

OLIGOCENE - LOWERMOST MIOCENE FOSSIL FISH-FAUNA (TELEOSTEI) FROM ROMANIAN EAST CARPATHIANS

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Abstract: An inventory of the localities with Oligocene-Lowermost Miocene fossil fish in the Romanian Eastern Carpathians and their geological frame is presented together with a list of the whole Oligocene-Lowermost Miocene fossil fish. From the 53 mentioned localities, different authors determined 159 species (teleostean skeletons or skeletons imprints only) belonging to 75 genera and 46 teleostean families. Many of the mentioned species would be the object of further reviews based mainly on Recent fish osteology.

Key words: Teleostei, fossil fish-fauna, fish-fauna localities, Oligocene, Lowermost Miocene, Romanian Eastern Carpathians

1. INTRODUCTION

The first remarks on the presence of the fossil fish in Romania belong to Dimitrie Cantemir, in the XVIIIth century. His famous paper "Descriptio Moldaviae", in the so-called chapter "About the mountains and the minerals of Moldavia", pointed to the first information concerning the fossil fish remains from Tg.Ocna. It was he who mentioned "...sometimes there are whole fishes in these holes¹ which do not differ by anything from those found in the surrounding rivers" (fide Ilie, 1942).

The first scientific paper on the fossil fish from Romania is considered to belong to Cosmovici (1886), being published in Paris. A second paper was published in Romania by Cosmovici (1887), in which 2 new teleostean species (*Glyphysoma caprossoides* and *Syngnathus incompletus*) were described from Piatra Neamț. Subsequently, the list of the teleostean fish fauna mentioned from the Romanian Eastern Carpathians and the localities which provided it, has been continuously enriched.

This paper presents an inventory of the localities with Oligocene-Lowermost Miocene fossil fish in the Romanian Eastern Carpathians and their geological frame (reviewed from latest data point of view). The inventory is based both on the published data and on the examination of some collections from different museums, as well as on our own recent field studies. Finally, a list of the whole Oligocene-Lowermost Miocene fossil fish from Romania East Carpathians is presented (even if later reviews could be made). The taxons are systematically arranged according to Greenwood *et al.* (1966) classification.

The mentioned material in the present paper can be found in the collections of the following museums: The Geological Museum of the Geological Institute of

Romania, Bucharest; The Museum of Natural History, Piatra Neamț; The Museum of Natural History, Suceava; The Museum of Natural History, Ploiești; The Museum of Natural History "Grigore Antipa", Bucharest; the museums belonging to the Paleontological Department from the Faculties of Geology in Bucharest, Iassy and Cluj-Napoca.

2. OLIGOCENE-LOWERMOST MIOCENE FOSSIL FISH-FAUNA LOCALITIES OF ROMANIAN EAST CARPATHIANS. GEOLOGICAL FRAME.

In the Romanian Eastern Carpathians Oligocene-Lowermost Miocene fossil fish were found in localities belonging to post-tectogenetic covers (Post-Tectogenetic Cover of the Laramian Units) and to several nappes (Tarcău Nappe, Marginal Folds Nappe and Subcarpathians Nappe) (Fig.1) of the Moldavides unit. (Table 1).

The formations bearing fossil fish fauna belong to all the Oligocene - Lowermost Miocene lithofacies known in the Romanian Eastern Carpathians: Valea Caselor Facies (Inner Bituminous Facies), Fusaru-Pucioasa Facies, Slon Facies, Mixed Facies, and Bituminous Facies with Kliwa Sandstone (Outer Bituminous Facies) (Table 1).

The fossil fish-fauna is generally provided by fine pelitic, bituminous shales, laminitic limestones or bituminous marls, found at different stratigraphic levels in the Oligocene-Lowermost Miocene column (Table 1), being predominant in its lower part (Rupelian).

¹ Salt mines - n. a.

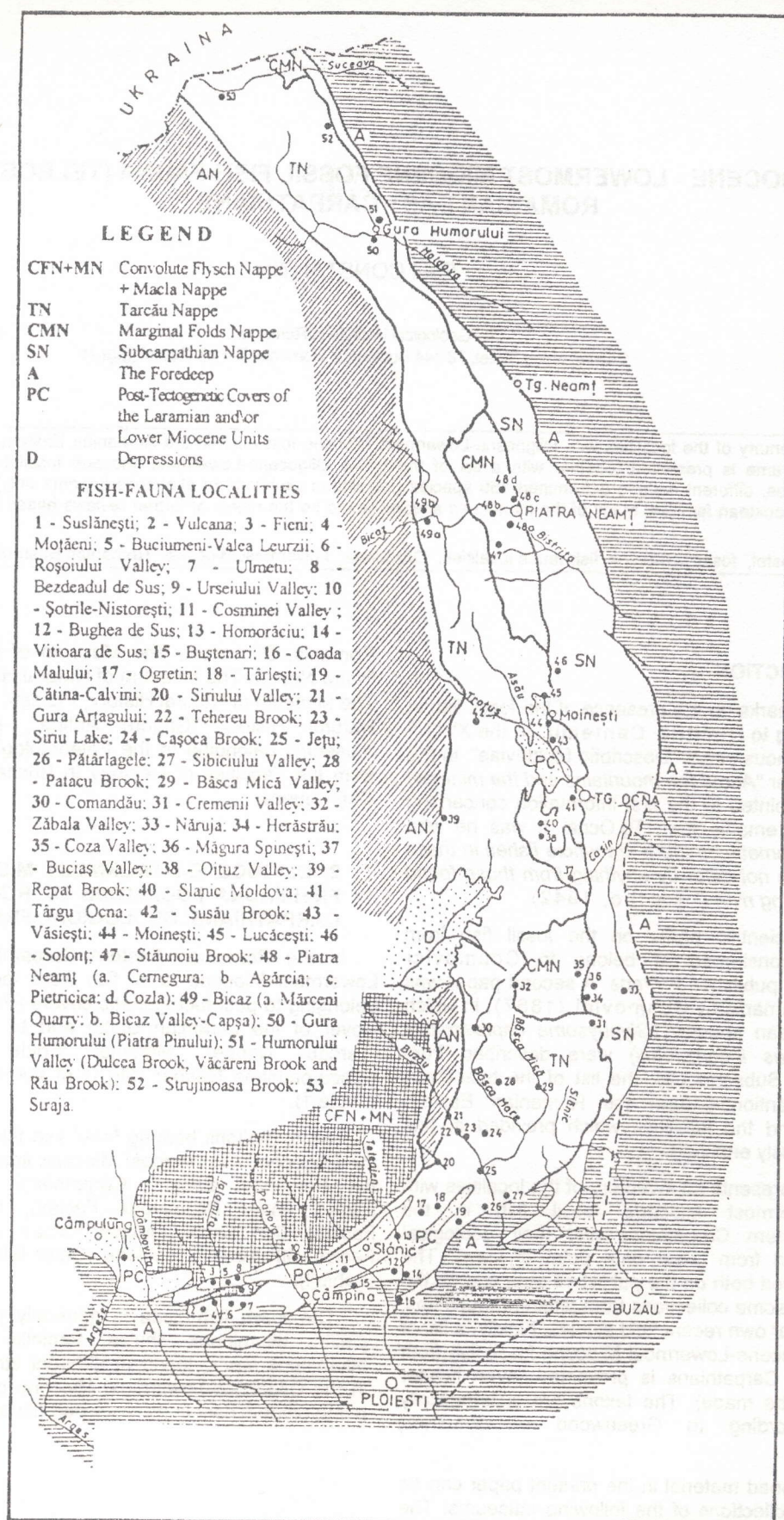


Fig.1 Geological sketch with Oligocene-Lowermost Miocene fossil fish-fauna localities from Romanian Eastern Carpathians

Table 1 Oligocene-Lowermost Miocene fossil fish-fauna localities from Romanian Eastern Carpathians and their geological frame

No ²	LOCALITIES ³	OUTCROPS	STRUCTURAL FRAME ⁴	LITHOFACIES	STRATIGRAPHIC LEVEL ⁵ - AGE	REFERENCES ⁶
(1)	SUSLĂNEȘTI	- Măriăuz; - Satului Valley; - Mățău;	Post-Tectogenetic Cover of the Laramian Units	Valea Caselor	LDM – Rupelian	[26], [27], [46], [47], [51], [52], [57], [59], [63], [69], [72], [75], [78];
(2)	VULCANĂ	?	Tarcău Nappe	Fusaru-Pucioasa	(?) - Oligocene	Materials hosted in Geological Institute of Romania;
(3)	FIENI	- 10 outcrops between Ialomița Valley and Ialomicioara Valley (F ₁ - F ₁₀)-Constantin (2000) ⁸	Post-Tectogenetic Cover of the Laramian Units	Valea Caselor	LDM - Rupelian Ty - Rupelian	[4], [6], [22], [23], [24], [25], [26], [27], [29], [37], [52], [62], [69], [76], [77];
(4)	MOȚĂENI	- 2 outcrops on Ialomița Valley	Tarcău Nappe	Fusaru-Pucioasa	PB – Uppermost Rupelian - Chattian UDS – Lowermost Miocene	[23], [25], [26], [29], [52], [56];
(5)	BUCIUMENI-VALEA LEURZII	- Buciumeni; - Leurzii Valley;	Post-Tectogenetic Cover of the Laramian Units	Valea Caselor	LDM – Rupelian	[25], [26], [29];
(6)	ROȘOIULUI VALLEY	- Roșoiului Valley	Tarcău Nappe	Fusaru-Pucioasa	PB – Uppermost Rupelian - Chattian	[26], [29], [46] ⁹ , [47] ¹⁰ , [56] ¹¹ ;
(7)	ULMETU	- an ancient oil well	Tarcău Nappe	Fusaru-Pucioasa	PB – Uppermost Rupelian - Chattian	[23], [25], [26], [27], [29], [65];
(8)	BEZDEADUL DE SUS	- Coporadu Valley	Post-Tectogenetic Cover of the Laramian Units	Valea Caselor	LDM – Rupelian	[25], [26], [29];
(9)	URSEIULUI VALLEY	- Urseiului Valley	Tarcău Nappe	Slon	KVC - Reworked fauna	[25], [26], [29], [46] ¹² , [47] ¹³ , [56] ¹⁴ ;
(10)	ȘOTRILE-NISTOREȘTI ¹⁵	- Roșie Valley; - Cucuiatu Peak; - "Plaiul Cornului";	Post-Tectogenetic Cover of the Laramian Units	Valea Caselor	LDM - Rupelian Ty - Rupelian	[25], [26], [29], [79];
(11)	COSMINEI VALLEY	- 2 outcrops on Cosminele Valley; - Teiului Valley;	Tarcău Nappe	Fusaru-Pucioasa	PB – Uppermost Rupelian - Chattian LDS (?) or UDS (?)	[23], [25], [26], [29], [74];
(12)	BUGHEA DE SUS	- 1 outcrop between Bughea Valley and Slănic Valley	Tarcău Nappe	Fusaru-Pucioasa	LDS - Rupelian	[25], [26], [29], [40], [46], [47];

² Number corresponding to the one from the sketch with Oligocene-Lowermost Miocene fossil fish-fauna localities from Romanian Eastern Carpathians (fig. 1);

³ According to our opinion, localities mean the place bearing fossil fish-fauna, a place where can exist between 1 (most frequently) and 10 outcrops (as Fieni locality);

⁴ Reviewed according to the latest geological data;

⁵ The formation bearing the fossil fish-fauna; **LEGEND**: LDM – "The Lower Horizon of the Dysodile Shales with Menilites"; PB – Pucioasa Beds; UDS – Upper Dysodilic Shales; LDS – Lower Dysodilic Shales; BM – Bituminous Marls; UM – Upper Menilites; KS – Kliwa Sandstone (dysodilic shales type interbeds); FS – Fusaru Sandstone (dysodilic shales type interbeds); SBS – Slaty Bituminous Shales; SH – "Shally Horizon"; Ty – Tylawa Laminitic Limestone; J – Jaslo Laminitic Limestone; KDy – Klippen bilt up of dysodilic shales (Rupelian) in Vinețușu Formation (Uppermost Chattian - Lowermost Miocene); KVC – Klippen bilt up of "The Lower Horizon of the Dysodile Shales with Menilites" (Valea Caselor Facies)(Rupelian) in Slon Facies (Uppermost Chattian - Lowermost Miocene);

⁶ The number from the brackets corresponds to the number of the paper mentioned in the references found in the end of the paper;

⁷ The underlined papers represent the first mention of the locality as bearing fossil fish fauna; when 2 papers are underlined, the first mention refers to different outcrops from the same locality;

⁸ From the 10 outcrops (F₁ - F₁₀ - Constantin, 2000) the F₁₀ outcrop corresponds to Valea Caselor locality (Priem, 1899); the F₈ outcrop corresponds to Tâța locality (Pauca, 1934); the F₄ and F₇ outcrops were discovered by prof. Dan Grigorescu (pers. comm.); the other 6 outcrops were discovered by Constantin (1975; 2000);

⁹ Mentioned by Kotlarczyk J., Jerzmanska A. (1980) as Bezdead locality;

¹⁰ Mentioned by Kotlarczyk J., Jerzmanska A. (1988) as Bezdead locality;

¹¹ Mentioned by Pauca (1932) as Bezdead (Roșoiului Valley) locality;

¹² Mentioned by Kotlarczyk J., Jerzmanska A. (1980) as Bezdead locality;

¹³ Mentioned by Kotlarczyk J., Jerzmanska A. (1988) as Bezdead locality;

¹⁴ Mentioned by Pauca (1932) as Bezdead (Urseiului Valley) locality;

¹⁵ Name introduced by Constantin (2000) in order of grouping the outcrops: Roșie Valley (Protescu, 1938), Cucuiatu Peak (col. Popovici Hațeg) and Plaiul Cornului (Dan Grigorescu - pers. comm.);

(13)	HOMORÂCIU	- many outcrops on Teleajen Valley	Tarcău Nappe	Fusaru-Pucioasa	LDS - Rupelian	[23], [24], [25], [26], [27], [29], [41], [42], [43], [44], [45], [46], [47], [72];
(14)	VITIOARA DE SUS	?	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	LDS (?) - Rupelian	[48];
(15)	BUȘTENARI	?	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	(?) - Oligocene	[48];
(16)	COADA MALULUI	?	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	(?) - Oligocene	[24], [65];
(17)	OGRETIN	- Păcurița Valley	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	LDS - Rupelian	[26], [29];
(18)	TÂRLEȘTI	- Seacă Valley	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	BM - Rupelian	[23], [25], [26], [29], [65];
(19)	CĂTINA-CALVINI	?	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	(?) - Oligocene	[48]
(20)	SIRIULUI VALLEY	- 1 outcrop at the confluence of Siriu Valley with Roșia Valley	Tarcău Nappe	Slon	Kdy - Reworked fauna	[14], [23], [24], [25], [26], [29];
(21)	GURA ARȚAGULUI	- 2 outcrops on Buzău Valley	Tarcău Nappe	Fusaru-Pucioasa	SH - Rupelian	[7], [23], [25], [26], [29];
(22)	TEHEREU BROOK	- Nowadays under the Siriu Lake	Tarcău Nappe	Fusaru-Pucioasa	SH - Rupelian	[36];
(23)	SIRIU LAKE	- 1 outcrop on left border of Siriu Lake	Tarcău Nappe	Fusaru-Pucioasa	J - Chattian	[10] ¹⁶ , [23], [24], [25], [26], [29];
(24)	CAȘOCA BROOK	- Prunecea Valley	Tarcău Nappe	Fusaru-Pucioasa	SH - Rupelian	[25], [26], [29];
(25)	JETU	- Buzău Valley	Tarcău Nappe	Mixed Facies	LDS (?) or UDS (?)	[25], [26], [29];
(26)	PĂTÂRLAGELE	?	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	BM - Rupelian	[23], [25], [26], [29], [62];
(27)	SIBICIULUI VALLEY	- Sibiciului Valley	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	BM - Rupelian	[23], [25], [26], [29], [86];
(28)	PATACU BROOK	- Patacu Brook, tributary of Bâsca Mare Valley	Tarcău Nappe	Fusaru-Pucioasa	SH - Rupelian	[25], [26], [29], [73];
(29)	BÂSCA MICĂ VALLEY	- Bâsca Mică Valley	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	BM - Rupelian	[25], [26], [29], [73];
(30)	COMANDĂU	- Bâsca Mare Valley - Kitereș Brook;	Tarcău Nappe	Fusaru-Pucioasa	SH - Rupelian Ty - Rupelian	[8], [24], [25], [26], [29], [46], [47], [50], [73], [81];
(31)	CREMENII VALLEY	- Cremenii Valley, tributary of Zăbala Valley	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	BM - Rupelian	[25], [26], [29], [39];
(32)	ZĂBALA VALLEY	- Murdanu Springs, under Lăcăuți Peak	Marginal Folds Nappe	Bituminous Facies with Kliwa Sandstone	LDS - Rupelian	[25], [26], [29], [50];
(33)	NĂRUJA	- an outcrop on the left bank of Zăbala Valley	Subcarpathian Nappe	Bituminous Facies with Kliwa Sandstone	UDS (?) - Lowermost Miocene	[11], [23], [25], [26], [29], [68];
(34)	HERĂSTRĂU	?	Subcarpathian Nappe	Bituminous Facies with Kliwa Sandstone	UDS (?) - Lowermost Miocene	[23], [26], [29], [68];
(35)	COZA VALLEY	- Coza Valley ("Groapa cu pini" site)	Marginal Folds Nappe	Bituminous Facies with Kliwa Sandstone	LDS - Rupelian	[24], [25], [26], [29], [88];

¹⁶ Mentioned by Brustur, Alexandrescu (1998) as Buzău Valley locality;

(36)	MĂGURA SPINEȘTI	?	Marginal Folds Nappe	Bituminous Facies with Kliwa Sandstone	(?) - Oligocene (?) - Lowermost Miocene	[23], [29], [66];
(37)	BUCIAȘ VALLEY	- Buciaș Valley	Marginal Folds Nappe	Bituminous Facies with Kliwa Sandstone	SBS – Lowermost Rupelian	[23] ¹⁷ , [25], [26], [29];
(38)	OITUZ VALLEY	- an outcrop on the left bank of Oituz Valley	Marginal Folds Nappe	Bituminous Facies with Kliwa Sandstone	UDS – Lowermost Miocene	[23], [24], [25], [26], [29], [30];
(39)	REPAT BROOK	- Repat Brook	Tarcău Nappe	Slon	Kdy – Reworked fauna	[15], [25], [26], [29];
(40)	SLĂNIC MOLDOVA	- an right tributary of Dobru Brook; - an left tributary of Slănic Brook;	Marginal Folds Nappe	Bituminous Facies with Kliwa Sandstone	LDS – Rupelian	[23], [25], [29], [49], [69];
(41)	TÂRGU OCNA	-2 outcrops on the right bank of Slănic Valley	Marginal Folds Nappe	Bituminous Facies with Kliwa Sandstone	BM – Rupelian LDS – Rupelian	[23], [25], [26], [29], [38], [62];
(42)	SUSĂU BROOK	- an outcrop on the right bank of Susău Brook	Tarcău Nappe	Slon	Kdy – Reworked fauna	[25], [26], [29];
(43)	VĂSIEȘTI	- Bucioc Brook	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	Ty (?) – Rupelian or J (?) – Chattian	[48];
(44)	MOINEȘTI	- Paltinisu Brook	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	(?) – Oligocene	[23], [48];
(45)	LUCĂCEȘTI	?	Tarcău Nappe (?)	Bituminous Facies with Kliwa Sandstone	Ty (?) – Rupelian or J (?) – Chattian	[48];
(46)	SOLONT	?	Subcarpathian Nappe	Bituminous Facies with Kliwa Sandstone	(?) – Oligocene	[48];
(47)	STĂUNOIU BROOK	-Stăunoiu Brook, left tributary of Calu Brook	Marginal Folds Nappe	Bituminous Facies with Kliwa Sandstone	UDS – Lowermost Miocene	[13], [24], [26];
(48)	PIATRA NEAMȚ	-Cernegura (48a); -Agârcia (48b); -Pietricica (48c); -Cozla (48d);	Marginal Folds Nappe	Bituminous Facies with Kliwa Sandstone	BM – Rupelian LDS – Rupelian UDS (?) – Lowermost Miocene	[2], [3], [4], [6], [16], [17], [18], [19], [20], [23], [26], [27], [31], [32], [33], [34], [46], [47], [55], [58], [67], [69], [72], [82], [83], [84], [85], [94]
(49)	BICAZ	-Mărceni Quarry (49a) -Bicaz Valley (Capșa) (49b)	Tarcău Nappe	Fusaru-Pucioasa	- FS – Chattian - Ty – Rupelian	- [28]; - [7], [46], [47];
(50)	GURA HUMORULUI	- an outcrop on right bank of Moldova Valley (Piatra Pinului site)	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	BM (?) – Rupelian LDS (?) – Rupelian KS – Chattian	[1], [3], [9], [12], [46], [47], [62], [65], [69], [89], [90], [91], [96];
(51)	HUMORULUI VALLEY	- Dulcea Brook (a); - Văcăreni Brook (b) - Rău Brook (c);	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	- BM+LDS – Rupelian - KS (Chattian)+ UDS (Lowermost Miocene) - Ty – Rupelian	- [12], [21], [23], [28], [80], [87]; - [12], [21], [23], [28], [87], [95]; - [28];
(52)	STRUJINOASA BROOK	- an left tributary of Strujinoasa Brook	Tarcău Nappe	Bituminous Facies with Kliwa Sandstone	LDS – Rupelian	[3], [5], [27], [28];
(53)	STRAJA ¹⁸	- Suceava Valley	Marginal Folds Nappe	Bituminous Facies with Kliwa Sandstone	Ty (?) – Rupelian	[23];

¹⁷ Name introduced by Brustur (pers. comm.); material hosted in the collections of Paleontological Department from the Faculty of Geology in Bucharest (col. Brustur);

¹⁸ Mentioned by Constantin (1996) as Gura Putnei locality; material hosted in the Geological Institute of Romania collections; (col. Micu);

3. SYSTEMATIC PART

A synthetic list of the teleostean fish-fauna from the Romanian East Carpathians, and the localities which provided it, is presented below:

Osteichthyes (Teleostean fish)¹

DIVISION I

SUPERORDER Elopomorpha

Order Anguilliformes

Suborder Anguilloidei

Family Muraenidae

Genus *Eomyrus* AGASSIZ, 1844

Eomyrus aff. *ventralis* AGASSIZ, 1848 -

(48d)², (51b);

Family Nemichthyidae

Genus *Oligonemichthys* CIOBANU, 1977

Oligonemichthys photophorae CIOBANU, 1977 -

(48d)³;

SUPERORDER Clupeomorpha

Order Clupeiformes

Suborder Clupeoidei

Family Clupeidae BONAPARTE, 1831

Genus *Pelonulla* GÜNTHER, 1868

Pelonulla grasionescui CIOBANU, 1977 -

(48c);

Genus *Dussumieria* CUVIER & VALENCIEN., 1847

Dussumieria cf. *elami* ARAMBOURG, 1966 -

(48d);

Genus *Etrumeus* BLEEKER, 1853

Etrumeus hafizi ARAMBOURG, 1943 - (48d);

Etrumeus sp. - (43);

Genus *Alosa* LINK, 1790

Alosa sculptata (WEILER, 1920) - (1)⁴, (13),

(48a,c,d), (50), (51a,b);

Alosa aff. *sculptata* (WEILER, 1920) - (13), (48c,d);

Alosa crassa SAUVAGE, 1873 - (13);

Alosa cf. *sagorensis* (STEINDACHNER, 1863)

(38);

Alosa sp. - (1), (13), (38), (44), (45), (47);

Genus *Pomolobus* RAFINESQUE, 1820

Pomolobus facilis DANILCENKO, 1960 - (48d),

(50), (51a);

Pomolobus aff. *facilis* DANILCENKO, 1960 - (51b);

Genus *Clupea* LINNAEUS, 1758

Clupea longimana (HECKEL, 1850)⁵ - (1), (3),

(4), (10), (26), (27), (28), (29), (30), (31),

(35), (41), (42), (48a,c,d), (50), (51a,b);

Clupea cf. *longimana* (HECKEL, 1850 - (13),

(50);

Clupea sardinites (HECKEL, 1850) - (1), (3),

(4), (13), (21), (30), (47), (48a,c,d), (51b);

Clupea voinovi PAUCĂ 1929 - (1), (51b);

Clupea aff. *arcuata* KNER, 1863 - (30);

Clupea sp.⁶ - (1), (2), (3), (4), (5), (6), (8), (10),

(11), (12), (13), (15), (19), (21), (23), (24),
(25), (28), (29), (32), (33), (38), (40), (41),
(47), (48b), (51c);

Genus *Opisthonema* GILL, 1861

Opisthonema persicum ARAMBOURG, 1966 -

(48d), (51b);

Opisthonema antethrissa CIOBANU, 1977 -

(48d), (51a,b);

Genus *Sardina* ANTIPA, 1905

Sardina nectodoscioabanensis CIOBANU, 1977 -

(48a,c,d);

Genus *Sardinella* CUVIER & VALENCIEN., 1847

Sardinella denticulata CIOBANU, 1977 -

(48c);

Sardinella rata DANILCENKO, 1959 -

(48a,c,d), (50), (51a,b);

Sardinella engrauliformis SMIRNOV - (48d),

(51c);

DIVISION III

SUPERORDER Protacanthopterygii

Order Salmoniformes

Suborder Argentinoidei

Family Argentinidae BONAPARTE, 1846

Genus *Glossanodon* GUICHENOT, 1867

Glossanodon musceli (PAUCĂ, 1929)⁷ - (1),

(3), (5), (8), (9), (12), (21), (13), (48c);

Glossanodon inclinata (DANILCENKO, 1960)

(35)⁸, (48d);

Glossanodon sp. - (3);

Suborder Esocoidae

Family Esocidae, GÜNTHER, 1866

Genus *Esox* LINNAEUS, 1758

Esox moldavicus TRELEA et al., 1977⁹ - (50),

(51b);

Suborder Stomiatoidei

Family Gonostomatidae GILL, 1893

Genus *Scopeloides* WETTSTEIN, 1866

Scopeloides glarisianus (AGASSIZ, 1844) -

(1)¹⁰, (20), (23), (48b,c), (50), (51a);

Scopeloides paucal CIOBANU, 1977 - (48c),

(51a);

Scopeloides sp. - (16), (23), (48b);

Genus *Idrissia* ARAMBOURG, 1954

⁶ Mentioned as *Meletta* sp. (isolated scales only) by Krejci-Graf and Weiler (1928) from Buștenari, Cătină-Calvini and Solont localities;

⁷ This species was originally described by Paucă (1929a) from Suslănești as *Nemachilus musceli* n. sp.; mentioned also as *Nemachilus musceli* PAUCĂ by Paucă from Moțăeni and Suslănești (1932;1933a) and by Jonet (1952;1957) from Homorâciu;

⁸ Mentioned from Coza Valley by Ștefan (1988) and from Piatra Neamț (Coza outcrop) by Ciobanu (1977) and Tuc (1989) as *Proargentina inclinata* DANILCENKO. Genus *Proargentina* DANILCENKO is synonym with *Glossanodon* GUICHENOT (Jerzemska, 1967);

⁹ Needs reviews because in the Carpathians areas the species initially determined as belonging to some fresh water genera (e.g. *Nemachilus*, *Leuciscus*, *Propercarina*, etc.) proved lately to be wrong determined (Jerzemska, 1968);

¹⁰ This species was originally described by Paucă (1929a, 1933a,c) as *Mrazecia mrazeci* n. sp. and mentioned also by Paucă (1934c) as *Scopeloides mrazeci* (PAUCĂ); mentioned from Gura Humorului (Piatra Pinului) by Paucă (1934b) as *Mrazecia mrazeci* PAUCĂ and by Trelea et al. (1973) and Voicu, Ignat (1974) as *Scopeloides mrazeci* (PAUCĂ); mentioned from Siriu Valley by Bucur (1967) as *Scopeloides mrazeci* (PAUCĂ); mentioned from Humorului Valley (Dulce Brook) by Saraiman (1984) as *Scopeloides mrazeci* (PAUCĂ);

¹ The taxons are sistematically arranged according to Greenwood et al. (1966) classification.

² The number in parantheses is identically with the one of the locality which provided the species (the same number in fig.1 and tab. 1);

³ The underlined number in parantheses means that the holotype was described from the mentioned locality (the underlined locality represents "locus typicus" for the respective species);

⁴ This species was originally described by Paucă (1929b) as *Clupea sculptata* (WEILER);

⁵ Also mentioned as *Meletta crenatta* by Popescu Voitești (1909), *Clupea crenatta* (HECKEL) by Paucă (1929b) or *Clupea* (*Meletta*) *crenata* (HECKEL) by Protescu (1938);

- Idrissia carpathica* JERZMANSKA, 1960 – (50), (51a);
Idrissia carpiromanica CIOBANU, 1969 – (48d);
- Family Photichthyidae** WEITZMAN, 1974
Genus Vinciguerria GOOD & BEAN, 1895
Vinciguerria talgiensis DANILCENKO, 1946 – (48d);
Vinciguerria merklini DANILCENKO, 1946 – (35), (48d);
Vinciguerria obscura DANILCENKO, 1946 – (48d), (51b);
Vinciguerria distincta DANILCENKO, 1962 – (51a);
Vinciguerria macarovicii CIOBANU, 1969 – (35), (48c), (51a);
Vinciguerria praeatenuata CIOBANU, 1977 – (35), (48d);
- Family Sternoptychidae** DUMERIL, 1806
Genus Maurolicus COCCO, 1838
Maurolicus sp. - (48d)¹, (50)²;
Genus Argyropelecus COCCO, 1829
Argyropelecus prisca (PAUCĂ, 1931) (2), (4), (48d)³, (50), (51a);
Genus Polyipnus GÜNTHER, 1887
Polyipnus anteasteroides CIOBANU, 1977 – (3), (48d);
- Family Astronesthidae** RICHARDSON, 1843
Genus Criptostomias GIBBS & WEITZ., 1965
Criptostomias antiquus CIOBANU, 1977 – (48d);
Criptostomias aff antiquus CIOBANU, 1977 – (35);
- Order Scopeliformes**
Suborder Myctophoidae
Family Paralepididae RAFINESQUE, 1810
Genus Holosteus AGASSIZ, 1844
Holosteus mariae (MANNER, 1948)⁴ – (1), (13)
Holosteus fieniensis CONSTANTIN, 2000 – (3);
- Family Myctophidae** GILL, 1892
Genus Eomyctophum DANILCENKO, 1947
Eomyctophum koraense DANILCENKO, 1947 (48d);
Eomyctophum menneri DANILCENKO, 1947 – (48d);
Eomyctophum limicola DANILCENKO, 1960 – (23), (48d);
Eomyctophum cozlae CIOBANU, 1969 – (48d);
Genus Myctophum RAFINESQUE, 1810
Myctophum weileri CIOBANU, 1977 – (48c);
Myctophum praepterotum CIOBANU, 1977 – (48c);
Myctophum robustus CIOBANU, 1977 – (48c);
Myctophum antelaternatum CIOBANU, 1977 – (48c);
Genus Lampanyctus BONAPARTE, 1840
Lampanyctus longaevus CIOBANU, 1977 – (48c);
- Genus Diaphus** EIGENMANN & EIGEN., 1890
Diaphus duosensitivus CIOBANU, 1977 – (48c);
- SUPERORDER Paracanthopterygii**
Order Lophiiformes
Suborder Antennarioidei
Family Onchocephalidae REGAN, 1912
Genus Onchocephalus HUBBS, 1948
Onchocephalus dudensis CIOBANU, 1977 – (48d);
- Order Gadiformes**
Suborder Gadoidei
Family Bregmacerotidae THOMPSON, 1840
Genus Bregmaceros THOMPSON, 1840
Bregmaceros filamentosus (PRIEM, 1908) -- (13)⁵;
Bregmaceros sp. - (3);
Family Gadidae RAFINESQUE, 1810
Genus Palaeogadus RATH, 1858
Palaeogadus athanasiui (PAUCĂ, 1929)⁶ - (1), (3), (5), (6), (8), (9), (13), (51a);
Palaeogadus simionescui (SIMIONESCU, 1905) (3), (12);
*Palaeogadus aff. leptosomus*⁷ (KRAMBERG., 1879) (13);
Palaeogadus intergerinus DANILCENKO, 1947 (48c);
Palaeogadus atropatanus (BOGATSHOV, 1933) (48c), (50), (51a);
Palaeogadus abbreviatus (BOGATSHOV, 1933) (48d);
Palaeogadus sp.⁸ - (3), (8), (13), (41), (50);
Genus Raniceps OKEN, 1817
Raniceps parvus DANILCENKO, 1960 - (48c);
Genus Palaeomolva DANILCENKO, 1947
Palaeomolva tarchanica DANILCENKO, 1947 (48d);
- Family Merlucciidae**
Genus Merluccius RAFINESQUE, 1810
Merluccius ovalis CIOBANU, 1970 - (48d);
Merluccius romanicus PAUCĂ, 1929 - (3), (4);
Merluccius sp. - (45);
- Suborder Ophidioidae**
Family Ophidiidae JORDAN & EVERMANN, 1898
Genus Propteridum ARAMBOURG, 1966
Propteridum profundae CIOBANU, 1970 (48c);
Genus Ophidion LINNAEUS, 1758
Ophidion longipinatus (PAUCĂ, 1931)⁹ - (48);
- SUPERORDER Atherinomorpha**
Order Beloniformes
Suborder Exocoetoidae

¹ This species was originally described by Ciobanu (1977) both as *Polyipnus oligocenicus* n. sp. and *Polyipnus subnoviensis* JERZMANSKA; re-examined and replaced among the genus *Maurolicus* by Baci, Constantin (1998) and Baci, Constantin (in press);

² Mentioned by Voicu, Ignat (1974) as *Polyipnus subnoviensis* JERZMANSKA;

³ Also from Piatra Neamț (Cozla outcrop) Paucă (1931a) mentioned it as *Sternoptyx prisca* n. sp., reviewed by Baci, Constantin (1998);

⁴ Mentioned from Suslănești by Paucă (1929a,b; 1933c) and from Homorâciu by Jonet (1958) as *Pronotacanthus Sahel Almae* (DAVIS);

⁵ Mentioned as *Bregmaceros prahovanus* n. sp. by Jonet (1958) based on a poor preserved material. Reviewed by Constantin (1997) based on photographic material only. The original material needs reviews.

⁶ This species was originally described from Suslănești as *Merluccius athanasiui* n. sp. by Paucă (1929a, b); was lately mentioned also as *Nemopteryx athanasiui* (PAUCĂ) from Suslănești (Paucă, 1933c), Roșoiu Valley (Paucă, 1932), Urseiului Valley (Paucă, 1932), Homorâciu (Jonet, 1958) and Humorului Valley (Dulce Brook) (Ștefan, Horaicu, 1984); Mentioned also as *Gobius elongatus* n. sp. by Simionescu (1904;1905);

⁷ Because of the succinct description of a single specimen, Jerzmanska (1968) considers it as "nomina nuda", mentioning that all the specimens belonging to this species are poor preserved and described;

⁸ Mentioned from Țâța (Fieni locality) and Piatra Neamț by Paucă (1934c) as *Nemopteryx* sp.

⁹ Described by Paucă (1931) as *Ophidium* (?) *longipinatus* PAUCĂ;

- Family Hemiramphidae** CUVIER, 1817
Genus *Hemiramphus* CUVIER, 1817
Hemiramphus georgii JERZMANSKA, 1968 (3), (13)¹;
- Family Belonidae**
Genus *Belone* CUVIER, 1817
Belone menilitica PAUCĂ, 1938 - (13), (18);
- SUPERORDER Acanthopterygii**
Order Beryciformes
Suborder Berycoidei
Family Trachichthyidae BERG, 1940
Genus *Gephyroberyx* BOULENGER, 1902
Gephyroberyx aculeatus CIOBANU, 1976 - (48d);
- Family Berycidae** AGASSIZ, 1844
Genus *Beryx* CUVIER, 1829
Beryx altus CIOBANU, 1977 - (48d);
Beryx longus CIOBANU, 1977 - (48d);
Beryx prosus CIOBANU, 1976 - (48d);
Beryx ovatus CIOBANU, 1976 - (48d);
Beryx sp. - (51b);
- Order Zeiformes**
Suborder Zeoidei
Family Zeidae LATREILLE, 1825²
Genus *Zeus* LINNAEUS, 1758
Zeus hoernesii KRAMBERGER, 1891 - (7);
Genus *Zenopsis* GILL, 1863
Zenopsis clarus DANILCENKO, 1960 - (48b)³, (52);
Zenopsis sp. - (13)⁴;
- Family Caproidae** BONAPARTE, 1832
Genus *Capros* LACEPEDE, 1802
Capros radoboianus (KRAMBERGER, 1882)⁵ (1), (3), (6), (13), (33), (48c,d), (50);
Capros longirostris (KRAMBERGER, 1882) - (1), (3), (13), (48c,d)⁶;
Capros sp. - (3), (13);
- Order Gasterosteiformes**
Suborder Aulostomoidei
Family Aulostomidae LACEPEDE 1803
Genus *Aulostomus* LACEPEDE, 1803
Aulostomus sp. - (3);
- Family Fistulariidae** BLAINVILLE, 1818
Genus *Fistularia* LINNAEUS, 1758
Fistularia aff. *koenegi* AGASSIZ, 1842 - (13);
Fistularia sp. (13);
- Family Centriscidae** RAFINESQUE, 1826
Genus *Aeoliscus* JORDAN & STARKS, 1902
*Aeoliscus heinrichi*⁷ (HECKEL, 1850) - (30), (36), (48d), (51c);
*Aeoliscus teleajensis*⁸ (JONET, 1948) - (13);
- Suborder Syngnathoidae**
Family Syngnathidae RAFINESQUE, 1810
Genus *Syngnathus* LINNAEUS, 1758
Syngnathus incompletus COSMOVICI, 1887 - (38), (48d), (50);
Syngnathus cf. *incompletus* COSMOVICI, 1887 (45);
Syngnathus altus DANILCENKO, 1960; (48d);
Syngnathus incertus DANILCENKO, 1960; (48d), (51b);
Syngnathus anteacum CIOBANU, 1976; (48d);
Syngnathus sp.1 - (3)⁹
Syngnathus sp. - (13), (33), (51b);
- Order Scorpaeniformes**
Suborder Scorpaenoidei
Family Scorpaenidae RISSO, 1826
Genus *Scorpaenoides* LINNAEUS, 1758
Scorpaenoides popovicii PRIEM, 1899 - (1), (3), (9), (13), (27), (29);
Genus *Scorpaena* LINNAEUS, 1758
Scorpaena pilarii KRAMBERGER, 1882 - (1), (50);
Scorpaena boulei ARAMBOURG, 1928 - (13);
- Family Triglidae** JORDAN & EVERMANN, 1898
Genus *Trigla* LINNAEUS, 1758
Trigla disodilica CIOBANU, 1976 - (48d);
- Order Perciformes**
Suborder Percoidei
Family Percidae JORDAN & EVERMANN, 1896
Genus *Lates*
Lates sp. - (30), (48d);
Genus and *species undetermined* (24)¹⁰;
- Family Serranidae** RICHARDSON, 1846
Genus *Serranus* CUVIER, 1817
Serranus budensis (HECKEL, 1856) - (1)¹¹, (3), (4), (5), (9), (13), (27), (28), (30), (38), (39), (48b,d), (50);
Serranus simionescui PAUCĂ, 1929 - (1), (3), (5), (9), (13), (26), (50);
Serranus comparabilis DANILCENKO, 1960 - (48d);
Serranus sp. - (3), (4), (5), (10), (11), (12), (17), (21), (31), (38), (40), (42), (50);
- Genus** *Properca* SAUVAGE, 1880
Properca sabbaei PAUCĂ, 1929 - (1), (3), (48d);
Properca paucae JONET, 1958 - (13);
Properca sp. - (3), (5);
- Genus** *Morone* MITCHILL, 1814
Morone major (AGASSIZ, 1844) - (48d);
Morone sp. - (48d)¹²;
- Family Priacanthidae** BERG, 1940
Genus *Priacanthus* OKEN, 1817
Priacanthus sturi (KRAMBERGER, 1880), (13);
Priacanthus pietrensis CIOBANU, 1970 - (48d);
- Genus** *Pristigenys* AGASSIZ, 1844
Pristigenys spinosus (BLAINVILLE, 1818) - (48c);
- Family Dipterichthyidae** ARAMBOURG, 1966
Genus *Dipterichthys* ARAMBOURG, 1966
Dipterichthys originis CIOBANU, 1976 - (48d);
- Family Leiognathidae** BERG, 1940
Genus *Leiognathus* LACEPEDE, 1803
Leiognathus altapinnus (WEILER, 1955) - (48c);
- Family Carangidae** RAFINESQUE, 1810
Genus *Caranx* LACEPEDE, 1802
Caranx gracilis KRAMBERGER, 1882 - (48d);
Caranx petrodavae SIMIONESCU (48d);

¹ Mentioned by Jonet (1958) as *Belone tenuis* KRAMBERGER and reviewed by Jerzmanska (1968);

² Presently reviewed by Tyler, Baci (pers. comm.);

³ Material from the Geological Museum (col. Cosmovici) wrong named as *Capros* sp. (sample P56-9), reviewed by Constantin (2000) and in the Museum "Grigore Antipa" - Bucharest (one undetermined specimen);

⁴ Mentioned by Jonet (1958) as *Zeus* aff. *Höernesii* KRAMBERGER and reviewed by Swidnicki (1986) and Constantin (2000);

⁵ Mentioned from Piatra Neamț also as *Glyphosoma caprosoides* n. sp., by Cosmovici (1887) and as *Proantigonia caprosoides* COSMOVICI by Simionescu (1904);

⁶ Mentioned from Piatra Neamț also as *Proantigonia longirostris* KRAMBERGER by Simionescu (1904);

⁷ Mentioned by Paucă (1942) and Böhm (1941) as *Amphisile henrichi* HECKEL;

⁸ Mentioned by Jonet (1958) as *Amphisile teleajensis* JONET;

⁹ Mentioned by Constantin (2000) as a possible new species;

¹⁰ Specimen hosted in the collection of the Geologic Museum of the Geologic Institute of Romania; (col. Comeagă) and considered by Constantin (2000) to belong to the Percidae family;

¹¹ This species was originally described by Paucă (1929a) as *Serranus elongatus* and by Paucă (1929b) as *Serranus oligocenicus*.

¹² Mentioned by Simionescu (1904) as *Labrax* sp.;

- Caranx macoveii* PAUCĂ, 1929 - (1);
Caranx aff. macoveii PAUCĂ, 1929 - (51a);
Caranx sp. - (3);
- Family Pomadasyidae**
Genus *Lednevia* DANILCENKO, 1960
Lednevia oligocenica (SMIRNOV, 1936); (50), (51a);
- Suborder Trachinoidei**
Family Trachinidae RISSO, 1826
Genus *Trachinus* LINNAEUS, 1758
Trachinus minutus (JONET, 1958) - (13)¹, (48c);
- Suborder Ammodytoidei**
Family Ammodytidae BONAPARTE, 1846
Genus *Ammodytes* LINNAEUS, 1758
Ammodytes antipai PAUCĂ, 1929 - (1), (3), (9), (13), (48);
- Suborder Gobioidi**
Family Gobiidae REGAN, 1911
Genus *Gobius* LINNAEUS, 1758
Gobius pietricicai PAUCĂ, 1931
- Suborder Scombroidei**
Family Gempylidae GOOD & BEAN, 1895
Genus *Thyrsitoides* FAWLER, 1929
Thyrsitoides aff. zarathoustrae ARAMB., 1966 (48d), (50), (51a, b);
Genus *Hemithyrsites* SAUVAGE, 1873
Hemithyrsites maicopicus DANILCENKO, 1960 - (50);
Genus *Gempylus* CUVIER & VALENCIEN, 1834
Gempylus rumanus JONET, 1958 - (13);
- Family** Euzaphlegidae DANILCENKO, 1960
Genus *Palimphytes* AGASSIZ, 1844
Palimphytes cf. elongatus (BLAINVILLE, 1818) (13);
Palimphytes lanceolata (SIMIONESCU, 1904) (48d)²;
Palimphytes rebeli (PAUCĂ, 1929) - (1)³;
Palimphytes pietschmanni (PAUCĂ, 1929); (1)⁴;
- Family** Trichiuridae RAFINESQUE, 1810
Genus *Lepidopus* GOUAN, 1770
Lepidopus caudatus (EUPHRASEN, 1788); (3), (40)⁵;
Lepidopus glarisianus (BLAINVILLE, 1818); (1), (13), (48a, c, d), (50), (51a, b);
Lepidopus cf. glarisianus (BLAINVILLE, 1818) (30), (37);
Lepidopus hungaricus BÖHM, 1941 - (30);
Lepidopus sp. - (3), (6), (9), (10), (13), (14), (31), (37), (38), (50);
- Family** Palaeorhynchidae
Genus *Palaeorhynchus* BLAINVILLE, 1818
Palaeorhynchus longirostris AGASSIZ, 1844 - (48d);
Palaeorhynchus glarisianus BLAINVILLE 1818 - (48d);
Palaeorhynchus cf. zilli (KRAMBERGER, 1879) - (1);
Palaeorhynchus humorensis BRUSTUR & GRIGOR, 1973 (50);
- Family** Scombridae sens GREENWOOD et al., 1966
Genus *Cybius* CUVIER, 1829
Cybius lingulatum (v. MEYER, 1846) - (30);
Genus *Scomber* LINNAEUS, 1758
Scomber voitesti PAUCĂ, 1929 - (1)⁶, (4), (11), (13), (48);
Scomber saadii ARAMBOURG, 1966 - (48d);
Scomber sp. - (3), (9), (38) (48d);
Genus *Sarda* CUVIER, 1829
Sarda sp. (30), (49a);
Genus *Gymnosarda* GILL, 1862
Gymnosarda disodilica CIOBANU, 1977 - (48d), (51b);
Gymnosarda sp. - (30), (48d);
Genus *Thunnus* SOUTH, 1895
Thunnus abchasicus DANILCENKO, 1960 - (48d);
Thunnus albui (SIMIONESCU, 1905) - (48d)⁷;
Thunnus sp. - (13)⁸;
Genus *Pinulothunnus* CIOBANU, 1977
Pinulothunnus cernegurae CIOBANU, 1977 - (48a), (51c);
- Order** Pleuronectiformes
Suborder Pleuronectoidei⁹
Family SCOPHTHALMIDAE
Genus *Scophthalmus* RAFINESQUE, 1810
Scophthalmus pietricicensis CIOBANU, 1978 (48c);
Scophthalmus stamati (PAUCĂ, 1931)¹⁰ (1), (13), (48), (50);
- Suborder** Soleoidei
Family Soleidae NORMAN, 1934
Genus *Solea* KLEIN, 1775
Solea prisca CIOBANU, 1977 - (48d);
- Order** Tetraodontiformes
Suborder Balistoidei
Family Incertae Sedes¹¹
Genus *Ostracion*
*Ostracion sp.*¹² - (44);

Many of the species listed above have not been reevaluated for a long time, needing revision of the original material to exclude any errors in identification.

Barbus sp. (Paucă, 1933; Stoica, 1944; Jonet, 1958) and *Scardinius* sp. (Paucă, 1933), described only as isolated scales, have not been listed.

Dapalis macrurus (AGASSIZ) (mentioned as *Smerdis macrurus* AGASSIZ by Krejci-Graf and Weiler, 1928 from Moinești) and *Leuciscus carpathicus* BÖHM (originally described by Böhm, 1941 from Comandău), two fresh water species, weren't listed as well because in many areas from the Carpathians all the specimens described as fresh water ones (e.g.

¹ This species was originally described by Jonet (1958) as *Megalolepis minutus* n.sp.; reviewed by Jerzemska (1968);

² This species was originally described by Simionescu (1904) as *Krambergeria lanceolata* n. sp.

³ This species was originally described by Paucă (1929a,b; 1933c) as *Propercarina rebeli* n. sp. The type specimen need new revision;

⁴ This species was originally described by Paucă (1929a,b; 1933c) as *Propercarina pietschmanni* n. sp.; the type specimen need new revision;

⁵ Mentioned by Leidenfrost 1918 (fide Paucă, 1930) as *Lepidopus dubius* HECKEL and *L. brevispondylus* HECKEL (reviewed by Paucă, 1930);

⁶ This species was originally described by Paucă (1929b) as *Scomber oligocenicus* n. sp.;

⁷ This species was originally described by Simionescu (1905) as *Thynnus albui* SIMIONESCU;

⁸ Mentioned by Jonet (1958) as *Thynnus* sp.

⁹ The specimens from Romania, are presently reviewed by Băciu, Chanet (Băciu, pers. comm.)

¹⁰ This species was originally described as *Rhombus stamati* n. sp. by Paucă (1931). It was recently reviewed by (Băciu, Chanet - in press: "Les poissons fossiles plats (Teleostei, Pleuronectiformes) dans les formations oligocenes des Piatra Neamț - Roumanie").

¹¹ Because the structure of the scale plates is similar in the Aracanidae and Ostraciidae, the isolated fossil plates cannot be assigned with certainty to either family (Tyler, 1973; Tyler, Gregorova, 1991);

¹² Isolated plates only (two types) was described by Krejci-Graf and Weiler (1928);

PLATE I

Fig. 1 - *Holosteus fieniensis* CONSTANTIN - Fieni; Rupelian; Valea Caselor Lithofacies; material hosted in the collections of Paleontological Department from the Faculty of Geology in Bucharest (col. Constantin);

Fig. 2 - *Capros radobojanus* (KRAMBERGER) - Fieni; Rupelian; Valea Caselor Lithofacies; material hosted in the collections of Paleontological Department from the Faculty of Geology in Bucharest (col. Constantin);

Fig. 3 - *Glossanodon musceli* (PAUCA) - Buciumeni; Rupelian; Valea Caselor Lithofacies; material hosted in the collections of Paleontological Department from the Faculty of Geology in Bucharest (col. Constantin);

Fig. 4 - *Properca sabbai* PAUCA - Fieni; Rupelian; Valea Caselor Lithofacies; material hosted in the collections of Paleontological Department from the Faculty of Geology in Bucharest (col. Constantin);

Fig. 5 - *Ammodytes antipai* PAUCA - Fieni; Rupelian; Valea Caselor Lithofacies; material hosted in the collections of Paleontological Department from the Faculty of Geology in Bucharest (col. Constantin);

PLATE I

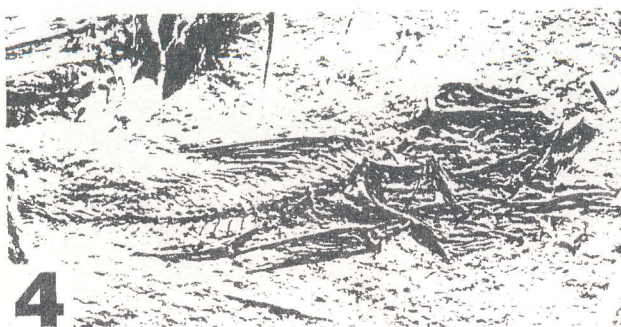
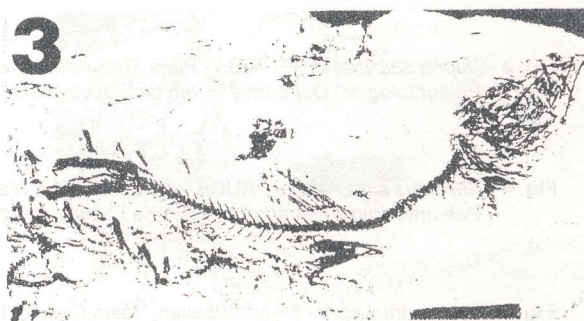
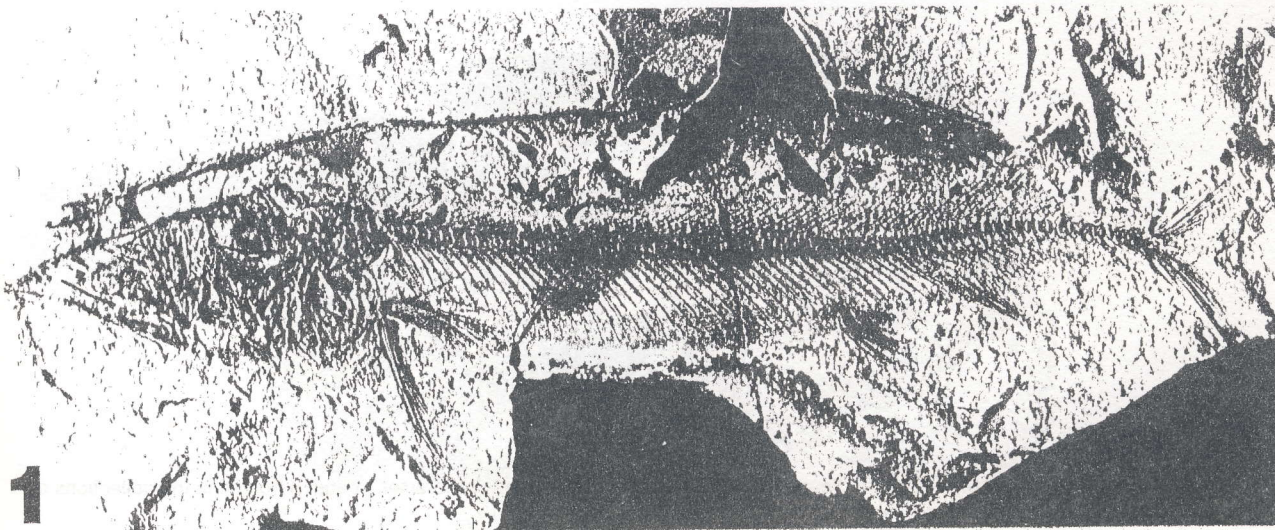


PLATE II

Fig. 1 - *Zeus höernesii* KRAMBERGER - Ulmetu; Rupelian (?); Pucioasa-Fusaru Lithofacies; material hosted in the collections of Geological Institute of Romania, Bucharest (col. Pauca);

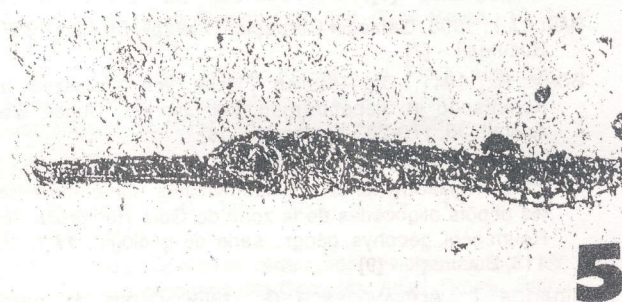
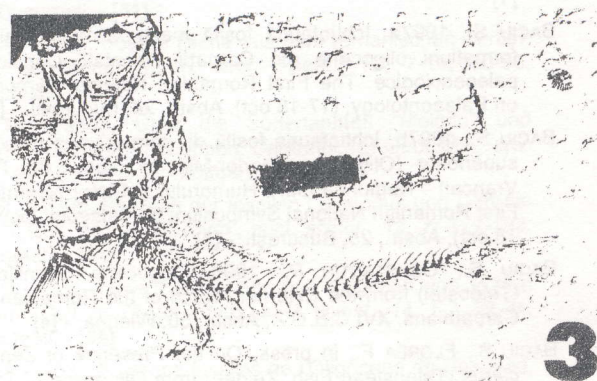
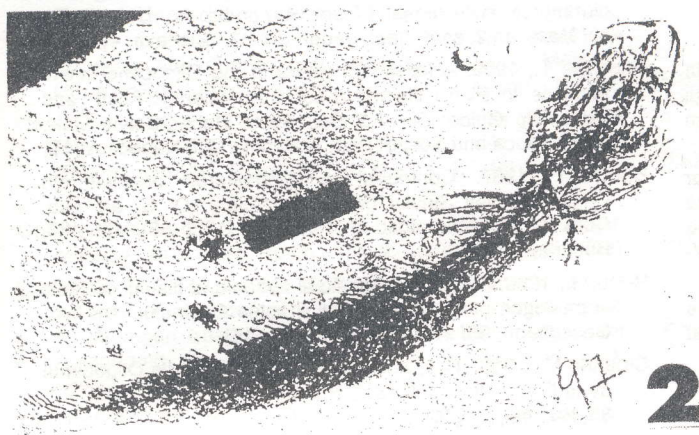
Fig. 2 - *Palaeogadus simionescui* (PAUCĂ) - Fieni; Rupelian; Valea Caselor Lithofacies; material hosted in the collections of Paleontological Department from the Faculty of Geology in Bucharest (col. Constantin);

Fig. 3 - *Clupea sardinites* (HECKEL) - Fieni; Rupelian; Valea Caselor Lithofacies; material hosted in the collections of Paleontological Department from the Faculty of Geology in Bucharest (col. Constantin);

Fig. 4 - *Serranus simionescui* PAUCA - Fieni; Rupelian; Valea Caselor Lithofacies; material hosted in the collections of Paleontological Department from the Faculty of Geology in Bucharest (col. Constantin);

Fig. 5 - *Syngnathus* sp.1 - Fieni; Rupelian; Valea Caselor Lithofacies; material hosted in the collections of Paleontological Department from the Faculty of Geology in Bucharest (col. Constantin);

PLATE II



Nemachilus, *Leuciscus*, *Propercarina* etc) were erroneously identified.

Cephalacanthus trispinosus CIOBANU (originally described by Ciobanu, 1977 from Piatra Neamț) proved that it does not belong to the Cephalacanthidae, needing revision and a better systematic placement (Tyler, pers. comm.). It's review by Baciú and Tyler is in progress (Baciú, pers. comm.).

4. CONCLUSIONS

In the Romanian Eastern Carpathians, 53 localities could be listed, which either provided Oligocene - Lowermost Miocene fossil fish-fauna, or where such fauna was mentioned (teleostean skeletons or only skeletons imprints) based on field or bibliographic investigations, or on the study of the collections from different museums.

From the 53 mentioned localities, various authors determined 159 species belonging to 75 genera and 46 teleostean families. This makes the Romanian East

Carpathians one of the most important areas in Europe concerning the fossil fish fauna.

Even if the present paper presents the Oligocene - Lowermost Miocene teleostean fossil fish-fauna from the Romanian Eastern Carpathians according to latest data (until 2000) we are aware that many of the mentioned species would be the object of further revisions based on Recent fish osteology mainly.

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We are very grateful to dr. James Tyler, Museum of Natural History, Smithsonian Institution (Washington, D.C. - USA) and Dr. Sorin Baciú, Museum of Natural History Piatra Neamț, for the literature and information supplied concerning the latest news in their work involving the review of some specimens from the Romanian East Carpathians.

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