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Pliocene Salamandrids (*Amphibia, Caudata*) from Poland

[With 5 text-figures]

Plioceńskie salamandrowate (*Amphibia, Caudata*) Polski *

Sálamandridos pliocenicos (*Amphibia, Caudata*) de Polonia

Abstract. The Polish Pliocene fossil record of the *Urodela* family *Salamandridae* is described in this article. The genus *Mertensiella* is reported as fossil for the first time, with forms very similar to the living *M. caucasica*, today with a relict distribution in the Caucasus. Vertebral morphology suggests that *M. caucasica* forms the sister group of *Chioglossa lusitanica+C. meini* and not of *M. luschani* or the genus *Salamandra*. *Triturus montandoni* has been recovered for the first time in the fossil record. The Polish Pliocene has also given the oldest known remains of the living species *Salamandra salamandra* and *Triturus cristatus*. A survey of the fossil record of the living species of this family indicates that the present European fauna was already well established by the end of the Neogene.

I. INTRODUCTION

The fossil record of salamanders is relatively rich for lissamphibian standards. In the European Tertiary, at least for nominally described taxa (see KUHN 1962, 1971; BRÄME 1967), the family *Salamandridae* GRAY, 1825, constitutes the most frequent urodele group, and its remains are common in almost all fossiliferous sites of karstic origin. In spite of the abundance, the fossil record of salamandrids has contributed very little to the understanding of the phylogenetic and biogeographic history of the group, mainly because most workers have failed in the past to take fully into account the degree of variability (both intra--individual in the vertebral column and specific) that these animals show. However, recent work on new localites for fossil salamanders with a modern approach (e. g. ESTES & HOFFSTETTER 1976), as well as the reviews (mostly unpublished) of classical materials (SANCHÍZ ms.; ESTES in prep.; pers. com.), are resulting to be highly relevant for deducing and timing the origins of the Recent European fauna.

Although the fossil herpetofauna of Poland has been systematically surveyed

in recent years, and a general account with references can be found in MŁYNARSKI (1962, 1977), the Polish Pliocene salamanders were not yet described, and further sortening of material from some of the localities has provided a few additions of biogeographic interest to the known faunal lists.

It is the purpose of this article to describe these remains, as well as to briefly discuss its implications on the current paleozoogeographical and phylogenetic schemes.

II. MATERIALS AND LOCALITIES

The material (Table I) is exclusively composed of desarticulated remains, allowing a tridimensional study, and was obtained through washing and screening techniques. With the exception of some fossils from Węże I in the collection of the Earth Sciences Museum, the material belongs to the collection of the Institute of Systematic and Experimental Zoology in Cracow.

Data on the location, geology and paleontology of the fossil localities are provided by MŁYNARSKI (1962, 1977, and references therein). All sites are bone breccias in karstic fissures. Węże I (W. I), the oldest, with an Upper Ruscinian age (NM 15 in the European continental Neogene biozonation of MEIN 1975; see also AGUIRRE & ALBERDI 1977). Rębielice Królewskie I and II (RK. I, RK. II) (both NM 16) are of Lower Villafranchian age, and thus represent the latest Tertiary stage.

Although only a small sample is sufficiently well preserved, several vertebral measurements (all in mm) have been used: ML: maximum length (taken on zygapophyses); CL: Maximum length of centrum; MW (Pr) and MW (Po): maximum width, taken at the pre- and postzygapophyses level respectively. A binocular-orthogonal movement base device has been used for this purpose (accuracy 0·01 mm). The abbreviation AMNH stands for American Museum of Natural History (New York).

The notes on intracolumnar variation of salamandrids provided by ESTES & HOFFSTETTER (1976), in full agreement with our own observations, have been taken into account in the elaboration of this paper.

III. SYSTEMATIC PALEONTOLOGY

Order: *Caudata* OPPEL, 1811

Family: *Salamandridae* GRAY, 1825

Salamandra LAURENTI, 1768

Salamandra salamandra (LINNAEUS, 1758)
(Fig. 1)

Material: see Table I

Description

In this case, like in the other taxa described in this paper, there are no apparent differences in morphology among the various populations.

Vertebrae with a very low neurapophyses and neural arch posteriorly depressed. Dorsal crests between zygapophyses and upper rib-bearers not well
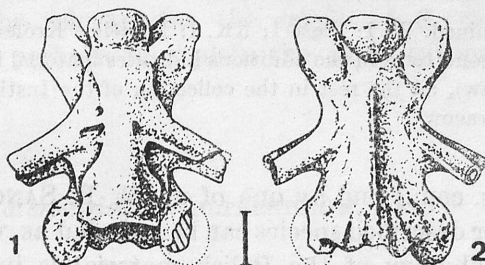

Fig. 1. *Salamandra salamandra*. Trunk vertebra, RK. I — Ventral view; 2 — Dorsal view. Del. F. B. SANCHÍZ

developed. Paired rib-bearers connected by an osseous lamina almost until its most distal part. Opisthocoelous centrum; condyle anteriorly flattened and without postcondylar constriction. Subcentral foramina of variable size and location, usually continuated by a short furrow. Sheets between centrum and ventral rib-bearers only slightly developed.

Measurements

ML: 3.65 4.71 4.48 3.78 5.47 5.41 3.70 4.68
MW(Po): 2·61 3·22 3·17 2·91 3·48 3·45 2·41 2·91
Locality: W.I W.I W.I RK.I RK.I RK.I RK.I RK.I

Discussion

ESTES & HOFFSTETTER (1976) have given criteria to distinguish the common European Oligo-Miocene *Salamandra sansaniensis* from the living *Salamandra salamandra* and *Salamandra atra*. In spite of numerous synonyms, the recent

Table I

	Salamandra salamandra		Mertensiella aff. caucasica		Triturus cristatus			Triturus montandoni	Triturus sp.	
	W. I	RK.I	RK.I	RK.II	W. I	RK.I	RK.II	RK.I	W. I	RK.I
Parietal	—	—	—	—	—	1	—	—	—	—
Otoccipital	—	—	—	—	—	7	—	—	—	—
Parasphenoid	—	—	—	—	—	1	—	—	—	—
Dentary	—	—	—	—	—	—	—	—	—	1
V_1	—	—	—	—	—	9	—	—	—	3
V_{2-3}	4+4	1	—	—	—	21	1	—	2+2	—
V_{trunk}	25+17	15	7	7	27+17	133	7	1	43+3	42
V_{sacral}	4+3	1	1	—	2+1	—	2	—	—	—
V_{caudal}	5+3	1	—	—	1+1	12	2	—	—	—
Humerus	—	—	—	—	2	2	3	—	—	—
Femur	—	—	—	—	2	2	1	—	—	—

List of materials examined. W. I: Węże I; RK. I: Rębielice Królewskie I; RK. II: Rębielice Królewskie II. The second term in the additions indicates material in the Museum of Earth Sciences collection (Warsaw), all the rest in the collection of the Institute of Systematic and Experimental Zoology (Cracow).

review by ESTES (pers. com.) and by one of us (F. B. SANCHÍZ ms) allows the statement that on other described species can be included as valid in this genus.

The size and morphology of the Polish material is in perfect agreement with that of the living *S. salamandra*, and a more detailed description should be superfluous. Even in the absence of cranial remains, it can be differentiated from both *S. sansaniensis* and *S. atra* by the criteria of ESTES & HOFFSTETTER (op. cit.). The variation in the size and position of the subcentral foramina (e. g. Fig. 1) does not exceed the observed one within several European subspecies. In addition to the criteria used by ESTES & HOFFSTETTER (op. cit.) for the differentiation of those three species, it can be pointed out that *S. atra* shows a better development of ventral crests (i. e. crests running from centrum to ventral rib-bearers) than does *S. salamandra* or our Pliocene material. Nevertheless, only 6 specimens of the former species were available, and its osteological variability in higher numbers remains to our knowledge unknown.

With reservations, ESTES & HOFFSTETTER (1976) consider the large *S. sansaniensis* as a direct ancestor of both living species. This suggestion has to be taken with many reserves, as the only character that they adduce in support of their view in which a polarity of character-states could be discussed, namely the contact (assumed as the plesiomorph condition) or lack of contact (assumed as sinapomorphy clustering *S. salamandra* and *S. atra*) of parietals and squamosals, is also present in other genera of the tribe (sensu WAKE & ÖZETI 1969) in

an apomorph form, and with their own words „on ne peut donc lui attacher une grande importance" (ESTES & HOFFSTETTER 1976 p. 302). According to the criteria of HECHT & EDWARDS (1976, 1977), the informational content of this character would rank low, inversely to the possibility of becoming convergent. Moreover, it is not possible for us to infer with any reasonable degree of confidence a polarity for the rest of the characters.

For the above mentioned reasons, it seems to us preferable at present to leave open any suggestions concerning the phylogenetic origin of the living species of *Salamandra*, at least until more information on the comparative osteology of *S. salamandra* and *S. atra*, as well as more relevant cranial material of *S. sansaniensis*, became available.

The last record known of *S. sansaniensis* is from the French locality La Grive L 3 (NM 8; MEIN 1975), and the oldest for any of the living species is from Węże I (NM 15), with a gap in the fossil record of about 8·5 m. y. Nevertheless, the presence of *S. salamandra* in the Polish Pliocene implies that the origin of this species is not a Pleistocenic event, and that any consideration of the „Ice-ages" as a direct or indirect cause for this speciation is completely meaningless. However, the Pleistocene period, with its associated drastic ecological changes, might be relevant for the origin of *S. atra* (unknown with certainty as fossil), or perhaps to explain the main subspeciation pattern of *S. salamandra*.

Mertensiella WOLTERSTORFF, 1925

Mertensiella aff. *caucasica* (WAGA, 1876)
(Fig. 2)

Material: Table I

Description

Long and slender opisthocoelous trunk vertebrae. Small anterior condyle with a rudimentary notochordal fossa. The condyle is separated from the rest of the centrum by a deep postcondylar constriction. In ventral view, the centrum shape notably increases its with immediately after the postcondylar constriction, decreasing it in the middle, and increasing it again in the cotyle region. Small subcentral foramina. There are weak ventral laminae between the vertebral body and the lower rib-bearers, the cranial with not-curved edges and conspicuously smaller than the caudal ones. Dorsal and ventral rib-bearers well developed, of similar size, directed backwards, and connected by laminae in almost its whole length. The rib-bearers are never directed strongly upwards. Neural arch posteriorly flattened. Lateral crests connecting the neural arch with the

12*

dorsal rib-bearers rudimentary. Small neurapophyses, only slightly present in the middle part of the vertebrae. A conspicuous median notch is present in the caudal margin of the neural arch. Zygapophyses very well developed, with a long
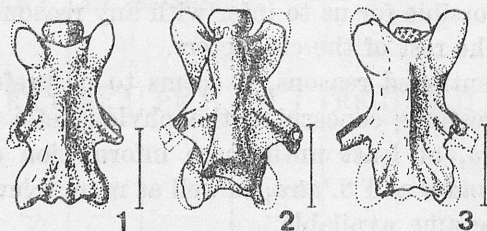

Fig. 2. *Mertensiella* aff. *caucasica*. Trunk vertebrae 1 and 2 — RK. I. Dorsal and ventral views. 3 — RK. II, dorsal view. Del. N. LOPEZ

and narrow elliptic shape and strongly protruding laterally. Between both anterior articular facets the neural arch is (dorsal view) narrow and flattened.

The sacral vertebra is similar to the trunk vertebrae, but wider and with a much stronger rib-bearer complex.

Measurements

RK. I: ML	2·39	(2·45)	(2·14)		
MW (Po)	(1·29)	(1·52)	(1·36)		
RK.II: CL	(2·27)	2·54	(2·04)	2·39	2·39
MW (Pr)	1·46	(1·54)	1·28	1·51	1·50

(): Estimation

Discussion

The combination of flattened neural arch and very low neurapophyses, among other features, distinguishes these vertebrae from any other pattern found in the family with the exceptions of *Chioglossa*, *Megalotriton*, *Mertensiella* and *Salamandra*. All species of *Salamandra* and *Megalotriton* (pers. obs.), as well as *Mertensiella luschani* (see ÖZETI 1967), present a much wider trunk vertebrae, almost without postcondylar constriction or the peculiar ventral shape of centrum described above. The genus *Chioglossa* BOCAGE, 1864, comprising the living *Ch. lusitanica* and the extinct *Ch. meini* from the French Middle Miocene (ESTES & HOFFSTETTER 1976) presents a similar vertebral pattern, but differs in the upwards orientation of the rib-bearers, better development of the notochordal fossa (in general in the form of a vertical groove, clearly dividing the condyle in two lateral hemispheres), and less development of ventral lateral crests (between centrum and lower rib-bearers).

The most similar vertebrae to our fossils are those of the living *Mertensiella caucasica*, and in fact the only difference that we can see concerns the relative size of the posterior ventral crests, which are less developed than the anterior

ones (posterior trunk vertebrae) or even almost absent (anterior trunk vertebrae) in living *M. caucasica* (Amer. Mus. Nat. Hist. Coll. Nr 5617 and 56318), while they appear with an equal or better development in our fossils.

The skeletal variability among homologous vertebral regions is at present completely unknown for any salamandrid species, as apparently nobody has conducted this type of research with the necessary number of individuals. Thus, the difference noted above between the Polish form and that of *M. caucasica* cannot be taxonomically evaluated with confidence for the moment. If it were constant, it would be a strong indication that we are concerned in this case with a new species, but until these data became available, or other skeletal parts found, it seems preferable referring it to *M. caucasica* with the addition of the taxonomic particle „affinis" (aff.) in the sens of SANCHÍZ (1977). Nevertheless, the similitude between both is so high that, in relation to other salamanders, they should be considered at least as a sister group.

ÖZETI (1967) examined the systematic position of *Mertensiella luschani* with respect to *M. caucasica* and the living species of *Salamandra* finding that the former is morphologically somewhat intermediate between the other two groups, being *M. caucasica* highly specialized, and favoured the use of a single genus *(Salamandra)* with two subgenera. Unfortunately, the genus *Chioglossa* was not taken into account in the study of ÖZETI (op. cit.). A discussion at length of the systematic relationships of this salamandrid tribe (also including *Salamandra* and the extinct *Megalotriton*) would clearly exceed the limits of this paper, and will be treated elsewhere by one of us (SANCHÍZ), but it is worth to mention here that at least from the point of view of vertebral morphology alone, *Mertensiella caucasica* would form the sister group of *Chioglossa* and not of *M. luschani*. Thus, the general vertebral proportions, relative small condyle, deep postcondylar constriction, sinuous ventral centrum shape, and rudimentary dorsal lateral crests, are character-states that should be considered as derived if we infer respective polarities using as outgroup the most primitive salaman-drids *(Chelotriton*, including *Tylototriton*, and *Pleurodeles)*, all salamandrids but the tribe under consideration (see WAKE & ÖZETI 1969). Those character--states are shared by *Chioglossa* and *M. caucasica*, while *M. luschani* is much more generalized, salamandra-like, its vertebral shape (ÖZETI 1967 and references therein). The mentioned features possibly form an integrated functional unit, as precisely *Ch. lusitanica* and *M. caucasica* share the highest mobility and both are the fast salamandrids observed (THORN 1968).

The discovery of *Mertensiella* aff. *caucasica* in the Polish Pliocene, in combina-tion with the presence of *Chioglossa meini* (very similar to the living *Ch. lusita-nica*) in the Middle Miocene of La Grive, France (ESTES & HOFFSTETTER 1976), clearly indicates (Fig. 5) that their relict and widely separated present distribu-tions are merely a derivation from a former wider geographical range, suggesting vicariance relationships between both groups. Moreover, they offer us another example of the Est/West distribution pairs pattern, so common among Neogene European amphibian faunas (see below).

Triturus RAFINESQUE, 1815

Triturus cristatus (LAURENTI, 1768)

(Fig. 3)

Material: Table I

The remains of this species are by far the most abundant in the fossil localities of Poland, especially in Rębielice Królewskie I, where several significant skull elements and more than 100 vertebrae are known. There are no constant differences in morphology between the Pliocene fossils and our recent comparative material. Thus, a full description of these remains should be superfluous, as *T. cristatus* can be easily recognized by its skeleton (e. g. BOLKAY 1928; TEEGE 1957; ESTES & HOFFSTETTER 1976). Nevertheless, the phylogeny and variability in high number of *T. cristatus* and its close relative *T. marmoratus*, including some aspects of the qualitative and quantitative variability of this Pliocene material, will be dealt with in a subsequent paper (SANCHÍZ & SZYNDLAR, in prep.).
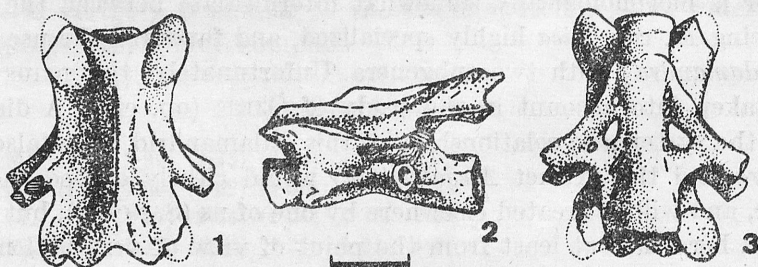

Fig. 3. *Tritutus cristatus*. Trunk vertebra, W. I. 1 — Dorsal view; 2 — Lateral view; 3 — Ventral view. Del. N. LOPEZ

Again, the presence of *T. cristatus* in the Polish Pliocene shows that the species is older than the Pleistocene, although its time of origin remains unknown, as it is the first record of the species in Tertiary deposits.

On biogeographical grounds, *T. cristatus* and ist sister group *T. marmoratus* make another example of East-West, mostly allopatric distributions (THORN 1968: map 10; STEWARD 1969: maps 9 and 11). The latter species is known from the Middle Miocene of France (ESTES & HOFFSTETTER 1976) and Spain (SANCHÍZ, in press).

Triturus cf. montandoni (BOULENGER, 1880)

(Fig. 4)

(Material: Table I)

Description

Very small trunk vertebra a rectangular shape in dorsal view and proportionately very wide. Neurapophysis very strong, high (about 1/3 of the total height), and lacking an osseous dermal plate. Small and widely separated zygapo-

physes. Neural arch not posteriorly depressed. Well developed dorsal lateral crests between zygapophyses and upper rib-bearers, without marked constrictions.

Centrum with a very well developed condyle but lacking a postcondylar constriction. Ventral lateral crests, between centrum and lower rib-bearers, very conspicuous; the anterior one is larger, with curved margins and big fenestrae in the region of the ventral rib-bearers. The rib-bearers are deteriorated in the specimen, but they seem to have been connected by an osseous lamina.

Discussion

Although only a single vertebra has been preserved, it presents the typical size and morphology of the *Triturus vulgaris* species group in neurapophyses development, dorsal lateral crests, and especially in the centrum-ventral rib--bearers connections.
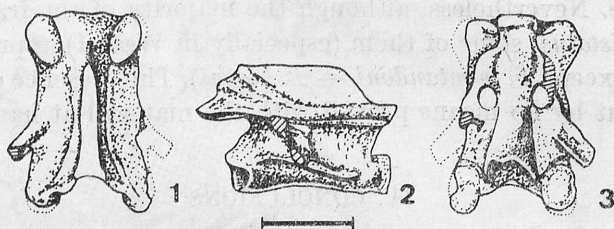

Fig. 4. *Triturus montandoni*. Trunk vertebra, RK. 1 — Dorsal view; 2 — Lateral view; 3 — Ventral view. Del. F. B. SANCHÍZ

Nevertheless, it can be differentiated from *T. helveticus* because in the Palmate Newt the neurapophysis is much thinner and its height approaches 1/2 of the total. The neurapophysis width also allows the differentiation of our fossil from the otherwise very similar *T. vulgaris* and related species, as in fact so proportionately broad structure is highly characteristic (among forms that lack vertebral dermic sculpture) of the living *T. boscai* and *T. montandoni*. The morphological identity with the latter is complete, but the former shows a more slender vertebrae with slight constrictions in the lateral dorsal crests and rib-bearers that protrude at the same level and with a more forward origins.

Thus, it seems that our fossil can be attributed to *Triturus montandoni* with enough confidence, but until more material is recovered, it is preferable to use the reference with tho particle „cf." (sensu SANCHÍZ, 1977). It is then probably the first time that this Carpathian endemism has been recovered as fossil.

The fossil record of the *Triturus vulgaris* species group is rather incomplete, as besides several nomina nuda from the French Miocene (see ESTES & HOFFSTETTER (1976) only two other forms have been described: *T. rohrsi* HERRE, 1935 and *T. schneitheimi* HERRE et LUNAU, 1950. *T. rohrsi*, from the Slovak locality of Dévinská Nová Ves (= Neudorf, NM·6) have been related by HERRE (1955)

to the living *T. italicus*, while *T. schneitheimi*, from the Lower Miocene of Schneitheim (Germany) has been related by HERRE & LUNAU (1950) to *T. cristatus*, and latter (HERRE 1955) to *T. boscai*. It is difficult to interpret *T. rohrsi*, as its description is rather concise, but *T. schneitheimi* (based on a single vertebra) seems to us (as well as to Dr. ESTES, com. epist.) rather a broken element, lacking the dermal plate, of the genus *Chelotriton* (= *Tylototriton*), and thus far apart from *Triturus*. It is evident that only a direct review of these materials would permit to elucidate their taxonomic and phylogenetic status. *Triturus vulgaris* is known from Pleistocenic deposits (MŁYNARSKI 1977), but other species in the group, besides *T. montandoni*, have not been yet inequivocally recovered in the fossil record.

Triturus sp.

Several *Tritutus*-like elements in the fossil samples are not well enough preserved to be informative, and we find too risky to give a species allocation with confidence. Nevertheless, although the majority of the fragments seem to belong to *T. cristatus*, some of them (especially in Węże I) approach *T. vulgaris* species group (except *T. montandoni* — *T. boscai*). The presence of a third species is suspected, but by no means proved with the material at hand.

IV. CONCLUSIONS

As we have already established, three genera and four species were at least present in the Polish Pliocene. All of them, at the species level, have been recovered for the first time in Tertiary deposits, and belong (with perhaps the exception of *Mertensiella* aff. *caucasica*) to the recent fauna.

Our present state of knowledge concerning the oldest Tertiary records of the European living salamandrids can be summarized as follows:

Chioglossa: French Middle Miocene (NM. 7—8; ESTES & HOFFSTETTER 1976), with a species very close to the living *Ch. lusitanica*.

Euproctus: Unknown. Three living species.

Mertensiella: Polish Pliocene (NM·16; this paper).

Pleurodeles waltli: With doubt (as cf. *P. waltli*) from the Spanish Upper Miocene (NM·13; SANCHÍZ, in press).

Salamandra: Known with doubt from the Upper Paleocene of France (ESTES et al. 1967), and without question from the Eocene-Oligocene boundary (SANCHÍZ unpubl.).

Salamandra atra: Unknown.

Salamandra salamandra: Polish Pliocene (NM·15; this paper).

Salamandra terdigitata: Sardinian Lower Miocene (SANCHÍZ unpubl.).

Triturus: Belgian Middle Oligocene (HECHT & HOFFSTETTER 1962; pers. observ.).

Triturus alpestris: Unknown with certainty.

Triturus boscai: Unknown.

Tritutus cristatus: Polish Pliocene (NM·15; this paper).

Triturus helveticus: Unknown.

Triturus italicus: Unknown with certainty.

Triturus marmoratus: French and Spanish Middle Miocene (NM·7—8; ESTES & HOFFSTETTER 1976; SANCHÍZ in press).

Triturus montandoni: Polish Pliocene (NM·16; this paper).

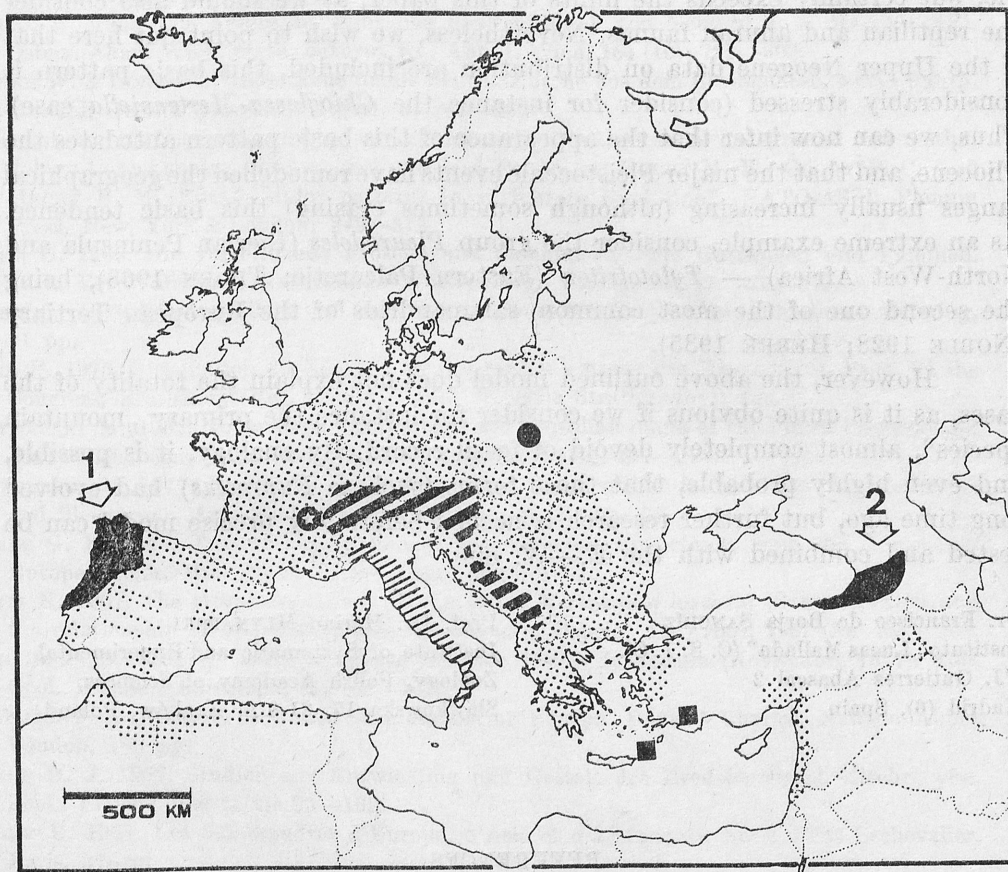*Triturus vulgaris*: Unknown with certainty.

Fig. 5. Approximate distribution of living *Salamandra salamandra* (dotted), *S. atra* (wide strips), *S. terdigitata* (narrow strips), *Chioglossa lusitanica* (black, number 1), *Mertensiella caucasica* (black, number 2) and *M. luschani* (black squares). After STEWARD (1969) and THORN (1968), slightly modified. Fossil sites: Black circle: Rębielice Królewskie I and II and Węże I. Star circle: La Grieve-St.-Alban (see text). Del. F. B. SANCHÍZ

Although the fossil record of living forms is still poor, almost half (8* on 17) of the European species have been already recovered before the Pleistocene. This fact leads us to the assumption that the majority of the European sala-

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* Including cf. *Pleurodeles waltli, Mertensiella* aff. *caucasica* and *Chioglossa meini* as morphologically very close and assumed as direct ancestors of the living species.

mandrid fauna was already well established at the specific level by the end of Neogene.

Taking into account the present geographical distributions of living Salamandrids (e. g. THORN 1968; STEWARD 1969), it can be observed that several sister-group pairs fall into an East-West complementary track pattern, and we have given above a few examples of this type. An analysis of those distribution patterns under CROIZAT'S approach (see KEAST 1977) seems then highly desirable, but certainly exceeds the limits of this paper, as we should also consider the reptilian and anuran faunas. Nevertheless, we wish to point out here that if the Upper Neogene data on distribution are included, this basic pattern is considerably stressed (consider for instance the *Chioglossa-Mertensiella* case). Thus, we can now infer that the appearance of this basic pattern antedates the Pliocene, and that the major Pleistocenic events have remodelled the geographical ranges usually increasing (although sometimes erasing) this basic tendence. As an extreme example, consider the group *Pleurodeles* (Iberian Peninsula and North-West Africa) — *Tylototriton* (Eastern Palearctic; THORN 1968), being the second one of the most common salamandrids of the European Tertiary (NOBLE 1928; HERRE 1935).

However, the above outlined model does not explain the totality of the cases, as it is quite obvious if we consider for instance the primary „mountain species", almost completely devoid of fossil record. By analogy, it is possible, and even highly probable, that those forms (such as *Euproctus*) had evolved long time ago, but further research is needed before any precise model can be tested and combined with the E.—W. one.

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STRESZCZENIE

W niniejszej pracy dokonano przeglądu kopalnych przedstawicieli rodziny *Salamandridae* z pliocenu polskiego. Po raz pierwszy stwierdzono obecność w stanie kopalnym rodzaju *Mertensiella*, formy bardzo bliskiej współczesnemu

gatunkowi *M. caucasica* (WAGA), występującemu obecnie jako forma reliktowa na Kaukazie. Przedyskutowano również pokrewieństwo systematyczne między rodzajami *Mertensiella*, *Chioglossa* i *Salamandra*. Po raz pierwszy stwierdzono obecność w stanie kopalnym *Triturus montandoni* (BOULENGER). Pliocen polski zawiera poza tym najstarsze ze znanych dotychczas szczątki gatunków współczesnych *Salamandra salamandra* (LINNAEUS) i *Triturus cristatus* LAURENTI. Przedyskutowano również pokrótce stanowisko systematyczne oraz wnioski biogeograficzne wynikające z występowania szczątków wymienionych powyżej form.

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RESUMEN

Se describe en este articulo el registro fósil de la familia *Salamandridae* en el Pliocene polaco. El género *Mertensiella* aparace por vez primera en estado fósil, con formas atribuibles a la vivente *M. caucasica* (WAGA), hoy día de distribución relicta en el Cáucaso. Se discuten las relaciones sistemáticas entre los generos *Mertensiella*, *Chioglossa* y *Salamandra*. *Triturus montandoni* (BOULENGER) aparece por primera vez en estado fósil. El Plioceno polaco ha proporcionado además los restos más antiguos conocidos de las especies viventes *Salamandra salamandra* (LINNAEUS) y *Triturus cristatus* LAURENTI. Las implicaciones sistemáticas y biogeográficas de estos restos son también brevemente discutidas.

SPIS RZECZY — CONTENTS