.; Amphibia: humerus, ribs and fragments of dermal bones of Temnospondyli indet.

Stratigraphic level. (1) Kopanskaya Svita. Lower Triassic. (2) Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

95. FEDOROVKA III

Geographic location. Orenburg Region, 0.5 km SE of Fedorovka village, right bank of the Sorochka River.

Host rocks. Red-buff, large-scale cross-bedded sandstone and conglomerate.

Faunal assemblage. Trematosauridae: skull fragment of *Thoosuchus* (?) sp., Amphibia: fragments of dermal bones, lower jaw, neural arch, and ulna of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

96. KRASNAYA YARUGA I

Geographic location. Orenburg Region, 4 km east of Fedorovka village, Krasnaya Yaruga ravine (right tributary of the Sorochka River).

Host rocks. Grey, fine- to medium-grained, large-scale cross-bedded sandstone with thin lenses of clay and conglomerate.

Faunal assemblage. Capitosauridae: lower jaw *Wetlugasaurus samariensis*; Amphibia: lower jaw fragments, dermal bones, tibia and ischium of *Temnospondyli* indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Dry delta deposits.

Storage. Institute of Paleontology, Moscow.

97. KRASNAYA YARUGA II

Geographic location. Orenburg Region, 5 km east of Fedorovka village, Krasnaya Yaruga ravine (right tributary of the Sorochka River).

Host rocks. From top to bottom: (1) Grey, light grey, large-scale cross-bedded sandstone and conglomerate. Thickness 10 m. (2) Red-buff, fine-grained sandstone with lenses of red-buff clay and buff-grey conglomerate. Thickness 6 m.

Faunal assemblage. (1) Benthosuchidae: lower jaw fragments of *Benthosuchus* sp.; Amphibia: fragments of dermal bones and scapula of *Temnospondyli* indet.

Diapsida: bone fragments of *Proterosuchia* indet.; vertebra of *Rhynchocephalida* indet. (2) Amphibia: dermal bones of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. (1) Dry delta deposits. (2) Channel deposits.

Storage. Institute of Paleontology, Moscow.

98. RODNIKOVYI DOL

Geographic location. Orenburg Region, 3.5 km north of Fedorovka village, rodnikoviy Dol ravine (right tributary of the Sorochka River).

Host rocks. From the bottom. (1) Alternation of sandstone and siltstone with thin lenses of clay and gravel. Thickness 8 m. (2) Grey, variably grained, cross-bedded sandstone with lenses of conglomerate. Thickness 22 m. Erosive contact. (3) Buff-red, variably grained, large-scale cross-bedded sandstone with lenses of conglomerate. Thickness 15 m.

Faunal assemblage. (1) Amphibia: neural arch of *Temnospondyli* indet. (2) Capitosauridae: lower jaw *Wetlugasaurus samariensis*; Amphibia: skull fragments, tibia, humerus, clavicle, ribs, dermal bones of *Temnospondyli* indet. (3) Benthosuchidae: two lower jaws of *Benthosuchus* sp.; Amphibia: fragments of clavicle, femur, neural arch, interclavicle of *Temnospondyli* indet.

Stratigraphic level. (1–2) Kopanskaya Svita. Lower Triassic. (3) Staritskaya Svita. Lower Triassic.

Burial conditions. (1–2) Dry delta deposits. (3) Channel deposits.

Storage. Institute of Paleontology, Moscow.

99. SUKHUSHKA-SUKHODOL

Geographic location. Orenburg Region, 1.3 km SE of Nevezhkino village, right bank of Sukhushka-Sukhodol River (left tributary of the Samara River).

Host rocks. Lilac-grey, variably grained, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Amphibia: clavicle and ribs fragments of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

100. NEVEZHKINO

Geographic location. Orenburg Region, 1 km SW of Nevezhkino village, left bank of Sukhushka-Sukhodol River (left tributary of the Samara River).

Host rocks. Lilac-grey, variably grained, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Amphibia: jugal of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

101. MARKOVKA I

Geographic location. Orenburg Region, 2.1 km SW of Markovka village, left bank of Soroka River (left tributary of the Samara River) (Ivakhnenko et al., 1997).

Host rocks. Buff-lilac-red, large-scale cross-bedded sandstone and conglomerate.

Faunal assemblage. Amphibia: ulna and rib of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

102. MARKOVKA II (Fig. 7A)

Geographic location. Orenburg Region, 0.4 km west of south outskirts of Markovka village, left bank of Soroka River (left tributary of the Samara River) (Ivakhnenko et al., 1997).

Host rocks. From the top to the bottom: (1) Grey, medium-grained, large-scale cross-bedded sandstone with lenses of conglomerate. Thickness 9 m. (2) Alternation of red-buff clay, siltstone and sandstone. Thickness 9 m. (3) Red-buff, variably grained, large-scale cross-bedded sandstone with lenses of conglomerate. Thickness 6 m. Erosive contact. (4) Grey, variably grained, sandstone with layers of large cross-bedding or subhorizontal-bedding, lenses of red-brown clay, siltstone and clay sandstone. Thickness 11 m.

Faunal assemblage. (1) Amphibia: fragments of palatine and quadrate of *Temnospondyli* indet. Proter-

osuchidae: vertebra of *Chasmatosuchus* sp.; (2) Capitosauridae: skull *Wetlugasaurus* sp.; Procolophonidae: skull of *Samaria concinna* (Ivakhnenko). (3) Amphibia: fragments of pelvic girdle, clavicle, skull, dermal bones, ribs of *Temnospondyli* indet. Diapsida: vertebra of large Archosauria indet.; 4. Benthosuchidae: lower jaws of *Benthosuchus sushkini*; Amphibia: fragments of dermal bones, neural arch, vertebra, ribs of *Temnospondyli* indet. (Ivakhnenko et al., 1997).

Stratigraphic level. (1–3) Kzylsaiskaya Svita. Lower Triassic. (3–4) Staritskaya Svita. Lower Triassic.

Burial conditions. (1–2) Deltaic deposits. (3) Channel deposits. (4) Dry delta deposits.

Storage. Institute of Paleontology, Moscow.

103. KAMENNY I

Geographic location. Orenburg Region, 2.5 km east of Markovka village, Kamenny ravine (right tributary of Soroka River).

Host rocks. Red-buff, large-scale cross-bedded sandstone and conglomerate.

Faunal assemblage. Trematosauridae: skull of *Thoosuchus* sp.; Capitosauridae: scapulocoracoid of *Wetlugasaurus* sp.; Amphibia: skull fragments, humerus, tibia of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

104. KAMENNY II

Geographic location. Orenburg Region, 0.6 km east of Markovka village, Kamenny ravine (right tributary of Soroka River).

Host rocks. (1) Red-buff, variably grained, large-scale cross-bedded sandstone with pebbles, gravel and lenses of conglomerate. Thickness 22 m. (2) Grey, large-scale cross-bedded sandstone and conglomerate with big lenses of variably grained clay sand, siltstone, clay. Thickness 7 m. (3) Red-buff, large-scale cross-bedded sandstone and conglomerate.

Faunal assemblage. (1) Capitosauridae: posterior part of the skull of *Wetlugasaurus samariensis*; Amphibia: palatine fragments, lower jaw and rib of *Temnospondyli* indet. (2) Amphibia: fragments of

maxilla and ribs of *Temnospondyli* indet. Proterosuchidae: femur of *Chasmatosuchus* sp. (3) Benthosuchidae: skull of *Benthosuchus sushkini*; Amphibia: caudal vertebra, small bone of a limb, fragments of ribs and dermal bones of *Temnospondyli* indet.; Proterosuchidae: vertebrae of *Chasmatosuchus* (?) sp.

Stratigraphic level. (1–2) Kopanskaya Svita. Lower Triassic. (3) Staritskaya Svita. Lower Triassic.

Burial conditions. (1) Channel deposits. (2) Deltaic deposits. (3) Channel deposits.

Storage. Institute of Paleontology, Moscow, Saratov State University.

105. PAVLOVKA-ANTONOVKA

Geographic location. Orenburg Region, 3.6 km south of Pavlovka-Antonovka village, Bezimyanny ravine (right tributary of the Soroka River).

Host rocks. Red-buff, fine-grained, large-scale cross-bedded sandstone with pebbles of clay, siltstone and sandstone.

Faunal assemblage. Amphibia: clavicle, fragments of vertebra and dermal bones of *Temnospondyli* indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

106. PAVLOVKA-ANTONOVKA II

Geographic location. Orenburg Region, 1.5 km SSW of Pavlovka-Antonovka village, left bank of the Soroka River.

Host rocks. Red-buff, medium-grained, large-scale cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Trematosauridae: skull fragment of *Thoosuchus* (?) sp.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

107. REPNIY

Geographic location. Orenburg Region, 3 km west NW of Markovka village, Repniy ravine (left tributary of the Soroka River).

Host rocks. Red-buff, large-scale cross-bedded sandstone and conglomerate.

Faunal assemblage. Benthosuchidae: skull fragment of *Benthosuchus* (?) sp.; Amphibia: clavicle and rib fragments of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

108. GLYNNIY I

Geographic location. Orenburg Region, 2.6 km NW of Duboviy village, Glynniy ravine (left tributary of the Soroka River).

Host rocks. Grey, medium-grained, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Amphibia: fragments of the lower jaw and clavicle of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Deltaic channel deposits.

Storage. Saratov State University.

109. GLYNNIY II

Geographic location. Orenburg Region, 4 km NNW of Duboviy village, Glynniy ravine (left tributary of the Soroka River).

Host rocks. Red-buff, medium-grained, large-scale cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Amphibia: ilium, fragments of humerus, femur, and rib of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

110. VOLCHIY I

Geographic location. Orenburg Region, 5.2 km east SE of Kazanka village, Volchiy ravine (right tributary of the Malaya Pogromka River).

Host rocks. Grey, medium-grained, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Amphibia: fragments of skull, some lower jaw, ilium and large humerus of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Dry deltaic deposits.

Storage. Saratov State University.

111. VOLCHIY II

Geographic location. Orenburg Region, 2.4 km NE of Kazanka village, Volchiy ravine (right tributary of the Malaya Pogromka River).

Host rocks. Lilac-grey, medium-grained, large-scale cross-bedded sandstone with small lenses of conglomerate.

Faunal assemblage. Capitosauridae: lower jaw fragment of *Wetlugasaurus samariensis* (?).

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Dry deltaic deposits.

Storage. Institute of Paleontology, Moscow.

112. VOLCHIY III

Geographic location. Orenburg Region, Volchiy ravine (right tributary of the Malaya Pogromka River).

Host rocks. Lilac-grey, large-scale cross-bedded sandstone and conglomerate.

Faunal assemblage. Amphibia: skull, fragment of palatine, lower jaw, clavicle of a neorachitome; neural arch, tibia, fragments of dermal bones and ribs of *Temnospondyli* indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Dry deltaic deposits.

Storage. Saratov State University.

113. KAZANKA I

Geographic location. Orenburg Region, 0.8 km SE of Kazanka village, right bank of the Malaya Pogromka River.

Host rocks. Grey, variably grained, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Diapsida: rib of archosaur indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Dry deltaic deposits.

Storage. Institute of Paleontology, Moscow.

114. KAZANKA II

Geographic location. Orenburg Region, 2 km SE of Kazanka village, right bank of the Malaya Pogromka River.

Host rocks. Red-buff, variably grained, large-scale cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Benthosuchidae: lower jaw of *Benthosuchus* (?) sp.; Amphibia: fragments of skull, ribs and tibia of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

115. DEVYATICHNIY

Geographic location. Orenburg Region, 3.7 km SE of Kazanka village, Devyatichniy ravine (right tributary of the Malaya Pogromka River).

Host rocks. Buff, lilac-grey, variably grained, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Trematosauridae: palatine fragment of a small *Thoosuchus* (?) sp.; Amphibia: fragments of dermal bones, femur and tibia of small *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

116. KHOKHLACHIY

Geographic location. Orenburg Region, 3.9 km south of Kazanka village, right bank of the Malaya Pogromka River.

Host rocks. Red-buff, medium-grained, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Benthosuchidae: skull and tabular fragment of *Benthosuchus* sp.; Amphibia: fragments of lower jaw and rib of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

117. MALAYA POGROMKA I

Geographic location. Orenburg Region, 6.4 km SW of Kazanka village, left slope of the Malaya Pogromka valley.

Host rocks. Buff-grey, red-buff, fine- to medium-grained, cross-bedded sandstone with small lenses of conglomerate.

Faunal assemblage. Trematosauridae: lower jaw of *Thoosuchus* sp.; Amphibia: dermal bone fragments of Temnospondyli indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

118. MALAYA POGROMKA II

Geographic location. Orenburg Region, 7.5 km SW of Kazanka village, left bank of the Malaya Pogromka River.

Host rocks. Red-buff, medium-grained, cross-bedded sandstone.

Faunal assemblage. Amphibia: neural arch of caudal vertebra, ulnae, dermal bone fragments of Temnospondyli indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

119. MALAYA POGROMKA III

Geographic location. Orenburg Region, 10 km south of Kazanka village, upper reaches of the Malaya Pogromka River.

Host rocks. Grey, fine- to medium-grained, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Amphibia: skull fragments, neural arch of Temnospondyli indet.

Stratigraphic level. Gostevskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Saratov State University.

120. PAVELEV YAR

Geographic location. Orenburg Region, 2.6 km south of Logachevka village, Pavelev Yar ravine, right bank of the Bolshaya Pogromka River.

Host rocks. Grey, fine- to medium-grained, cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Capitosauridae: exoccipital fragment of *Wetlugasaurus* (?) sp.; Amphibia: skull fragments, palatine, dermal bones, jaws of Temnospondyli indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Dry deltaic deposits.

Storage. Institute of Paleontology, Moscow.

121. LOGACHEVKA

Geographic location. Orenburg Region, 1.6 km NW of Logachevka village, left tributary of the Bolshaya Pogromka River.

Host rocks. Lilac-grey, medium-grained, large-scale cross-bedded sandstone with lenses of conglomerate, horizontal alternations of clay, siltstone and fine-grained sandstone.

Faunal assemblage. Trematosauridae: skull *Angusaurus dentatus*; Amphibia: fragments of dermal bones, neural arch, ischium, femur and humerus of Temnospondyli indet.; Rausisuchidae: *Tsylmosuchus jakovlevi*.

Stratigraphic level. Gostevskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Institute of Paleontology, Moscow.

122. ELKHOVKA I

Geographic location. Orenburg Region, 1 km SW of Elkhovka village, Elkhovka ravine (left tributary of the Bolshaya Pogromka River).

Host rocks. Grey, lilac-grey, large-scale cross-bedded sandstone and conglomerate.

Faunal assemblage. Amphibia: fragments of dermal bones, lower jaws, ribs of Temnospondyli indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Dry deltaic deposits.

Storage. Saratov State University.

123. ELKHOVKA II

Geographic location. Orenburg Region, 0.5 km north of Elkhovka village, Elkhovka ravine (left tributary of the Bolshaya Pogromka River).

Host rocks. Red-buff, cross-bedded sandstone and conglomerate.

Faunal assemblage. Amphibia: fragment of palatine, clavicle, interclavicle, neural arch of Temnospondyli indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

124. KAVESHNIKOVO

Geographic location. Orenburg Region, 3.6 km west NW of Kaveshnikovo village, upper reaches of Berezoviy ravine (left tributary of the Bolshaya Pogromka River).

Host rocks. Lilac-grey, variably grained, cross-bedded sandstone with numerous lenses of conglomerate.

Faunal assemblage. Amphibia: fragments of dermal bones and neural arch of Temnospondyli indet.; Proterosuchidae: caudal vertebra of *Chasmatosuchus* sp.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Dry deltaic deposits.

Storage. Institute of Paleontology, Moscow.

5.5. Basin of the right bank of the middle Samara River

125. STARAYA TERLOVKA

Geographic location. Orenburg Region, 1 km SE of Staraya Terlovka village, right bank the Samara River.

Host rocks. Subhorizontally stratified sequence of buff-brown, red-brown and blue-grey sandstone, siltstone and clay. Sequence contains lenses of brown-grey, fine-grained sandstone with gravel and pebbles. Thickness of interlayers is 0.1–1.5 m, sandstone lenses—3 m. Interlayers of clay contain numerous root traces of plants and rare worm casts. Lenses of sandstone contain many small tetrapod remains. Thickness of sequence is 18 m.

Faunal assemblage. Tupilakosauridae: vertebrae of *Tupilakosaurus* sp.; Procolophonidae: bone fragments of Procolophonidae indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. The proluvial deposits.

Storage. Institute of Paleontology, Moscow.

126. BUZULUKSKOE

Geographic location. Orenburg Region, 2.5 km east from the bridge across the Samara River, on the right slope of the Samara valley, opposite Buzuluk town.

Host rocks. Grey, fine- to medium-grained, cross-bedded sandstone with gravel and pebbles of clay, siltstone, sandstone and chert. Thickness is 5 m.

Faunal assemblage. Tupilakosauridae: vertebrae of *Tupilakosaurus* sp.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. The proluvial plain deposits.

Storage. Saratov State University.

127. MONASTYRSKOE

Geographic location. Orenburg Region, 6.5 km NE of Buzuluk town, right bank of the Samara River.

Host rocks. Red-buff, large-scale cross-bedded sandstone with lenses of conglomerate.

Faunal assemblage. Amphibia: numerous fragments of lower jaw, quadrate, skull, neural arch, femur and ribs of Temnospondyli indet.; Proterosuchidae: vertebrae of small *Chasmatosuchus* (?) sp. (Blom, 1968, p. 257).

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow, Saratov State University.

128. SUKHORECHKA

Geographic location. Orenburg Region, northern outskirts of Sukhorechka village, on right bank of the Samara River.

Host rocks. From top to bottom: (1) Lilac-brown, medium-grained, polymict cross-bedded sandstone. Thickness 2 m. (2) Lilac-grey conglomerate with variably sized pebbles. Thickness 0.3 m.

Faunal assemblage. Amphibia: intercentrum, fragment of lower jaw and dermal bones of Temnospondyli indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

129. MICHURIN

Geographic location. Orenburg Region, 2.4 km north of Buzuluk town, right bank of the Samara River.

Host rocks. From top to bottom: (1) Grey, buff-grey, red-buff, medium-grained sandstone with gravel, pebbles, lenses of conglomerate. Thickness 10 m. (2) Grey conglomerate with variably sized gravel and pebbles (up to 8 cm). Thickness 2 m. (3) Grey, cross-bedded sand, sandstone and conglomerate. Thickness 11.3 m.

Faunal assemblage. Amphibia: clavicle of a neorachitome.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

130. ZHURAVLEVKA

Geographic location. Orenburg Region, 4.6 km NE of Buzuluk town, right bank of the Samara River.

Host rocks. Light-grey, medium-large grained, polymict sandstone with interlayer (up to 1.5 m) of buff-grey, cross-bedded conglomerate. Thickness 4 m.

Faunal assemblage. Amphibia: squamosal fragment of Temnospondyli indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Dry deltaic deposits.

Storage. Saratov State University.

131. ELKHOVKA

Geographic location. Orenburg Region, 4.6 km NE of Buzuluk town, right bank of the Samara River.

Host rocks. From top to bottom: (1) Lilac-grey conglomerate with pebbles of clay, siltstone, sandstone, and chert. Thickness 3.5 m. (2) Buff, fine-grained, sandstone with interlayer of siltstone. Thickness 3.5 m.

Faunal assemblage. Amphibia: jugal of Temnospondyli indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Dry deltaic deposits.

Storage. Saratov State University.

5.6. Basin of the left bank of the middle Samara River**132. SAYNOVKA**

Geographic location. Orenburg Region, opposite the northern outskirts of Saynovka village, right slope of the Buzuluk valley.

Host rocks. Alternation of red-buff clay, light-brown siltstone, and green-grey, fine-grained, polymict, cross-bedded sand. Thickness 5.5 m.

Faunal assemblage. Amphibia: jaw fragment of Temnospondyli indet.

Stratigraphic level. Gostevskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

133. KUNDUZLUTAMAK

Geographic location. Orenburg Region, 0.8 km NE of Kuzlutamak village, right bank of the Buzuluk River.

Host rocks. Grey-brown, medium-grained, polymict sand with clayey and conglomeratic lenses. Thickness 3.5 m.

Faunal assemblage. Capitosauridae: fragment of pterygoid of *Wetlugasaurus* sp. or *Parotosuchus* sp.; Amphibia: vertebra of Temnospondyli indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Saratov State University.

134. VASIL'EVKA I

Geographic location. Orenburg Region, opposite Vasil'evka village, right bank of the Buzuluk River.

Host rocks. Red-buff, fine- to medium-grained, large- and medium-scale cross-bedded sandstone. Thickness 3.5 m.

Faunal assemblage. Amphibia: fragment of lower jaw of Temnospondyli indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

135. VASIL'EVKA II

Geographic location. Orenburg Region, 2.8 km north of Vasil'evka village, right bank of the Buzuluk River.

Host rocks. Red-buff, grey-brown, fine- to medium-grained, large-scale cross-bedded sandstone with small conglomeratic lenses. Thickness 12 m.

Faunal assemblage. Amphibia: squamosal of *Temnospondyli* indet.

Stratigraphic level. Gostevskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

136. VASIL'EVKA III

Geographic location. Orenburg Region, 1.4 km north of Vasil'evka village, upper reaches of the Berezoviy ravine (right tributary of the Buzuluk River).

Host rocks. Light-grey, grey-brown, fine- to medium-grained, large-scale cross-bedded sandstone with clayey and conglomeratic lenses. Thickness 4 m.

Faunal assemblage. Trematosauridae: fragment of lower jaw and pterygoid of *Thoosuchus* sp.; Amphibia: fragments of the skull bones, jaw, humerus, ribs of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

137. FEDOROVKA

Geographic location. Orenburg Region, 0.4 km north of Fedorovka village, right bank of the Buzuluk River.

Host rocks. Brown, reddish-buff, variably grained, cross-bedded sandstone with numerous conglomeratic lenses. Thickness 6 m.

Faunal assemblage. Benthosuchidae: tabular of *Benthosuchus* (?) sp.; Trematosauridae: fragments of the palatine and lower jaw of *Thoosuchus* (?) sp.; Amphibia: fragments of the femur and lower jaw of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

138. PROKAEVKA

Geographic location. Orenburg Region, 5.2 km south of Prokaevka village, Panik stream, right bank of the Buzuluk River (Shishkin et al., 1995; Ivakhnenko et al., 1997).

Host rocks. Grey, medium-grained, cross-bedded sandstone with conglomeratic lenses. Thickness 3 m.

Faunal assemblage. Trematosauridae: skull and lower jaws of *Trematotegmen otchevi*; Benthosuchidae: fragment of skull of *Benthosuchus sushkini*.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Institute of Paleontology, Moscow.

139. TORPANOVKA-2

Geographic location. Orenburg Region, 2 km south of Torpanovka-2 village, Kamenny Dol ravine, right bank of the Buzuluk River.

Host rocks. Light-grey, reddish-buff, fine- to medium-grained, large-scale cross-bedded sandstone with lenses of conglomerate. Thickness 7.5 m.

Faunal assemblage. Amphibia: femur, humerus and rib of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

140. SHULAEVKA I

Geographic location. Orenburg Region, 4.4 km west of Shulaevka village, Gurev ravine (right tributary of the Buzuluk River) (Ivakhnenko et al., 1997).

Host rocks. Buff, reddish-buff, fine- to medium-grained, large-scale cross-bedded sandstone with conglomeratic lenses. Thickness 10 m.

Faunal assemblage. Capitosauridae: skull of *Wetlugasaurus samariensis*, Amphibia: fragments of ulna and rib of *Temnospondyli* indet. (Ivakhnenko et al., 1997).

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

141. SHULAEVKA II

Geographic location. Orenburg Region, 2.9 km west of Shulaevka village, Gurev ravine, (right tributary of the Buzuluk River).

Host rocks. From top to bottom: (1) Buff-grey, yellow-grey, fine- to medium-grained, cross-bedded sandstone with conglomeratic lenses. Thickness 4 m. (2) Brown-buff, horizontally bedded clay. Thickness 0.5 m.

Faunal assemblage. Benthosuchidae: fragment of skull of *Benthosuchus* (?) sp.; Reptilia: fragment of skull of a small reptile.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

142. GRACHEVKA

Geographic location. Orenburg Region, 1.4 km NW of Grachevka village, Rozhikha ravine (right tributary of the Grachevka River).

Host rocks. From bottom to top: (1) Buff-grey, fine-grained, sandstone. Thickness 5 m. (2) Buff-grey conglomerate and sandstone. Thickness 4 m. (3) Red-buff, greenish-grey, fine-coarse grained large-scale cross-bedded sandstone. Thickness 3.5 m. (4) Grey, greenish-grey, medium-coarse grained sandstone with conglomeratic lenses. Thickness 4 m.

Faunal assemblage. (2) Amphibia: fragment of skull of a neorachitome. (4) Capitosauridae: supraoccipital of *Wetlugasaurus* (?) sp.; Amphibia: ulnae, neural arch of *Temnospondyli* indet.

Stratigraphic level. (1–3) Staritskaya Svita. (4) Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deltaic deposits.

Storage. Institute of Paleontology, Moscow.

143. SHABOLOVKA

Geographic location. Orenburg Region, 2.5 km east of Shabolovka village, Tananyk River (left tributary of the Buzuluk River).

Host rocks. Grey, greenish-grey, fine-grained sandstone with lenses of blue-grey clay. Thickness 2 m.

Faunal assemblage. Trematosauridae: fragments of supraoccipital and lower jaw of *Trematosaurus* sp.; Capitosauridae: fragment of lower jaw of *Parotosaurus* sp., fragments of clavicle and palatine of *Parotosaurus* sp. or *Trematosaurus* sp.; Amphibia: fragments of dermal bones, lower jaw, femur, humerus, ulna, ischium of *Temnospondyli* indet.

Stratigraphic level. Petropavlovskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Institute of Paleontology, Moscow.

144. KOSTINO I

Geographic location. Orenburg Region, 3.1 km NW of Kostino village, Vishnevy ravine (left tributary of the Tananyk River).

Host rocks. Yellow-grey, medium-grained, cross-bedded sandstone with conglomeratic lenses. Thickness 3 m.

Faunal assemblage. Amphibia: lower jaw fragments of *Temnospondyli* indet.

Stratigraphic level. Gostevskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

145. KOSTINO II

Geographic location. Orenburg Region, 1.5 km SW of Kostino village, left bank of the Tananyk River.

Host rocks. From bottom to top: (1) Lilac-grey conglomerates. Thickness 1 m. (2) Alternation of buff-brown clay and grey, buff-grey, fine-grained dauk. Thickness 3 m. (3) Red-buff, medium-grained large-scale cross-bedded sandstone. Thickness 3 m.

Faunal assemblage. (1) Amphibia: left clavicle of neorachitome, dermal bone fragments, tibia, pelvic bones, vertebra, ribs and teeth of *Temnospondyli* indet. (3) Trematosauridae: dermal bone fragments of skull, lower jaws of *Thoosuchus* sp.: Diapsida: caudal vertebra of *Pseudosuchia* (?) indet.

Stratigraphic level. (1–2) Staritskaya Svita. (3) Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

146. RODIONOVKA I

Geographic location. Orenburg Region, 2 km NW of Rodionovka village, left bank of the Bobrovka River (left tributary of the Buzuluk River).

Host rocks. Green-grey, red-buff, fine- to medium-grained, large-scale cross-bedded sandstone with conglomeratic lenses. Thickness 8 m.

Faunal assemblage. Benthosuchidae: lower jaw of *Benthosuchus* (?) sp.; Amphibia: fragments of rib, clavicle and scapulocoracoid of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

147. RODIONOVKA II

Geographic location. Orenburg Region, 0.5 km north of Rodionovka village, left bank of the Bobrovka River (left tributary of the Buzuluk River).

Host rocks. Red-buff, medium-grained, sandstone with conglomeratic lenses. Thickness 3 m.

Faunal assemblage. Amphibia: fragments of lower jaw and clavicle of *Temnospondyli* indet.; Reptilia: bone fragment of small reptile.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

148. RODIONOVKA III

Geographic location. Orenburg Region, 1.5 km north of Rodionovka village, left bank of the Bobrovka River (left tributary of the Buzuluk River).

Host rocks. Red-buff, fine- to medium-grained, sandstone with lilac-grey conglomeratic lenses. Thickness 5 m.

Faunal assemblage. Amphibia: tabular and rib of neorachitome, fragments of clavicle of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

149. RODIONOVKA IV

Geographic location. Orenburg Region, 3.8 km NNW of Rodionovka village, left unnamed ravine

flowing into the Bobrovka River (left tributary of the Buzuluk River).

Host rocks. From top to bottom: (1) Grey-brown, medium- to coarse-grained, polymict, cross-bedded sandstone. Thickness 4.5 m. (2) Greenish-grey, medium-coarse grained, cross-bedded sandstone with conglomeratic lenses. Thickness 5 m.

Faunal assemblage. (1) Amphibia: rib of *Temnospondyli* indet.; Proterosuchidae: limb bones of small *Chasmatosuchus* sp. (2) Amphibia: palatine fragments, ulna of *Temnospondyli* indet

Stratigraphic level. (1) Kzylsaiskaya Svita. (2) Staritskaya Svita. Lower Triassic.

Burial conditions. (1) Channel deposits. (2) Deltaic deposits.

Storage. Saratov State University, Institute of Paleontology, Moscow.

150. ROMASHKINO I

Geographic location. Orenburg Region, 3.7 km NE of Romashkino village, left unnamed ravine flowing into the Bobrovka River (left tributary of the Buzuluk River).

Host rocks. Red-buff, fine- to medium-grained, sandstone with conglomeratic lenses. Thickness 8 m.

Faunal assemblage. Amphibia: skull bones, large humerus, fragments of large neural arch of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

151. ROMASHKINO II

Geographic location. Orenburg Region, 0.8 km north of Romashkino village, left bank of the Bobrovka River (left tributary of the Buzuluk River).

Host rocks. Greenish-grey, red-buff, fine- to medium-grained, sandstone with conglomeratic lenses. Thickness 16 m.

Faunal assemblage. Amphibia: vertebra of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

152. ROMASHKINO III

Geographic location. Orenburg Region, 3 km north of Romashkino village, left bank of the Bobrovka River (left tributary of the Buzuluk River).

Host rocks. Red-buff sandstone with conglomeratic and clayey lenses. Thickness 7 m.

Faunal assemblage. Amphibia: large ischium and vertebra of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

153. ROMASHKINO IV

Geographic location. Orenburg Region, 2.3 km NNW of Romashkino village, left bank of the Bobrovka River (left tributary of the Buzuluk River).

Host rocks. Grey, coarse grained, sandstone with conglomeratic lenses. Thickness 0.5 m.

Faunal assemblage. Capitosauridae: palatine fragment of *Wetlugasaurus* (?) sp.; Amphibia: skull fragments, neural arch, ischium and limb bones of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

154. KOSTRIKIN DOL I

Geographic location. Orenburg Region, 1.6 km south of Bobrovka village, Kostrikin Dol ravine, right tributary bank of the Bobrovka River (left tributary of the Buzuluk River).

Host rocks. Buff-grey, grey, buff, fine-grained, polymict, cross-bedded sandstone with conglomeratic lenses. Thickness 6 m.

Faunal assemblage. Amphibia: fragments of skull roof, lower jaw, interclavicle of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

155. KOSTRIKIN DOL II

Geographic location. Orenburg Region, 1 km south of Bobrovka village, Kostrikin Dol ravine, right tributary bank of the Bobrovka River (left tributary of the Buzuluk River).

Host rocks. Buff, buff-grey, fine-coarse grained, polymict sandstone with conglomeratic lenses in the upper part. Thickness 6 m.

Faunal assemblage. Amphibia: fragment of clavicle and tibia of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Institute of Paleontology, Moscow.

156. KOSTRIKIN DOL III

Geographic location. Orenburg Region, Kostrikin Dol ravine (0.5 km above the entry), right tributary bank of the Bobrovka River (left tributary of the Buzuluk River).

Host rocks. Buff, buff-grey, fine-grained, polymict sandstone with conglomeratic lenses in the middle part. Thickness 2.5 m.

Faunal assemblage. Amphibia: fragments of lower jaw, neural arch of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Saratov State University.

157. KURMANAEVKA I

Geographic location. Orenburg Region, 4 km NW of Kurmanaevka village, left bank of the Buzuluk River.

Host rocks. Buff-grey, fine- to medium-grained, large-scale cross-bedded sandstone with conglomeratic lenses. Thickness 2 m.

Faunal assemblage. Amphibia: fragment of the lower jaw of neorachitome; Diapsida: remains of *Archosauria* (?) indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

158. KURMANAEVKA II

Geographic location. Orenburg Region, 5 km north of Kurmanaevka village, left bank of the Buzuluk River.

Host rocks. Buff-grey, fine- to medium-grained, large-scale cross-bedded, sandstone with conglomeratic and clayey lenses. Thickness 1.5 m.

Faunal assemblage. Benthosuchidae: fragment of the lower jaw and interclavicle of *Benthosuchus* (?) sp.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

159. VYNCHAGOV

Geographic location. Orenburg Region, 1.8 km east of Vynchagov village, right of the Elshanka valley (right tributary of the Buzuluk River).

Host rocks. Buff-grey, medium- to coarse-grained, large-scale cross-bedded sandstone. Thickness 5.2 m.

Faunal assemblage. Amphibia: fragments of clavicle and interclavicle of *Benthosuchus* sp. or *Wetlugasaurus* sp.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

160. SURYKOVO I

Geographic location. Orenburg Region, 2 km west of Surikovo village, left slope of the Elshanka valley.

Host rocks. Greenish-grey, fine-grained sandstone and grey conglomerate. Thickness 4.5 m.

Faunal assemblage. Amphibia: neurocranium fragments, upper jaws and interclavicle of neorachitome; Proterosuchidae: fragments of the femur of *Chasmatosuchus* sp.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

161. SURYKOVO II

Geographic location. Orenburg Region, 1.3 km west of Surikovo village, a quarry on the left bank of the Elshanka River.

Host rocks. Lilac-grey conglomerate and brown, buff-brown, cross-bedded sandstone. Thickness 3.5 m.

Faunal assemblage. Capitosauridae: scapulocoracoid of *Wetlugasaurus* sp.; Amphibia: fragments of squamosal and ribs of *Temnospondyli* indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Dry deltaic deposits.

Storage. Institute of Paleontology, Moscow.

162. PEREVOZNIKOVO

Geographic location. Orenburg Region, 1.8 km SW of Perevoznikovo village, left slope of the Elshanka valley.

Host rocks. Buff-brown, fine-grained sandstone with subhorizontal layers of clay.

Faunal assemblage. Tupilakosauridae: numerous bones of *Tupilakosaurus* sp., Amphibia: rare remains of *Batrachomorpha* indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Proluvial plain deposits.

Storage. Institute of Paleontology, Moscow.

163. DOMASHKA I

Geographic location. Orenburg Region, 1.1 km south, SW of Domashka village, upper reaches of the Domashka River.

Host rocks. Greenish-grey medium-coarse grained, large-scale cross-bedded sandstone with lenses of conglomerate. Thickness 10 m.

Faunal assemblage. Amphibia: haemal arch fragment of caudal vertebra of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

164. DOMASHKA II

Geographic location. Orenburg Region, 4.5 km east of Domashka village, left bank of the Domashka River.

Host rocks. Greenish-grey, cross-bedded sands with lenses of conglomerate. Thickness 4.5 m.

Faunal assemblage. Amphibia: clavicle fragment of small neorachitome, fragments of dermal bone of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Saratov State University.

165. PROSKURINO

Geographic location. Orenburg Region, 1.5 km west, NW of outskirts of Proskurino village, left bank of the Domashka River.

Host rocks. Violet-buff, greenish-grey, fine-grained, polymict, cross-bedded sandstone with lenses of conglomerate. Thickness 7 m.

Faunal assemblage. Benthosuchidae: fragment of skull and lower jaw of *Benthosuchus* (?) sp.; Amphibia: fragments of dermal bone and cleithrum of *Temnospondyli* indet.; Reptilia: limb fragments of a small reptile.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Institute of Paleontology, Moscow.

166. ZYPOVSKOE I

Geographic location. Orenburg Region, 3 km west of Zypovka village, upper reaches of the left tributary of the Domashka River.

Host rocks. Grey, fine- to medium-grained, cross-bedded sandstone with red-buff clayey and conglomeratic lenses. Thickness 4 m.

Faunal assemblage. Benthosuchidae: interclavicle fragment of *Benthosuchus* sp. or *Wetlugasaurus* sp., skull fragment of *Benthosuchus* (?) sp.; Proterosuchidae: vertebra fragment of *Chasmatosuchus* (?) sp.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

167. ZYPOVSKOE II

Geographic location. Orenburg Region, 2 km SW of Zypovka village, left bank of the Domashka River.

Host rocks. Red-buff, medium-coarse grained, large-scale cross-bedded sandstone with conglomeratic lenses. Thickness 12 m.

Faunal assemblage. Benthosuchidae: lower jaw fragment of *Benthosuchus* sp.; Amphibia: fragments of quadratojugal, dermal bones, limb bones and ribs of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

168. ZYPOVSKOE III

Geographic location. Orenburg Region, 1.5 km SW of Zypovka village, left bank of the Domashka River.

Host rocks. Grey, fine- to medium-grained, cross-bedded sandstone with conglomeratic lenses. Thickness 2 m.

Faunal assemblage. Amphibia: exoccipital fragment, femur, lower jaw and dermal bones of *Temnospondyli* indet.; Amphibia: fragment of skull roof of a large *Tupilakosaurus* sp.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Proluvial deposits.

Storage. Institute of Paleontology, Moscow.

169. ELSHANKA I (Fig. 5)

Geographic location. Orenburg Region, left bank of Moschevoy ravine, near to Elshanka-1 village.

Host rocks. Sandstone and conglomerate.

Faunal assemblage. Amphibia: fragments of dermal bones, humerus, palatine of *Temnospondyli* indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Proluvial plain deposits.

Storage. Saratov State University.

170. ELSHANKA II

Geographic location. Orenburg Region, 2.2 km east of Elshanka village, the unnamed ravine flowing into the Samara River from the left.

Host rocks. From top to bottom: (1) Red-buff, cross-bedded sand, sandstone, conglomerate. Thickness 6

m. (2) Light-grey, large-scale cross-bedded sand, sandstone, conglomerate. Thickness 6m.

Faunal assemblage. (1) Benthosuchidae: lower jaw of *Benthosuchus* sp.; Amphibia: quadratojugal and fragment of lower jaw of Temnospondyli indet. (2) Amphibia: fragments of pterygoid, lower jaw, humerus and rib of Temnospondyli indet.

Stratigraphic level. (1) Staritskaya Svita. (2) Kopanskaya Svita. Lower Triassic.

Burial conditions. (1) Channel deposits. (2) Proluvial plain deposits.

Storage. Institute of Paleontology, Moscow.

171. KOLTUBANKA

Geographic location. Orenburg Region, 4.5 km SE of Koltubanka village, the small unnamed ravine flowing into the Samara River from the left.

Host rocks. Buff-red, fine-medium-grained, cross-bedded sandstone, with lenses of conglomerate. Thickness 5 m.

Faunal assemblage. Amphibia: angular and squamosal of Temnospondyli indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

172. ZAPLAVNOE-SOSNOVOE

Geographic location. Orenburg Region, 2.2 km SE of Zaplavnoe village, Sosnovy ravine, left bank of the Samara River (Blom, 1968).

Host rocks. Pink-grey conglomerates with pebbles of pink-grey sandstone and brown clay. Thickness 3 m.

Faunal assemblage. Capitosauridae: remains of *Wetlugasaurus samariensis*.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

173. ZAPLAVNOE I

Geographic location. Orenburg Region, 1.2 km east of Zaplavnoe village, left bank of the Samara River.

Host rocks. Alternation of buff-brown clay, brown-grey siltstone and sandstone with root traces. Thickness 3 m.

Faunal assemblage. Capitosauridae: pterygoid of *Wetlugasaurus samariensis*; Amphibia: palatine fragments, clavicle, femur, ilium, jaws and ribs of Temnospondyli indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Proluvial plain deposits.

Storage. Institute of Paleontology, Moscow.

174. ZAPLAVNOE II

Geographic location. Orenburg Region, 0.8 km east of Zaplavnoe village, left bank of the Samara River.

Host rocks. Brown-grey, medium-grained sandstone with conglomeratic lenses and interlayers of buff-grey clay and siltstone. Thickness 9.5 m.

Faunal assemblage. Tupilakosauridae: vertebrae of *Tupilakosaurus* sp.; Capitosauridae: parasphenoid of *Wetlugasaurus samariensis*; Amphibia: fragments of lower jaw, dermal bones, clavicle, neural arch, ribs and imprint of skull roof of Temnospondyli indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

175. VETLYANOVSKY I

Geographic location. Orenburg Region, 0.8 km south of Zaplavnoe village, Vetlyanovsky ravine (left tributary of the Samara River).

Host rocks. From bottom to top: (1) Grey, buff-grey, fine- to medium-grained, large-scale cross-bedded sandstone with conglomeratic lenses. Thickness 15 m. Erosional contact. (2) Red-buff, buff-grey, fine- to medium-grained, large-scale cross-bedded sandstone with conglomeratic lenses. Thickness 8 m.

Faunal assemblage. (1) Capitosauridae: skull fragment of a large *Wetlugasaurus samariensis*; Amphibia: two skull fragments of neorachitome, premaxilla fragment of a large temnospondyl, and numerous fragments of skull and lower jaw of Temnospondyli indet. (2) Amphibia: skull fragment and lower jaw of Tem-

nospondyli indet.; Reptilia: skull fragment of a small reptile.

Stratigraphic level. (1) Kopanskaya Svita. (2) Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

176. VETLYANOVSKY II

Geographic location. Orenburg Region, 2 km south of Zaplavnoe village, Vetlyanovsky ravine (left tributary of the Samara River).

Host rocks. Red-buff, buff-grey, fine- to medium-grained, sandstone with conglomeratic lenses. Thickness 22 m.

Faunal assemblage. Amphibia: vertebra, fragments of dermal bones of Temnospondyli indet.; Reptilia: two coronoid fragments of a large archosaur indet.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

177. ALEKSEEVKA I

Geographic location. Orenburg Region, right bank of the Tavolzhanka River, near to northern outskirts of Alekseevka village.

Host rocks. From top to bottom: (1) Grey, fine- to medium-grained, polymict, large-scale cross-bedded sandstone with conglomeratic lenses. Thickness 2.5 m. Erosional contact. (2) Red-buff, buff-grey, fine- to medium-grained, large-scale cross-bedded sandstone with conglomeratic lenses. Thickness 20 m.

Faunal assemblage. (1) Benthosuchidae: skull fragment of *Benthosuchus* sp. (2) Amphibia: interclavicle, cleithrum of neorachitome, numerous fragments of skull, lower jaws, ischium, clavicle, humerus, ulna, neural arches of Temnospondyli indet.; Reptilia: caudal vertebra of small archosaur indet.

Stratigraphic level. (1) Staritskaya Svita. (2) Kopanskaya Svita. Lower Triassic.

Burial conditions. (1) Channel deposits. (2) Deltaic (proluvial) deposits.

Storage. Institute of Paleontology, Moscow.

178. ALEKSEEVKA II

Geographic location. Orenburg Region, right bank of the Tavolzhanka River, near to northern outskirts of Alekseevka village.

Host rocks. Grey, fine- to medium-grained, large-scale cross-bedded sandstone with conglomeratic lenses. Thickness 8 m.

Faunal assemblage. Benthosuchidae: skull fragment of *Benthosuchus* sp.; Amphibia: fragments of skull roof, dermal bones, lower jaws, ribs of Temnospondyli indet.; Diapsida: vertebra of Rhynchocephalia (?) indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

179. MECHET I (Fig. 10)

Geographic location. Orenburg Region, 3.7 km WSW of Aldarkino village, Mechet ravine, 7.3 km above its mouth (Blom, 1968; Ivakhnenko et al., 1997).

Host rocks. From top to bottom: (1) Alternation of buff-brown clay and siltstone. Thickness 3 m. (2) Grey, fine- to medium-grained, cross-bedded sandstone with conglomeratic lenses. Thickness 6.5 m. Erosional contact. (3) Alternation of red-brown, clay, siltstone and fine-grained, sandstone. (4) Buff, greenish-grey, fine-grained, cross-bedded sandstone with conglomeratic lenses. Thickness 6 m. (5) Red-buff, buff-grey, fine- to medium-grained, large-scale cross-bedded sandstone with conglomeratic lenses. Thickness 8 m.

Faunal assemblage. (2) Trematosauridae: lower jaw and interclavicle of *Trematosaurus* sp.; tabular of Capitosauridae indet., fragments of ilium, lower jaw and skull roof of Temnospondyli indet.; Sphenodontidae: *Scharschengia* sp. (Blom, 1968). (4) Trematosauridae: skeleton of *Prothoosuchus blomi*. (5) Amphibia: right and left clavicle of neorachitome; Trematosauridae: fragments of rib, lower jaw of a small *Thoosuchus* sp.

Stratigraphic level. (1–2) Gostevskaya Svita. (3–5) Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. (2, 5) Channel deposits. (4) Deltaic deposits.

Storage. Institute of Paleontology, Moscow.

180. MECHET II

Geographic location. Orenburg Region, 4.1 km WSW of Aldarkino village, Mechet ravine, 6.3 km above its mouth (Blom, 1968; Ivakhnenko et al., 1997).

Host rocks. Red-buff, buff-grey, fine- to medium-grained sandstone with numerous conglomeratic lenses. Thickness 15 m.

Faunal assemblage. Amphibia: large lower jaw, clavicle of a neorachitome, fragments of femur, humerus, scapula, interclavicle of Temnospondyli indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

181. MECHET III

Geographic location. Orenburg Region, 5.6 km west of Aldarkino village, Mechet ravine (right tributary of the Tavolzhanka River) (Blom, 1968; Ivakhnenko et al., 1997).

Host rocks. Grey, buff-grey, medium- to large-scale cross-bedded sandstone and conglomerate. Thickness 11.5 m.

Faunal assemblage. Benthosuchidae: anterior part of *Benthosuchus* skull; Amphibia: fragments of supra-occipital and frontale of Temnospondyli indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Saratov State University.

182. MECHET IV (Fig. 7B)

Geographic location. Orenburg Region, Mechet ravine, 0.6 km above its mouth (right tributary of the Tavolzhanka River) (Blom, 1968; Ivakhnenko et al., 1997).

Host rocks. Buff-brown, large-scale cross-bedded sandstone and conglomerate. Thickness 10 m.

Faunal assemblage. Benthosuchidae: parasphenoid, fragment of skull roof, fragments of lower jaw, upper jaw of the *Benthosuchus* sp.; Amphibia: clavicle of neorachitome, large cleithrum, fragments of palatine, lower jaw, dermal bones, interclavicle, ilium, humerus, ribs of Temnospondyli indet.; Procolophonidae:

fragment skull of *Tichvinskia* sp.; Proterosuchidae: vertebrae and ribs of *Chasmatosuchus* sp.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

183. MECHET V

Geographic location. Orenburg Region, Mechet ravine, near its mouth, NE outskirts of Usmanka village (Blom, 1968; Ivakhnenko et al., 1997).

Host rocks. Red-buff, buff-grey, cross-bedded sandstone and conglomerate. Thickness 6 m.

Faunal assemblage. Benthosuchidae: occipital of *Benthosuchus sushkini*; fragment of lower jaw of Temnospondyli indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

184. USMANKA

Geographic location. Samara Region, unnamed ravine flowing into the Tavolzhanka River from the right, near Usmanka village.

Host rocks. Red-buff, buff-grey, fine- to medium-grained, large-scale cross-bedded sandstone with lenses of conglomerate. Thickness 10 m.

Faunal assemblage. Benthosuchidae: skull of *Benthosuchus sushkini*.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

185. TAVOLZHANKA

Geographic location. Samara Region, 2.5 km NW of Tavolzhanka village, Sukhaya Tavolzhanka ravine (right tributary of Tavolzhanka River).

Host rocks. From bottom to top: (1) Grey, buff-grey, medium-grained, large-scale cross-bedded sandstone with lenses of conglomerate. Thickness 6 m. (2) Red-buff, medium-grained, large-scale cross-bedded sandstone with lenses of conglomerate. Thickness 16 m.

Faunal assemblage. (1) Amphibia: vertebra and a fragment of lower jaw of *Temnospondyli* indet. (2) Trematosauridae: palatine fragment of *Thoosuchus* (?) sp.; Amphibia: fragment of lower jaw and ilium of a neorachitome.

Stratigraphic level. (1) Staritskaya Svita. (2) Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. (1) Channel deposits. (2) Deltaic deposits.

Storage. Institute of Paleontology, Moscow.

186. TERNOVOE

Geographic location. Samara Region, 4.2 km west of southern outskirts of Tavolzhanka village, Ternoviy ravine (right tributary of Sukhaya Tavolzhanka ravine).

Host rocks. Red-buff, medium-grained, large-scale cross-bedded sandstone with lenses of conglomerate. Thickness 8 m.

Faunal assemblage. Capitosauridae: skull, fragments of palatine, and lower jaw of *Wetlugasaurus* sp.; Amphibia: pterygoid fragment and dermal bones of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

187. GOSTEVKA I

Geographic location. Samara Region, 1 km west of Gostevka village, Danilovsky Dol ravine (right tributary of Tavolzhanka River).

Host rocks. Grey, fine- to medium-grained, small cross-bedded sandstone with lenses of conglomerate. Thickness 8 m.

Faunal assemblage. Trematosauridae: lower jaw of *Angusaurus* sp.

Stratigraphic level. Gostevskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

188. GOSTEVKA II

Geographic location. Samara Region, 0.3 km west of Gostevka village, unnamed ravine flowing into the Tavolzhanka River from the left.

Host rocks. Grey, medium-grained, large-scale cross-bedded sandstone with lenses of conglomerate. Thickness 2 m.

Faunal assemblage. Amphibia: fragments of lower jaw of *Temnospondyli* indet.

Stratigraphic level. Gostevskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

189. KORENNOY DOL I

Geographic location. Samara Region, 3 km south, SE of Gostevka village, Korennoy Dol ravine (right tributary of the Tavolzhanka River).

Host rocks. Greenish-grey, medium-grained, large-scale cross-bedded sandstone with red clayey and conglomeratic lenses.

Faunal assemblage. Benthosuchidae: fragments of pterygoid and lower jaw of *Benthosuchus* (?) sp.; Amphibia: fragments of dermal bones, clavicle, ischium, femur and rib of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Saratov State University.

190. KORENNOY DOL II

Geographic location. Samara Region, 2.8 km south, SE of Gostevka village, Korennoy Dol ravine (right tributary of the Tavolzhanka River).

Host rocks. Yellow, buff-grey, medium- to coarse-grained, polymict, large-scale cross-bedded sandstone with conglomeratic lenses.

Faunal assemblage. Capitosauridae: skull fragment of *Wetlugasaurus* (?) sp.; Amphibia: vertebra, fragments of clavicle, humerus, dermal bones of *Temnospondyli* indet.; Reptilia: ribs of a small archosaur indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

191. KORENNOY DOL III

Geographic location. Samara Region, 3.8 km south of Gostevka village, upper reaches of Korennoy

Dol ravine (right tributary of the Tavolzhanka River).

Host rocks. Grey, fine- to medium-grained, polymict, cross-bedded sandstone with conglomeratic lenses. Thickness 6 m.

Faunal assemblage. Amphibia: skull fragment of small *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

192. KORNEEVKA I

Geographic location. Samara Region, 1.5 km east of Korneevka village, right bank of the Kalmanka River (right tributary of the Seshhaya River) (Blom, 1968; Ivakhnenko et al., 1997).

Host rocks. Light green-grey conglomerate with interlayers of sand. Thickness 3.7 m.

Faunal assemblage. Capitosauridae: numerous skull fragments of *Wetlugasaurus* sp.; Amphibia: fragments of skull and lower jaw of *Temnospondyli* indet.; Reptilia: remains of Reptilia indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Institute of Paleontology, Moscow.

193. KORNEEVKA II

Geographic location. Samara Region, 0.6 km east of Korneevka village, right bank of the Kalmanka River (right tributary of the Seshhaya River) (Blom, 1968; Ivakhnenko et al., 1997).

Host rocks. Red-buff, green-grey, fine-grained sandstone with gravel and pebbles of marl, sandstone, and clay. Thickness 2.5 m.

Faunal assemblage. Trematosauridae: skull fragments of *Prothoosuchus samariensis*; Capitosauridae: *Wetlugasaurus angustifrons* (Ivakhnenko et al., 1997).

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

194. ALEKSEEVKA I

Geographic location. Samara Region, 0.5 km north of Alekseevka village, right bank of the Seshhaya River (Blom, 1968).

Host rocks. Grey, greenish-grey, fine-grained, large-scale cross-bedded sandstone with clayey, sand and siltstone pebbles. Thickness 5 m.

Faunal assemblage. Capitosauridae: fragment of skull roof of an old individual of *Wetlugasaurus* (?) sp.; Trematosauridae: skull fragment of *Thoosuchus* sp.; Amphibia: fragments of dermal bones, lower jaw and ribs of *Temnospondyli* indet.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Institute of Paleontology, Moscow.

195. ALEKSEEVKA II

Geographic location. Samara Region, 0.8 km east of Alekseevka village, right bank of the Seshhaya River (Blom, 1968).

Host rocks. Grey-green, pink-brown sand with interlayers of sandstone. Thickness 3.2 m.

Faunal assemblage. Trematosauridae: *Thoosuchus* sp.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

196. ALEKSEEVKA III

Geographic location. Samara Region, 0.5 km north of Alekseevka village, right bank of the Seshhaya River (Blom, 1968).

Host rocks. Grey, pink-grey, cross-bedded sandstone with conglomeratic lenses. Thickness 5 m.

Faunal assemblage. Benthosuchidae: tabular of *Benthosuchus* (?) sp.; Amphibia: numerous fragments of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Institute of Paleontology, Moscow.

197. ALEKSEEVKA IV

Geographic location. Samara Region, 1 km SE of Alekseevka village, right bank of the Seszhaya River (Blom, 1968).

Host rocks. Pink-grey conglomerate with gravel and pebbles of brown-red clay and marl. Thickness 1.5 m.

Faunal assemblage. Amphibia: fragments of skull and lower jaw of neorachitome, fragments of dermal bones, neural arch, vertebra of *Temnospondyli* indet.; Reptilia: limb fragment of a small reptile.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

5.7. Drainage basins of the Chapaevka and Bolshoy Irgiz rivers—left tributaries of the Volga river

198. BORSHEVSKOE

Geographic location. Samara Region, 0.5 km NE of Borshevka village, right bank of the Chapaevka River (Blom, 1968, Ivakhnenko et al., 1997).

Host rocks. Green-grey sandstone and conglomerate with pebbles of clay, siltstone, and sandstone. Thickness 1.5 m.

Faunal assemblage. Trematosauridae: skull fragment of *A. succedaneus*; Rausisuchidae: *Tsylmosuchus* sp.; Proterosuchidae: *Chasmatosuchus* sp.

Stratigraphic level. Gostevskaya Svita. Lower Triassic.

Burial conditions. Deltaic deposits.

Storage. Institute of Paleontology, Moscow.

199. GORYAINOVKA

Geographic location. Samara Region, right bank of the Chapaevka River, opposite the western outskirts of Goreynovka village (Ivakhnenko et al., 1997).

Host rocks. Pink-brown conglomerate with pebbles of reddish-brown clay, and pink-grey marls. Thickness 0.35 m.

Faunal assemblage. Benthosuchidae: *Benthosuchus* sp.; Trematosauridae: *Thoosuchus tardus*; Proterosuchidae: *Chasmatosuchus* sp.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

200. ZETNIKOVSKOE

Geographic location. Samara Region, 0.1 km NW of Zetnikovo village, right bank of the Chapaevka River.

Host rocks. Green-brown conglomerate with gravel and pebbles of clay, marl and sandstone. Thickness 0.9 m.

Faunal assemblage. Amphibia: fragments of clavicle and lower jaw of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

201. KRASNOYARSKOE

Geographic location. Samara Region, 5 km south of Samovolno-Ivanovka village, right slope of Krasnoyar gully (right tributary of the Chapaevka River).

Host rocks. Sandstone with conglomeratic lenses, with pebbles of clay, sandstone and chert. Thickness 7 m.

Faunal assemblage. Amphibia: skull fragments and clavicle of a neorachitome; fragments of skull, dermal bones, neural arch, interclavicle, ribs and limbs of *Temnospondyli* indet.; Reptilia: indeterminate remains of Reptilia indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

202. YABLONOVO-VRAGSKOE

Geographic location. Samara Region, 3 km NE of Yablonovy Vrag village, right bank of the Chapaevka River (Blom, 1968).

Host rocks. Green-grey sandstone with gravel and pebbles of clay and marl. Thickness 1.4 m.

Faunal assemblage. Tupilakosauridae: *Tupilakosaurus* sp.; Procolophonidae: *Phaanthosaurus* sp.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

203. UKRAYINSKOE

Geographic location. Samara Region, 2 km east of Ukrayinka village, Bolshoy Irgiz River.

Host rocks. Green-brown conglomerate with green-grey pebbles of clay. Thickness 0.1 m.

Faunal assemblage. Trematosauridae: *Prothoosuchus* sp.

Stratigraphic level. Gostevskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

204. AVGUSTOVSKOE

Geographic location. Samara Region, 3.6 km east of Avgustovka village, right bank of the Bolshoy Irgiz River.

Host rocks. Green-grey conglomerate with pebbles of clay, sandstone and marl. Thickness 0.3 m.

Faunal assemblage. Capitosauridae: scapulocoracoid of *Wetlugasaurus* (?) sp.; Amphibia: dermal bones fragment of *Temnospondyli* indet.; Reptilia: vertebra of a small reptile.

Stratigraphic level. Kzylsaiskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

205. MORSHINSKOE

Geographic location. Samara Region, 0.4 km north of Morshinskoe village, right bank of the Karalyk River (right tributary of the Bolshoy Irgiz River).

Host rocks. Grey-green, pink-brown, fine-grained sand and sandstone with gravel and pebbles of clay and sandstone. Thickness 1.4 m.

Faunal assemblage. Amphibia: front part of the skull and other remains of *Temnospondyli* indet.

Stratigraphic level. Staritskaya Svita. Lower Triassic.

Burial conditions. Channel deposits.

Storage. Institute of Paleontology, Moscow.

206. BOLSHEGLUSHITZKOE II

Geographic location. Samara Region, right bank of the Bolshoy Irgiz River, opposite northern outskirts of Bolshaya Glushitza village.

Host rocks. Grey, yellow-grey, fine-grained sandstone with lenses of conglomerate. Sandstone horizontally bedded in the upper part and cross-bedded in the lower. Thickness 8 m.

Faunal assemblage. Tupilakosauridae: vertebra of *Tupilakosaurus* sp.

Stratigraphic level. Kopanskaya Svita. Lower Triassic.

Burial conditions. Dry deltaic deposits.

Storage. Institute of Paleontology, Moscow.

6. List of tetrapod localities, organised by Svita*6.1. Kopanskaya Svita*

(12) Astrakhanovka I; (25) Gryaznushka; (27) Blyumental; (39) Nikolskoe; (53) Perevolotzkoe; (59) Yaprintzevo; (60) Krasnaya Pavlovka; (61) Radovka; (63) Aleksandrovska; (64) Kozlovka; (87) Kamenny Yar III; (88) Kamenny Yar IV; (93) Fedorovka I; (94) Fedorovka II; (96) Krasnaya Yaruga I; (98) Rodnikoviy Dol; (104) Kamenny II; (105) Pavlovka–Antonovka; (111) Volchii II; (112) Volchii III; (113) Kazanka I; (125) Staraya Terlovka; (126) Buzulukskoe; (129) Michurin; (130) Zhuravlevka; (131) Elkhovka; (140) Shulaevka I; (161) Surykovo II; (162) Perevoznikovo; (168) Zypovskoe III; (169) Elshanka I; (170) Elshanka II; (171) Koltubanka; (172) Zaplavnoe–Sosnovoe; (173) Zaplavnoe I; (174) Zaplavnoe II; (175) Vetlyanovskiy I; (176) Vetlyanovskiy II; (177) Alekseevka I; (202) Yablonovo-Vragkskoe; (206) Bolsheglushitzkoe II.

6.2. Staritskaya Svita

(21) Krasnogor; (22) Belogory I; (26) Kamenka; (40) Orlovka; (41) Chernovskoe I; (42) Chernovskoe II; (43) Shishkin; (49) Nizhneozernoe I; (54) Kyndelya I; (55) Kyndelya II; (56) Rybkino; (62) Kapitonovka; (66) Myrolyubovka II; (69) Vetlyanka II; (79) Alekseevskoe; (83) Pokrovka III; (84)

Mikhaylovskoe; (86) Kamenny Yar II; (91) Sukhushka III; (92) Troyitzkoe; (94) Fedorovka II; (95) Fedorovka III; (97) Krasnaya Yaruga II; (98) Rodnikoviy Dol; (99) Sukhushka-Sukhodol; (100) Nevezhokino; (101) Markovka I; (102) Markovka II; (104) Kamenny II; (106) Pavlovka–Antonovka II; (107) Repniy; (114) Kazanka II; (115) Devyatichniy; (116) Khokhlachiy; (122) Elkhovka I; (123) Elkhovka II; (124) Kaveshnikov; (127) Monastyrskoe; (128) Sukhorechka; (137) Fedorovka; (138) Prokaevka; (141) Shulaevka II; (142) Grachevka; (145) Kostino II; (146) Rodionovka I; (147) Rodionovka II; (148) Rodionovka III; (149) Rodionovka IV; (151) Romashkino II; (152) Romashkino III; (158) Kurmanaevka II; (164) Domashka II; (165) Proskurino; (166) Zypovskoe I; (167) Zypovskoe II; (170) Elshanka II; (175) Vetlyanovsky I; (177) Alekseevka I; (178) Alekseevka II; (181) Mechet III; (182) Mechet IV; (183) Mechet V; (184) Usmanka; (185) Tavalzhanka; (189) Korennoy Dol I; (190) Korennoy Dol II; (196) Alekseevka III; (197) Alekseevka IV; (199) Goryainovka; (200) Zetnikovskoe; (201) Krasnoyarskoe; (205) Morshinskoe.

6.3. Kzylsaiskaya Svita

(5) Yakutovo; (23) Belogory II; (28) Andreevka; (44) Dremov I; (45) Dremov II; (46) Sukhodolny I; (47) Sukhodolny II; (50) Nizhneozernoe II; (52) Zazhuvniy; (58) Kulagino II; (65) Myrolyubovka I; (67) Myrolyubovka III; (68) Vetlyanka I; (71) Mokrovetlyanskoe I; (72) Matveevka I; (73) Matveevka II; (74) Matveevka III; (75) Matveevka IV; (76) Vorobyovskoe I; (77) Vorobyovskoe II; (80) Novo-Georgievka; (82) Pokrovka II; (85) Kamenny Yar I; (87) Kamenny Yar III; (90) Sukhushka II; (102) Markovka II; (103) Kamenny I; (108) Glynniy I; (109) Glynniy II; (110) Volchii I; (117) Malaya Pogromka I; (118) Malaya Pogromka II; (120) Pavelev Yar; (133) Kunduzlutamak; (134) Vasil'evka I; (136) Vasil'evka III; (139) Torpanovka-2; (142) Grachevka; (145) Kostino II; (149) Rodionovka IV; (150) Romashkino I; (153) Romashkino IV; (154) Kostrikin Dol I; (155) Kostrikin Dol II; (156) Kostrikin Dol III; (157) Kurmanaevka I; (159) Vynchagov; (160) Surykovo I; (163) Domashka I; (179) Mechet I; (180) Mechet II;

(185) Tavalzhanka; (186) Ternovoe; (191) Korennoy Dol III; (192) Korneevka I; (193) Korneevka II; (194) Alekseevka I; (195) Alekseevka II; (204) Avgustovskoe.

6.4. Gostevskaya Svita

(48) Sukhodolny III; (81) Pokrovka I; (119) Malaya Pogromka III; (121) Logachevka; (132) Saynovka; (135) Vasilevka II; (144) Kostino I; (179) Mechet I; (187) Gostevka I; (188) Gostevka II; (198) Borshevskoe; (203) Ukrayinskoe.

6.5. Petropavlovskaya Svita

(1) Stary Turai; (2) Petrovskoe; (3) Yazlav; (4) Mupartalovo; (6) Kzil-Mayak; (7) Bakas; (13) Astrakhanovka II; (14) Batik; (15) Sergeevka; (16) Berezovy I; (17) Berezovy II; (18) Berezovy III; (19) Petropavlovka I; (28) Andreevka; (29) Kzyl-Say; (37) Mescheryakovka I; (38) Mescheryakovka II (Donguz IX); (51) Rassypnoe; (57) Kulagino I; (70) Vetlyanka III; (78) Vorobyovskoe III; (89) Sukhushka I; (143) Shabolovka.

6.6. Donguz Svita

(9) Starokoltaevo II; (10) Starokoltaevo III; (11) Starokoltaevo IV; (20) Petropavlovka II; (32) Berdyanka II; (33) Berdyanka I; (34) Karagachka; (35) Perovka; (36) Donguz I.

6.7. Gostevskaya Svita

(8) Starokoltaevo I; (24) Ostrovnoe; (30) Belyaevsky I (Bukobay V); (31) Belyaevsky II (Bukobay VII).

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