JAHRBUCH DER GEOLOGISCHEN BUNDESANSTALT
Jb. Geol. B.-A. | ISSN 0016–7800 | Band 157 | Heft 1–4 | S. 57–108 | Wien, Dezember 2017

Miocene biostratigraphy and paleoecology of the Mistelbach Halfgraben in the northwestern Vienna Basin (Lower Austria)

Mathias Harzhauser[1], Dörte Theobalt[1, 2], Philipp Strauss[3], Oleg Mandic[1],
Giorgio Carnevale[4] & Werner E. Piller[2]

7 Text-Figures, 4 Tables, 3 Plates

Österreichische Karte 1:50.000
BMN / UTM
24 Mistelbach / NM 33-12-14 Mistelbach
25 Poysdorf / NM 33-12-08 Laa an der Thaya
26 Hohenau an der March / NM 33-12-09 Hohenau an der March
42 Gänserndorf

Vienna Basin
Mistelbach Block
Neogene
Miocene
Micropaleontology

Contents

Abstract

We present an updated biostratigraphy of the Neogene of the Mistelbach Halfgraben in the northwestern Vienna Basin. Foraminiferal assemblages from 15 boreholes were analyzed in terms of biostratigraphy and paleoecological significance. All samples were integrated in a 3D seismic survey provided by the OMV-AG. This allowed also the stratigraphic interpretation of biostratigraphically insignificant assemblages. In addition, macrofossils (molluscs, bryozoans, fish otoliths) were identified to strengthen paleoecological interpretations.

Two major erosional features were detected in seismic data within the investigation area and are herein termed “Ginzersdorf Channel” and “Mistelbach Canyon”. Both structures represent submarine drainage systems into the North Alpine-Carpathian Foreland Basin, which developed during the late Karpatian (Ginzersdorf Channel) and the early Badenian (Mistelbach Canyon). Statistical analyses of the foraminiferal assemblages reveal considerable differences between Ottnangian, Karpatian, early Badenian, middle/upper Badenian and Sarmatian assemblages. These are mainly related to different paleoenvironments, which range in the Mistelbach Halfgraben from outer neritic-upper bathyal settings of the Ottnangian to hypersaline lagoons and mudflats of the Sarmatian.

---

1 Mathias Harzhauser, Dörte Theobalt & Oleg Mandic: Geological-Paleontological Department, Natural History Museum Vienna, Burgring 7, 1010 Vienna, Austria. mathias.harzhauser@nhm-wien.ac.at, dtheobalt@gmail.com, oleg.mandic@nhm-wien.ac.at
2 Dörte Theobalt & Werner E. Piller: Institute of Earth Sciences (Geology and Paleontology), University of Graz, NAWI Graz Geocenter, Heinrichstraße 26, 8010 Graz, Austria. werner.piller@uni-graz.at
3 Philipp Strauss: OMV Exploration & Production GmbH, Trabrennstraße 6–8, 1020 Vienna, Austria. Philipp.Strauss@omv.com
4 Giorgio Carnevale: Università degli Studi di Torino, Dipartimento di Scienze della Terra, Via Valperga Caluso, 35, 10125 Torino, Italy. giorgio.carnevale@unito.it

Miozäne Biostratigrafie und Paläoökologie des Mistelbach-Halbgrabens im nordwestlichen Wiener Becken (Niederösterreich)

Zusammenfassung

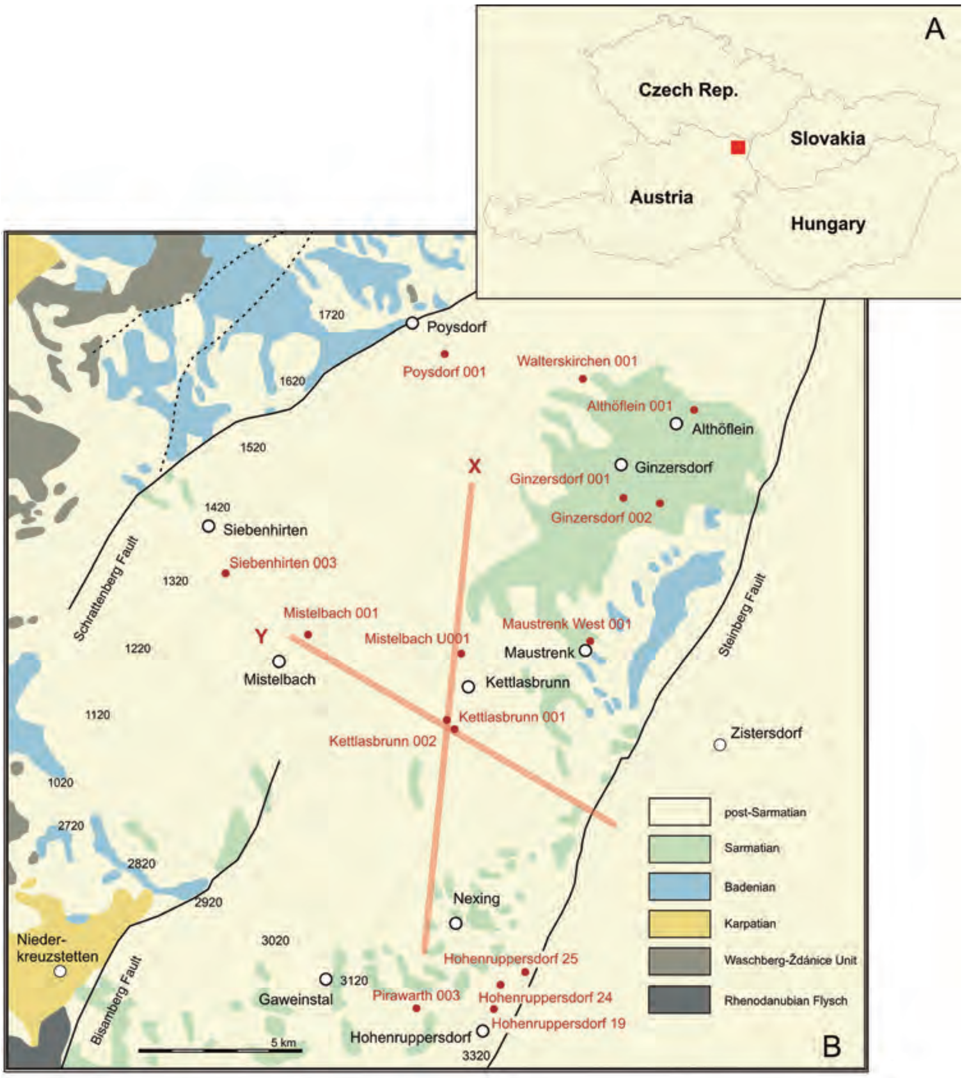
Wir präsentieren eine überarbeitete Biostratigrafie des Neogens des Mistelbach Halbgrabens am Nordwestrand des Wiener Beckens. Foraminiferen-Vergesellschaftungen von 15 Bohrungen wurden biostratigrafisch und paläoökologisch analysiert. Alle Proben wurden in eine 3D-Seimik des Untersuchungsgebietes integriert, die von der OMV-AG bereitgestellt wurde. Dadurch konnten auch jene Proben stratigrafisch interpretiert werden, deren biostratigrafische Signifikanz gering war. Zusätzlich wurden alle Makrofossilien (Mollusken, Bryozoen, Fisch-Otolithen) identifiziert, um die paläoökologischen Interpretationen zu unterstützen.

Zwei große erosive Strukturen konnten in der Seismik identifiziert werden, die hier als „Ginzersdorf Channel“ und „Mistelbach Canyon“ bezeichnet werden. Beide Einheiten werden als submarine Entwässerungssysteme interpretiert, die im späten Karpatium (Ginzersdorf Channel) und dem frühen Badenium (Mistelbach Canyon) in die Nordalpin-Karpatische Vortiefe reichten.

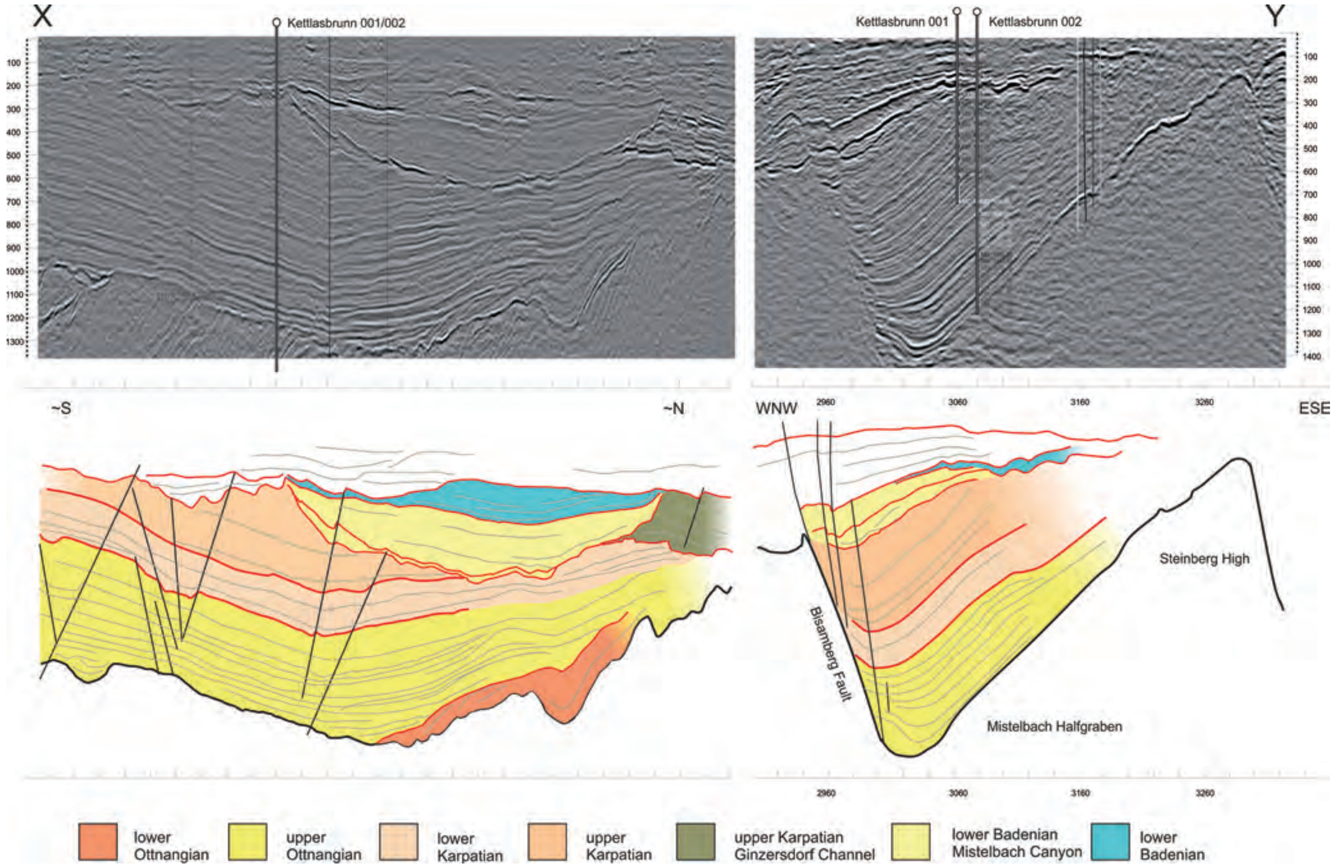
Statistische Analysen zeigen deutliche Unterschiede der Foraminiferen-Vergesellschaftungen aus dem Ottnangium, Karpatium, frühen Badenium, mittleren/späten Badenium und Sarmatium. Diese Unterschiede sind in erster Linie durch unterschiedliche Ablagerungsräume erklärbar, die im Bereich des Mistelbach-Halbgrabens vom äußeren Neritikum und oberen Bathyal des Ottnangiums bis zu hypersalinen Lagunen und Schlammküsten des Sarmatiums reichten.

Introduction

Within a joint project between OMV-AG, Natural History Museum Vienna and University of Graz, the biostratigraphy and marine paleoenvironments of the Miocene deposits in the Mistelbach area were analyzed. The Mistelbach Block is a SW–NE oriented tectonic element along the northwestern margin of the Vienna Basin (Text-Fig. 1). Tectonically, it is a halfgraben, delimited from the Waschberg-Ždánice Unit by the Schrattenberg Fault in the west. The Bisamberg Fault represents its southwestern boundary to the Rhenodanubian Flysch Unit. The huge Steinberg Fault forms its eastern boundary towards the deeper parts of the Vienna Basin (Janoschek, 1951; Wessely, 2006). The Mistelbach Block is an important area for the understanding of the stratigraphic and paleogeographic development of the Vienna Basin during the Miocene. The area formed a junction between the Vienna Basin and the Alpine-Carpathian Foreland Basin and acted variously as gate for marine connections and riverine discharge throughout the



Text-Fig. 1.
A: Geographic position of the investigation area (red square). B: position of the boreholes (red) superimposed on the geological map after Grill (1968). X and Y represent seismic lines shown in Text-Figure 2.



Text-Fig. 2.
Two seismic lines crossing the investigation area roughly in S–N direction (X) and WNW–ESE direction (Y); the position of the seismic lines is given in Text-Figure 1.

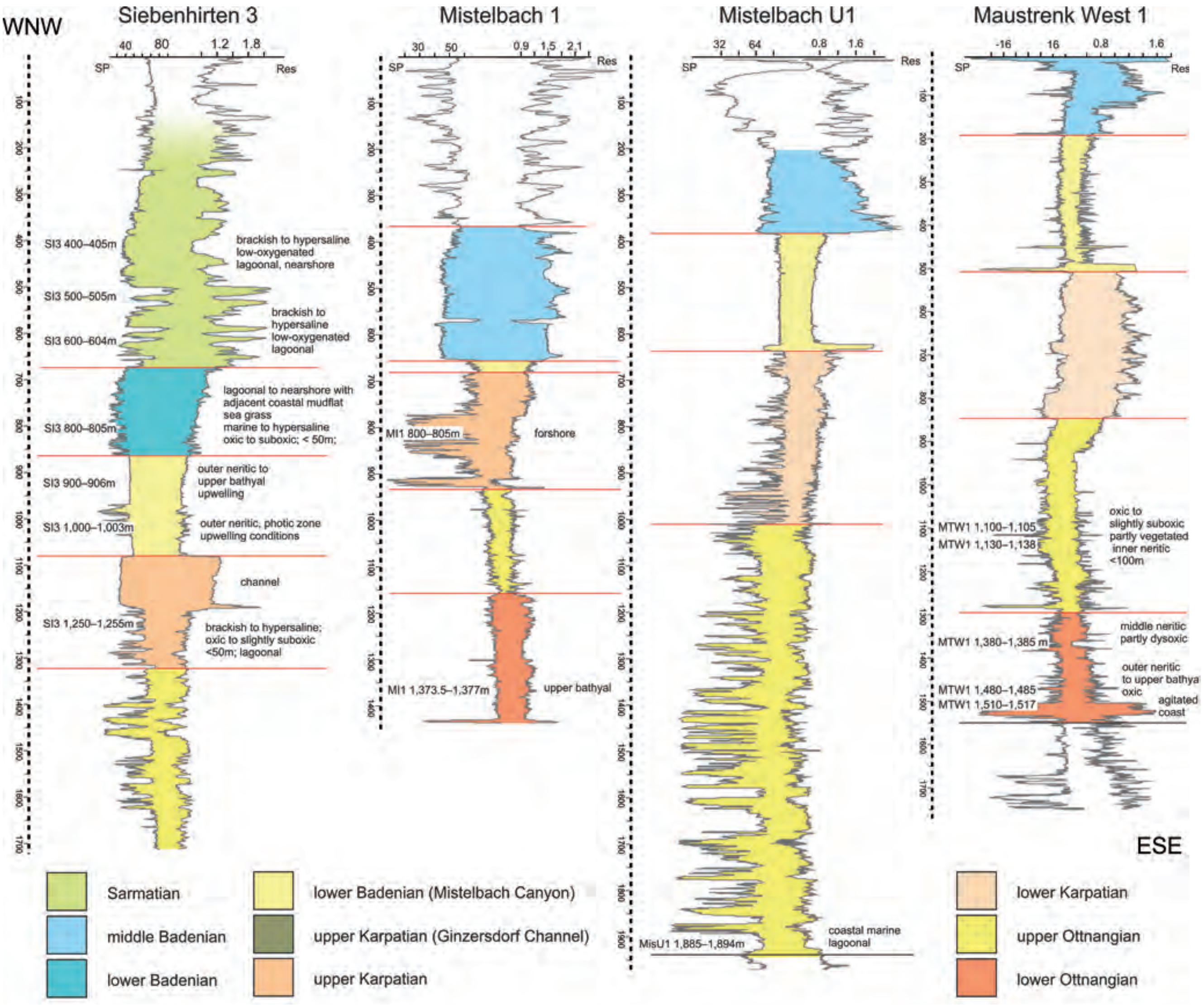
Miocene (Jiříček & Seifert, 1990). Moreover, the biostratigraphic zonation for the Vienna Basin introduced by Grill (1941, 1943) was largely based on boreholes situated on the Mistelbach Block. Therefore, an updated biostratigraphy of the area is proposed herein based on micropaleontological investigations of cores drilled during hydrocarbon exploration. The main aim was to integrate the biostratigraphic and paleoecologic data from the cores into the 3D seismic survey provided by the OMV.

For this purpose, 15 boreholes were selected covering an area of roughly 225 km^2 from Hohenruppersdorf/Bad Pirawarth in the south to Poysdorf/Walterskirchen in the north and from Siebenhirten in the west to Maustrenk in the east (Text-Fig. 1).

Material and Methods

Altogether, 90 samples from 15 boreholes were processed yielding in total 21.055 foraminiferal specimens (Tab. 1); 149 additional samples turned out to be micro-sterile. The sample codes, e.g. AH1 (100–105 m) 4/1, are composed of the borehole code as used by the OMV-AG (e.g. AH1 for Althöflein 1) followed by the drilling depth of the cored interval, the core number and the core meter (both counted top down). Thus, although the sample code might suggest an interval of 5 meters, the actual sample was taken from an about 5 cm-thick sediment sample. Each sample was treated with diluted H_2O_2 for several hours and afterwards washed with tab water and sieved through a set of standard sieves. The oven-dried samples were then split using a splitter as described in Rupp (1986). The specimens were picked and counted. Even broken and poorly preserved specimens were counted. When determination to specific or generic level was impossible, the three categories of benthic foraminifera "Hyaline", "Miliolid and "Agglutinated" were used according to the test composition. Additionally, all occurring gastropods, bivalves, serpulids, scaphopods, polychaetes, otoliths, bryozoans and coral fragments were collected for supplementary paleoecological information (Tab. 2). The foraminifera were identified based on Cicha et al. (1998, 2003), Didkovskij & Satanovskaja (1970), Gebhardt et al. (2009), GöröG (1992), Haunold (1995), Jones (1994), Kennett & Srinivasan (1983), Loeblich & Tappan (1987), Łuczkowska (1974), Papp (1963), Papp & Schmid (1985), Papp & Turnovsky (1953), Popescu & Crihan (2004), Rögl (1985, 1994, 1998), Rögl & Spezzaferri (2003), Rupp (1986), Schütz et al. (2007) and Wenger (1987). WoRMS database has been crosschecked for the taxonomical updates of the most common species (WoRMS Editorial Board, 2017).

Screenshots from numerous seismic lines (x-, i-, random-lines) throughout the Mistelbach Block 3D seismic survey were provided by OMV as well as 3D-maps. Two of these are presented and interpreted in Text-Figure 2. Digitized spontaneous potential measurements (SP) and resistivity data (RES) from Althöflein 1, Ginzersdorf 1 + 2, Kettlasbrunn 1 + 2, Maustrenk West 1, Mistelbach 1, Mistelbach U1, Poysdorf 1, Siebenhirten 3, and Walterskirchen 1 were available. In addition, OMV provided scans of ana-



Text-Fig. 3.
Wire logs (Spontaneous potential and resistivity) of four representative boreholes (Siebenhirten 3, Mistelbach 1, Mistelbach U1, Maustrenk West 1). The position of the samples is indicated to the left; general paleoenvironmental information is provided on the right.

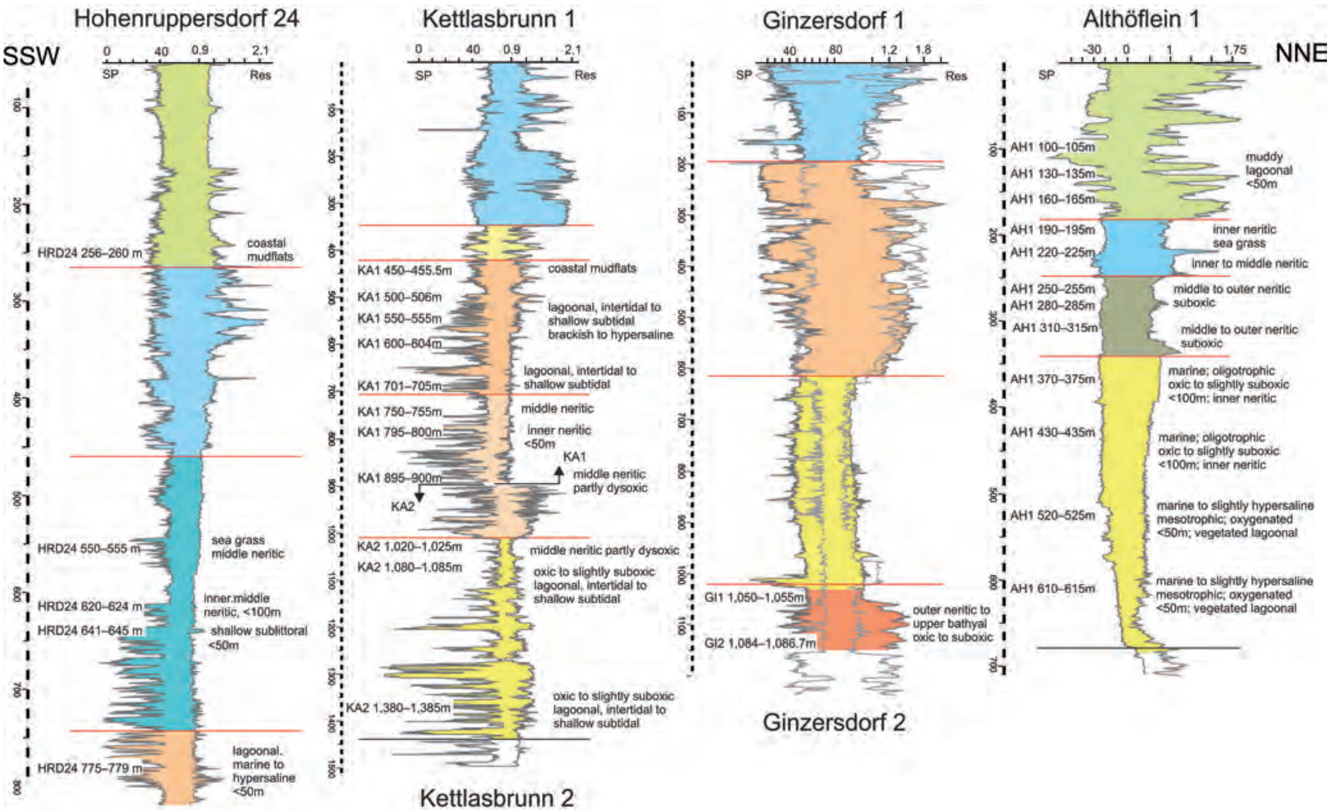
logue wire-logs for Hohenruppersdorf 19 + 24 + 25 and Pirawarth U3. Ten of these are presented in Text-Figures 3 and 4.

The statistical analyses were computed with the software PAST (Paleontological Statistics, version 2.17, Hammer et al., 2001; Tab. 3). All material is stored in the paleontological collection of the Natural History Museum Vienna.

Biostratigraphic framework

The marine biostratigraphy of the Miocene of the Paratethys Sea is mainly based on foraminifera and calcareous nannoplankton (Text-Fig. 5). Due to the poor preservation and the huge amount of reworked specimens, nannoplankton turned out to be of little value in all test samples. Therefore, we focus on foraminifera, which were used to establish biostratigraphic zonations within the Paratethys since the early 20th century (see Cicha et al., 1998, Piller et al., 2007 and Harzhauser & Piller, 2007 for references). For the Eggenburgian, Ottnangian and Karpatian no regional zonations were proposed so far, and the existing correlations either adopt international biostratigraphic schemes and/or try to define First Appearance Datums (FADs) and Last Appearance Datums (LADs) of certain endemic taxa (e.g.: Wenger, 1987; Cicha et al., 1998; Pippèrr, 2011; Grunert et al., 2013). For the Badenian and Sarmatian, a regional biostratigraphic (or better ecostratigraphic) zonation is well established and used herein as well. In the following, assemblages and marker species typical for the regional Central Paratethys stages and especially for the successions of the Vienna Basin are briefly discussed.

Late Eggenburgian–Ottnangian biostratigraphy is primarily based on endemic benthic foraminiferal and mollusc species (Cicha & Rögl, 1973; Steininger et al., 1973). Traditionally, a threefold subdivision of the Ottnangian exists in the North Alpine Foreland Basin and in the Vienna Basin, based on typical foraminiferal assemblages. Although Cicha & Rögl (1973) and Rögl (1985) suggest a possible correlation to the Burdigalian *Globigerinoides trilobus* Zone of the Mediterranean (sensu Iaccarino, 1985), planktic fo-



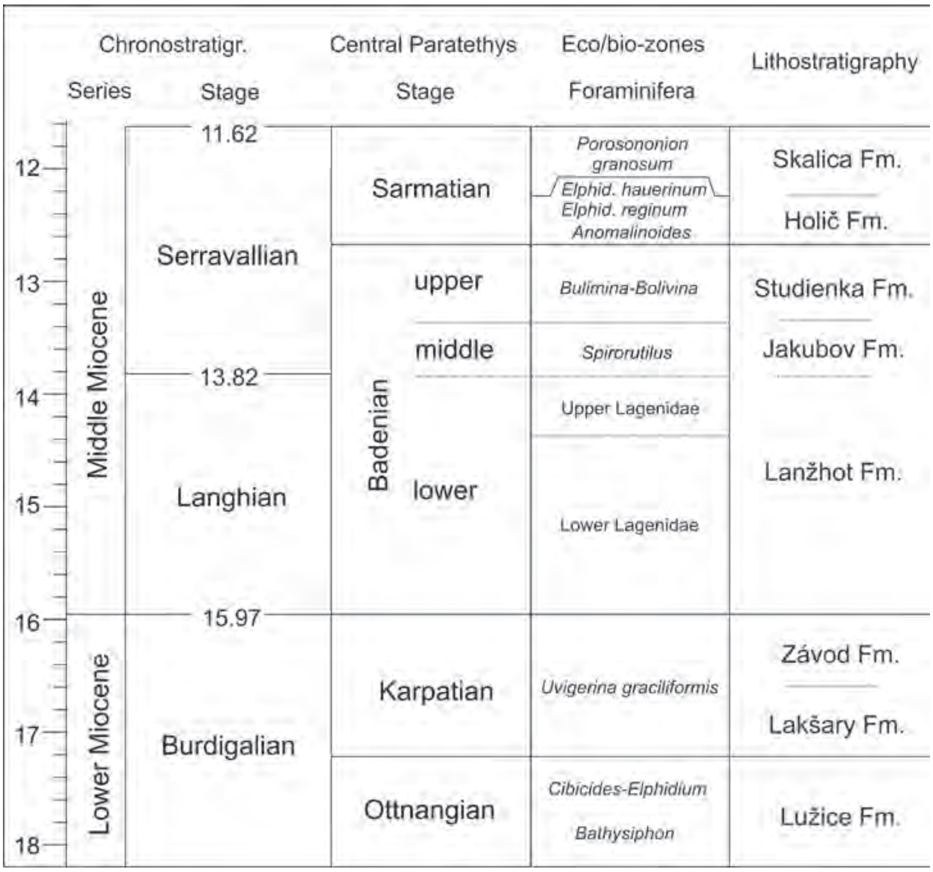
Text-Fig. 4.
Wire logs (Spontaneous potential and resistivity) of six representative boreholes (Hohenruppersdorf 24, Kettlasbrunn 1 und 2, Ginzersdorf 1 und 2, Althöflein 1). The position of the samples is indicated to the left; general paleoenvironmental information is provided on the right (same legend as in Text-Figure 3).

raminiferal assemblages of the Ottnangian are generally of little significance for biostratigraphy (Rögl, 1985). Only the base of the Ottnangian seems to coincide with the FAD of the endemic species *Cassigerinella spinata* (Cicha et al., 1998). Among the benthic species, *Amphicoryna ottnangensis* is a well-established marker for the early Ottnangian (Cicha & Rögl, 1973; Wenger, 1987; Cicha et al., 1998; Rupp & Haunold-Jenke, 2003). It has its FAD at the Eggenburgian/Ottnangian boundary and lasts until the earliest middle Ottnangian. Another species often used in Ottnangian biostratigraphy is *Sigmoilopsis ottnangensis*. Based on records from the North Alpine Foreland Basin, it has its FAD during the late Eggenburgian and its LAD at the end of the early Ottnangian (Wenger, 1987). The FAD of *Uvigerina breviformis* has been suggested as a marker for the base of the middle Ottnangian (Wenger, 1987; Cicha et al., 1998).

Early Ottnangian offshore assemblages are characterized by *Bathysiphon taurinensis*, *Cyclammina praecancellata*, *Haplophragmoides vasiceki*, along with *Uvigerina posthantkeni*, *Globigerinoides trilobus* and *Globigerina praebulloides* (Cicha & Rögl, 1973; Cicha et al., 1998). *Ammonia*-dominated assemblages are reported from deltaic and estuarine, nearshore environments (Kováč et al., 2004).

The separation of the late Ottnangian was originally based on a marked shift in assemblage composition towards shallow-water faunas of the so-called "*Cibicides-Elphidium*-Schlier" (Grill, 1941, 1943, 1968). *Cibicidoides budayi*, *Lenticulina inornata*, *Cibicidoides lobatulus, Amphicoryna ottnangensis*, *Uvigerina breviformis*, *Bolivina fastigia* and *Bolivina tumida* along with various elphidiids are also typical in this zone (Cicha & Rögl, 1973; Cicha et al., 1998). The microfauna of the latest part of the Ottnangian of the northern Vienna Basin is strongly impoverished, small and dominated by *Ammonia* and in the literature referred to as "impoverished Schlier" or "Fish-Schlier" due to frequent occurrences of fish scales and bones (Cicha et al., 1998; Kováč et al., 2004). Additionally, typical species of the late Ottnangian are *Sigmoilopsis ottnangensis*, *Lenticulina melvilli*, partly *Semivulvulina pectinata*, *Spirorutilus carinatus*, *Textularia gramen*, *Quinqueloculina buchiana*, *Spirosigmoilina tenuis*, *Triloculina* sp., *Ammonia viennensis*, *Amphimorphina haueriana*, *Bolivina hebes*, *Bolivina dilatata*, *Bolivina scitula*, *Bulimina elongata*, *Caucasina schischkinskayae*, *Elphidium angulatum*, *Elphidium macellum*, *Elphidium subtypicum*, *Elphidium ungeri*, *Fontbotia wuellerstorfi*, *Globulina gibba*, *Guttulina communis*, *Heterolepa dutemplei*, *Laevidentalina communis*, *Lagena striata*, *Melonis affinis*, *Melonis pompilioides*, *Porosononion granosum*, *Reussella spinulosa*, *Sphaeroidina bulloides* (Cicha et al., 1971, 1998; Grunert et al., 2012, 2013) along with planktonic foraminifera, such as *Globigerina ottnangiensis* (Cicha & Rögl, 1973). Obviously, this shift in assemblages reflects mainly a change in regional paleoenvironment and its biostratigraphic significance on a larger scale might be doubtful.

The Karpatian assemblages display a transitional composition between the Ottnangian and early Badenian (Cicha et al., 2003). Since many typical Ottnangian species persist into the Karpatian (e.g. *Reticulophragmium karpaticum*, *Semivulvulina pectinata*, *Elphidium subtypicum*, *Fontbotia wuellerstorfi*; Wenger, 1987), it is difficult to differentiate between the two stages. Higher individual numbers and increased diversity of benthic foraminiferal species distinguish Karpatian from Ottnangian samples (Cicha & Zapletalová, 1967). Separating Karpatian assemblages from early Badenian ones may also be difficult. A reliable separation is based on



Text-Fig. 5.
Lower and Middle Miocene chronostratigraphy and biostratigraphy of the Central Paratethys and major lithostratigraphic units of the Vienna Basin; modified from Harzhauser & Piller (2004a), Kováč et al. (2004), Piller et al. (2007) and Pezelj et al. (2013) (note that stratigraphic gaps between the lithostratigraphic units are not shown).

the first appearance of the planktonic genus *Praeorbulina* at the base of the Badenian (Cicha et al., 2003, but see Hohenegger et al., 2014). In addition, higher percentages of planktonic species in general and a strong increase in diversity characterize early Badenian assemblages (Cicha & Zapletalová, 1967; Cicha et al., 2003). Benthic species are often larger than their Karpatian representatives (Cicha et al., 2003). *Uvigerina graciliformis* is considered to be a marker for the base of the Karpatian (Cicha & Zapletalová, 1967; Cicha et al., 2003; Kováč et al., 2004; Petrová, 2004; Rögl et al., 2003; Spezzaferri et al., 2002). Assemblages containing *Bulimina elongata*, *Caucasina schischkinskayae, Globigerina ottnangiensis, Globorotalia scitula*, *Uvigerina acuminata*, *U. graciliformis*, *U. breviformis* and *U. primiformis* together with elphidiids and agglutinated species are characteristic for the neritic early Karpatian. The appearance of *Globigerinoides bisphericus* is used as marker for the late Karpatian (Seneš, 1971; Spezzaferri et al., 2002; Rögl et al. 2003). Late Karpatian shallow-water faunas as reported from the Austrian Korneuburg Basin by Rögl (1998) contain *Ammonia*, *Porosononion*, and *Elphidiella* in more hypersaline inner neritic assemblages and *Ammonia*, *Elphidium*, *Nonion*, *Reussella*, *Caucasina*, *Hanzawaia* as well as small globigerinids in fully marine, inner neritic environments.

Typical assemblages for this interval comprise *Reticulophragmium karpaticum*, *Uvigerina primiformis*, *Uvigerina breviformis*, *Uvigerina graciliformis*, *Elphidium macellum* and *Elphidium fichtelianum* (Cicha & Zapletalová, 1967; Rögl, 1998; Cicha et al., 2003) co-occurring with the ubiquitous species *Bathysiphon taurinensis*, *Cyclammina karpatica*, *Semivulvulina pectinata*, *Textularia gramen*, *Ammonia viennensis*, *Biasterigerina planorbis*, *Bolivina dilatata*, *Bolivina hebes*, *Bulimina buchiana*, *Bulimina elongata*, *Caucasina schischkinskayae*, *Cibicidoides lopjanicus*, *Cibicidoides ungerianus*, *Globulina gibba*, *Globigerinoides bisphericus*, *Globigerina praebulloides*, *Globigerina tarchanensis*, *Globigerinoides trilobus*, *Hansenisca soldanii*, *Heterolepa dutemplei*, *Laevidentalina elegans*, *Lenticulina inornata*, *Lenticulina melvilli*, *Lenticulina orbicularis*, *Marginulina hirsuta*, *Pullenia bulloides*, *Siphonina reticulata*, *Siphonodosaria consobrina*, *Uvigerina acuminata*, *Uvigerina semiornata* and *Valvulineria complanata*.

For the Badenian of the Vienna Basin a threefold ecostratigraphic subdivision was developed by Grill (1941, 1943), which was refined later by numerous authors (see Cicha et al., 1998, 2003). The three biozones are: the Lagenidae Zone, the *Spirorutilus* Zone (= *Spiroplectammina* and Sandschaler Zone in older literature) and the *Bulimina-Bolivina* Zone, respectively. The fauna of the Lower Lagenidae Zone is related to the Karpatian one but more diverse. *Uvigerina macrocarinata* and *Praeorbulina glomerosa circularis* are markers for the Lower Lagenidae Zone (Papp, 1963; Papp et al., 1978). Typical assemblages of this biozone contain members of the Nodosariacea (such as the genera *Lenticulina*, *Dentalina*, *Laevidentalina*, *Nodosaria*, *Neugeborina*, *Plectofrondicularia*, *Amphimorphina*, *Amphicoryna*, *Vaginulina*, *Plectofrondicularia*, *Lagena*, *Glandulina*, *Globulina*, *Fissurina*, *Guttulina* and others) and Buliminacea (genera: *Bulimina*, *Praeglobobulimina*, *Uvigerina*, *Reussella*) together with different bolivinids, *Elphidium flexuosum* and often planktonic foraminifera like *Praeorbulina glomerosa circularis*, *Globigerina praebulloides*, *Globigerinella obesa* and small globorotaliids (Papp et al., 1978; Cicha et al., 1998; Rögl & Spezzaferri, 2003).

The Upper Lagenidae Zone is characterized by an optimum of the foraminiferal fauna and a rich plankton assemblage with *Orbulina suturalis*, *Globigerina bulloides*, *Globigerina diplostoma*, *Globigerina concinna*, *Globigerinella regularis* and many others (Papp et al., 1978; Cicha et al., 1998; Báldi & Hohenegger, 2008; Rupp & Hohenegger, 2008). In more marginal deposits Miliolacea are also frequent (e.g. Q*uinqueloculina haidingeri*, *Qu. buchiana*, *Qu. laevigata*, *Pyrgo simplex*, *Triloculina* spp., *Spiroloculina* spp., *Peneroplis* spp., *Borelis melo*). Especially the occurrence of *Orbulina* is an important tie point because its FAD is dated at 15.1 Ma (Wade et al., 2011) in the Caribbean. Note, however, that in the Mediterranean its FOD is recorded distinctly later at 14.56 Ma (Iaccarino et al., 2012).

The *Spirorutilus* Zone is characterized by several species of the genera *Amphistegina*, *Heterostegina*, *Elphidium*, *Cibicidoides*, *Bulimina*, *Bolivina*, *Uvigerina* (esp. *U. venusta*), *Spirorutilus carinatus*, *Textularia*, *Martinottiella*, *Cyclammina*, *Haplophragmoides* (Rupp, 1986). The planktonic foraminifera are represented by species persisting from the Lagenidae Zone along with *Globigerinoides quadrilobatus* (Papp et al., 1978; Cicha et al., 1998). This ecozone seems to be slightly diachronous and it might reflect the progradation of marginal-deltaic facies during the middle Badenian in the Vienna Basin (own observations, Michal Kováč pers. comm., 2014).

The *Bulimina-Bolivina* Zone shows a comparatively impoverished, less diverse fauna. Along with the name-giving genera, smaller individuals of *Cibicidoides*, *Quinqueloculina*, *Elphidium*, *Uvigerina*, *Pavonitina* and *Globigerina* are typical. Nodosariacea are rare. Often only assemblages with *Ammonia* and *Elphidium*, sometimes together with *Porosononion granosum*, *Cibicidoides* and *Quinqueloculina* occur (Papp et al., 1978; Cicha et al., 1998). Among the molluscs, *Vitta tuberculata* is an important marker of the upper Badenian (Švagrovský, 1964, 1982) and frequently detected in core samples.

The Sarmatian assemblages show significant changes in their composition due to the extinction event at the Badenian/Sarmatian boundary (Harzhauser & Piller, 2007). The early Sarmatian spans the *Elphidium reginum* and *hauerinum* Zones and the late Sarmatian *Porosononion granosum* Zone of the foraminiferal zonation (Grill, 1941; Harzhauser & Piller, 2004a, b). New sculptured elphidiids developed, like *Elphidium reginum*, *E. aculeatum*, *E. josephinum*, *E. grilli*, *E. subumbilicatum*, *E. fichtelianum* and *E. koberi*. In general, the Sarmatian assemblages are composed of elphidiid and miliolid representatives as well as *Ammonia* spp. Typical assemblages for this stage are shown in Görög (1992), Schütz et al. (2007) and Gebhardt et al. (2009). In addition, the endemic evolution of molluscs allows a biozonation of the Sarmatian (Harzhauser & Piller, 2004b). Of these, only the *Mohrensternia Zone* (= *Elphidium reginum* Zone) and maybe the *Ervilia* Zone (= *E. hauerinum* and lower *Porosononion granosum* zones) are represented in the cores.

Paleoecological framework

For the paleoenvironmental analysis benthic foraminifera were grouped (Tab. 4 and references therein) according to their bathymetric distribution, dependency of bottom water oxygenation and microhabitat preferences. Taxa, which can be used as markers for environmental stress and organic matter flux, were also evaluated. Planktonic foraminifera were used as paleoclimatic indicators.

Referring to Kaiho (1994) the following nomenclature for dissolved-oxygen levels is used: oxic (> 1.5 ml/l), suboxic (0.3–1.5 ml/l), dysoxic (0.1–0.3 ml/l). Numerous papers focus on benthic foraminiferal microhabitats and possible factors limiting the vertical depth distribution of meiobenthos in the sediment profile (Jorissen et al., 1995; Kaiho, 1994; van der Zwaan et al., 1999; numerous references therein). According to these authors, the assemblages are mainly controlled by two antagonizing parameters: oxygen and food availability. In well-oxygenated but food-limited systems, foraminiferal communities are restricted to the surficial sediments. Hence, the communities consist of mainly epifaunal or surface dwelling taxa adapted to oligotrophic environments. In eutrophic environments, the vertical occurrence of most taxa depends on the critical level of oxygen present within the sediment. Nutrients are not limiting, as the amount of organic matter in subsurface sediment layers is high. The foraminiferal assemblage is dominated by infaunal taxa. In the intermediate mesotrophic situation, enough organic matter is available and the oxygen penetration depth is moderate.

Planktonic foraminifera can be used to evaluate paleoclimatic conditions regarding surface water temperature (Bicchi et al., 2003; Kennett & Srinivasan, 1983; Li et al., 1999; Rupp & Hohenegger, 2008; Spezzaferri, 2004). Typical indicators for cool waters are *Globigerina* and *Turborotalita*; *Globorotalia* and *Globoturborotalita* indicate temperate waters; warm-temperate waters are often associated with *Globigerinella*. Warm surface waters are reflected by the occurrences of *Globigerinoides*, *Globoquadrina* and *Orbulina.* Planktonic foraminifers are sensible to productivity and nutrient input. Thus, *Globigerina bulloides*, *G. praebulloides* and the small, 5-chambered *G. tarchanensis* are reported to prefer environments with higher productivity and may therefore indicate an increased input of nutrients (Hemleben et al., 1989; Hilbrecht, 1996; Rögl & Spezzaferri, 2003; Spezzaferri, 2004; Rupp & Hohenegger, 2008). *Globigerinella obesa* is an element of deeper water layers (Hilbrecht, 1996; Nikolaev et al., 1998) under warm-temperate conditions. Since *Globorotalia scitula* is known to dwell in deeper water layers (Hilbrecht, 1996; Itou et al., 2001) the *Globorotalia* group might generally reflect deeper water habitats. Similarly, *Globoturborotalita* might prefer deeper water layers (Nikolaev et al., 1998). Cancellated relatives of *Globoquadrina altispira* are typical warm water elements found in more tropical oceans (Bé & Hutson, 1977) and generally, *Globoquadrina* is associated with intermediate water depths (Nikolaev et al., 1998).

Results

Based on the data on biostratigraphy and paleoecology as outlined above, the samples were analyzed according to their composition and paleoenvironmental parameters. For most samples, this allows an evaluation of the depositional environment and a biostratigraphic correlation. Since some samples contained few and/or only ubiquitous species it was ambiguous to determine their age. In these cases, the assumptions were counter-checked with the associated mollusc assemblages. In addition, several major seismic units have been identified within the Mistelbach area, which are bound by erosional surfaces and strong seismic reflectors (Text-Figs. 2–4). All these sedimentary units have been drilled by at least one borehole and covered by several samples. Therefore, all samples can be integrated into the seismic survey, which allows correlation of biostratigraphically insignificant but paleoecologically important samples.

An update of the lithostratigraphy of the area is beyond the scope of this paper and will be presented elsewhere. Herein, we adopt the lithostratigraphic scheme of KOVÁČ et al. (2004) with some modifications: lower and upper Ottnangian = lower and upper Lužice Formation, lower Karpatian = Lakšary Formation, upper Karpatian = Závod Formation (both corresponding to the Laa Formation in the North Alpine Foreland Basin, NAFB), lower/middle/upper Badenian = Lanžhot, Jakubov and Studienka Formations, lower Sarmatian = Holič Formation, upper Sarmatian = Skalica Formation. Two additional lithostratigraphic units are recorded for the first time in the Mistelbach area, which lack formal descriptions so far. An upper Karpatian unit represents the infill of a channel, detected mainly in the Ginzersdorf/Althöflein region. The structure is termed Ginzersdorf Channel herein (Text-Fig. 2). The second, lower Badenian unit represents the infill of an up to 500 m-deep canyon structure, detected especially in the Mistelbach area (Text-Fig. 2). Seismic data reveal it as tributary linked to the Iváň Canyon at the junction from the North Alpine Foredeep to the Carpathian Foredeep (DELLMOUR & HARZHAUSER, 2012). Herein, we term this structure Mistelbach Canyon.

In the following, the paleoecological and paleoenvironmental interpretations of the assemblages as listed in Table 3 are summarized for representative samples and the stratigraphic correlations are outlined for each sample. In some cases, the age assignment is based on the relative stratigraphic position of the sample within the seismic units. Plates 1 and 2 illustrate several characteristic foraminiferal species and Plate 3 presents typical macrofossils, discussed in the following.

The following sequence of samples is based on their position within the 3D seismic survey and the boreholes (Text-Figs. 3–4), starting with the stratigraphically lowest sample.

Maustrenk West 1 MTW1 (1,510–1,517 m) 13/213/7: poorly sorted sand and gravel with pectinids (*Pecten hornensis*) and celleporid bryozoans. The composition is highly reminiscent of the Retz and Zogelsdorf Formations along the Bohemian Massif (ROETZEL & SCHNABEL, 2002) and the Chropov Member in the NE part of the Vienna Basin in Slovakia (BUDAY et al., 1965; KOVÁČ et al., 2004). The depositional environment was a highly agitated shallow marine setting with numerous celleporids that formed during the initial transgression of the area.

Age: latest Eggenburgian or early Ottnangian based on the occurrence of *Pecten hornensis* (see MANDIC & STEININGER, 2003).

Lithostratigraphy: lower Lužice Formation.

Maustrenk West 1 MTW1 (1,480–1,485 m) 12/4: the 15 species found in this sample are mainly epifaunal preferring oxic bottom water conditions. *Heterolepa dutemplei* (38.1 %), *Spirorutilus carinatus* (15.5 %), *Elphidium subtypicum* (11.9 %), *Cibicidoides lopjanicu*s (10.7 %) and *Semivulvulina deperdita* (10.7 %) are most frequent. Infaunal species are rare and are adapted to suboxic conditions (*Fursenkoina subacuta* and *Amphicoryna ottnangensis*). The assemblage suggests an outer neritic to upper bathyal setting.

Age: late Eggenburgian/early Ottnangian based on the co-occurrence of *Cibicidoides* spp. and *Elphidium* spp., *Cyclammina bradyi* and the relative stratigraphic position.

Lithostratigraphy: lower Lužice Formation.

Ginzersdorf 1 GI1 (1,050–1,055 m) 17/1: the sample contains mainly agglutinated species, such as *Cribrostomoides subglobosus* (44.7 %) *Reticulophragmium karpaticum* (38.4 %), *Ammodiscus miocenicus* (11.7 %) and *Bathysiphon taurinensis* (3.0 %). Accessory taxa are *Scallopostoma ovicula* and *Spirosigmoilina tenuis*. Most of the species are epifaunal to shallow infaunal. The infaunal species *Bathysiphon* hints at an increase of organic matter flux. The assemblage points to an outer neritic to upper bathyal setting.

Age: late Eggenburgian/early Ottnangian, based on *Bathysiphon taurinensis* and relative stratigraphic position.

Lithostratigraphy: lower Lužice Formation.

Foraminifers: Plate 1, Fig. 2: *Cribrostomoides subglobosus*, Plate 1, Fig. 3: *Reticulophragmium karpaticum.*

Ginzersdorf 2 GI2 (1,084–1,086.7 m) 10/2: the foraminiferal assemblage comprises only seven epifaunal and shallow infaunal species, preferring oxic to suboxic bottom water conditions. *Reticulophragmium karpaticum* (41.0 %), *Heterolepa dutemplei* (35.9 %) and *Lenticulina inornata* (10.3 %) are most frequent along with rare *Elphidium crispum*, *Semivulvulina pectinata* and *Spirorutilus carinatus*. Infaunal species are missing. The assemblage suggests an outer neritic to upper bathyal setting.

Age: late Eggenburgian/early Ottnangian, based on general composition and relative stratigraphic position.

Lithostratigraphy: lower Lužice Formation.

Mistelbach 1 MI1 (1,373.5–1,377 m) 7/4: the occurrence of *Bathysiphon filiformis* (100 %) suggests an upper bathyal setting.

Age: late Eggenburgian/early Ottnangian, based on occurrence of *Bathysiphon filiformis.*

Lithostratigraphy: lower Lužice Formation.

Foraminifers: Plate 1, Fig. 5: *Bathysiphon filiformis.*

Maustrenk West 1 MTW1 (1,380–1,385 m) 9/1: the foraminiferal assemblage of 26 species with *Cibicidoides lopjanicus* (39.6 %), *Ammonia pseudobeccarii* (22.5 %) along with keeled elphidiids, *Heterolepa dutemplei*, *Biasterigerina planorbis*, *Lenticulina inornata*, *Textularia gramen*, *Spirosigmoilina tenuis*, *Nonion commune* and *Cibicidoides lobatulus* points to a deeper inner neritic setting. Most taxa are epifaunal adapted to oxic conditions. Infaunal species, such as *Nonion commune*, prefer suboxic conditions.

Age: Ottnangian, based on the relative stratigraphic position.

Lithostratigraphy: lower Lužice Formation.

Mistelbach U1 MisU1 (1,885–1,894 m) 3/1 and MisU1 (1,885–1,894 m) 3/4: an inner neritic shelf setting is indicated by the low diverse benthic assemblage of six species (*Ammonia viennensis* (67.2 %), elphidiids and *Porosononion granosum*). Well defined patches of shell fragments floating in the core sample MisU1 (1,885–1,894 m) 3/1 are reminiscent of filled decapod burrows. Along with many fragments, shells of *Corbula gibba*, cardiids, and *Anomia* predominate. Gastropods are represented by a small sized naticid and the batillariid *Granulolabium plicatum*. Small fragments of fish bones are frequent as well. The depositional environment was a very shallow marine lagoonal setting close to the shore. MisU1 (1,885–1,894 m) 3/4 yields a low diverse assemblage with *Anadara diluvia* and *Ostrea digitalina* in a silt-clay matrix. *Ostrea digitalina* might have preferred shallow littoral areas down to 10 m water depth (MANDIC & HARZHAUSER, 2003). Only the free right valve of *Ostrea* was found, suggesting that it was separated from the left valve, which is attached to hard substrate. The depositional environment of the basal samples was a shallow marine lagoonal setting with oxygen poor soft bottoms, bioturbated by decapod crustaceans, and close-by mudflats, settled by batillariid gastropods.

These core samples are lithologically and paleontologically highly reminiscent of the regressive phase at the Eggenburgian/Ottnangian boundary as described by ROETZEL in SCHUBERT et al. (1999) from the northeastern margin of the North Alpine Foreland Basin. There, lagoonal conditions, partly with low oxygenation became established (e.g. well Pulkau S1) before the Ottnangian transgression resulted in the deposition of the Schlier facies of the Zellerndorf Formation.

Age: Ottnangian, based on relative stratigraphic position and impoverished foraminiferal assemblage.

Lithostratigraphy: upper Lužice Formation.

Maustrenk West 1 MTW1 (1,130–1,138 m) 4/2, MTW1 (1,130–1,138 m) 4/7 and MTW1 (1,100–1,105 m) 3/5: foraminiferal assemblages with up to 20 species, comprising *Cibicidoides lopjanicus* (45.6 %), keeled elphidiids, *Ammonia* spp., *Lenticulina* spp., *Heterolepa dutemplei*, *Textularia gramen*, *Pullenia bulloides*, *Spirosigmoilina tenuis*, *Triloculina gibba* and *Biasterigerina planorbis*. Infaunal to deep infaunal species are rare. The high abundances of epifaunal taxa suggest oxic to slightly suboxic bottom-water conditions. The assemblage indicates an inner neritic setting with water depths down to 100 m. Fish remains are frequent.

Age: Ottnangian, based the "*Cibicides-Elphidium*" assemblages, typical for the Ottnangian of the Vienna Basin (see CICHA et al., 1998; KOVÁČ et al., 2004).

Lithostratigraphy: upper Lužice Formation.

Althöflein 1 AH1 (520–525 m) 18/3 (15 species) and AH1 (610–615 m) 21/2 (18 species): the assemblages with *Reticulophragmium karpaticum* (16.0–33.3 %), keeled elphidiids, *Biasterigerina planorbis*, unkeeled elphidiids, *Ammonia* spp., *Porosononion granosum*, *Heterolepa dutemplei* and *Quinqueloculina* spp. are largely composed of epifaunal taxa preferring oxygenated bottom waters. Infaunal species from oxic environments occur in a smaller amount. Marine vegetation and hard substrates are reflected by the abundance of taxa with a clinging mode of life or dwelling in vegetated habitats like keeled elphidiids or *Quinqueloculina*. *Protoglobobulimina pupoides* and *Bolivina dilatata* hint at slightly increased flux of organic material and environmental stress. The foraminiferal assemblage points to a shallow, inner neritic environment down to 50 m water depth.

Age: Ottnangian based on occurrence of the assemblage type and the stratigraphic position.

Lithostratigraphy: upper Lužice Formation.

Althöflein 1 AH1 (370–375 m) 13/3 (26 species) and AH1 (430–435 m) 15/3 (34 species): the assemblages are dominated by *Reticulophragmium karpaticum* (30.0–37.6 %), keeled elphidiids, *Ammonia* spp., *Biasterigerina planorbis*, *Heterolepa dutemplei*, *Quinqueloculina* spp., *Lenticulina* spp. and *Cibicidoides lobatulus*. Epifaunal taxa preferring oxic to slightly suboxic bottom waters and oligotrophic conditions prevail. Infaunal species are rare. They are adapted to more suboxic conditions. The samples indicate an inner neritic environment.

Age: Ottnangian, based on occurrence of the assemblage type and the stratigraphic position.

Lithostratigraphy: upper Lužice Formation.

Kettlasbrunn 2 KA2 (1,080–1,085 m) 4/3 and KA2 (1,380–1,385 m) 9/3: the assemblages are mainly composed of *Ammonia viennensis* (98.3 %). This epifaunal to shallow infaunal species prefers oxic to slightly suboxic bottom water conditions and dwells in intertidal to shallow subtidal, lagoonal settings. The specimens are small sized, pointing to suboptimal conditions. A stressed environment is also indicated by the monospecific occurrence of the bivalve *Gouldia minima*.

Age: Ottnangian, based on the *Ammonia*-dominated, impoverished and small-sized fauna, which is typical for the latest Ottnangian of the Vienna Basin (see CICHA et al., 1998; KOVÁČ et al., 2004).

Lithostratigraphy: upper Lužice Formation.

Kettlasbrunn 2 KA2 (1,020–1,025 m) 3/1 (seven species) and KA2 (1,020–1,025 m) 3/4 (10 species): a middle neritic environment is indicated by the foraminiferal assemblage with *Heterolepa dutemplei* (41.6–55.0 %), *Textularia gramen*, *Semivulvulina pectinata*, *Quinqueloculina buchiana*, *Globulina gibba*, *Ammonia viennensis* and *Porosononion granosum*. These epifaunal species are adapted to oxygenated bottom waters. The monospecific occurrence of the bivalve *Corbula gibba* indicates instable and dysoxic bottom conditions (TALMAN & KEOUGH, 2001).

Age: Ottnangian, based on the impoverished fauna and small size.

Lithostratigraphy: upper Lužice Formation.

Foraminifers: Plate 1, Fig. 1: *Textularia gramen*.

Kettlasbrunn 1 KA1 (895–900 m) 15/2: a low diverse foraminiferal assemblage of seven species with *Ammonia viennensis* (89.2 %), *Porosononion granosum* (5.4 %) and rare *Nonion commune*, *Heterolepa dutemplei*, *Elphidium ortenburgense* and *Cibicidoides lopjanicus* suggesting a deeper inner neritic setting. Molluscs are represented by a near monospecific occurrence of the bivalve *Gouldia minima*, often preserved with articulated shells. The dominance by the infaunal *Gouldia* suggests a rather unstable environment and low oxygen conditions (POVCHUN & SUBBOTIN, 1991).

Age: Karpatian, based on relative stratigraphic position.

Lithostratigraphy: Lakšary Formation.

Kettlasbrunn 1 KA1 (795–800 m) 14/2 and KA1 (750–755 m) 13/1: low diverse assemblages of only six and two species, being dominated by *Ammonia viennensis* (91.6–

96.9 %) along with rare *Quinqueloculina akneriana, Cibicidoides lopjanicus, Hoeglundina elegans, Elphidium ortenburgense* and *Elphidium subtypicum* suggesting an intertidal to shallow subtidal, lagoonal setting.

Age: Karpatian, based on relative stratigraphic position.

Lithostratigraphy: Lakšary Formation.

Mistelbach 1 MI1 (800–805 m) 1/2: the sample contained no foraminifers but a low diverse mollusc assemblage with *Ervilia pusilla, Vitta* sp. and *Stenothyroides schwartzi*. Nearly monospecific occurrences of *Ervilia pusilla* are typical for stressed environments, e.g. at the onset of the Badenian salinity crisis in the Carpathian Foredeep with restricted circulation and elevated salinity in few meters water depth (BĄBEL, 1999). Assemblages with *Stenothyroides schwartzi, Vitta* and *Ervilia* are also known from the Karpatian of the Korneuburg Basin.

Age: Karpatian, based on mollusc assemblage.

Lithostratigraphy: Závod Formation.

Macrofauna: Plate 3, Fig. 6: *Stenothyroides schwartzi*.

Siebenhirten 3 SI3 (1,250–1,255 m) 11/1: the assemblage comprises 12 epifaunal to shallow infaunal species preferring oxic to suboxic bottom water condition. *Ammonia viennensis* (94.8 %) predominates accompanied by rare *Nonion commune*, *Cibicidoides lopjanicus*, *Bulimina elongata*, *Cassidulina laevigata* and *Bolivina dilatata*, suggesting a lagoonal setting.

Age: Karpatian, based on assemblage type with *Cibicidoides lopjanicus*, *Globigerina praebulloides*, *G. ottnangiensis* and high amount of *Ammonia viennensis* (see CICHA & ZAPLETALOVÁ, 1967; RÖGL, 1998; CICHA et al., 2003).

Lithostratigraphy: Závod Formation.

Kettlasbrunn 1 KA1 (600–604 m) 10/4, KA1 (701–705 m) 12/2: the foraminiferal assemblages of nine species are dominated by *Ammonia viennensis* (67.1–86.1 %) and *Ammonia pseudobeccarii* (11.0–18.3 %) accompanied by *Nonion commune, Elphidium ortenburgense* and *Porosononion granosum*, suggesting an intertidal to shallow subtidal, lagoonal setting.

Age: Karpatian (older than Badenian based on occurrence of *Elphidium ortenburgense*) and relative stratigraphic position.

Lithostratigraphy: Závod Formation.

Kettlasbrunn 1 KA1 (500–506 m) 8/1 and KA1 (550–555 m) 9/2: the foraminiferal assemblages of five species consist almost entirely of *Ammonia* spp. (98.0–99.1 %) and represent an intertidal to shallow subtidal, lagoonal setting.

Age: Karpatian, based on relative stratigraphic position.

Lithostratigraphy: Závod Formation.

Kettlasbrunn 1 KA1 (450–455.5 m) 7/4: a low diverse foraminiferal assemblage predominated by *Ammonia pseudobeccarii* (86.4 %) accompanied by *Biasterigerina planorbis* (9.1 %) and *Elphidium ortenburgense* (4.6 %). The low diverse mollusc assemblage is strongly fragmented and indicates a coastal marine, probably intertidal estuarine setting in which *Vitta* flourished.

Age: Karpatian, based on mollusc assemblage; especially the keeled *Vitta pachii* is a typical element of the late Karpatian coastal mudflats (HARZHAUSER, 2002; ZUSCHIN et al., 2014).

Lithostratigraphy: Závod Formation.

Hohenruppersdorf 25 HRD25 (740–745 m) 10/1: this sample contains moderately preserved specimens of *Lenticulina inornata* and *Cyclammina karpatica*. The genus *Lenticulina* is epifaunal, adapted to suboxic conditions. The community displays a suboxic environment in the outer neritic to upper bathyal.

Age: Karpatian, based on rare occurrence of *Cyclammina karpatica.*

Lithostratigraphy: Závod Formation.

Hohenruppersdorf 24 HRD24 (775–779.5 m) 9/1: only 10 species, which are mainly epifaunal to shallow infaunal preferring oxic to suboxic bottom water conditions. *Ammonia viennensis* (61.1 %) and *Cycloforina gracilis* (31.6 %) predominate, accompanied by *Nonion commune*, *Lenticulina inornata*, *Quinqueloculina hauerina* and *Bulimina elongata*. Infaunal species are rare (*Nonion commune*, 2.8 %). The moderately to well-preserved assemblage suggests a marine to hypersaline lagoonal setting. Especially the tests of *Ammonia* show moderate preservation. Molluscs are mainly represented by *Corbula gibba,* which is a specialist for instable bottom conditions, being able to withstand dysoxic conditions (TALMAN & KEOUGH, 2001).

Age: Karpatian, based on the absence of Badenian index species and the stratigraphic position.

Lithostratigraphy: Závod Formation.

Hohenruppersdorf 19 HRD19 (819–820 m) 12/1: low diverse assemblage with only eight moderately preserved species like *Ammonia viennensis* (55.8 %), *Ammonia pseudobeccarii* (20.8 %), *Lenticulina inornata* (13.0 %) predominate accompanied by *Porosononion granosum*, *Quinqueloculina* sp., *Cibicidoides* sp. and keeled elphidiids. Only epifaunal species adapted to oxic to slightly suboxic bottom water conditions are present; infaunal species are absent. The fauna indicates a shallow inner neritic environment.

Age: Karpatian, based on relative stratigraphic position.

Lithostratigraphy: Závod Formation.

Hohenruppersdorf 25 HRD25 (665–670 m) 8/1: this low diverse assemblage of only six species is composed of *Ammonia viennensis* (75.2 %), *Ammonia pseudobeccarii* (11.5 %) and *Cycloforina gracilis* (8.0 %) along with keeled elphidiids and *Quinqueloculina seminulum*. These epifaunal to shallow infaunal taxa prefer oxic to slightly suboxic bottom water conditions and dwell in an inner neritic setting. The tests are poorly to moderately preserved and show signs of corrosion, abrasion and breakage.

Age: Karpatian, based on relative stratigraphic position.

Lithostratigraphy: Závod Formation.

Althöflein 1 AH1 (310–315 m) 11/1: a diverse fauna with 40 species. *Lenticulina orbicularis* (22.5 %), *Globigerina bulloides* (16.0 %) and *Globigerina praebulloides* (15.4 %) are the most frequent species along with *Heterolepa dutemplei*, *Nonion commune*, *Melonis pompilioides*, *Biasterigerina planorbis*, *Bolivina dilatata*, *Siphonina reticulata*, *Siphonodosaria consobrina* and keeled elphidiids. Epifaunal and infaunal taxa with suboxic preferences predominate. *Uvigerina* spp., *Melonis pompilioides*, *Bolivina dilatata*, *Pappina primiformis* and *Valvulineria complanata* indicate organic matter flux and high environmental stress. A middle to outer neritic environment of 100–200 m water depth is indicated by the assemblage. The high abundance of planktonic taxa preferring cool temperatures (84 %) indicates cool surface water conditions. *Globigerina bulloides* and *G. praebulloides* additionally hint at increased productivity (79 % of planktonic content).

Age: Karpatian, based on co-occurrences of *Uvigerina graciliformis*, *Uvigerina semiornata*, *Uvigerina pygmoides*, *Pappina primiformis*, *Lenticulina melvilli* and *Globigerinoides bisphericus.*

Lithostratigraphy: unnamed formation in Ginzersdorf Channel.

Foraminifers: Plate 2, Fig. 7: *Siphonina reticulata.*

Althöflein 1 AH1 (280–285 m) 10/2: the diverse foraminiferal assemblage of 48 species is dominated by *Globigerina bulloides* (16.8 %), *Globigerina ottnangiensis* (10.8 %), *Elphidium crispum* (10.8 %) *Heterolepa dutemplei* (6.7 %), *Biasterigerina planorbis* (5.6 %) and *Uvigerina breviformis* (5.2 %). Epifaunal taxa with mainly oxic preferences account for two-thirds of the assemblage. Slightly increased flux of organic matter and environmental stress are documented by *Bulimina* spp., *Uvigerina* spp., *Bolivina dilatata*, *Fursenkoina subacuta*, *Melonis pompilioides* and *Praeglobobulimina pyrula*, which are adapted to suboxic and dysoxic environments. The composition is characteristic for a middle to outer neritic environment. The proportion of planktonic foraminifera preferring cool temperature conditions (97 %) hints at cool surface waters. The increased contribution of planktonic taxa preferring productive environments (*Globigerina bulloides*, *G. tarchanensis*; 60 % of planktonic content) indicate an increased input of nutrients.

Age: Karpatian, based on co-occurrences of *Uvigerina graciliformis*, *Uvigerina breviformis*, and *Pappina primiformis*.

Lithostratigraphy: unnamed formation in Ginzersdorf Channel.

Foraminifers: Plate 1, Fig. 23: *Uvigerina breviformis*.

Althöflein 1 AH1 (250–255 m) 9/4: a low diverse, moderately preserved foraminiferal assemblage of 11 species with *Lenticulina inornata*, *Textularia gramen*, *Vaginulinopsis haueriana* and *Ammonia viennensis.* The sample is largely composed of epifaunal species adapted to oxic to slightly low-oxygenated bottom water conditions. The infaunal species are mainly adapted to suboxic environments. The assemblage represents a middle to outer neritic environment. The mollusc fauna is small sized and low diverse, dominated by carnivores, such as *Polinices* cf. *cerovaensis* and *Profundinassa fuchsi*. Comparable assemblages are known from the upper bathyal of the Vienna Basin during the Karpatian (Harzhauser et al., 2011) and from the early Badenian of the Carpathian Foredeep (Kittl, 1887). Open marine conditions are also indicated by the common occurrence of otoliths of the meso- to bathypelagic lanternfish *Diaphus*.

Age: Karpatian, based on stratigraphic position and correlation with AH1 (280–285 m) 10/2.

Lithostratigraphy: unnamed formation in Ginzersdorf Channel.

Siebenhirten 3 SI3 (1,000–1,003 m) 8/2: a diverse foraminiferal assemblage of 49 species; *Heterolepa dutemplei* (10.3 %), *Nonion commune* (8.9 %), *Pullenia bulloides* (7.7 %) and *Globorotalia bykovae* (6.9 %) are the most frequent species. The foraminiferal assemblage is similar to SI3 (900–906 m) 7/3 and points to the same outer neritic to upper bathyal environment. The mollusc assemblage is dominated by pyramidellids. The nassariid *Profundinassa fuchsi* is characteristic for outer neritic and upper bathyal settings in the Paratethys Sea (Harzhauser & Kowalke, 2004). Similarly, extant *Saccella commutata* is a typical element of shelf communities (Martins et al., 2013) and the epifaunal suspension feeder *Limopsis* dwells in sands and fine gravels, from shallow waters down to several hundred meters water depth (Oliver, 1992; La Perna, 2000). The otolith assemblage comprises two species of the lanternfish *Diaphus* and the codlet *Gadiculus argenteus*. The latter is a pelagic extant species, which lives in schools over mud, muddy sand, gravel and rock bottoms with a depth range from 100–1,000 m (Cohen et al., 1990).

Macrofauna: Plate 3, Fig. 14: *Profundinassa* cf. *fuchsi*, Plate 3, Fig. 17: *Odostomia* sp., Plate 3, Fig. 20: *Turbonilla* sp. 3, Plate 3, Figs. 30–31: *Gadiculus argenteus*.

Age: Badenian (Lower Lagenidae Zone), based on the occurrence of *U. macrocarinata*, *Lenticulina americana* and numerous globigerinids.

Lithostratigraphy: unnamed formation in Mistelbach Canyon.

Foraminifers: Plate 1, Fig. 4: *Martinottiella communis*, Plate 1, Fig. 19: *Protoglobobulimina pupoides*, Plate 2, Fig. 3: *Sphaeroidina bulloides*, Plate 2, Fig. 13: *Heterolepa dutemplei*, Plate 2, Fig. 14: *Hansenisca soldanii.*

Siebenhirten 3 SI3 (900–906 m) 7/3: a diverse and well-preserved benthic assemblage with 59 species including *Globorotalia bykovae* (28.3 %), *Bulimina subulata* (8.7 %), *Globigerina bulloides* (7.2 %), *Bulimina elongata* (5.6 %), *Heterolepa dutemplei* (4.6 %) and many others. Increased organic matter flux and environmental stress are documented by the high abundances of infaunal and deep infaunal species adapted to suboxic to dysoxic conditions, such as *Uvigerina* spp., *Bulimina* spp., *Melonis pompilioides*, *Bolivina* spp., *Cassidulina laevigata* and *Hoeglundina elegans*. This assemblage indicates an outer neritic to upper bathyal environment. The high percentage of *Globorotalia* and *Globigerina* suggests temperate to cool water and the abundance of *Globigerina bulloides* and *G. praebulloides* indicates increased nutrient flux.

Age: Badenian (Lower Lagenidae Zone), based on the occurrence of *Uvigerina macrocarinata*, *Orbulina suturalis*, *Lenticulina americana* and numerous globigerinids.

Lithostratigraphy: unnamed formation in Mistelbach Canyon.

Foraminifers: Plate 1, Fig. 7: *Spirorutilus carinatus*, Plate 1, Fig. 16: *Scallopostoma ovicula*, Plate 1, Fig. 20: *Bolivina dilatata*, Plate 1, Fig. 22: *Bulimina elongata*, Plate 1, Fig. 24: *Uvigerina macrocarinata*, Plate 1, Fig. 27: *Bulimina subulata*, Plate 2, Fig. 5: *Valvulineria complanata*, Plate 2, Fig. 6: *Nonion commune*, Plate 2, Fig. 11: *Melonis pompilioides*, Plate 2, Fig. 12: *Pullenia bulloides.*

Pirawarth U3 PWU3 (1,123–1,128 m) 1/1 and PWU3 (1,123–1,128 m) 1/3: only *Ammonia viennensis* and *Reticulophragmium* sp. were found in sample PWU3 (1,123–1,128 m) 1/1 pointing to shallow inner neritic conditions. The assemblage of PWU3 (1,123–1,128 m) 1/3 is largely composed of *Ammonia viennensis* (62.5 %), *Cycloforina gracilis* (17 %), *Adelosina* *longirostra* (15.0 %) along with rare *Cibicidoides pachyderma* and *Lenticulina inornata*. These epifaunal to shallow infaunal taxa prefer oxic to slightly suboxic bottom water conditions in inner neritic settings.

Age: Badenian (Lagenidae Zone), based on occurrence of *Adelosina longirostra* and *Adelosina schreibersi.*

Lithostratigraphy: Lanžhot Formation.

Siebenhirten 3 SI3 (800–805 m) 6/3: the benthic foraminifera of this assemblage comprise *Ammonia viennensis* (33.7 %), *Borelis melo* (30.2 %), *Ammonia pseudobeccarii* (12.8 %), *Elphidium crispum* (10.5 %) along with *Cycloforina badenensis*, *Quinqueloculina triangularis*, *Pyrgo simplex* and *Triloculina* spp. Submarine vegetation is indicated by most of the taxa except for *Ammonia* and *Cycloforina badenensis*. All included genera are epifaunal and adapted to oxic to suboxic bottom water conditions. The assemblage indicates a nearshore, lagoonal environment in 0–50 m water depth. The mollusc assemblage consists of few species of *Vitta picta, Tritia schoenni, Terebralia lignitarum* and *Potamides theodiscus* and comprises only extremely corroded specimens. All species are bound to the intertidal zone, preferring mudflats. Comparable assemblages are widespread along the Karpatian coasts of the Korneuburg Basin (Zuschin et al., 2014) but are also found along the Badenian coasts as documented by the assemblages of the Grund Formation in Lower Austria (Latal et al., 2006). Although the assemblage is ecologically uniform, lacking species from other environments, the extreme corrosion suggests transport or even reworking.

Age: Badenian (Lagenidae Zone), based on occurrence of *Borelis melo*, *Quinqueloculina triangularis*, *Cycloforina badenensis* and *Triloculina scapha.*

Lithostratigraphy: Lanžhot Formation.

Hohenruppersdorf 25 HRD25 (645–650 m) 7/1: a moderately diverse assemblage of 18 species with *Lenticulina austriaca* (40.9 %), *Ammonia viennensis* (40.1 %) as most frequent species along with *Porosononion granosum* (5.2 %) and rare *Nonion commune*, *Sigmoilopsis schlumbergeri*, *Biasterigerina planorbis* and keeled elphidiids. The sample is mainly composed of epifaunal species adapted to oxic to suboxic bottom conditions. The infaunal species prefer suboxic conditions. *Ammonia* and *Lenticulina* are poorly preserved due to abrasion, whereas the remaining species are moderately preserved. The assemblage indicates the outer part of the inner neritic zone. Similarly, the rather diverse mollusc assemblage with *Bittium reticulatum*, *Ptychidia* cf. *vindobonensis*, *Polinices* cf. *cerovaensis*, *Tritia subasperata* and large amounts of parasitic pyramidellids point to a medium deep soft bottom environment. *Bittium reticulatum* indicates some phytal cover (Bernasconi & Stanley, 1997).

Age: Badenian (Lagenidae Zone), based on occurrence of *Amphistegina radiata*, *Cycloforina badenensis* and *Adelosina longirostra.*

Lithostratigraphy: Lanžhot Formation.

Macrofauna: Plate 3, Fig. 16: *Tritia subasperata*, Plate 3, Fig. 18: *Turbonilla* sp. 1, Plate 3, Fig. 19: *Turbonilla* sp.

Hohenruppersdorf 24 HRD24 (641–645 m) 7/1: moderately diverse with 10 species, such as *Elphidium crispum* (40.6 %), *Borelis melo* (15.6 %), *Ammonia pseudobeccarii* (9.4 %), *Triloculina inflata* (9.4 %) and *Porosononion granosum* (9.4 %) as most frequent species. Almost all taxa are epifaunal and adapted to oxic conditions. Only *Nonion commune* is an infaunal species. The moderately preserved community suggests a lagoonal nearshore environment. Additionally, *Elphidium crispum*, *Borelis melo* and *Triloculina inflata* point to vegetation (e.g. seagrass) due to epiphytic or clinging mode of life.

Age: Badenian (Lagenidae Zone), based on *Borelis melo* and the general composition.

Lithostratigraphy: Lanžhot Formation.

Hohenruppersdorf 24 HRD24 (620–624 m) 6/1: a diverse assemblage with 22 species including *Nonion commune* (38.8 %), *Ammonia pseudobeccarii* (9.0 %), *Fursenkoina subacuta* (7.9 %), *Ammonia viennensis* (7.9 %), *Lenticulina inornata* (7.3 %) and *Bulimina elongata* (6.4 %) as most frequent species. The sample is mainly composed of infaunal species adapted to suboxic bottom conditions. The epifaunal species prefer oxic to suboxic conditions. *Fursenkoina subacuta*, *Bulimina elongata* and *Uvigerina pygmoides* hint at slightly increased flux of organic material and environmental stress. The assemblage is suggesting a slightly shallower setting than HRD24 (550–555 m) 5/1 in the middle inner neritic zone around 100 m.

Age: Badenian (Lagenidae Zone), based on *Uvigerina pygmoides*, the frequent lagenids and the general composition, which agrees with coeval assemblages described by Papp et al. (1978).

Lithostratigraphy: Lanžhot Formation.

Hohenruppersdorf 25 HRD25 (490–495 m) 4/1 (18 species) and HRD25 (550–557 m) 5/1 (20 species): the samples are dominated by *Lenticulina austriaca* (34.8–51.1 %), *Quinqueloculina hauerina* (7.2–13.8 %) and *Semivulvulina pectinata* (6.5–11.6 %) along with *Nonion commune*, keeled elphidiids, *Sigmoilopsis schlumbergeri*, *Biasterigerina planorbis* and *Cibicidoides austriaca.* The benthos is largely composed of epifaunal species adapted to oxic to suboxic conditions. The infaunal species *Nonion commune* points to suboxic conditions. The foraminiferal assemblage indicates the outer part of the inner neritic zone. This interpretation is supported by the mollusc fauna with *Polinices* cf. *cerovaensis,* numerous pyramidellids, *Tritia* sp., *Chrysallida* sp., and *Turbonilla* sp. The absence of herbivores and the presence of the lantern fish *Diaphus acutirostrum* points to a deeper offshore environment with soft bottom.

Age: Badenian (Lagenidae Zone), based on occurrence of *Amphistegina radiata*, *Quinqueloculina haidingeri* and *Cibicidoides austriacus*.

Lithostratigraphy: Lanžhot Formation.

Macrofauna: Plate 3, Figs. 32–33: *Diaphus acutirostrum*.

Hohenruppersdorf 19 HRD19 (650–656 m) 7/1: a moderately diverse and poorly preserved foraminiferal assemblage of 10 species with *Lenticulina inornata* (50 %), *Nonion commune* (28.1 %), *Lenticulina melvilli* (9.4 %) along with *Ammonia viennensis*, *Semivulvulina pectinata*, *Quinqueloculina buchiana* and *Pararotalia aculeata*. The low diverse mollusc assemblage consists mainly of *Chrysallida* species. The inner neritic depositional environment seems to be similar to that of HRD19 (590–595 m) 3/1.

Age: Badenian, based on *Quinqueloculina buchiana* and the relative stratigraphic position.

Lithostratigraphy: Lanžhot Formation.

Foraminifers: Plate 2, Fig. 2: *Lenticulina inornata*.

Hohenruppersdorf 19 HRD19 (630–635 m) 6/1: the assemblage contains 22 species, such as *Nonion commune* (41.6 %), *Fursenkoina subacuta* (34.1 %), *Bolivina dilatata* (10.9 %) along with *Lenticulina* spp., *Sigmoilopsis schlumbergeri*, *Bulimina elongata*, *Cibicidoides* spp., *Laevidentalina* spp., *Textularia gramen*, *Valvulineria complanata* and *Reussella spinulosa*. Most of these are infaunal or deep infaunal taxa, adapted to sub- or even dysoxic bottom water conditions (e.g. *Nonion commune*, *Fursenkoina subacuta* and *Bolivina dilatata*). The rare epifaunal species hint at oxic to suboxic conditions. Environmental stress is indicated by the abundance of infaunal *Fursenkoina subacuta* and *Bolivina dilatata*. Preservation is moderate, partly even poor due to strong abrasion and corrosion of the tests. The composition indicates an inner neritic setting.

Age: Badenian, based on the relative stratigraphic position.

Lithostratigraphy: Lanžhot Formation.

Foraminifers: Plate 1, Fig. 26: *Fursenkoina subacuta*.

Hohenruppersdorf 24 HRD24 (550–555 m) 5/1: a diverse foraminiferal assemblage of 21 species with *Nonion commune* (35.3 %), *Valvulineria complanata* (11.5 %), *Globigerina* sp. (9.2 %), *Fursenkoina subacuta* (8.5 %) and *Quinqueloculina haidingeri* (8.1 %) as most frequent species. The community is largely composed of infaunal taxa preferring suboxic bottom waters. Epifaunal species occur in a smaller amount. They are adapted to more oxic conditions. Environmental stress is indicated by *Valvulineria complanata*, *Fursenkoina subacuta* and *Bulimina elongata*. Tests are poorly to moderately preserved; especially the miliolids show a poor preservation due to strong corrosion and abrasion. This assemblage points to a middle to outer neritic environment between 100–200 m water depth.

Molluscs are represented mainly by well preserved shells of *Manzonia scalaris*; the presence of this rissoid suggests shallow marine settings within the photic zone as this genus is commonly associated with algae (Cordeiro & Ávila, 2015). Otoliths of the meso- to bathypelagic lanternfish *Diaphus acutirostrum* support the interpretation of an open marine environment (Brzobohatý & Nolf, 2000).

Age: Badenian (Lagenidae Zone), based on frequent lagenids, *Quinqueloculina haidingeri*, *Lagena haidingeri* and others.

Lithostratigraphy: Lanžhot Formation.

Foraminifers: Plate 1, Fig. 12: *Spirosigmoilina tenuis.*

Macrofauna: Plate 3, Fig. 8: *Manzonia scalaris*.

Hohenruppersdorf 19 HRD19 (590–595 m) 4/1 (22 species): the foraminiferal assemblage comprises *Nonion commune* (41.5 %), *Bulimina elongata* (20.6 %), *Lenticulina inornata* (19.3 %) and *Quinqueloculina triangularis* (6.2 %) along with rare *Semivulvulina pectinata*, *Ammonia* spp., *Cycloforina contorta*, *Heterolepa dutemplei* and others. The assemblage is mainly composed of infaunal species adapted to suboxic bottom water conditions. The epifaunal species indicate low oxygenated conditions. Almost all tests are abraded and corroded. The low diverse mollusc assemblage consists mainly of *Chrysallida* species. These ectoparasites inhabit sublittoral marine environments; the presence of the meso- to bathypelagic lantern fish of the genus *Diaphus* also points to deeper water. Similarly, the foraminiferal assemblage suggests a deeper inner neritic setting.

Age: Badenian (Lagenidae Zone), based on high number of lagenids, occurrence of *Quinqueloculina triangularis* and *Sigmoilinita tschokrakensis*.

Lithostratigraphy: Lanžhot Formation.

Hohenruppersdorf 19 HRD19 (495–500 m) 2/1: a moderately to well-preserved foraminiferal assemblage of 15 species with numerous *Bulimina elongata* (79.1 %) and *Nonion commune* (8.8 %) along with rare *Textularia gramen*, *Ammonia* spp., *Cibicidoides* spp. and *Quinqueloculina* spp. Increased organic matter flux is clearly documented by benthic foraminifera, which are largely composed of infaunal species adapted to suboxic environments. The abundance of infaunal species and epifaunal indicators for oxic conditions suggests a mesotrophic, suboxic environment for this assemblage in a middle neritic setting.

Age: Badenian (Lagenidae Zone), based on the general composition, which agrees with coeval assemblages reported by Papp et al. (1978).

Lithostratigraphy: Lanžhot Formation.

Walterskirchen 1 WA1 (500–505 m) 7/4: the moderately diverse foraminiferal assemblage with 14 species including *Lenticulina inornata* (53.2 %), *Heterolepa dutemplei* (28.8 %) along with *Elphidium fichtelianum*, *Ceratocancris haueri*, *Semivulvulina pectinata*, *Melonis pompilioides* and *Globulina gibba.* The assemblage is largely composed of epifaunal species adapted to both oxic and low-oxygenated bottom water conditions. The documented infaunal species are suboxic. The assemblage indicates an outer neritic to upper bathyal setting.

Age: Badenian (Lagenidae Zone), based on relative stratigraphic position.

Lithostratigraphy: Lanžhot Formation.

Walterskirchen 1 WA1 (400–403 m) 5/1: a diverse benthic assemblage of 42 species with *Valvulineria complanata* (21.5 %), *Bulimina elongata* (14.4 %), *Ammonia viennensis* (12.0 %) and *Porosononion granosum* (12.0 %) along with *Quinqueloculina* spp., *Nonion commune*, *Cibicidoides* sp., *Cycloforina* spp., *Protoglobobulimina pupoides*, *Heterolepa dutemplei* and *Melonis pompilioides*. Increased organic matter flux and environmental stress are documented by the high abundances of infaunal and deep infaunal indicators like *Valvulineria complanata*, *Bulimina elongata*, *Protoglobobulimina pupoides*, *Melonis pompilioides* and *Bolivina dilatata* preferring suboxic to dysoxic conditions. Epifaunal foraminifers point to oxygenated bottom waters. An outer neritic marine environment is indicated by this assemblage. Molluscs are represented by few turritellids and nuculanids, which are typical for sandy-muddy bottoms. *Tritia striatula* is very common in medium deep sublittoral offshore environments of the Vienna Basin. The most conspicuous element is the frequently occurring bryozoan *Cupuladria*. This genus forms small free-living and semi-vagile colonies and shuns pure clay bottoms. It prefers muddy sand and sand below wave base (Bałuk & Radwański, 1984).

Age: Badenian (*Spirorutilus* Zone), based on co-occurrence of *Adelosina longirostra*, *Quinqueloculina triangularis*, *Quinqueloculi-*

na haidingeri, *Cycloforina badenensis*, *Textularia mariae*, *Quinqueloculina foeda* and general similarity with assemblages from that biozone as described by Rupp (1986).

Lithostratigraphy: Jakubov Formation.

Macrofauna: Plate 3, Fig. 29: *Cupuladria* sp.

Hohenruppersdorf 25 HRD25 (310–315 m) 2/1: a diverse foraminiferal assemblage of 22 species with *Protoglobobulimina pupoides* (20.5 %), *Triloculina inflata* (12.1 %), *Valvulineria complanata* (10.8 %) and less frequent *Quinqueloculina* spp., *Karreriella chilostoma*, *Heterolepa dutemplei*, *Ammonia* spp., keeled elphidiids, *Bulimina elongata*, *Porosononion granosum*, *Nonion commune*, *Neugeborina longiscata* and *Pyrgo simplex*. Oxic bottom waters are preferred by the epifaunal species (accounting for c. 50 %), whereas the infaunal and deep infaunal taxa are solely adapted to suboxic and dysoxic bottom water conditions. Increased organic matter flux and environmental stress is indicated by *Protoglobobulimina pupoides*, *Valvulineria complanata* and *Bulimina elongata*. The tests are moderately to well-preserved, some are strongly corroded and pyritized. The assemblage indicates an inner neritic setting down to 100 m water depth.

Age: Badenian (*Spirorutilus* Zone), based on the occurrences of *Quinqueloculina foeda* and *Globigerinoides quadrilobatus.*

Lithostratigraphy: Jakubov Formation.

Hohenruppersdorf 25 HRD25 (290–298 m) 1/1: a diverse foraminiferal assemblage of 47 species with *Valvulineria complanata* (22.5 %), *Porosononion granosum* (12.6 %), *Ammonia viennensis* (12.2 %) as most frequent species associated with *Textularia* spp., *Nonion commune*, *Cycloforina contorta*, *Sigmoilopsis* spp., *Bulimina* spp., *Praeglobobulimina* spp., *Cancris auriculus*, *Heterolepa dutemplei*, *Quinqueloculina* spp., *Pseudogaudryina mayeriana*, *Cibicidoides* spp. and many others. Most of the epifaunal species, which account for about 50 % of the total assemblage, depend on oxic bottom waters, whereas the infaunal taxa are solely adapted to suboxic or even dysoxic bottom water conditions. The latter comprise several species pointing to increased organic matter flux and environmental stress, such as *Valvulineria complanata*, *Bulimina elongata*, *Praeglobobulimina* spp., *Fursenkoina subacuta*, *Melonis* spp., *Cancris auriculus*, *Cassidulina laevigata and Hoeglundina elegans*. The assemblage points to the middle neritic zone.

The increased contribution of planktonic foraminifera preferring warm temperature conditions hints at warmer surface waters. *Globigerinella obesa*, known as a deeper water element, indicates deeper warm-temperate layers. The proportion of planktonic taxa preferring productive environments (*Globigerina bulloides*, *G. praebulloides*; 29 % of planktonic content) may indicate a slightly increased input of nutrients.

Age: Badenian (*Spirorutilus* Zone), based on the occurrences of *Quinqueloculina foeda*, *Bitubulogenerina reticulata*, *Cibicidoides austriacus*, *Globigerina falconensis*, *Globigerinoides quadrilobatus* and the general composition, which agrees with coeval assemblages reported by Papp et al. (1978) and Rupp (1986).

Lithostratigraphy: Jakubov Formation.

Poysdorf 1 PO1 (520–525 m) 17/2: the very diverse assemblage contains 71 species. *Biasterigerina planorbis* (12.7 %), *Cibicidoides austriacus* (10.8 %) and *Porosononion granosum* (7.6 %) are the most frequent species. Almost all species are epifaunal taxa adapted to oxygenated or low-oxygenated bottom water conditions in nearshore and inner neritic settings. Genera, such as *Borelis*, *Spirolina*, *Quinqueloculina*, *Cibicidoides* and *Elphidium*, indicate submarine vegetation, such as seagrass, and/or hard substrates due to their clinging and epiphytic mode of life. The macrofauna is well-preserved and very diverse containing 28 mollusc species, 8 bryozoan species and the polychaet *Ditrupa*. The bryozoan assemblage is dominated by the bryozoan *Biflustra* along with *Ceriopora* sp., *Myriapora truncata, Cellepora* sp. and *Adeonellopsis* sp.

The mollusc fauna contains abundant *Bittium reticulatum*, *Bittium spina*, *Cerithidium multiliratum*, *C. schwartzi* and several rissoids, such as *Alvania ampulla*. These taxa mainly occur in vegetated marine environments (Bernasconi & Stanley, 1997; Weber & Zuschin, 2013). Similarly, the imprints on the epifaunal *Biflustra*-colonies point to the presence of sea grass. Thus, the assemblage is very indicative for a very shallow sublittoral setting with sea grass.

Age: Badenian (*Spirorutilus* Zone) based on co-occurrence of *Cibicidoides austriacus*, *Cornuspira plicata*, *Quinqueloculina foeda*, *Adelosina longirostra*, *Pyrgoella ventruosa*, *Paravulvulina serrata*, *Cycloforina lucida*, *C. badenensis*, *Quinqueloculina haidingeri*, *Spirolina austriaca*, *Borelis melo*.

Lithostratigraphy: Jakubov Formation.

Foraminifers: Plate 1, Fig. 6: *Paravulvulina serrata*, Plate 1, Fig. 9: *Quinqueloculina akneriana*, Plate 1, Fig. 10: *Borelis melo*, Plate 1, Fig. 14: *Quinqueloculina boueana*, Plate 1, Fig. 29: *Globulina punctata*, Plate 2, Fig. 1: *Guttulina communis*, Plate 2, Fig. 8: *Amphistegina radiata*, Plate 2, Fig. 15: *Conorbella imperatoria*, Plate 2, Fig. 16: *Biasterigerina planorbis*.

Macrofauna: Plate 3, Fig. 3: *Cerithidium multiliratum*, Plate 3, Fig. 4: *Cerithidium schwartzi*, Plate 3, Fig. 9: *Alvania ampulla*, Plate 3, Fig. 24: *Ceriopora* sp., Plate 3, Fig. 25: *Myriapora truncata*, Plate 3, Fig. 26: *Cellepora* sp., Plate 3, Fig. 27: *Adeonellopsis* sp., Plate 3, Fig. 28: *Biflustra* sp.

Poysdorf 1 PO1 (490–495 m) 16/1: a lagoonal, inner neritic setting with water depths down to 50 m is indicated by the assemblage of 16 species with *Ammonia viennensis* (34.1 %), *Porosononion granosum* (22.5 %), *Quinqueloculina buchiana* (9.3 %) along with *Globigerina bulloides, Globorotalia bykovae, Nonion commune* and *Bulimina elongata*. Most of the taxa are epifaunal to shallow infaunal and prefer oxic to slightly suboxic environments. *Nonion commune*, *Aubignyna* sp. and *Bulimina elongata* are infaunal species preferring suboxic conditions. The nearly monospecific mollusc assemblage, comprising mainly the bivalve *Gouldia minima,* suggests an unstable environment and maybe also low oxygen conditions (Povchun & Subbotin, 1991).

Age: Badenian (*Spirorutilus* Zone), based on *Quinqueloculina foeda* and similarity with coeval assemblages described by Rupp (1986) and correlation with PO1 (520–525 m) 17/2.

Lithostratigraphy: Jakubov Formation.

Althöflein 1 AH1 (220–225 m) 8/2: moderately preserved, slightly abraded benthic assemblage, containing 44 species. *Porosononion granosum* (15.0 %), *Nonion commune* (14.5 %) and *Ammonia viennensis* (11.9 %) predominate. *Quinqueloculina boueana*, *Bitubulogenerina reticulata, Reussella spinulosa*, *Bolivina dilatata* and *Cycloforina contorta* contribute with 5.4 to 3.5 % to the assemblage.

Increased organic matter flux and environmental stress are documented by *Bolivina dilatata*, *Fursenkoina subacuta*, *Melonis pompilioides*, *Valvulineria complanata*, *Praeglobobulimina pyrula*, *Cancris auriculus*, and *Bulimina elongata*. These are also infaunal to deep infaunal species. The assemblage suggests a shallow marine, inner neritic setting down to 100 m water depth.

Molluscs are represented by a diverse and well-preserved turritellid-dominated assemblage. The abundance of *Ptychidia vindobonensis* and other infaunal taxa, such as *Corbula gibba*, *Saccella commutata* and *Gadilina jani* document soft bottom conditions. Carnivorous turrids and parasitic pyramidellids feeding on polychaets and echinoderms are also typical. Preservation and composition point to within-habitat preservation; no indications for transport or reworking were found. Fish remains include otoliths of the benthic goby *Lesueurigobius vinicalis*. Extant Mediterranean representatives of the genus *Lesueurigobius* typically occur at depths between 10 to 230 m (Miller, 1986). This points to a medium deep sublittoral soft-bottom environment within the photic zone.

Age: Badenian (*Spirorutilus* Zone), based on co-occurrence of *Cycloforina contorta*, *Bitubulogenerina reticulata*, *Quinqueloculina foeda*.

Lithostratigraphy: Jakubov Formation.

Foraminifers: Plate 1, Fig. 13: *Quinqueloculina foeda*, Plate 1, Fig. 21: *Bitubulogenerina reticulata*, Plate 1, Fig. 25: *Reussella spinulosa.*

Macrofauna: Plate 3, Fig. 5: *Ptychidia vindobonensis*, Plate 3, Fig. 12: *Pseudonoba striata*, Plate 3, Fig. 23: *Gadilina jani*, Plate 3, Figs. 36–37: *Lesueurigobius vicinalis*.

Althöflein 1 AH1 (190–195 m) 7/4: a diverse foraminiferal assemblage of 37 species with *Ammonia viennensis* (33.9 %), *Elphidium crispum* (19.2 %), *Quinqueloculina akneriana* (6.9 %), *Pseudotriloculina consobrina* and rare *Cycloforina* spp., *Borelis melo*, *Textularia gramen*, *Biasterigerina planorbis* and *Spirolina austriaca*. Seagrass or macro-algae are indicated by species with a clinging or epiphytic mode of life, such as *Quinqueloculina* spp., *Spirolina austriaca*, *Borelis melo*, *Textularia gramen*, *Cibicidoides* spp. and *Cibicidoides lobatulus*. Infaunal species are rare. This assemblage represents a shallow marine, inner neritic environment. The mollusc assemblage is diverse and gastropod-dominated. The abundant and well preserved *Sandbergeria perpusilla* and *Bittium spina* along with rissoids and nassariids point to a shallow sublittoral setting as well. Intertidal taxa, such as *Vitta picta, Granulolabium bicinctum* and *Tritia dujardini* are fragmented, abraded and display black coloring. These elements are probably transported from the adjacent littoral zone. Some of the larger shells show typical peeling of the apertures by crabs. Concluding, the assemblage indicates a shallow marine, inner neritic to lagoonal setting probably with seagrass patches; close-by coastal mudflats are indicated by rare *Granulolabium bicinctum*.

Age: Badenian (*Spirorutilus* Zone), based on co-occurrence of *Quinqueloculina* spp. *Cycloforina contorta*, *Elphidium* spp., *Ammonia* spp., *Borelis melo*, *Spirolina austriaca* and the high similarity with coeval assemblages described by Rupp (1986).

Lithostratigraphy: Jakubov Formation.

Foraminifers: Plate 1, Fig. 8: *Cycloforina contorta*, Plate 1, Fig. 11: *Pseudotriloculina consobrina*, Plate 1, Fig. 15: *Spirolina austriaca*, Plate 2, Fig. 25: *Elphidium flexuosum.*

Macrofauna: Plate 3, Fig. 1: *Bittium spina*, Plate 3, Fig. 2: *Sandbergeria perpusilla*, Plate 3, Fig. 13: *Caecum* cf. *trachea*, Plate 3, Fig. 15: *Tritia styriaca*, Plate 3, Fig. 21: *Anisocycla* cf. *nitidissima*, Plate 3, Figs. 34–35: *Diaphus austriacus.*

Poysdorf 1 PO1 (460–465 m) 15/1: low diverse foraminiferal assemblage with *Ammonia pseudobeccarii* (86.7 %) along with rare *Ammonia viennensis*, *Quinqueloculina triangularis*, keeled elphidiids, *Aubignyna* sp., *Heterolepa dutemplei* and *Siphonina reticulata*. The fauna is largely composed of epifaunal to shallow infaunal species depending on oxic to slightly suboxic bottom water conditions in lagoonal and intertidal settings. Similarly, Paratethyan *Vitta* species are restricted to intertidal settings, often associated with mudflats (Harzhauser & Kowalke, 2001).

Age: Badenian (*Bulimina*-*Bolivina* Zone), based on the similarity with coeval foraminiferal assemblages reported by Papp et al. (1978) and on the presence of the gastropod *Vitta tuberculata*, which is known so far only from the late Badenian (Švagrovský, 1964, 1982).

Lithostratigraphy: Studienka Formation.

Siebenhirten 3 SI3 (600–604 m) 4/2, SI3 (500–505 m) 3/1 and SI3 (400–405 m) 2/2: the samples contain numerous reworked Badenian foraminifera. The autochthonous taxa are keeled and unkeeled elphidiids (e.g. *Elphidium grilli*, *E. antoninum*), *Ammonia* spp., *Bolivina* spp., *Bulimina* spp., *Cibicidoides lobatulus*, *Bulimina subulata*, *Biasterigerina planorbis*, *Nonion commune*, *Fissurina marginata* and *Quinqueloculina* spp. These are epi- and infaunal/deep infaunal species, partly tolerating low-oxygenated bottom water conditions. The high abundance of infaunal *Bulimina elongata* in sample SI3 (600–604 m) 4/2 hints at environmental stress. The assemblage suggests a vegetated, probably lagoonal, nearshore environment with slightly increased flux and environmental stress.

Age: Sarmatian (*Elphidium reginum* Zone), based on occurrence of Sarmatian elphidiids, such as *Elphidium grilli, E. hauerinum, E. josephinum* and *E. antoninum.*

Lithostratigraphy: Holič Formation.

Foraminifers: Plate 1, Fig. 18: *Amphicoryna badenensis* (reworked), Plate 1, Fig. 28: *Lagena gracilicosta* (reworked).

Hohenruppersdorf 24 HRD24 (256–260.5 m) 2/1: a low diverse mollusc assemblage with few, strongly fragmented specimens of *Vitta picta* and *Pseudamnicola* cf. *tholosa* point to a coastal mudflat environment.

Age: Sarmatian, based on mollusc fauna and seismic correlation.

Lithostratigraphy: Holič Formation.

Walterskirchen 1 WA1 (300–305 m) 3/1: a low diverse assemblage dominated by *Aubignyna* sp. 1 (61.5 %), *Elphidium grilli* (22.3 %) and *Porosononion granosum* (6.9 %). The mollusc fauna contains numerous endemic Sarmatian gastropods, such as *Mohrensternia styriaca, M.* inflata, Hydrobia cf. *andrussowi* and *Hydrobia subsuturata* along with *Acteocina lajonkaireana* and the bivalve *Abra reflexa*. The assemblage indicates shallow marine coastal environments with algae and muddy bottoms (Lukeneder et al., 2011).

Age: Sarmatian (*Elphidium reginum* Zone, *Mohrensternia* Zone), based on the frequent occurrence of *Elphidium grilli* and the gastropod genus *Mohrensternia*.

Lithostratigraphy: Holič Formation.

Macrofauna: Plate 3, Fig. 10: *Mohrensternia styriaca*, Plate 3, Fig. 11: *Mohrensternia inflata*, Plate 3, Fig. 22: *Acteocina lajonkaireana*.

Walterskirchen 1 WA1 (200–205 m) 1/1 and WA1 (300–305 m) 3/1: a well-preserved foraminiferal assemblage of 10 to 16 species with keeled elphidiids, *Porosononion granosum*, *Aubignyna* sp., *Ammonia* spp., *Amphicoryna hispida*, and *Conorbella imperatoria*. Almost all benthic foraminifera are epifaunal adapted to oxic bottom water conditions. The assemblage indicates a vegetated, shallow subtidal, inner neritic environment of 0–50 m. Similarly, the rich and well preserved mollusc assemblage with numerous small rissoid and hydrobiid gastropods (*Mohrensternia styriaca*, *Mohrensternia inflata, Hydrobia subsuturata*) suggests a shallow marine settings with muddy shores and foreshores with algae or seagrass (Mandic et al., 2008; Lukeneder et al., 2011).

Age: Sarmatian (*Elphidium reginum* Zone, *Mohrensternia* Zone), based on the presence of *Aubignyna* sp., *Elphidium grilli*, *Elphidium koberi*, *Conorbella imperatoria* and the occurrence of the gastropod genus *Mohrensternia*.

Lithostratigraphy: Holič Formation.

Foraminifers: Plate 2, Figs. 17–18: *Aubignyna* sp., Plate 2, Figs. 19–20: *Ammonia pseudobeccarii*, Plate 2, Fig. 26: *Elphidium grilli*.

Poysdorf 1 PO1 (220–225 m) 7/2 and PO1 (250–255 m) 8/1 (11 species): the infaunal and deep infaunal, suboxic to dysoxic species *Bolivina dilatata* (20.5 %) and *Bulimina elongata* (4.9 %) point at increased stress and organic matter flux. The remaining epifaunal taxa prefer oxic to slightly suboxic bottom water conditions. The foraminiferal assemblage indicates an inner neritic environment down to 50 m water depths. The low diverse mollusc assemblage with *Mohrensternia styriaca, Hydrobia frauenfeldi, Hydrobia subsuturata* and *Acteocina lajonkaireana* is widespread in the Sarmatian Sea where it was restricted to shallow marine settings with muddy shores and foreshores with algae or seagrass (Mandic et al., 2008; Lukeneder et al., 2011).

Age: Sarmatian (*Elphidium reginum* Zone, *Mohrensternia* Zone), based on the occurrence of the gastropod genus *Mohrensternia*.

Lithostratigraphy: Holič Formation.

Macrofauna: Plate 3, Fig. 7: *Hydrobia subsuturata.*

Althöflein 1 AH1 (160–165 m) 6/2: the assemblage is dominated by *Ammonia viennensis* (42 %), *Porosononion granosum* (37.3 %), *Cibicidoides lobatulus* (5.5 %), along with several elphidiids. The autochthonous Sarmatian foraminifers are moderately preserved, showing signs of corrosion and abrasion. The assemblage comprises mainly epi- to infaunal species, pointing to slightly suboxic conditions. Epifaunal species with oxic preferences are underrepresented (elphidiids) and infaunal species absent. The assemblage indicates an inner neritic, shallow subtidal environment of 0–50 m water depth.

Age: Sarmatian, based on the assemblage type with high amount of *Porosononion granosum* co-occurring with *Elphidium aculeatum*.

Lithostratigraphy: Holič Formation.

Foraminifers: Plate 2, Figs. 21–22: *Ammonia viennensis*, Plate 2, Figs. 23–24: *Porosononion granosum.*

Poysdorf 1 PO1 (160–165 m) 5/2 (12 species) and PO1 (130–135 m) 4/2 (15 species): a large number of elphidiids (*E. fichtelianum*, *E. grilli*, *E. hauerinum*, *E. obtusum*, *E. reussi*) along with *Ammonia* spp., *Biasterigerina planorbis*, *Bulimina elongata*, *Nonion commune* and *Porosononion granosum* comprise the autochthonous fauna, which is mixed with large numbers of reworked Badenian taxa. The Sarmatian assemblage indicates an inner neritic setting of 0–50 m water depth with seagrass or macroalgae.

Age: Sarmatian (*Elphidium reginum* or *E. hauerinum* Zone), based on occurrence of *Elphidium grilli* and *E. hauerinum.*

Lithostratigraphy: Holič Formation.

Foraminifers: Plate 2, Fig. 9: *Globigerina bulloides* (reworked).

Althöflein 1 AH1 (130–135 m) 5/1: low diverse well-preserved Sarmatian assemblage comprising 10 species, such as *Aubignyna* sp., *Elphidium aculeatum*, *Elphidium antoninum*, *Elphidium crispum*, *Elphidium hauerinum*, *Cibicidoides lobatulus*, *Biasterigerina planorbis*, *Ammonia* spp. and *Porosononion granosum*. The majority of species has an epifaunal mode of life under oxygenated bottom water conditions (*Biasterigerina planorbis*, most elphidiids, *Cibicidoides lobatulus*).

Age: Sarmatian (*Elphidium reginum* Zone), based on occurrence of typical Sarmatian taxa, such as *Elphidium hauerinum* and *Elphidium aculeatum*.

Lithostratigraphy: Holič Formation.

Foraminifers: Plate 1, Fig. 17: *Plectofrondicularia digitalis*, Plate 2, Fig. 4: *Cibicidoides lobatulus*, Plate 2, Fig. 10: *Globigerinoides trilobus*, Plate 2, Figs. 27–28: *Elphidium aculeatum.*

Althöflein 1 AH1 (100–105 m) 4/1: an *Ammonia*-dominated assemblage (79.8 %) with well-preserved Sarmatian species, such as *Elphidium grilli*, *E. antoninum*, *E. crispum*, *E. aculeatum*, *Nonion bogdanowiczi* and *Biasterigerina planorbis* along with reworked Badenian foraminifera, such as *Quinqueloculina buchiana*, *Fursenkoina subacuta* and *Globorotalia bykovae*. Small sized and fragmented specimens of a low diverse and poorly preserved mollusc assemblage containing *Granulolabium bicinctum* and *Pseudamnicola tholosa* indicate a Sarmatian age as well. The foraminiferal assemblage consists mainly of epifaunal to slightly infaunal taxa with oxic to suboxic preferences (*Ammonia* spp.) as well as epifaunal taxa representing oxygenated bottom waters (elphidiids), pointing to a coastal marine to lagoonal environment in 0–50 m water depth.

Age: Sarmatian (*Elphidium reginum* Zone, *Mohrensternia* Zone), based on occurrence of *Elphidium grilli*, *E. aculeatum*, *Aubignyna* sp.

Lithostratigraphy: Holič Formation.

Poysdorf 1 PO1 (40–45 m) 1/1, PO1 (99.5–105 m) 3/1: a shallow marine, vegetated nearshore to intertidal setting with slightly increased values for organic matter flux and environmental stress is indicated in this sample. The Sarmatian fauna is largely composed of epifaunal and oxic to slightly suboxic taxa. Reworked Badenian species are frequent. Molluscs are rare and strongly corroded. Like its extant relatives *Granulolabium* lived in intertidal sandy mudflats and estuaries (Healy & Wells, 1998; Lozouet et al., 2001;

Lukeneder et al., 2011); the preservation, however, might point to some transport or reworking. The carnivore gastropod *Mitrella sarmatica* is always rare but is usually found in the *Ervilia* Zone, e.g. at Nexing (Harzhauser & Piller, 2010).

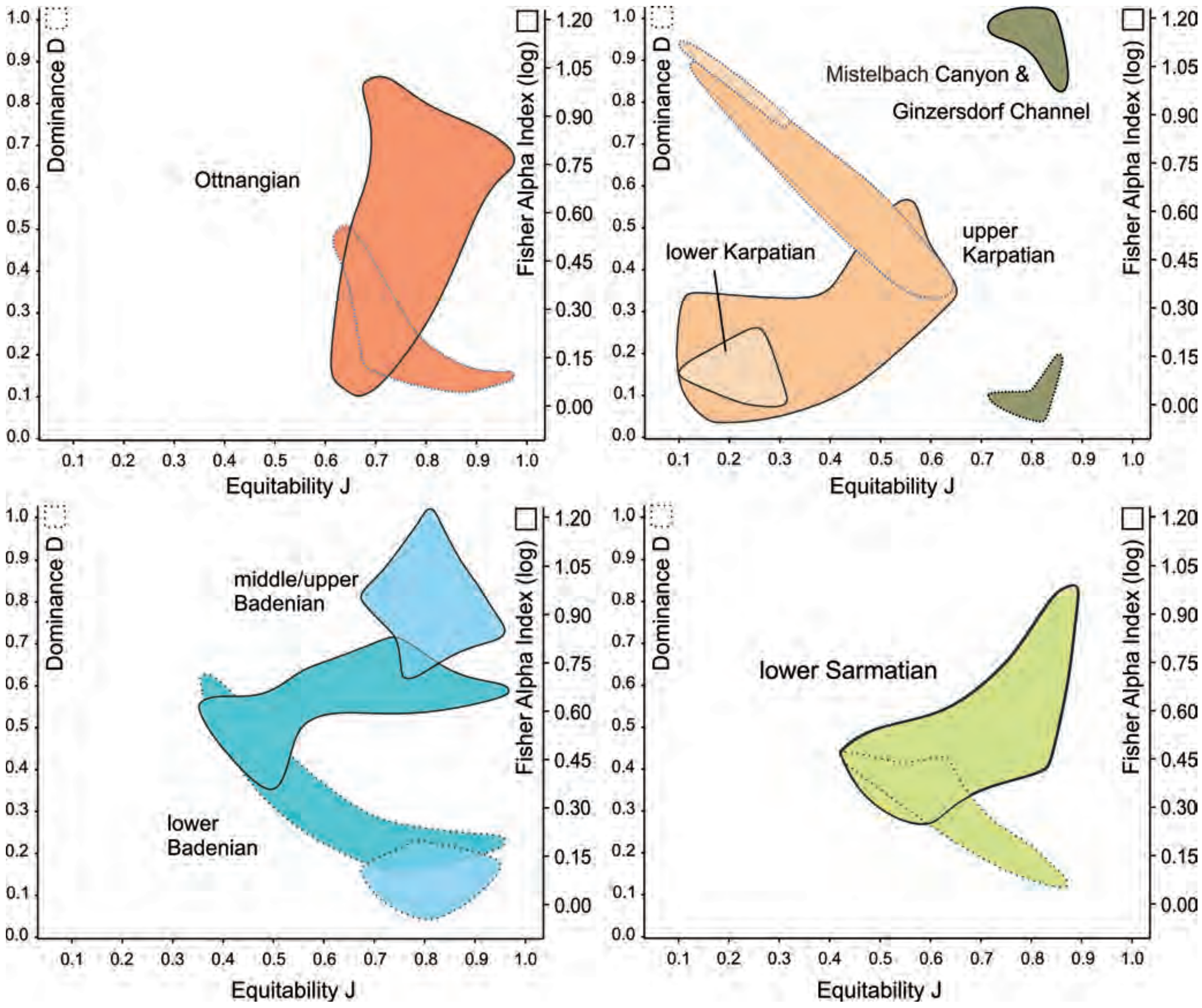
Age: Sarmatian (*Ervilia* Zone?).

Lithostratigraphy: Skalica Formation?

Discussion

To define sample groups and to check the paleoecological interpretations, the quantitative data were used to calculate diversity indices (with the software PAST, Hammer et al., 2001; Tab. 3). The total number of taxa (S) and Fisher Alpha Index (α) express diversity of the microfossil assemblages. The Fisher alpha diversity index is calculated with the formula $S = \alpha^* \ln(1+n/\alpha)$, where S is the number of taxa, n the number of individuals and α the Fisher Alpha (Hammer & Harper, 2006). This formula reduces the influence of the sample size (Murray, 1991) and high values indicate high species richness. The distribution of species within an assemblage is reflected by Dominance (D) and Equitability (J) (Hammer & Harper, 2006). Dominance expresses the authority of single species within a sample. When D is 0 all taxa are equally present in the assemblage, whereas at its maximum at 1 the assemblage is dominated by a single taxon and diversity is therefore low. Equitability describes the similarity between species contributions (Hammer & Harper, 2006; Murray, 1991, 2006). The smaller J the bigger is the uneven distribution of the involved individuals among the present taxa.

The Fisher Alpha index of the 16 Ottnangian samples ranges around a mean of 5.3 ($\sigma = 3.0$), J = 0.75 ($\sigma = 0.09$), D = 0.26 ($\sigma = 0.13$). For the 11 Karpatian samples (excluding those from the Ginzersdorf Channel) α has a mean of 1.87 ($\sigma = 0.95$), J = 0.37 ($\sigma = 0.18$) and D = 0.65 ($\sigma = 0.22$). The 11 lower Badenian samples (excluding those from the Mistelbach Canyon) have a mean α of 4.62 ($\sigma = 1.11$), J = 0.67 ($\sigma = 0.17$) and D = 0.28 ($\sigma = 0.14$). The nine middle to upper Badenian samples have a mean α of 9.78 ($\sigma = 3.12$), J = 0.80 ($\sigma = 0.09$) and D = 0.12 ($\sigma = 0.05$). The 13 Sarmatian samples have a mean α of 3.20 ($\sigma = 1.93$), J = 068 $\sigma = (0.17)$ and D = 0.29 ($\sigma = 0.16$). Thus, the investigated Karpatian samples within the Mistelbach Halfgraben are



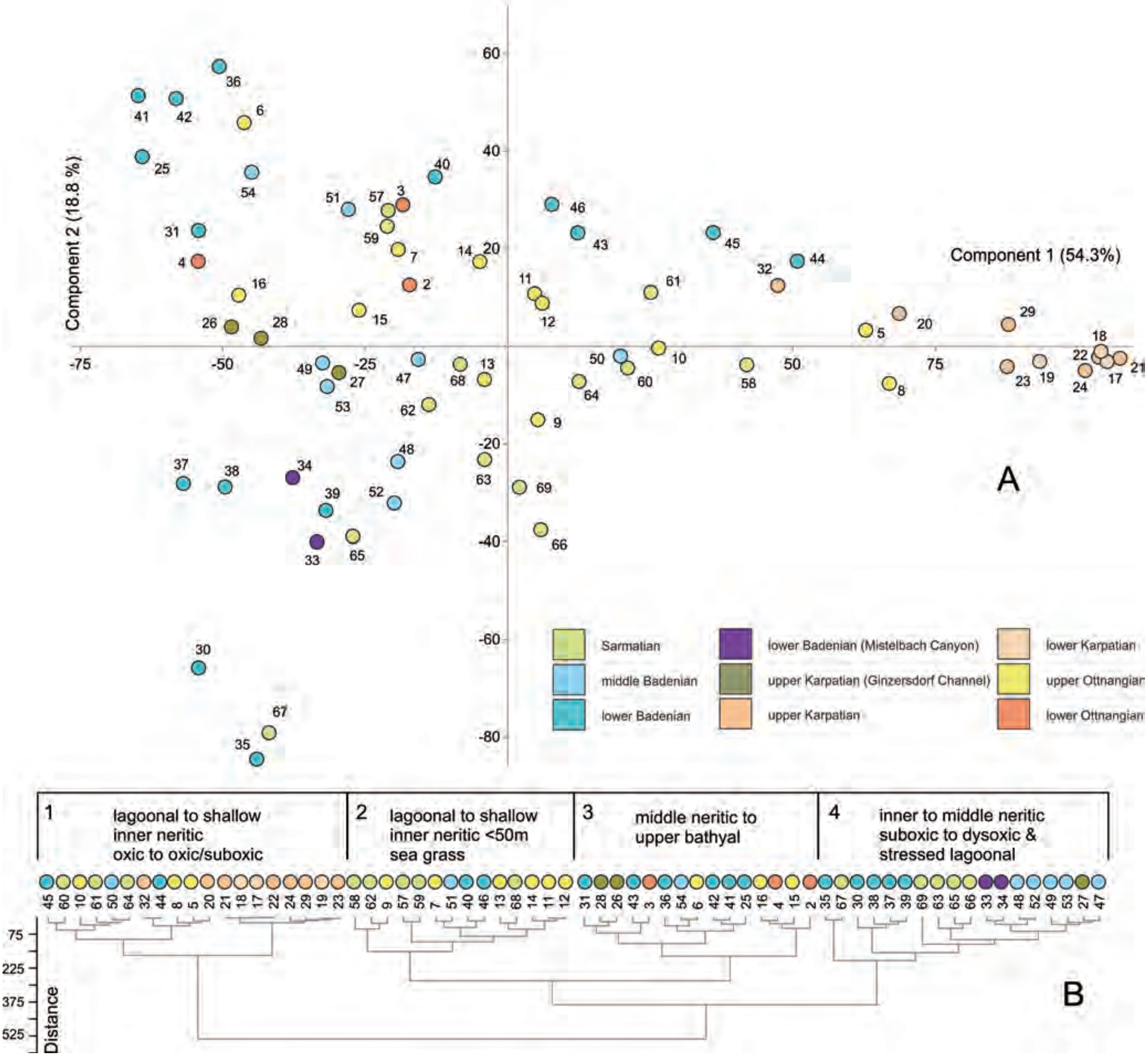
Text-Fig. 6.
Cross-plots of diversity indices (Fisher Alpha, Equitability, Dominance) based on the quantitative foraminiferal data in Table 3; outlines encircle all data points.

clearly separated from the Ottnangian ones by the distinctly lower α. Similarly, the lower Badenian samples display generally lower α values than the middle-upper Badenian ones. Sarmatian assemblages are also only moderately diverse and have rather low α. Equitability and dominance values are rather uniform across the stratigraphic sample groups except for the Karpatian samples, which display low J and high D values.

These general patterns are also present in cross-plots (Text-Fig. 6) revealing balanced assemblages with low to moderate species richness in the Ottnangian opposed by rather unbalanced assemblages from more stressed environments of the Karpatian. Nevertheless, a slight shift from low diverse and unbalanced assemblages towards of more diverse and balanced assemblages occurred during the Karpatian. The range seen in Badenian and Sarmatian samples is caused by the presence of lagoonal environments (higher D, smaller J) and inner neritic environments partly with seagrass cover (lower D, higher J).

Interestingly, the samples from the Karpatian Ginzersdorf Channel and the Badenian Mistelbach Canyon plot close together, being characterized by highest α and J values and lowest D values, suggesting optimal conditions for foraminiferal assemblages.

A Principal Component Analysis (PCA) (Text-Fig. 7A) and Cluster Analysis (CA) (Text-Fig. 7B) of paleoenvironmental and bathymetric indices presented in Table 3 supports the patterns seen in the diversity indices. Karpatian samples are strongly separated from other samples in the PCA.



Text-Fig. 7.
Principal Component Analysis (A) and Cluster Analysis (B) of the foraminiferal assemblages per sample based on paleoenvironmental and bathymetric indices (%): epifaunal, epifaunal to shallow infaunal, infaunal, deep infaunal, inner neritic, inner-middle neritic, inner-outer neritic, middle-outer neritic, inner neritic-bathyal, middle neritic-bathyal, outer neritic-bathyal, bathyal taxa.
Numbers: 2–4: lower Ottnangian, 5–15: upper Ottnangian, 15–16: uppermost Ottnangian, 17–19: lower Karpatian, 20–25, 29, 32: upper Karpatian, 26–28: uppermost Karpatian (Ginzersdorf Channel), 33–34: lower Badenian (Mistelbach Canyon), 30, 35–45: lower Badenian, 46–53: middle/upper Badenian, 54–69: lower Sarmatian (see Table 3 for full data set and numbering of samples and sample codes).

In the CA, these samples cluster with Ottnangian, Badenian and Sarmatian samples from lagoonal environments, mudflats and inner neritic settings characterized by a mean percentage of 67.9 % (σ = 26.0 %) of epifaunal to shallow infaunal taxa suggesting oxic/suboxic conditions (71.0 %, σ = 23.3 %). Stress indicating taxa account for 29.0 % (σ = 22.6 %) of the assemblages.

The second cluster groups Ottnangian, Badenian and Sarmatian samples from lagoonal to shallow inner neritic settings partly with seagrass. The assemblages are characterized especially by high amount of epifaunal taxa (47.1 %, σ = 20.2 %) and 62.0 % (σ = 16.9) of indicators for oxic to slightly suboxic environments. In the PCA, these samples appear close to the lagoonal and shallow inner neritic Karpatian assemblages. The third cluster unites mainly Ottnangian and Badenian assemblages from middle neritic to upper bathyal settings partly with suboxic bottom conditions.

Samples from inner to middle neritic settings with suboxic and dysoxic bottom conditions form a fourth cluster, comprising Badenian and Sarmatian samples along with three samples from the Mistelbach Canyon and the Ginzersdorf Channel. In addition, Sarmatian samples from stressed lagoonal environments plot in this cluster, which is characterized by a mean of 55.2 % (σ = 19.8 %) of shallow infaunal and infaunal taxa.

Hence, in terms of stratigraphy, lower Ottnangian samples appear only in the third cluster with middle neritic to upper bathyal assemblages. Upper Ottnangian samples reflect a broader spectrum of paleoenvironments but deeper inner neritic to middle neritic assemblages are rare. Most samples comprise shallow neritic and lagoonal assemblages. The Karpatian samples all range within cluster 1. The deepest conditions are recorded by the inner to middle neritic assemblages from the lower Karpatian sample KA 1 (895–900 m) 15/2, whereas all higher samples reflect lagoonal to inner neritic environments. The uppermost Karpatian samples from the Ginzersdorf Channel and the lower Badenian ones from the Mistelbach Canyon appear in clusters three and four, suggesting comparatively deep marine conditions again. Inner to middle neritic settings are typical for lower and middle/upper Badenian assemblages, whereas shallow inner neritic and lagoonal assemblages are less characteristic. Sarmatian samples reflect mainly coastal and lagoonal assemblages as united in clusters one and two. The outliers in the "deep-water-cluster" represent stressed lagoonal environments. Middle to outer neritic conditions did not establish in the investigation area during the Sarmatian.

Conclusions

The oldest deposits in the Mistelbach Halfgraben area are of late Eggenburgian/early Ottnangian age and capture the major transgression of the early Ottnangian. Agitated coastal environments with bryozoan carpets and numerous pectinids developed, comparable to the bryozoan facies of the Zogelsdorf Formation in the Eggenburg area, which developed during the early Ottnangian transgression (Roetzel & Schnabel, 2002; Piller et al., 2007). During the early Ottnangian, the rapid deepening peaked in upper bathyal conditions with characteristic *Bathysiphon* assemblages. During the late Ottnangian, a gradual shallowing trend led to the establishment of outer to inner neritic environments terminating in eutrophic, lagoonal conditions. Muddy, slightly suboxic bottoms were often settled by the bivalves *Corbula gibba* and *Gouldia minima*. Throughout the Ottnangian, the micro- and macrofaunas of the Mistelbach Halfgraben reflect marine conditions.

The onset of the Karpatian coincides with a renewed flooding of the area and moderate deepening. Again, middle neritic conditions became established. Upwelling caused rather cool surface waters and frequent phases of dysoxic bottom conditions. Soon, the open marine faunas disappeared and were replaced by shallow water assemblages. The sporadic molluscs found in the cores are similar to those from the Korneuburg Basin and indicate shallow sublittoral to littoral conditions. Like during the Ottnangian, muddy, slightly suboxic bottoms were settled by the bivalves *Corbula gibba* and *Gouldia minima*.

A submarine channel system developed during the late Karpatian, indicated by the Ginzersdorf Channel. The infill is dated as Karpatian based on the presence of *Uvigerina graciliformis* and the foraminiferal assemblages suggest a deeper marine environment with cool and nutrient-rich surface waters. The low diverse mollusc fauna is dominated by carnivore naticids and scavenging nassariids, probably suggesting a position below the photic zone, which is fully consistent with the presence of lanternfishes. This unit can be traced also into the Mistelbach Canyon, where it forms an older but largely destroyed erosive feature in the base and parts of the slopes of the younger Mistelbach Canyon. A comparable channel structure with late Karpatian fauna was described by Dellmour & Harzhauser (2012) from surface outcrops at Laa and termed "Laa Channel". Therefore, we interpret these structures as channels that formed on the shallow Karpatian shelf during the terminal early Miocene.

The Mistelbach Canyon is the second major erosional feature in the area. It is filled with lower Badenian deposits and formed in an outer neritic to upper bathyal environment. Based on the presence of *Orbulina* this flooding is younger than 15.12 Ma (Wade et al., 2011). As this unit is genetically related to the Iváň Canyon in the adjacent NAFB, this new dating suggests also an early Badenian age for the infill of the Iváň Canyon. The early Badenian flooding sealed the Mistelbach Canyon and middle neritic to upper bathyal water depths partly with suboxic bottom conditions established. The foraminiferal assemblages were characterized by Lagenidae. Seagrass meadows developed down to the middle neritic zone and meso- to bathypelagic fish, such as *Diaphus* and *Gadiculus* flourished. Deeper mud bottoms were settled by numerous pyramidellid gastropods and small naticids. Slightly shallower conditions are typical for the middle Badenian of the Mistelbach Halfgraben. Optimal conditions are reflected by high Fisher Alpha values among the foraminiferal assemblages and a diverse mollusc fauna, which dwelled in widespread seagrass meadows. Deeper mud bottoms were settled by large populations of turritellid gastropods, infaunal bivalves such as *Corbula gibba* and *Saccella commutata* and the free-living and semi-vagile bryozoan *Cupuladria.* Inner neritic conditions are indicated not only by the majority of the foraminiferal assemblages but also by the fish fauna with the benthic gobiid *Lesueurigobius*.

The low number of available samples from the upper Badenian may not be representative for a paleoecological interpretation. The detected assemblages, however, indicate lagoonal to intertidal marine environments in which the neritid gastropod *Vitta tuberculata* dwelled. This gastropod is restricted to the late Badenian of the Paratethys and is an excellent biostratigraphic marker (Švagrovský, 1964, 1982). It was recently also detected in several boreholes from the northern Vienna Basin (own data).

Shallow inner neritic and lagoonal environments predominated in the area during the early Sarmatian. Various species of the endemic gastropod genus *Mohrensternia* characterize the coastal mollusc fauna; seagrass patches developed in some of the lagoons, which were settled by a moderately diverse foraminiferal assemblage with numerous elphidiids. Despite the endemic character of the Sarmatian assemblage, which allow a clear separation from Badenian ones, the Badenian/Sarmatian boundary was frequently misinterpreted in internal OMV reports. The reason for this misconception is the abundance of reworked Badenian foraminiferal specimens, which can outnumber the autochthonous Sarmatian assemblage in specimen numbers.

Based on the diversity indices Fisher Alpha, Equitability and Dominance, Ottnangian samples from the boreholes of the Mistelbach Halfgraben can be separated easily from the Karpatian ones based on the lower diversity of the comparatively unbalanced Karpatian assemblages. Similarly, the lower and middle Badenian samples are separated by the high Fisher Alpha values of the middle Badenian assemblages. This might allow a stratigraphic interpretation of otherwise biostratigraphically insignificant samples in future studies in the area.

Acknowledgements

We greatly acknowledge the very open-minded politics of the OMV-AG to provide access to core material, well-log data and internal reports to support geosciences. We also thank Roman Sauer, Thomas Kuffner and Johann Biskup (OMV-AG, Gänserndorf) for preparation and handling of the numerous core boxes in the storage in Gänserndorf as well as for help and support while sampling.

Many thanks to Fred Rögl (NHMW) and Patrick Grunert (University of Graz) for their help concerning taxonomic questions. Bryozoans were identified by Kamil Zagorsek (Technical University of Liberec).

References

Bąbel, M. (1999): History of sedimentation of the Nida Gypsum deposits (Middle Miocene, Carpathian Foredeep, southern Poland). – Geological Quarterly, **43**, 429–447, Warszawa.

Báldi, K. (2006): Paleoceanography and climate of the Badenian (Middle Miocene, 16.4–13.0 Ma) in the Central Paratethys based on foraminifera and stable isotope (δ18O and δ13C) evidence. – International Journal of Earth Sciences, **95**, 119–142, Berlin–Heidelberg.

Báldi, K. & Hohenegger, J. (2008): Paleoecology of benthic foraminifera of the Baden-Sooss section (Badenian, Middle Miocene, Vienna Basin, Austria). – Geologica Carpathica, **59**, 411–424, Bratislava.

Bałuk, W. & Radwański, A. (1984): Free-living bryozoans from the Korytnica Clays (Middle Miocene; Holy Cross Mountains, Central Poland). – Acta Geologica Polonica, **34**, 239–251, Warszawa.

Bé, A.W.H. & Hutson, W.H. (1977): Ecology of planktonic foraminifera and biogeographic patterns of live and fossil assemblages in the Indian Ocean. – Micropaleontology, **23**, 369–414, New York, NY.

Bernasconi, M.P. & Stanley, D.J. (1997): Molluscan biofacies, their distributions and current erosion on the Nile delta shelf. – Journal of Coastal Research, **13**, 1201–1212, Charlottesville.

Bernhard, J.M. & Sen Gupta, B.K. (1999): Foraminifera of oxygen-depleted environments. – In: Sen Gupta, B.K. (Ed.): Modern Foraminifera, 201–216, Dordrecht (Kluwer Academic Publishers).

Bicchi, E., Ferrero, E. & Gonera, M. (2003): Palaeoclimate interpretation based on Middle Miocene planktonic foraminifera: the Silesia Basin (Paratethys) and Monferrato (Tethys) records. – Palaeogeography, Palaeoclimatology, Palaeoecology, **196**, 265–303, Amsterdam.

Brzobohatý, R. & Nolf, D. (2000): *Diaphus* otoliths from the European Neogene (Myctophidae, Teleostei). – Bulletin de l'Institut Royal des Sciences Naturelles de Belgique, Sciences de la Terre, **70**, 185–206, Bruxelles.

Buday, T., Cicha, I. & Seneš, J. (1965): Miozän der Westkarpaten. – 295 pp., Bratislava (Geologický Ústav Dionýza Štúra).

Cicha, I. & Rögl, F. (1973): Die Foraminiferen des Ottnangien. – In: Papp, A., Rögl, F. & Seneš, J. (Eds.): Chronostratigraphie und Neostratotypen. Miozän der Zentralen Paratethys. Band III: M2 Ottnangien. Die Innviertler, Salgótarjáner, Bántapusztaer Schichtengruppe und die Rzehakia Formation, 297–355, Bratislava (VEDA).

Cicha, I. & Zapletalová, I. (1967): Die Foraminiferen der Karpatischen Serie. – In: Cicha, I., Seneš, J. & Tejkal, J. (Eds.): Chronostratigraphie und Neostratotypen. Miozän der Zentralen Paratethys. Band I: M3 Karpatien. Die Karpatische Serie und ihr Stratotypus, 104–148, Bratislava (VEDA).

Cicha, I., Zapletalová, I., Papp, A., Ctyroká, J. & Lehotayová, R. (1971): Die Foraminiferen der Eggenburger Schichtengruppe (incl. Arcellinida). – In: Steininger, F. & Seneš, J. (Eds.): Chronostratigraphie und Neostratotypen. Miozän der Zentralen Paratethys. Band II: M1 Eggenburgien. Die Eggenburger Schichtengruppe und ihr Stratotypus, 234–355, Bratislava (VEDA).

Cicha, I., Rögl, F., Rupp, C. & Čtyroký, J. (1998): Oligocene – Miocene foraminifera of the Central Paratethys. – Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft, **549**, 1–325, Frankfurt am Main.

Cicha, I., Rögl, F. & Čtyroký, J. (2003): Central Paratethys Karpatian Foraminifera. – In: Brzobohatý, R., Cicha, I., Kováč, M. & Rögl, F. (Eds.): The Karpatian. A Lower Miocene stage of the Central Paratethys, 169–188, Brno (Masaryk University).

Cohen, D.M., Inada, T., Iwamoto, T. & Scialabba, N. (1990): Gadiform fishes of the world (Order Gadiformes). An annotated and illustrated catalogue of cods, hakes, grenadiers and other gadiform fishes known to date. – FAO Fisheries Synopsis, **125**, 442 pp., Rome.

Cordeiro, R. & Ávila, S.P. (2015): New species of Rissoidae (Mollusca, Gastropoda) from the Archipelago of the Azores (northeast Atlantic) with an updated regional checklist for the family. – ZooKeys, **480**, 1–19, Sofia (Pensoft).

Corliss, B.H. (1991): Morphology and microhabitat preferences of benthic foraminifera from the northwest Atlantic Ocean. – Marine Micropaleontology, **17**, 195–236, Amsterdam.

Dellmour, R. & Harzhauser, M. (2012): The Iván Canyon, a large Miocene canyon in the Alpine–Carpathian Foredeep. – Marine and Petroleum Geology, **38**, 83–94, Guildford, Surrey.

Den Dulk, M., Reichart, G.J., van Heyst, S., Zachariasse, W.J. & van der Zwaan, G.J. (2000): Benthic foraminifera as proxies of organic matter flux and bottom water oxygenation? A case history from the northern Arabian Sea. – Palaeogeography, Palaeoclimatology, Palaeoecology, **161**, 337–359, Amsterdam.

Didkovskij, V.J. & Satanovskaja, Z.N. (1970): Foraminifery miotsena Ukrainy. – Paleontologičeskij Spravočnik, **4**, 1–166, Moskva.

Gebhardt, H., Zorn, I. & Roetzel, R. (2009): The initial phase of the early Sarmatian (Middle Miocene) transgression. Foraminiferal and ostracod assemblages from an incised valley in the Molasse basin of Lower Austria. – Austrian Journal of Earth Sciences, **102**, 100–119, Wien.

Görög, A. (1992): Sarmatian Foraminifera of the Zsámbék Basin, Hungary. – Annales Universitatis Scientiarum Budapestinensis de Rolando Eötvös Nominatae, Budapest, Sectio Geologica, **29**, 31–153, Budapest.

Grill, R. (1941): Stratigraphische Untersuchungen mit Hilfe von Mikrofaunen im Wiener Becken und den benachbarten Molasse-Anteilen. – Oel und Kohle, **37**, 595–602, Berlin.

Grill, R. (1943): Über mikropaläontologische Gliederungsmöglichkeiten im Miozän des Wiener Beckens. – Mitteilungen der Reichsamtes für Bodenforschung, Zweigstelle Wien, **6**, 33–44, Wien.

Grill, R. (1968): Erläuterungen zur Geologischen Karte des nordöstlichen Weinviertels und zu Blatt Gänserndorf. Flyschausläufer, Waschbergzone mit angrenzenden Teilen der flachlagernden Molasse, Korneuburger Becken, Inneralpines Wiener Becken nördlich der Donau. – 161 S., Wien (Geologische Bundesanstalt).

Grunert, P., Soliman, A., Ćorić, S., Scholger, R., Harzhauser, M. & Piller, W.E. (2010): Stratigraphic re-evaluation of the stratotype for the regional Ottnangian stage (Central Paratethys, middle Burdigalian). – Newsletter on Stratigraphy, **44**, 1–16, Stuttgart.

Grunert, P., Soliman, A., Ćorić, S., Roetzel, R., Harzhauser, M. & Piller, W.E. (2012): Facies development along the tide-influenced shelf of the Burdigalian Seaway: An example from the Ottnangian stratotype (Early Miocene, middle Burdigalian). – Marine Micropaleontology, **84–85**, 14–36, Amsterdam.

Grunert, P., Hinsch, R., Sachsenhofer, R.F., Bechtel, A., Ćorić, S., Harzhauser, M., Piller, W.E. & Sperl, H. (2013): Early Burdigalian infill of the Puchkirchen Trough (North Alpine Foreland Basin, Central Paratethys): Facies development and sequence stratigraphy. – Marine and Petroleum Geology, **39**, 164–186, Guildford, Surrey.

Hammer, Ø. & Harper, D.A.T. (2006): Paleontological Data Analysis. – 351 pp., Oxford (Blackwell Publishing).

Hammer, Ø., Harper, D.A.T. & Ryan, P.D. (2001): PAST: paleontological statistics software package for education and data analysis. – Palaeontologia Electronica, **4**, 1–9 (Coquina Press).

Harzhauser, M. (2002): Marine und brachyhaline Gastropoden aus dem Karpatium des Korneuburger Beckens und der Kreuzstettener Bucht (Österreich, Untermiozän). – Beiträge zur Paläontologie, **27**, 61–159, Wien.

Harzhauser, M. & Kowalke, T. (2001): Early Miocene brackish-water Mollusca from the Eastern Mediterranean and from the Central Paratethys - a faunistic and ecological comparison by selected faunas. – Journal of the Czech Geological Society, **46**, 353–374, Prague.

Harzhauser, M. & Kowalke, T. (2004): Survey of the Nassariid Gastropods in the Neogene Paratethys. – Archiv für Molluskenkunde, **133**, 1–63, Frankfurt am Main.

Harzhauser, M. & Piller, W.E. (2004a): Integrated stratigraphy of the Sarmatian (Upper Middle Miocene) in the western Central Paratethys. – Stratigraphy, **1**, 65–86, New York, NY.

Harzhauser, M. & Piller, W.E. (2004b): The Early Sarmatian – hidden seesaw changes. – Courier Forschungsinstitut Senckenberg, **246**, 89–111, Frankfurt am Main.

Harzhauser, M. & Piller, W.E. (2007): Benchmark data of a changing sea – Palaeogeography, Palaeobiogeography and events in the Central Paratethys during the Miocene. – Palaeogeography, Palaeoclimatology, Palaeoecology, **253**, 8–31, Amsterdam.

Harzhauser, M. & Piller, W.E. (2010): Molluscs as a major part of subtropical shallow-water carbonate production – an example from a Middle Miocene oolite shoal (Upper Serravallian, Austria). – International Association of Sedimentologists, Special Publications, **42**, 185–200, Oxford.

Harzhauser, M., Mandic, O. & Schlögl, J. (2011): A late Burdigalian bathyal mollusc fauna from the Vienna Basin (Slovakia). – Geologica Carpathica, **62**, 211–231, Bratislava.

Haunold, T.G. (1995): Zur Taxonomie, Systematik und stratigraphischen Bedeutung uvigerinider Foraminiferen im Neogen des Wiener Beckens und benachbarter Gebiete – 40 Jahre nach Papp & Turnovsky (1953). – Jahrbuch der Geologischen Bundesanstalt, **138**, 67–87, Wien.

Healy, J.M. & Wells, F.E. (1998): Superfamily Cerithioidea. – In: Beesley, P.L., Ross, G.J.B. & Wells, A. (Eds.): Mollusca: The Southern Synthesis. Fauna of Australia, Volume **5**, Part B, 707–733, Melbourne (CSIRO Publishing).

Hemleben, C., Spindler, M. & Anderson, O.R. (1989): Modern planktonic foraminifera. – 363 pp., New York (Springer).

Hilbrecht, H. (1996): Extant planktic foraminifera and the physical environment in the Atlantic and Indian Oceans. – Mitteilungen aus dem Geologischen Institut der Eidgenössischen Technischen Hochschule und der Universität Zürich, Neue Folge, **300**, 1–93, Zürich.

Hohenegger, J. (2005): Estimation of environmental paleogradient values based on presence/absence data: a case study using benthic foraminifera for paleodepth estimation. – Palaeogeography, Palaeoclimatology, Palaeoecology, **217**, 115–130, Amsterdam.

Hohenegger, J., Ćorić, S. & Wagreich, M. (2014): Timing of the Middle Miocene Badenian Stage of the Central Paratethys. – Geologica Carpathica, **65**, 55–66, Bratislava.

Iaccarino, S. (1985): Mediterranean Miocene and Pliocene planktic foraminifera. – In: Bolli, H.M., Saunders, J.B. & Perch-Nielsen, K. (Eds.): Plankton Stratigraphy, 283–314, Cambridge (Cambridge University Press).

Iaccarino, S.M., Di Stefano, A., Foresi, L.M., Turco, E., Baldassini, N., Cascella, A., Da Prato, S., Ferraro, L., Gennari, R., Hilgen, F.J., Lirer, F., Maniscalco, R., Mazzei, R., Riforgiato, F., Russo, B., Sagnotti, L., Salvatorini, G., Speranza, F. & Verducci, M. (2012): High-resolution intergrated stratigraphy of the upper Burdigalian-lower Langhian in the Mediterranean: the Langhian historical stratotype and new candidate sections for defining its GSSP. – Stratigraphy, **8**, 195–215, New York, NY.

Itou, M., Ono, T., Oba, T. & Noriki, S. (2001): Isotopic composition and morphology of living *Globorotalia scitula*: a new proxy of subintermediate ocean carbonate chemistry? – Marine Micropaleontology, **421**, 189–210, Amsterdam.

Janoschek, R. (1951): Das Inneralpine Wiener Becken. – In: Schaffer, F.X. (Ed.): Geologie von Österreich, 525–693, Wien (Franz Deuticke).

Jiříček, R. & Seifert, P. (1990): Palaeogeography of the Neogene in the Vienna Basin and the adjacent part of the foredeep. – In: Minaříková, D. & Lobitzer, H. (Eds.): Thirty Years of Geological Cooperation between Austria and Czechoslovakia, 89–105, Praha (Český Geologický Ústav).

Jones, R.W. (1994): The *Challenger* Foraminifera. – 149 pp., New York (Oxford University Press).

Jorissen, F.J., de Stigter, H.C. & Widmark, J.G.V. (1995): A conceptual model explaining benthic foraminiferal microhabitats. – Marine Micropaleontology, **26**, 3–15, Amsterdam.

Kaiho, K. (1994): Benthic foraminiferal dissolved-oxygen index and dissolved-oxygen levels in the modern ocean. – Geology, **22**, 719–722, Boulder.

Kennett, J.P. & Srinivasan, M.S. (1983): Neogene planktonic foraminifera – A phylogenetic Atlas. – 265 pp., Stroudsburg, Pennsylvania (Hutchinson Ross Publishing Company).

Kittl, E. (1887): Die Miocenablagerungen des Ostrau-Karwiner Steinkohlenrevieres und deren Faunen. – Annalen des Naturhistorischen Hofmuseums Wien, **2**, 217–282, Wien.

Kouwenhoven, T.J. & van der Zwaan, G.J. (2006): A reconstruction of late Miocene Mediterranean circulation patterns using benthic foraminifera. – Palaeogeography, Palaeoclimatology, Palaeoecology, **238**, 373–385, Amsterdam.

Kováč, M., Baráth, I., Harzhauser, M., Hlavatý, I. & Hudáčková, N. (2004): Miocene depositional systems and sequence stratigraphy of the Vienna Basin. – Courier Forschungsinstitut Senckenberg, **246**, 187–212, Frankfurt am Main.

La Perna, R. (2000): *Limopsis tenuis* Seguenza, 1876, a poorly known Mediterranean bivalve (Arcoida, Limopsidae). – Journal of Conchology, **37**, 39–48, London.

Latal, C., Piller, W.E. & Harzhauser, M. (2006): Small-scaled environmental changes: indications from stable isotopes of gastropods (Early Miocene, Korneuburg Basin, Austria). – International Journal of Earth Sciences, **95**, 95–106, Berlin.

Li, Q., James, N.P., Bone, Y. & McGowran, B. (1999): Palaeoceanographic significance of recent foraminiferal biofacies on the southern shelf of Western Australia: a preliminary study. – Palaeogeography, Palaeoclimatology, Palaeoecology, **147**, 101–120, Amsterdam.

Loeblich, A.R. & Tappan, H. (1987): Foraminiferal genera and their classification. – 2 volumes, 1–970 pp., New York (Van Nostrand Reinhold Company Inc.).

Lozouet, P., Lesport, J.F. & Renard, P. (2001): Révision des Gastropoda (Mollusca) du stratotype de l'Aquitanien (Miocène inf.): site de Saucats 'Lariey', Gironde, France. – Cossmanniana, Hors série **3**, 1–189, Paris.

Łuczkowska, E. (1974): Miliolidae (Foraminiferida) from the Miocene of Poland. Part II. Biostratigraphy, palaeoecology and systematics. – Acta Palaeontologica Polonica, **19**, 3–176, Warszawa.

Lukeneder, S., Zuschin, M., Harzhauser, M. & Mandic, O. (2011): Spatiotemporal signals and palaeoenvironments of endemic molluscan assemblages in the marine system of the Sarmatian Paratethys. – Acta Palaeontologica Polonica, **56**, 767–784, Warszawa.

Mandic, O. & Harzhauser, M. (2003): Molluscs from the Badenian (Middle Miocene) of the Gaindorf Formation (Alpine Molasse Basin, NE Austria) – taxonomy, paleoecology and biostratigraphy. – Annalen des Naturhistorischen Museums Wien, **A 104**, 85–127, Wien.

Mandic, O. & Steininger, F. (2003): Computer-based mollusc stratigraphy – a case study from the Eggenburgian (Early Miocene) type region (NE Austria). – Palaeogeography, Palaeoclimatology, Palaeoecology, **197**, 263–291, Wien.

Mandic, O., Harzhauser, M, Roetzel, R. & Tibuleac, P. (2008): Benthic mass-mortality events on a Middle Miocene incised-valley tidal-flat (North Alpine Foredeep Basin). – Facies, **54**, 343–359, Berlin–Heidelberg.

Martins, V., Dubert, J., Jouanneau, J.-M., Weber, O., da Silva, E.F., Patinha, C., Dias, J.M.A. & Rocha, F. (2007): A multiproxy approach of the Holocene evolution of shelf-slope circulation on the NW Iberian Continental Shelf. – Marine Geology, **239**, 1–18, Amsterdam.

Martins, R., Sampaio, L., Quintino, V. & Rodrigues, A.M. (2013): Diversity, distribution and ecology of benthic molluscan communities on the Portuguese continental shelf. – Journal of Sea Research, **93**, 75–89, Den Burg.

Miller, P.J.P. (1986): Gobiidae. – In: Whitehead, P.J.P., Bauchot, M.-L., Hureau, J.-C., Nielsen, J. & Tortonese, E. (Eds.): Fishes of the North-eastern Atlantic and the Mediterranean, 1019–1085, Paris (Unesco).

Murray, J.W. (1991): Ecology and palaeoecology of Benthic Foraminifera. – 397 pp., Harlow, Essex (Longman Scientific & Technical).

Murray, J.W. (2006): Ecology and Applications of Benthic Foraminifera. – 426 pp., Cambridge (Cambridge University Press).

Nikolaev, S.D., Oskina, N.S., Blyum, N.S. & Bubenshchikova, N.V. (1998): Neogene-Quaternary variations of the "Pole-Equator" temperature gradient of the surface oceanic waters in the North Atlantic and North Pacific. – Global and Planetary Change, **18**, 85–111, Amsterdam.

Oliver, P.G. (1992): The Bivalve Seashells of the Red Sea. An Identification Guide. – 330 pp., Cardiff (Christa Hemmen Verlag & the National Museum of Wales).

Papp, A. (1963): Die biostratigraphische Gliederung des Neogens im Wiener Becken. – Mitteilungen der Geologischen Gesellschaft in Wien, **56**, 225–317, Wien.

Papp, A. & Schmid, M.E. (1985): Die fossilen Foraminiferen des tertiären Beckens von Wien. Revision der Monographie von Alcide d'Orbigny (1846). – Abhandlungen der Geologischen Bundesanstalt, **37**, 1–311, Wien.

Papp, A. & Turnovsky, K. (1953): Die Entwicklung der Uvigerinen im Vindobon (Helvet und Torton) des Wiener Beckens. – Jahrbuch der Geologischen Bundesanstalt, **96**, 117–142, Wien.

Papp, A., Rögl, F., Cicha, I., Čtyroká, J. & Pishvanova, L.S. (1978): Planktonische Foraminiferen im Badenien. – In: Papp, A., Cicha, I., Seneš, J. & Steininger, F. (Eds.): Chronostratigraphie und Neostratotypen. Miozän der Zentralen Paratethys. Band VI: M4 Badenien (Moravien, Wielicien, Kosovien), 268–278, Bratislava (VEDA).

Petrová, P. (2004): Foraminiferal assemblages as an indicator of foreland basin evolution (Carpathian Foredeep, Czech Republic). – Bulletin of Geosciences, **79**, 231–242, Praha.

Pezelj, Đ., Sremac, J. & Sokač, A. (2007): Palaeoecology of the Late Badenian foraminifera and ostracoda from the SW Central Paratethys (Medvednica Mt., Croatia). – Geologia Croatica, **60**, 139–150, Zagreb.

Pezelj, Đ., Mandic, O. & Ćorić, S. (2013): Paleoenvironmental dynamics in the southern Pannonian Basin during initial Middle Miocene marine flooding. – Geologica Carpathica, **64**, 81–100, Bratislava.

Piller, W.E., Harzhauser, M. & Mandic, O. (2007): Miocene Central Paratethys stratigraphy – current status and future directions. – Stratigraphy, **4**, 151–168, New York, NY.

Pippèrr, M. (2011): Characterisation of Ottnangian (middle Burdigalian) palaeoenvironments in the North Alpine Foreland Basin using benthic foraminifera – A review of the Upper Marine Molasse of southern Germany. – Marine Micropaleontology, **79**, 80–99, Amsterdam.

Pippèrr, M. & Reichenbacher, B. (2010): Foraminifera from the borehole Altdorf (SE Germany): proxies for Ottnangian (early Miocene) palaeoenvironments of the Central Paratethys. – Palaeogeography, Palaeoclimatology, Palaeoecology, **289**, 62–80, Amsterdam.

Popescu, G. & Crihan, I.-M. (2004): Contributions to the knowledge of the calcareous unicameral foraminifera from the Middle Miocene of Romania. – Acta Palaeontologica Romaniae, **4**, 403–421, Iasi.

Povchun, A.S. & Subbotin, A.A. (1991): Distribution of macrobenthos in the Karadag-Sudak region dependent on the abiotic environmental factors. – Ekologija Morja, **37**, 33–36, Kiev.

Reolid, M., Rodríguez-Tovar, F.J., Nagy, J. & Olóriz, F. (2008): Benthic foraminiferal morphogroups of mid to outer shelf environments of the Late Jurassic (Prebetic Zone, southern Spain): characterization of biofacies and environmental significance. – Palaeogeography, Palaeoclimatology, Palaeoecology, **261**, 280–299, Amsterdam.

Roetzel, R. in Schubert, G., Safoschnik, T., Supper, R., Bernhard, M., Felfer, W. & Roetzel, R. (1999): Das Becken von Obermarkersdorf. – Arbeitstagung der Geologischen Bundesanstalt 1999, 279–286, Wien (Geologische Bundesanstalt).

Roetzel, R. & Schnabel, W. (2002): Molasse, Waschbergzone, Paläogen und Neogen auf der Böhmischen Masse. – In: Schnabel, W., Krenmayr, H.-G., Mandl, G.W., Nowotny, A., Roetzel, R. & Scharbert, S. (Eds.): Legende und kurze Erläuterung zur Geologischen Karte von Niederösterreich 1:200.000, 23–30, Wien (Geologische Bundesanstalt).

Roetzel, R., Ćorić, S., Galović, I. & Rögl, F. (2006): Early Miocene (Ottnangien) costal upwelling conditions along the southeastern scarp of the Bohemian Massif (Parisdorf, Lower Austria, Central Paratethys). – Beiträge zur Paläontologie, **30**, 387–413, Wien.

Rögl, F. (1985): Late Oligocene and Miocene planktic foraminifera of the Central Paratethys. – In: Bolli, H.M., Saunders, J.B. & Perch-Nielsen, K. (Eds.): Plankton Stratigraphy, 315–328, Cambridge (Cambridge University Press).

Rögl, F. (1994): *Globigerina ciperoensis* (Foraminiferida) in the Oligocene and Miocene of the Central Paratethys. – Annalen des Naturhistorischen Museums Wien, **A 96**, 133–159, Wien.

Rögl, F. (1998): Foraminiferenfauna aus dem Karpat (Unter-Miozän) des Korneuburger Beckens. – Beiträge zur Paläontologie, **23**, 123–173, Wien.

Rögl, F. & Spezzaferri, S. (2003): Foraminiferal paleoecology and biostratigraphy of the Mühlbach section (Gaindorf Formation, Lower Badenian), Lower Austria. – Annalen des Naturhistorischen Museums Wien, **A 104**, 23–75, Wien.

Rögl, F., Ćorić, S., Daxner-Höck, G., Harzhauser, M., Mandic, O., Švábenická, L. & Zorn, I. (2003): Correlation of the Karpatian Stage. – In: Brzobohatý, R., Cicha, I., Kováč, M. & Rögl, F. (Eds.): The Karpatian. A Lower Miocene stage of the Central Paratethys, 27–34, Brno (Masaryk University).

Rupp, C. (1986): Paläoökologie der Foraminiferen in der Sandschalerzone (Badenien, Miozän) des Wiener Beckens. – Beiträge zur Paläontologie von Österreich, **12**, 1–180, Wien.

Rupp, C. & Haunold-Jenke, Y. (2003): Untermiozäne Foraminiferenfaunen aus dem oberösterreichischen Zentralraum. – Jahrbuch der Geologischen Bundesanstalt, **143**, 227–302, Wien.

Rupp, C. & Hohenegger, J. (2008): Paleoecology of planktonic foraminifera from the Baden-Sooss section (Middle Miocene, Badenian, Vienna Basin, Austria). – Geologica Carpathica, **59**, 425–445, Bratislava.

Schütz, K., Harzhauser, M., Rögl, F., Ćorić, S. & Galović, I. (2007): Foraminiferen und Phytoplankton aus dem unteren Sarmatium des südlichen Wiener Beckens (Petronell, Niederösterreich). – Jahrbuch der Geologischen Bundesanstalt, **147**, 449–488, Wien.

Seneš, J. in collaboration with „Arbeitsgruppe für Paratethys beim Committee Mediterranean Neogen Stratigraphie“ and „Arbeitsgruppe für Paratethys bei der International Geologic Correlation Programme“ (1971): Korrelation des Miozäns der Zentralen Paratethys (Stand 1970). – Geologický Zborník – Geologica Carpathica, **22**, 3–9, Bratislava.

Spezzaferri, S. (2004): Foraminiferal paleoecology and biostratigraphy of the Grund Formation (Molasse Basin, Lower Austria). – Geologica Carpathica, **55**, 155–164, Wien.

Spezzaferri, S. & Tamburini, F. (2007): Paleodepth variations on the Eratosthenes Seamount (Eastern Mediterranean): sea-level changes or subsidence? – eEarth Discuss, **2**, 115–132.

Spezzaferri, S., Ćorić, S., Hohenegger, J. & Rögl, F. (2002): Basin-scale paleobiogeography and paleoecology: an example from Karpatian (Latest Burdigalian) benthic and planktonic foraminifera and calcareous nannofossils from the Central Paratethys. – Geobios 35, Supplement, **1**, 241–256, Lyon.

Steininger, F., Ctyroky, P., Hölzl, O., Kokay, J., Schlickum, W.R., Schultz, O. & Strauch, F. (1973): Die Mollusken des Ottnangien. – In: Papp, A., Rögl, F. & Seneš, J. (Eds.): Chronostratigraphie und Neostratotypen. Miozän der Zentralen Paratethys. Band III: M2 Ottnangien. Die Innviertler, Salgótarjáner, Bántapusztaer Schichtengruppe und die Rzehakia Formation, 380–615, Bratislava (VEDA).

Švagrovský, J. (1964): Zur Torton-Sarmat Grenze im ostslowakischen Neogen. – Geologický Sborník, **15**, 79–86, Bratislava.

Švagrovský, J. (1982): Gastropoda, Prosobranchia, 1. Archaeogastropoda und Mesogastropoda des oberen Badeniens von Borský Miculáš (NO-Teil des Wiener Beckens) und ihre stratigraphische Bedeutung. – Geologický Zbornik – Geologica Carpathica, **33**/1, 3–50, Bratislava.

Talman, S.G. & Keough, M.J. (2001): Impact of an exotic clam, *Corbula gibba*, on the commercial scallop, *Pecten fumatus*, in Port Phillip Bay, south-east Australia: evidence of resource-restricted growth in a subtidal environment. – Marine Ecology, Progress Series, **221**, 135–143, Oldendorf.

van der Zwaan, G.J., Duijnstee, I.A.P., Den Dulk, M., Ernst, S.R., Jannink, N.T. & Kouwenhoven, T.J. (1999): Benthic foraminifers: proxies or problems? A review of paleoecological concepts. – Earth-Science Reviews, **46**, 213–236, Amsterdam.

van Hinsbergen, D.J.J., Kouwenhoven, T.J. & van der Zwaan, G.J. (2005): Paleobathymetry in the backstripping procedure: correction for oxygenation effects on depth estimates. – Palaeogeography, Palaeoclimatology, Palaeoecology, **221**, 245–265, Amsterdam.

Wade, B.S., Pearson, P.N., Berggren, W.A. & Pälike, H. (2011): Review and revision of Cenozoic tropical planktonic foraminiferal biostratigraphy and calibration to the geomagnetic polarity and astronomical time scale. – Earth Science Reviews, **104**, 111–142, Amsterdam.

Weber, K. & Zuschin, M. (2013): Delta-associated molluscan life and death assemblages in the northern Adriatic Sea: implications for paleoecology, regional diversity and conservation. – Palaeogeography, Palaeoclimatology, Palaeoecology, **370**, 77–91, Amsterdam.

Wenger, W.F. (1987): Die Foraminiferen des Miozäns der bayerischen Molasse und ihre stratigraphische sowie paläogeographische Auswertung. – Zitteliana, **16**, 173–340, Altötting.

Wessely, G. (2006): Niederösterreich. Geologie der Österreichischen Bundesländer. – 416 pp., Geologische Bundesanstalt, Wien.

WoRMS Editorial Board (2017): World Register of Marine Species. Available from http://www.marinespecies.org at VLIZ. Accessed 2017-10-16. https://dx.doi.org/10.14284/170

Zuschin, M., Harzhauser, M., Hengst, B., Mandic, O. & Roetzel, R. (2014): Long-term ecosystem stability in an Early Miocene estuary. – Geology, **42**, 1–4, Boulder.

Received: 3. November 2017, accepted: 5. December 2017

Plate 1

Typical benthic foraminiferal taxa from the Mistelbach Halfgraben; Figs. 1–7: agglutinated, Figs. 8–15: porcelaneous, Figs. 16–29: hyaline.

Fig. 1: *Textularia gramen* d’Orbigny, 1846, KA2 (1,020–1,025 m) 3/4.

Fig. 2: *Cribrostomoides subglobosus* (Cushman, 1910), GI1 (1,050–1,055 m) 17/1.

Fig. 3: *Reticulophragmium karpaticum* Cicha & Zapletalová, 1963, GI1 (1,050–1,055 m) 17/1.

Fig. 4: *Martinottiella communis* (d’Orbigny, 1846), SI3 (1,000–1,003 m) 8/2.

Fig. 5: *Bathysiphon filiformis* Sars, 1872, MI1 (1,373.5–1,377 m) 7/4.

Fig. 6: *Paravulvulina serrata* (Reuss, 1867), PO1 (520–525 m) 17/2.

Fig. 7: *Spirorutilus carinatus* (d’Orbigny, 1846), SI3 (900–906 m) 7/3.

Fig. 8: *Cycloforina contorta* (d’Orbigny, 1846), AH1 (190–195 m) 7/4.

Fig. 9: *Quinqueloculina akneriana* d’Orbigny, 1846, PO1 (520–525 m) 17/2.

Fig. 10: *Borelis melo* (Fichtel & Moll, 1798), PO1 (520–525 m) 17/2.

Fig. 11: *Pseudotriloculina consobrina* (d’Orbigny, 1846), AH1 (190–195 m) 7/4.

Fig. 12: *Spirosigmoilina tenuis* (Cžjžek, 1848), HRD24 (550–555 m) 5/1.

Fig. 13: *Quinqueloculina foeda* Reuss, 1850, AH1 (220–225 m) 8/2.

Fig. 14: *Quinqueloculina boueana* d’Orbigny, 1846, PO1 (520–525 m) 17/2.

Fig. 15: *Spirolina austriaca* d’Orbigny, 1846, AH1 (190–195 m) 7/4.

Fig. 16: *Scallopostoma ovicula* (d’Orbigny, 1826), SI3 (900–906 m) 7/3.

Fig. 17: *Plectofrondicularia digitalis* (Neugeboren, 1850), AH1 (130–135 m) 5/1.

Fig. 18: *Amphicoryna badenensis* (d’Orbigny, 1846), SI3 (500–505 m) 3/1.

Fig. 19: *Protoglobobulimina pupoides* (d’Orbigny, 1846), SI3 (1,000–1,003 m) 8/2.

Fig. 20: *Bolivina dilatata* Reuss, 1850, SI3 (900–906 m) 7/3.

Fig. 21: *Bitubulogenerina reticulata* Cushman, 1936, AH1 (220–225 m) 8/2.

Fig. 22: *Bulimina elongata* d’Orbigny, 1846, SI3 (900–906 m) 7/3.

Fig. 23: *Uvigerina breviformis* Papp & Turnovsky, 1953, AH1 (280–285 m) 10/2.

Fig. 24: *Uvigerina macrocarinata* Papp & Turnovsky, 1953, SI3 (900–906 m) 7/3.

Fig. 25: *Reussella spinulosa* (Reuss, 1850), AH1 (220–225 m) 8/2.

Fig. 26: *Fursenkoina subacuta* (d’Orbigny, 1852), HRD19 (630–635 m) 6/1.

Fig. 27: *Bulimina subulata* Cushman & Parker, 1947, SI3 (900–906 m) 7/3.

Fig. 28: *Lagena gracilicosta* Reuss, 1863, SI3 (400–405 m) 2/2.

Fig. 29: *Globulina punctata* d’Orbigny, 1846, PO1 (520–525 m) 17/2.

Scale bar = 100 µm.

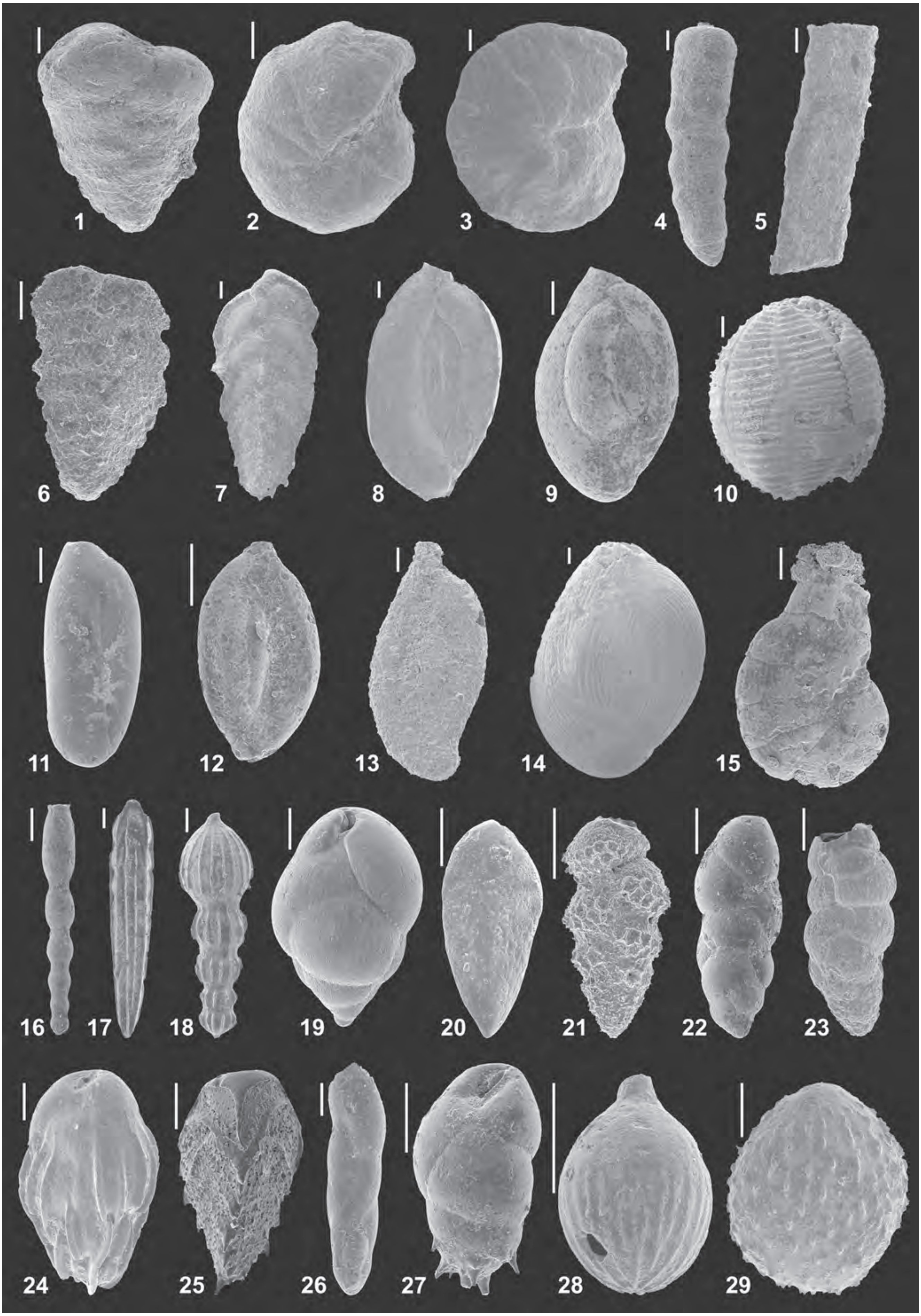

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29

Plate 2

Typical hyaline benthic (Figs. 1–8, 11–28) and planktonic (Figs. 9–10) foraminiferal species from the Mistelbach Halfgraben.

Fig. 1: *Guttulina communis* (d’Orbigny, 1826), PO1 (520–525 m) 17/2.

Fig. 2: *Lenticulina inornata* (d’Orbigny, 1846), HRD19 (650–656 m) 7/1.

Fig. 3: *Sphaeroidina bulloides* d’Orbigny in Deshayes, 1828, SI3 (1,000–1,003 m) 8/2.

Fig. 4: *Cibicidoides lobatulus* (Walker & Jacob, 1798), AH1 (130–135 m) 5/1.

Fig. 5: *Valvulineria complanata* (d’Orbigny, 1846), SI3 (900–906 m) 7/3.

Fig. 6: *Nonion commune* (d’Orbigny, 1846), SI3 (900–906 m) 7/3.

Fig. 7: *Siphonina reticulata* (Cžjžek, 1848), AH1 (310–315 m) 11/1.

Fig. 8: *Amphistegina radiata* (Fichtel & Moll, 1798), PO1 (520–525 m) 17/2.

Fig. 9: *Globigerina bulloides* d’Orbigny, 1826, PO1 (130–135 m) 4/2.

Fig. 10: *Globigerinoides trilobus* (Reuss, 1850), AH1 (130–135 m) 5/1.

Fig. 11: *Melonis pompilioides* (Fichtel & Moll, 1798), SI3 (900–906 m) 7/3.

Fig. 12: *Pullenia bulloides* (d’Orbigny, 1846), SI3 (900–906 m) 7/3.

Fig. 13: *Heterolepa dutemplei* (d’Orbigny, 1846), SI3 (1,000–1,003 m) 8/2.

Fig. 14: *Hansenisca soldanii* (d’Orbigny, 1826), SI3 (1,000–1,003 m) 8/2.

Fig. 15: *Conorbella imperatoria* (d’Orbigny, 1846), PO1 (520–525 m) 17/2.

Fig. 16: *Biasterigerina planorbis* (d’Orbigny, 1846), PO1 (520–525 m) 17/2.

Fig. 17: *Aubignyna* sp. 1 – spiral side, WA1 (300–305 m) 3/1.

Fig. 18: *Aubignyna* sp. 1 – umbilical side, WA1 (300–305 m) 3/1.

Fig. 19: *Ammonia pseudobeccarii* (Putrya, 1946) – spiral side, WA1 (200–205 m) 1/1.

Fig. 20: *Ammonia pseudobeccarii* (Putrya, 1946) – umbilical side, WA1 (200–205 m) 1/1.

Fig. 21: *Ammonia viennensis* (d’Orbigny, 1846) – spiral side, AH1 (160–165 m) 6/2.

Fig. 22: *Ammonia viennensis* (d’Orbigny, 1846) – umbilical side, AH1 (160–165 m) 6/2.

Fig. 23: *Porosononion granosum* (d’Orbigny, 1846), AH1 (160–165 m) 6/2.

Fig. 24: *Porosononion granosum* (d’Orbigny, 1846) – umbilical area, AH1 (160–165 m) 6/2.

Fig. 25: *Elphidium flexuosum* (d’Orbigny, 1846), AH1 (190–195 m) 7/4.

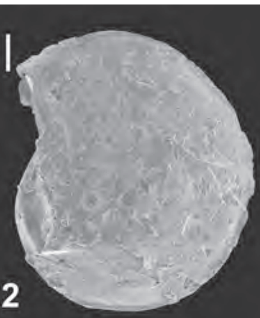
Fig. 26: *Elphidium grilli* Papp, 1963, WA1 (200–205 m) 1/1.

Fig. 27: *Elphidium aculeatum* (d’Orbigny, 1846), AH1 (130–135 m) 5/1.

Fig. 28: *Elphidium aculeatum* (d’Orbigny, 1846), keel with small teeth, AH1 (130–135 m) 5/1.

Scale bar = 100 µm.


1


2


3

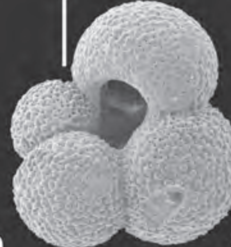

4

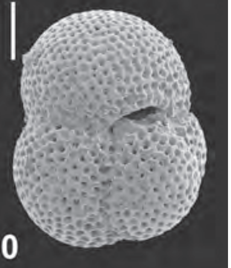

5

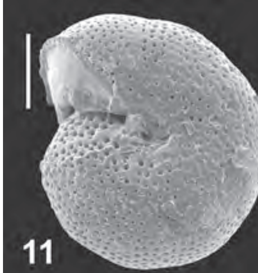

6


7

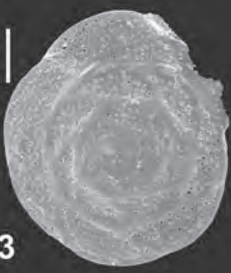

8


9

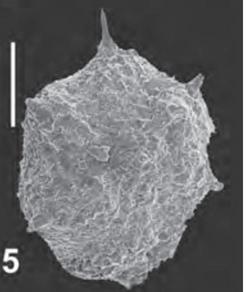

10


11


12


13


14

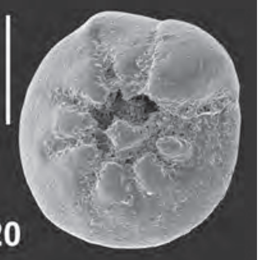

15


16


17


18

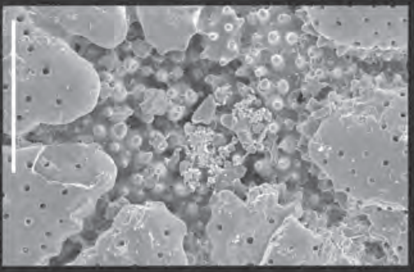

19


20

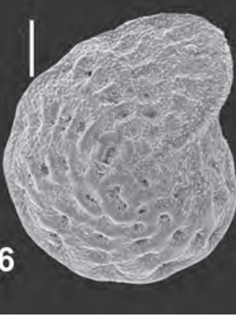

21

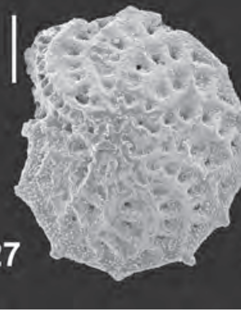

22


23


24


25


26


27

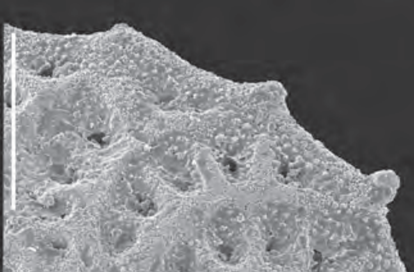

28

Plate 3

Macrofossils from the cores: Figs. 1–22: Gastropoda, Fig. 23: Scaphopoda, Figs. 24–29: Bryozoa, Figs. 30–37: otoliths.

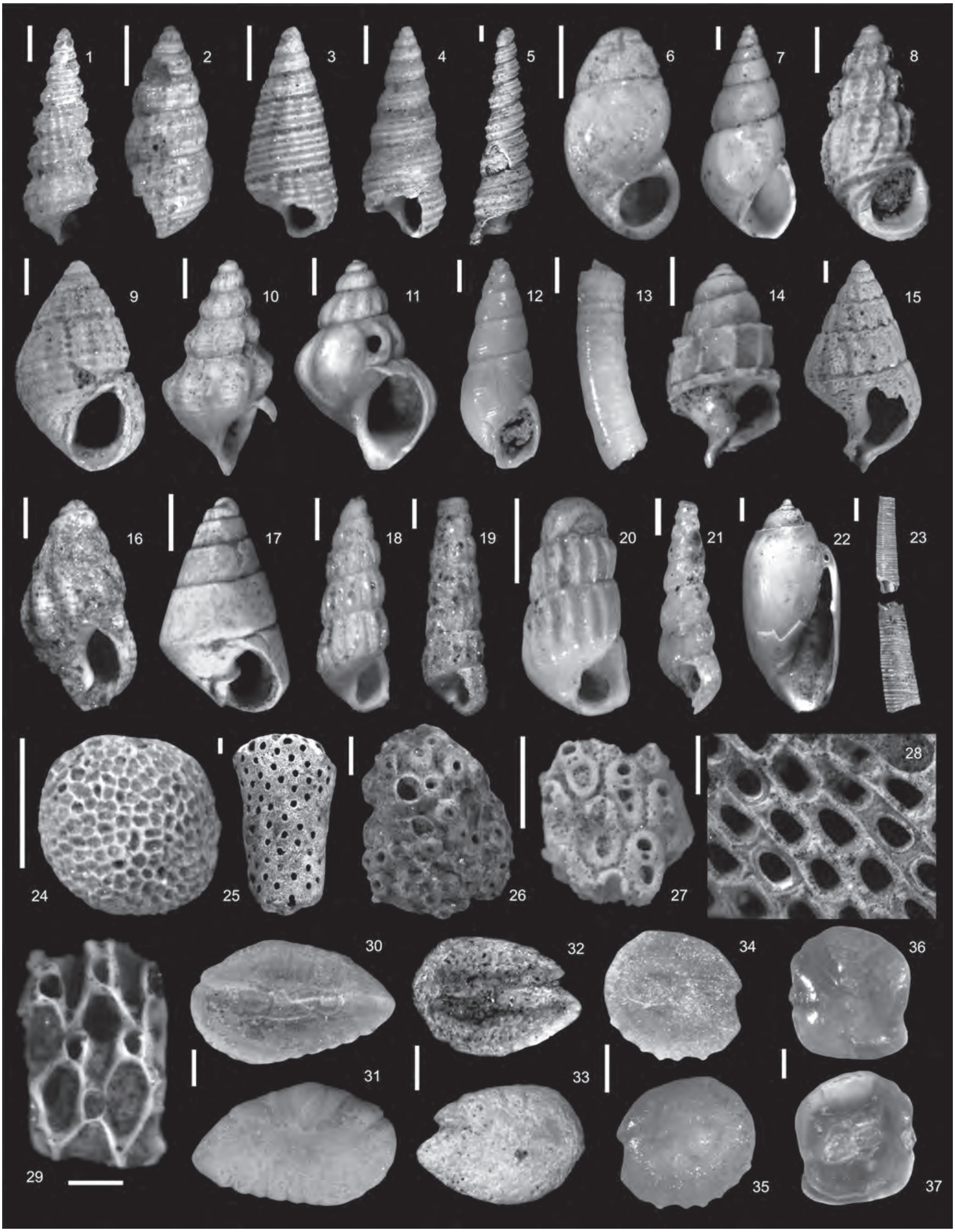
Fig. 1: *Bittium spina* (Hörnes, 1855), AH (190–195 m) 7/4.
Fig. 2: *Sandbergeria perpusilla* (Grateloup, 1827), AH (190–195 m) 7/4.
Fig. 3: *Cerithidium multiliratum* (Brusina, 1877), PO1 (520–525 m) 17/2.
Fig. 4: *Cerithidium schwartzi* (Hörnes, 1856), PO1 (520–525 m) 17/2.
Fig. 5: *Ptychidia vindobonensis* (Handmann, 1882), AH1 (220–225 m) 8/2.
Fig. 6: *Stenothyroides schwartzi* (Hörnes, 1856), Mi1 (800–805 m) 1/2.
Fig. 7: *Hydrobia subsuturata* Jekelius, 1944, PO1 (220–225 m) 7/2.
Fig. 8: *Manzonia scalaris* (Dubois, 1831), HDR24 (550–555 m) 5/1.
Fig. 9: *Alvania ampulla* (Eichwald, 1853), PO1 (520–525 m) 17/2.
Fig. 10: *Mohrensternia styriaca* Hilber, 1897, WA1 (300–305 m) 3/1.
Fig. 11: *Mohrensternia inflata* (Hörnes, 1856), WA1 (300–305 m) 3/1.
Fig. 12: *Pseudonoba striata* (Hörnes, 1856), AH1 (220–225 m) 8/2.
Fig. 13: *Caecum* cf. *trachea* (Montagu, 1803), AH (190–195 m) 7/4.
Fig. 14: *Profundinassa* cf. *fuchsi* (Koenen, 1872), Si3 (1,000–1,003 m) 8/2.
Fig. 15: *Tritia styriaca* (Hilber, 1879), AH (190–195 m) 7/4.
Fig. 16: *Tritia subasperata* (Boettger, 1906), HRD (645–650 m) 7/1.
Fig. 17: *Odostomia* sp., Si3 (1,000–1,003 m) 8/2.
Fig. 18: *Turbonilla* sp. 1, HFR (645–650 m) 7/1.
Fig. 19: *Turbonilla* sp. 2, HFR (645–650 m) 7/1.
Fig. 20: *Turbonilla* sp. 3, Si3 (1,000–1,003 m) 8/2.
Fig. 21: *Anisocycla* cf. *nitidissima* (Montagu, 1803), AH (190–195 m) 7/4.
Fig. 22: *Acteocina lajonkaireana* (Basterot, 1825), WA1 (300–305 m) 3/1.

Fig. 23: *Gadilina jani* (Hörnes, 1856), AH1 (220–225 m) 8/2.

Fig. 24: *Ceriopora* sp., PO1 (520–525 m) 17/2.
Fig. 25: *Myriapora truncata* (Pallas, 1776), PO1 (520–525 m) 17/2.
Fig. 26: *Cellepora* sp., PO1 (520–525 m) 17/2.
Fig. 27: *Adeonellopsis* sp., PO1 (520–525 m) 17/2.
Fig. 28: *Biflustra* sp., PO1 (520–525 m) 17/2.
Fig. 29: *Cupuladria* sp., WA1 (400–405 m) 5/1.

Figs. 30–31: *Gadiculus argenteus* Guichenot, 1850, Si3 (1,000–1,003 m) 8/2.
Figs. 32–33: *Diaphus acutirostrum* (Holec, 1975), HRD25 (490–495 m) 4/1.
Figs. 34–35: *Diaphus austriacus* (Koken, 1891), AH1 (190–195 m) 7/4.
Figs. 36–37: *Lesueurigobius vicinalis* (Koken, 1891), AH1 (220–225 m) 8/2.

Scale bar = 500 µm.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37

Tab. 1, samples 1–44 (Part 1).
Specimen counts of foraminifers per sample.

		AH1 (100–105 m) 4/1	AH1 (130–135 m) 5/1	AH1 (160–165 m) 6/2	AH1 (190–195 m) 7/4	AH1 (220–225 m) 8/2	AH1 (250–255 m) 9/4	AH1 (280–285 m) 10/2	AH1 (310–315 m) 11/1	AH1 (370–375 m) 13/3	AH1 (430–435 m) 15/3	AH1 (460–465 m) 16/1	AH1 (520–523 m) 18/3	AH1 (610–615 m) 21/2	GI1 (1,050–1,055 m) 17/1	GI2 (1,084–1,086.7 m) 10/2	HRD19 (400–405 m) 1/2	HRD19 (495–500 m) 2/1
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
AGGLUTINATED FORAMINIFERA	*Ammodiscus miocenicus* Karrer	0	0	0	0	0	0	0	0	0	0	0	0	0	31	0	0	0
	Ammodiscus sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bathysiphon filiformis M. Sars	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bathysiphon taurinensis Sacco	0	0	0	0	0	0	0	1	0	0	0	13	0	8	0	0	0
	Cribrostomoides subglobosus (M. Sars)	0	0	0	0	0	0	0	0	0	0	0	0	0	119	0	0	0
	Cyclammina bradyi Cushman	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cyclammina karpatica Cicha & Zapletalova	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Glomospira saturniformis Grzybowski	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Haplophragmoides carinatus Cushman & Renz	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Karreriella chilostoma (Reuss)	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
	Martinottiella communis (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Paravulvulina serrata (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pseudogaudryina mayeriana (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Reticulophragmium karpaticum Cicha & Zapletalova	0	0	0	0	0	0	0	0	52	114	4	12	24	102	16	0	0
	Reticulphragmium sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Semivulvulina deperdita (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Semivulvulina pectinata (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	Siphotextularia concava (Karrer)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Spirorutilus carinatus (d’Orbigny)	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
	Textularia gramen d’Orbigny	0	1	1	11	1	3	1	1	0	0	0	0	0	0	0	0	4
	Textularia gramen maxima Cicha & Zapletalova	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Textularia laevigata d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Textularia mariae d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Textularia pala Czjzek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Trochamminoides contortus Mallory	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MILIOLID FORAMINIFERA	*Adelosina longirostra* (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Adelosina schreibersi (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Borelis melo (Fichtel & Moll)	0	0	0	13	2	0	0	0	0	0	0	0	0	0	0	2	0
	Borelis melo haueri (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cornuspira plicata (Czjzek)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cycloforina badenensis (d’Orbigny)	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cycloforina contorta (d’Orbigny)	0	0	0	14	20	0	4	0	1	0	0	0	0	0	0	0	0
	Cycloforina gracilis (Karrer)	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cycloforina lucida (Karrer)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cycloforina nussdorfensis (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cycloforina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pseudotriloculina consobrina (d’Orbigny)	0	3	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pyrgo simplex (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pyrgoella ventruosa (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina agglutinans d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Quinqueloculina akneriana d’Orbigny	0	0	0	35	4	0	2	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina boueana d’Orbigny	0	0	0	0	31	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina buchiana d’Orbigny	1	0	0	17	2	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina foeda (Reuss)	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina haidingeri d’Orbigny	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina hauerina d’Orbigny	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina seminulum Linné	0	0	0	0	0	0	0	0	1	5	0	1	5	0	0	0	0
	Quinqueloculina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

HRD19 (571–576 m) 3/1	HRD19 (590–595 m) 4/1	HRD19 (630–635 m) 6/1	HRD19 (650–656 m) 7/1	HRD19 (819–820 m) 12/1	HRD24 (256–260.5 m) 2/1	HRD24 (390–395 m) 3/1	HRD24 (550–555 m) 5/1	HRD24 (620–624 m) 6/1	HRD24 (641–645 m) 7/1	HRD24 (775–779.5 m) 9/1	HRD25 (290–298 m) 1/1	HRD25 (310–315 m) 2/1	HRD25 (490–495 m) 4/1	HRD25 (550–557 m) 5/1	HRD25 (645–650 m) 7/1	HRD25 (665–670 m) 8/1	HRD25 (685–690 m) 9/1	HRD25 (740–745 m) 10/1	KA1 (450–455.5 m) 7/4	KA1 (500–506 m) 8/1	KA1 (550–555 m) 9/2	KA1 (600–604 m) 10/4	KA1 (701–705 m) 12/2	KA1 (750–755 m) 13/1	KA1 (795–800 m) 14/2	KA1 (895–900 m) 15/2
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	10	3	1	0	0	0	7	6	0	0	0	0	9	37	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	6	0	0	0	0	0	0	0	0	90	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	2	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	6	0	0	0	0	0	0	0	0	0	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	78	0	1	0	0	0	9	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	15	5	3	6	1	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	4	0	0	0	9	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	24	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	2	0	1	19	23	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0
0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Tab. 1, samples 1–44 (Part 2).	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
MILIOLID FORAMINIFERA	*Quinqueloculina* sp. 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina sp. 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina sp. 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina sp. 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina triangularis d’Orbigny	0	0	0	0	8	0	1	0	3	6	0	0	0	0	0	0	1
	Sigmoilinita tschokrakensis Gerke	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sigmoilopsis celata (Costa)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sigmoilopsis schlumbergeri (Silvestri)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Sigmoilopsis sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Spirolina austriaca d’Orbigny	0	0	0	5	0	0	0	0	0	1	0	0	0	0	0	0	0
	Spirolina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Spiroloculina canaliculata d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Spiroloculina excavata d’Orbigny	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Spirosigmoilina tenuis (Czjzek)	0	0	0	0	2	0	0	0	0	1	0	0	0	3	0	0	0
	Triloculina eggeri (Bogdanovich)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Triloculina gibba d’Orbigny	0	0	0	13	10	0	1	0	0	0	0	0	0	0	0	0	0
	Triloculina inflata d’Orbigny	0	1	0	2	0	1	0	0	0	0	0	0	0	0	0	0	1
	Triloculina scapha d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HYALINE FORAMINIFERA	*Ammonia pseudobeccarii* (Putrya)	137	2	0	1	28	0	3	0	4	1	0	3	1	0	0	0	1
	Ammonia tepida (Cushman)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ammonia viennensis (d’Orbigny)	127	9	252	171	68	1	13	0	17	22	0	5	3	0	0	2	3
	Amphicoryna badenensis (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Amphicoryna hispida (d’Orbigny)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Amphicoryna ottnangensis (Toula)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Amphimorphina haueriana Neugeboren	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
	Amphistegina radiata (Fichtel & Moll)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Astrononion stelligerum (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Aubignyna sp. 1 (see Schütz et al., 2007)	13	11	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
	Biapertorbis biaperturatus Pokorny	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	Biasterigerina planorbis (d’Orbigny)	1	33	0	8	6	0	15	3	13	24	0	9	4	0	0	0	0
	Bitubulogenerina reticulata Cushman	0	0	0	0	31	0	0	0	0	0	0	0	0	0	0	0	0
	Bolivina dilatata Reuss	0	8	0	0	21	0	3	3	1	0	0	1	1	0	0	0	0
	Bolivina hebes MacFadyen	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bolivina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bulimina buchiana d’Orbigny	0	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
	Bulimina elongata d’Orbigny	0	53	1	1	4	1	9	0	0	1	0	0	0	0	0	0	117
	Bulimina elongata longa (Venglinskyi)	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Bulimina striata d’Orbigny	1	15	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
	Bulimina subulata (Cushman & Parker)	0	5	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
	Cancris auriculus (Fichtel & Moll)	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0
	Cassidulina laevigata d’Orbigny	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Caucasina schischkinskayae (Samoylova)	0	4	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0
	Ceratocancris haueri (d’Orbigny)	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0
	Cibicidoides austriacus (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cibicidoides budayi (Cicha & Zapletalova)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cibicidoides lobatulus (Walker & Jacob)	0	20	33	1	19	0	0	0	3	2	0	1	2	0	0	0	0
	Cibicidoides lopjanicus (Myatlyuk)	0	0	0	0	0	0	8	4	0	3	0	0	0	0	0	0	2
	Cibicidoides pachyderma (Rzehak)	0	0	3	2	2	0	0	0	0	2	0	0	0	0	0	0	0
	Cibicidoides sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Cibicidoides sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cibicidoides sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cibicidoides ungerianus ungerianus (d’Orbigny)	0	0	0	1	12	0	2	4	0	0	0	0	0	0	0	0	0
	Conorbella imperatoria (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Dentalina acuta d’Orbigny	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
	Dentalina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Discorbinoides sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidiella minuta (Reuss)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium aculeatum (d’Orbigny)	1	7	11	6	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium advenum (Cushman)	0	4	0	7	12	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium angulatum (Egger)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium antoninum (d’Orbigny)	12	3	0	0	0	0	0	0	11	20	0	7	0	0	0	0	0
	Elphidium crispum (Linné)	1	18	5	97	2	0	29	0	31	42	0	13	5	0	2	0	0
	Elphidium fichtelianum (d’Orbigny)	0	12	0	11	5	0	0	1	3	2	0	0	0	0	0	0	0
	Elphidium flexuosum (d’Orbigny)	0	0	0	17	0	0	0	0	0	3	0	0	3	0	0	0	0
	Elphidium grilli Papp	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium hauerinum (d’Orbigny)	0	2	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
	Elphidium josephinum (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium karpaticum Myatlyuk	0	0	0	0	0	0	6	0	3	0	0	0	1	0	0	0	0
	Elphidium koberi Tollmann	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium listeri (d’Orbigny)	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium macellum (Fichtel & Moll)	0	1	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium obtusum (d’Orbigny)	7	0	20	5	2	1	3	0	0	0	0	0	0	0	0	0	0
	Elphidium ortenburgense (Egger)	0	0	0	0	0	0	5	0	0	6	1	1	9	0	0	0	1
	Elphidium reussi Marks	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	Elphidium rugosum (d’Orbigny)	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
	Elphidium sp. (see Cicha et al., 1998)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	13	0	0	0	0	0	0	0	0	15	0	6	20	10	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	4	7	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	3	0	4	10	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	2	0	0	16	0	0	0	16	3	0	19	1	0	5	24	13	0	0	19	10	21	15	15	0	13	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	4	0	2	43	0	0	0	14	2	151	132	3	1	14	224	85	0	0	0	206	76	55	118	156	141	99
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	0	0	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	6	0	0	0	2	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	66	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	63	9	0	0	0	0	9	12	0	2	10	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	8	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	1	8	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	13	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	13	0	0	0	8	6	2	0	2	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	1
0	1	1	0	1	0	0	0	0	0	0	0	0	0	1	1	3	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Tab. 1, samples 1–44 (Part 3).	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
HYALINE FORAMINIFERA	*Elphidium* sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 11	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 12	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	Elphidium subtypicum Papp	0	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0	0
	Elphidium ungeri (Reuss)	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Eponides repandus (Fichtel & Moll)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	Escornebovina ? *trochiformis* (Andreae)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Favulina geometrica (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Favulina hexagona (Williamson)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fissurina laevigata Reuss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fissurina marginata (Montagu)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fontbotia wuellerstorfi (Schwager)	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0
	Fursenkoina subacuta (d’Orbigny)	1	11	0	0	12	0	1	0	0	0	0	0	0	0	0	0	0
	Glabratella sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Glandulina ovula d’Orbigny	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Globigerina bulloides d’Orbigny	0	71	4	1	10	0	45	27	7	3	0	0	0	0	0	0	0
	Globigerina concinna Reuss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina diplostoma Reuss	0	6	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina falconensis Blow	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina ottnangiensis Rögl	0	0	0	0	0	0	29	3	0	0	0	0	0	0	0	0	0
	Globigerina praebulloides Blow	0	5	0	0	0	0	0	26	4	5	0	3	6	0	0	0	2
	Globigerina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina sp. 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina sp. 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina tarchanensis Subbotina & Chutzieva	0	4	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Globigerinella obesa (Bolli)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerinella regularis (d’Orbigny)	0	4	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Globigerinoides bisphericus Todd	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0
	Globigerinoides quadrilobatus (d’Orbigny)	0	17	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerinoides trilobus (Reuss)	0	1	0	0	3	0	0	4	0	0	0	0	0	0	0	0	0
	Globoquadrina cf. *altispira* (Cushman & Jarvis)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globorotalia bykovae Aisenstat	2	1	3	0	0	0	1	0	1	0	0	0	0	0	0	0	0
	Globorotalia peripheroronda Blow & Banner	0	6	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0
	Globorotalia transsylvanica Popescu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globoturborotalita woodi (Jenkins)	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	Globulina gibba d’Orbigny	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globulina punctata d’Orbigny	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globulina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globulina striata (Egger)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Grigelis pyrula (d’Orbigny)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Guttulina austriaca d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Guttulina communis (d’Orbigny)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hansenisca soldanii (d’Orbigny)	0	0	0	1	1	0	0	1	0	3	0	0	1	0	0	0	0
	Heterolepa dutemplei (d’Orbigny)	0	14	1	1	6	0	18	8	6	3	0	2	2	0	14	0	1
	Hoeglundina elegans (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 6	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 7	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 8	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	Hyaline indet. 9	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	Hyaline indet. 10	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
	Hyaline indet. 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyalinonetrion clavatum (d’Orbigny)	0	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	Laevidentalina communis (d’Orbigny)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Laevidentalina elegans (d’Orbigny)	0	0	0	0	9	0	0	1	0	0	0	0	0	0	0	0	0

18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	207	0	0	0	0	25	14	0	0	11	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	0	0	6	0	0	0	0
0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	45	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	5	1	0	0	0	0	8	5	1	0	17	5	1	16	0	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Tab. 1, samples 1–44 (Part 4).	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
HYALINE FORAMINIFERA	*Laevidentalina inornata* (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Laevidentalina scripta (d’Orbigny)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Laevidentalina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lagena gracilicosta Reuss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lagena haidingeri (Czjzek)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Lagena sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lagena sp. 2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Lagena striata (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina americana (Cushman)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina austriaca (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina cultrata (de Montfort)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina inornata (d’Orbigny)	0	0	0	0	0	8	7	0	2	0	0	0	0	0	4	0	0
	Lenticulina melvilli (Cushman & Renz)	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	1
	Lenticulina orbicularis (d’Orbigny)	0	0	0	0	0	0	4	38	1	2	0	0	0	0	0	0	0
	Lenticulina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina spinosa (Cushman)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina vortex (Fichtel & Moll)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Marginulina hirsuta (d’Orbigny)	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
	Melonis affinis (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Melonis pompilioides (Fichtel & Moll)	0	4	0	0	4	0	4	4	1	2	0	0	0	0	0	0	0
	Myllostomella recta (Palmer & Bermúdez)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Neoeponides schreibersi (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Neugeborina irregularis (d’Orbigny)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	Neugeborina longiscata (d’Orbigny)	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nodosaria sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nodosaria sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nodosaria sp. 3	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
	Nonion bogdanowiczi Voloshinova	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nonion commune (d’Orbigny)	0	18	7	4	83	0	11	6	1	2	0	0	1	0	0	0	13
	Nonion tumidulus Pishvanova	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Nonionella turgida (Williamson)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nonionoides karaganicus (Krasheninnikov)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Orbulina suturalis Brönnimann	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Orthomorphina columella (Karrer)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pappina parkeri (Karrer)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Pappina primiformis (Papp & Turnovsky)	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
	Parafissurina carinata (Buchner)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Paragloborotalia ? *mayeri* (Cushman & Ellisor)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pararotalia aculeata (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pararotalia rimosa ? (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Planularia kubinyi (Hantken)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	Plectofrondicularia digitalis (Neugeboren)	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Plectofrondicularia raricosta (Karrer)	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Plectofrondicularia striata (Hantken)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Porosononion granosum (d’Orbigny)	3	1	224	18	86	0	7	1	2	12	0	3	1	0	0	0	0
	Praeglobobulimina pyrula (d’Orbigny)	0	12	6	0	4	0	1	0	0	2	0	0	0	0	0	0	0
	Protoglobobulimina pupoides (d’Orbigny)	0	5	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
	Pseudonodosaria brevis (d’Orbigny)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
	Pullenia bulloides (d’Orbigny)	0	7	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Pullenia quinqueloba (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pygmaeoseistron hispidum (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Reuss*ella spinulosa* (Reuss)	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0
	Scallopostoma ovicula (d’Orbigny)	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	0	0
	Siphonina reticulata (Czjzek)	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0
	Siphonodosaria consobrina (d’Orbigny)	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
	Sphaeroidina bulloides d’Orbigny in Deshayes	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Stilostomella adolphina (d’Orbigny)	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Turborotalita quinqueloba (Natland)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina aculeata d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina acuminata Hosius	0	1	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0
	Uvigerina breviformis (Papp & Turnovsky)	0	0	0	0	0	0	14	0	3	0	0	0	0	0	0	0	0
	Uvigerina graciliformis Papp & Turnovsky	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
	Uvigerina gracilis Reuss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina grilli Schmid	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina macrocarinata Papp & Turnovsky	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0
	Uvigerina mantaensis Cushman & Edwards	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
	Uvigerina pygmoides Papp & Turnovsky	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
	Uvigerina semiornata d’Orbigny	0	2	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0
	Uvigerina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina venusta Franzenau	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vaginulinopsis hauerina (d’Orbigny)	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
	Valvulineria complanata (d’Orbigny)	0	0	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0
	Virgulopsis tuberculatus (Egger)	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**336**	**438**	**601**	**510**	**580**	**21**	**278**	**183**	**174**	**304**	**5**	**75**	**74**	**266**	**39**	**5**	**150**

18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	2	5	0	0	0	0	48	163	228	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	59	14	16	10	0	0	16	13	0	5	0	0	0	0	0	1	0	12	0	0	0	0	0	0	0	0
2	0	11	3	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	127	253	9	0	0	0	104	69	1	7	97	3	13	14	27	0	1	0	0	0	0	1	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	6	0	0	0	1	3	0	137	3	0	1	29	0	0	0	0	0	1	0	1	0	0	6
0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	9	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	4	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	5	0	0	0	0	34	0	0	0	244	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	**311**	**620**	**37**	**79**	**2**	**4**	**307**	**183**	**33**	**249**	**1094**	**85**	**138**	**321**	**560**	**113**	**5**	**15**	**22**	**219**	**100**	**82**	**137**	**161**	**154**	**111**

		KA2 (1,020–1,025 m) 3/1	KA2 (1,020–1,025 m) 3/4	KA2 (1,080–1,085 m) 4/3	KA2 (1,140–1,145 m) 5/2	KA2 (1,380–1,385 m) 9/3	MTW1 (1,100–1,105 m) 3/5	MTW1 (1,130–1,138 m) 4/7	MTW1 (1,130–1,138 m) 4/2	MTW1 (1,380–1,385 m) 9/1	MTW1 (1,480–1,485 m) 12/4	MI1 (1,052–1,057 m) 3/2	MI1 (1,373.5–1,377 m) 7/4	MisU1 (1,298–1,302 m) 1/2	MisU1 (1,885–1,894 m) 3/1	MisU1 (1,885–1,894 m) 3/4	PW U3 (1,123–1,128 m) 1/1	PW U3 (1,123–1,128 m) 1/3
	Tab. 1, samples 45–88 (Part 1).	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**	**61**
AGGLUTINATED FORAMINIFERA	*Ammodiscus miocenicus* Karrer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ammodiscus sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bathysiphon filiformis M. Sars	0	0	0	0	0	0	0	0	0	0	3	101	0	0	0	0	0
	Bathysiphon taurinensis Sacco	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cribrostomoides subglobosus (M. Sars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cyclammina bradyi Cushman	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
	Cyclammina karpatica Cicha & Zapletalova	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Glomospira saturniformis Grzybowski	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Haplophragmoides carinatus Cushman & Renz	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	Karreriella chilostoma (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Martinottiella communis (d'Orbigny)	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	Paravulvulina serrata (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pseudogaudryina mayeriana (d'Orbigny)	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Reticulophragmium karpaticum Cicha & Zapletalova	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Reticulphragmium sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
	Semivulvulina deperdita (d'Orbigny)	0	0	0	0	0	0	0	0	1	9	0	0	0	0	0	0	0
	Semivulvulina pectinata (Reuss)	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Siphotextularia concava (Karrer)	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
	Spirorutilus carinatus (d'Orbigny)	0	0	0	0	0	0	0	0	0	13	0	0	1	0	0	0	0
	Textularia gramen d'Orbigny	0	22	0	2	0	0	3	0	2	1	0	0	0	0	0	0	0
	Textularia gramen maxima Cicha & Zapletalova	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Textularia laevigata d'Orbigny	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Textularia mariae d'Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Textularia pala Czjzek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Trochamminoides contortus Mallory	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 2	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0
	Agglutinated indet. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	Agglutinated indet. 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	Agglutinated indet. 5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Agglutinated indet. 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MILIOLID FORAMINIFERA	*Adelosina longirostra* (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
	Adelosina schreibersi (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	Borelis melo (Fichtel & Moll)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Borelis melo haueri (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cornuspira plicata (Czjzek)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cycloforina badenensis (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cycloforina contorta (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cycloforina gracilis (Karrer)	0	0	2	0	0	0	0	0	3	0	0	0	0	0	0	0	43
	Cycloforina lucida (Karrer)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cycloforina nussdorfensis (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cycloforina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	Miliolidae indet. 3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	Miliolidae indet. 4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Miliolidae indet. 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pseudotriloculina consobrina (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pyrgo simplex (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pyrgoella ventruosa (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina agglutinans d'Orbigny	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina akneriana d'Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina boueana d'Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina buchiana d'Orbigny	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina foeda (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina haidingeri d'Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina hauerina d'Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina seminulum Linné	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

P01 (40–45 m) 1/1	P01 (99.5–105 m) 3/1	P01 (130–135 m) 4/2	P01 (160–165 m) 5/2	P01 (250–255 m) 8/1	P01 (280–285 m) 9/1	P01 (430–435 m) 14/3	P01 (460–465 m) 15/1	P01 (490–495 m) 16/1	P01 (520–525 m) 17/2	Si3 (400–405 m) 2/2	Si3 (500–505 m) 3/1	Si3 (600–604 m) 4/2	Si3 (800–805 m) 6/3	Si3 (900–906 m) 7/3	Si3 (1,000–1,003 m) 8/2	Si3 (1,250–1,255 m) 11/1	Si3 (1,335–1,340 m) 12/1	Si3 (1,485–1,490 m) 15/2	Si3 (1,716–1,720.3 m) 21/1	WA1 (200–205 m) 1/1	WA1 (300–305 m) 3/1	WA1 (350–353 m) 4/2	WA1 (400–403 m) 5/1	WA1 (450–455 m) 6/2	WA1 (500–505 m) 7/4	WA1 (640–641.5 m) 11/2
62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	35
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	6	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	2	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
0	0	0	0	0	0	0	0	0	9	0	0	0	0	3	41	0	0	0	0	0	0	0	0	0	2	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	22	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	11	1	0	0	0	10	14	0	1	0	0	0	0	0	4	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	2	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	35	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	20	0	0	0	2	0	0	0	0	0	0	0	0	0	9	0	0	0
0	0	7	0	0	0	0	0	1	37	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	0	0
0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0
0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	19	0	0	0	0	0	0	0	5	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
0	6	108	0	1	0	0	0	6	42	0	0	18	0	0	1	0	1	0	0	0	0	0	6	0	0	0
0	0	0	0	0	0	0	0	2	16	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	12	41	0	0	0	0	0	33	0	0	0	0	0	0	0	20	0	0	0
0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	11	0	0	0	0	0	1	4	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Tab. 1, samples 45–88 (Part 2).	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**	**61**
MILIOLID FORAMINIFERA	*Quinqueloculina* sp. 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina sp. 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina sp. 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina sp. 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quinqueloculina triangularis d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sigmoilinita tschokrakensis Gerke	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sigmoilopsis celata (Costa)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sigmoilopsis schlumbergeri (Silvestri)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sigmoilopsis sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Spirolina austriaca d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Spirolina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Spiroloculina canaliculata d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Spiroloculina excavata d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Spirosigmoilina tenuis (Czjzek)	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0
	Triloculina eggeri (Bogdanovich)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Triloculina gibba d’Orbigny	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Triloculina inflata d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Triloculina scapha d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HYALINE FORAMINIFERA	*Ammonia pseudobeccarii* (Putrya)	2	0	0	0	0	0	6	2	25	0	0	0	0	0	1	0	2
	Ammonia tepida (Cushman)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	Ammonia viennensis (d’Orbigny)	4	5	112	11	47	1	3	1	6	0	0	0	1	41	1	132	158
	Amphicoryna badenensis (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Amphicoryna hispida (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Amphicoryna ottnangensis (Toula)	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0
	Amphimorphina haueriana Neugeboren	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Amphistegina radiata (Fichtel & Moll)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Astrononion stelligerum (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Aubignyna sp. 1 (see Schütz et al., 2007)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Biapertorbis biaperturatus Pokorny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Biasterigerina planorbis (d’Orbigny)	0	0	0	0	0	0	1	0	3	2	0	0	0	0	0	0	0
	Bitubulogenerina reticulata Cushman	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bolivina dilatata Reuss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bolivina hebes MacFadyen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bolivina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bulimina buchiana d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bulimina elongata d’Orbigny	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bulimina elongata longa (Venglinskyi)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bulimina striata d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bulimina subulata (Cushman & Parker)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cancris auriculus (Fichtel & Moll)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cassidulina laevigata d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Caucasina schischkinskayae (Samoylova)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ceratocancris haueri (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cibicidoides austriacus (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cibicidoides budayi (Cicha & Zapletalova)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	Cibicidoides lobatulus (Walker & Jacob)	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0
	Cibicidoides lopjanicus (Myatlyuk)	0	0	0	0	0	0	41	4	44	9	0	0	0	0	0	0	0
	Cibicidoides pachyderma (Rzehak)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
	Cibicidoides sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cibicidoides sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cibicidoides sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cibicidoides ungerianus ungerianus (d’Orbigny)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	Conorbella imperatoria (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Dentalina acuta d’Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Dentalina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Discorbinoides sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidiella minuta (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium aculeatum (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium advenum (Cushman)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium angulatum (Egger)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium antoninum (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium crispum (Linné)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium fichtelianum (d’Orbigny)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	Elphidium flexuosum (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium grilli Papp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium hauerinum (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium josephinum (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium karpaticum Myatlyuk	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
	Elphidium koberi Tollmann	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium listeri (d’Orbigny)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium macellum (Fichtel & Moll)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium obtusum (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium ortenburgense (Egger)	0	0	0	0	0	0	9	3	3	0	0	0	0	0	0	0	0
	Elphidium reussi Marks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium rugosum (d’Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. (see Cicha et al., 1998)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	8	0	14	0	0	0	2	0	0	0	0	0	0	1	0	0	15	5	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	16	0	0	0	1	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	2	0	0	0
0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	10	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
4	2	0	3	2	0	0	247	0	39	8	11	2	11	1	1	0	1	0	0	15	5	1	12	0	0	0
0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	21	235	1	14	9	0	11	44	76	6	51	2	29	2	2	490	9	1	0	11	0	0	78	4	0	0
1	0	3	0	0	0	0	1	0	0	3	6	0	0	21	6	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	0	0	0	0	0	0	0	0	0	0	0	7	12	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	3	4	0	0	0	0	0	0	0	0	0	0	0	108	392	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	2	23	6	8	2	0	0	0	152	7	2	0	0	4	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
4	0	2	1	25	0	0	0	0	2	3	7	0	0	23	12	1	0	0	0	0	0	0	3	0	0	0
2	0	0	3	0	0	0	0	0	0	1	0	0	0	20	9	0	0	0	0	0	0	0	0	0	0	0
0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	2	8	7	6	0	0	1	1	3	37	38	127	0	82	32	2	0	0	0	0	2	0	93	0	0	0
0	0	6	0	1	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	1	3	0	0	0	0	0	0	0	12	3	0	0	3	13	0	0	0	0	0	0	0	0	0	0	0
0	0	3	1	0	0	0	0	0	3	6	5	0	0	127	20	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	7	0	0	0	0	9	7	2	0	0	32	59	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	63	0	0	0	0	0	0	0	0	0	4	0
0	0	6	1	0	0	0	0	0	129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	6	0	3	1	0	1	0	24	19	5	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	1	0
0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	0
1	0	2	1	0	0	0	0	0	27	1	0	0	0	1	10	0	0	0	0	0	0	0	0	2	0	0
0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	0	0	0	5	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	17	1	0	0	0	0	4	0	16	0	7	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	17	0	0	0	2	0	0	0	0	7	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	3	0	1	4	2	0	0	37	1	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	16	17	1	0	0	0	0	38	3	4	0	0	0	0	0	2	0	0	0	0	0	0	0	7	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	11	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	144	142	0	0	0	0	0
0	0	0	54	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	22	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	324	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	59	0	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1	0	1	45	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	41	0	2	2	0	0
0	0	1	1	0	0	0	0	0	0	1	0	0	5	0	0	0	0	0	0	1	0	0	0	0	0	0
0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Tab. 1, samples 45–88 (Part 3).	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
HYALINE FORAMINIFERA	*Elphidium* sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 4	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0
	Elphidium sp. 5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	Elphidium sp. 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium sp. 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Elphidium subtypicum Papp	0	0	0	0	0	0	11	0	4	10	0	0	0	0	0	0	0
	Elphidium ungeri (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Eponides repandus (Fichtel & Moll)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Escornebovina ? *trochiformis* (Andreae)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Favulina geometrica (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Favulina hexagona (Williamson)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	Fissurina laevigata Reuss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fissurina marginata (Montagu)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fontbotia wuellerstorfi (Schwager)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fursenkoina subacuta (d'Orbigny)	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
	Glabratella sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Glandulina ovula d'Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina bulloides d'Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina concinna Reuss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina diplostoma Reuss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina falconensis Blow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina ottnangiensis Rögl	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
	Globigerina praebulloides Blow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina sp. 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Globigerina sp. 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerina tarchanensis Subbotina & Chutzieva	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerinella obesa (Bolli)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerinella regularis (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerinoides bisphericus Todd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerinoides quadrilobatus (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globigerinoides trilobus (Reuss)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globoquadrina cf. *altispira* (Cushman & Jarvis)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globorotalia bykovae Aisenstat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globorotalia peripheroronda Blow & Banner	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globorotalia transsylvanica Popescu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globoturborotalita woodi (Jenkins)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Globulina gibba d'Orbigny	0	6	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
	Globulina punctata d'Orbigny	0	0	0	1	0	0	0	2	0	0	0	0	0	0	1	0	0
	Globulina sp. 1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	Globulina striata (Egger)	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0
	Grigelis pyrula (d'Orbigny)	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
	Guttulina austriaca d'Orbigny	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Guttulina communis (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hansenisca soldanii (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Heterolepa dutemplei (d'Orbigny)	22	42	0	0	0	0	3	2	7	32	0	0	0	0	0	0	0
	Hoeglundina elegans (d'Orbigny)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	Hyaline indet. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 14	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0
	Hyaline indet. 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyaline indet. 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hyalinonetrion clavatum (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Laevidentalina communis (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Laevidentalina elegans (d'Orbigny)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0
0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	3	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
45	2	24	14	11	1	0	0	8	2	93	32	1	0	105	37	0	0	0	0	1	4	0	0	2	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0
0	0	2	1	0	0	0	0	0	1	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	9	3	0	0	4	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	13	0	0	8	1	9	0	0	0	0	2	0	0	0	2	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	2	0	0	0	1	0	0	20	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	2	0	2	6	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
6	1	18	3	0	0	0	0	0	0	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	13	4	0	0	0	1	12	0	1	0	0	0	0	0	0	0	0	0
0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	2	4	0	2	1	0	0	7	4	28	2	0	0	412	84	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	90	0	0	0	27	5	0	0	0	0	0	0	0	0	0	0	0
130	4	4	9	18	0	0	0	0	0	97	73	1	0	11	6	2	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	1	0	0	0	0	0	2	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	3	0	0	0	0	0	0	3	3	3	1	0	9	27	0	1	0	0	0	0	0	1	0	0	0
15	0	36	2	1	0	0	2	0	28	5	28	0	0	67	126	0	0	0	0	0	0	0	6	1	32	0
1	0	0	0	0	0	0	0	0	0	1	0	0	0	15	58	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	3	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Tab. 1, samples 45–88 (Part 4).	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
HYALINE FORAMINIFERA	*Laevidentalina inornata* (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Laevidentalina scripta (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Laevidentalina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lagena gracilicosta REUSS	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Lagena haidingeri (CZJZEK)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lagena sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lagena sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lagena striata (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina americana (CUSHMAN)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina austriaca (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina cultrata (DE MONTFORT)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina inornata (D'ORBIGNY)	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	4
	Lenticulina melvilli (CUSHMAN & RENZ)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina orbicularis (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina sp. 1	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
	Lenticulina sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina spinosa (CUSHMAN)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lenticulina vortex (FICHTEL & MOLL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Marginulina hirsuta (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Melonis affinis (REUSS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Melonis pompilioides (FICHTEL & MOLL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Myllostomella recta (PALMER & BERMÚDEZ)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Neoeponides schreibersi (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Neugeborina irregularis (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Neugeborina longiscata (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nodosaria sp. 1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	Nodosaria sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nodosaria sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nonion bogdanowiczi VOLOSHINOVA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nonion commune (D'ORBIGNY)	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	1
	Nonion tumidulus PISHVANOVA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nonionella turgida (WILLIAMSON)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nonionoides karaganicus (KRASHENINNIKOV)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Orbulina suturalis BRÖNNIMANN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Orthomorphina columella (KARRER)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pappina parkeri (KARRER)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pappina primiformis (PAPP & TURNOVSKY)	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	Parafissurina carinata (BUCHNER)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Paragloborotalia ? mayeri (CUSHMAN & ELLISOR)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pararotalia aculeata (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pararotalia rimosa ? (REUSS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Planularia kubinyi (HANTKEN)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Plectofrondicularia digitalis (NEUGEBOREN)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Plectofrondicularia raricosta (KARRER)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Plectofrondicularia striata (HANTKEN)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Porosononion granosum (D'ORBIGNY)	7	4	0	0	0	0	0	2	0	0	0	0	0	0	9	0	0
	Praeglobobulimina pyrula (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Protoglobobulimina pupoides (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pseudonodosaria brevis (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pullenia bulloides (D'ORBIGNY)	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
	Pullenia quinqueloba (REUSS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pygmaeoseistron hispidum (REUSS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Reussella spinulosa (REUSS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scallopostoma ovicula (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Siphonina reticulata (CZJZEK)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Siphonodosaria consobrina (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sphaeroidina bulloides D'ORBIGNY in DESHAYES	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	Stilostomella adolphina (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Turborotalita quinqueloba (NATLAND)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina aculeata D'ORBIGNY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina acuminata HOSIUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina breviformis (PAPP & TURNOVSKY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina graciliformis PAPP & TURNOVSKY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina gracilis REUSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina grilli SCHMID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina macrocarinata PAPP & TURNOVSKY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina mantaensis CUSHMAN & EDWARDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina pygmoides PAPP & TURNOVSKY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina semiornata D'ORBIGNY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Uvigerina venusta FRANZENAU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vaginulinopsis hauerina (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Valvulineria complanata (D'ORBIGNY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Virgulopsis tuberculatus (EGGER)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**40**	**102**	**114**	**16**	**47**	**1**	**97**	**17**	**122**	**90**	**3**	**108**	**2**	**63**	**14**	**134**	**257**

62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	2	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	1	0	0	0	0	0	1	0	0	0	0	4	1	0	0	0	0	0	0	0	0	8	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0
0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0	8	59	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	2	1	0	0	0	0	0	0	0	0	0	0	0	11	3	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	8	1	0	0	0	0	0	10	0	3	1	0	45	30	0	0	0	0	0	0	0	5	0	2	0
0	0	2	0	2	0	0	0	0	0	1	1	0	0	5	44	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
8	0	2	1	1	0	0	0	0	1	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	2	5	8	1	1	0	1	6	18	8	30	4	0	47	109	3	0	0	0	0	0	3	46	3	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	2	1	0	0	0	0	0	0	0	3	0	0	9	0	0	0	0	0	0	0	0	1	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	4	0	0	14	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
1	3	120	383	17	6	0	2	29	94	14	29	2	0	0	2	0	0	0	0	140	44	1	78	1	0	0
2	1	8	2	0	0	0	0	0	0	2	5	0	0	2	18	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	29	0	0	0	0	0	0	0	20	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	2	0	0	0	0	1	0	1	5	12	2	0	51	94	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	2	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	2	1	0	0	0	0	0	0	0	0	0	0	7	19	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
0	0	3	0	0	0	0	0	0	0	4	2	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	0	0	0	0	0	0	0	0	0	0	0
0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	2	0	0	0	0	0	0	2	4	0	0	46	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0
0	1	8	0	0	0	0	0	0	0	0	1	0	0	38	13	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
3	0	12	0	0	0	0	0	0	4	9	18	0	0	22	25	0	0	0	0	0	0	0	139	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
343	**126**	**773**	**1041**	**122**	**41**	**2**	**286**	**129**	**1224**	**566**	**475**	**168**	**99**	**1477**	**1233**	**519**	**24**	**3**	**8**	**423**	**640**	**12**	**659**	**45**	**115**	**85**

	Tab. 2 (Part 1).	**MisU1 (1,885–1,894 m) 3/4**	**MisU1 (1,885–1,894 m) 3/1**	**MisU1 (1,624–1,633 m) 1/2**	**HRD19 (590–595 m) 3/1**	**HRD19 (650–656 m) 7/1**	**HRD24 (256–260.5 m) 2/1**	**HRD24 (390–395 m) 3/1**	**HRD24 (550–555 m) 5/1**	**HRD24 (641–645 m) 7/1**	**HRD24 (775–779.5 m) 9/1**	**HRD25 (290–298 m) 1/1**	**HRD25 (310–315 m) 2/1**	**HRD25 (490–495 m) 4/1**	**HRD25 (550–557 m) 5/1**	**HRD25 (645–650 m) 7/1**
Bivalvia	*Abra reflexa* (Eichwald, 1830)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Acanthocardium* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Aequipecten macrotis* (Sowerby, 1847)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Anadara diluvii* (Lamarck, 1819)	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Anomia* sp.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	Cardioidea indet.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Circomphalus haidingeri* (Höernes, 1834)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Corbula gibba* (Olivi, 1792)	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0
Bivalvia	*Cyclocardia scalaris* (Sowerby, 1825)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Ervilia pusilla* Philippi, 1836	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Gouldia minima* (Montagu, 1803)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Limopsis anomala* (Eichwald, 1830)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Microloripes dentatus* (Defrance, 1823)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Modiolus brocchi* Hörnes, 1867	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	Nuculoidea indet.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Obsoletiforma obsoleta* (Eichwald, 1853)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Ostrea digitalina* (Dubois, 1831)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Parvicardium minimum* (Philippi, 1836)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	Pectinoidea indet.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Plagiocardium papillosum* (Poli, 1795)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Saccella commutata* (Philippi, 1844)	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Bivalvia	*Sarmatimactra* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Scalaricardita scalaris* (Sowerby, 1825)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Talochlamys multistriata* (Poli, 1795)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	Tellinoidea indet.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	Veneroidea indet.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia	*Venus nux* Gmelin, 1791	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bryozoa	Broyzoa – *Cupuladria* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bryozoa	*Adeonellopsis* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bryozoa	*Biflustra* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bryozoa	*Cellepora* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bryozoa	*Ceriopora* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bryozoa	*Hornera* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bryozoa	*Myriapora truncata* (Pallas, 1776)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bryozoa	*Pleuronea* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bryozoa	*Smittina* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Echinodermata	diadematoid spines	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Gastropoda	*Acteocina lajonkaireana* (Basterot, 1825)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Vitta pachii* (Hörnes, 1856)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Vitta picta* (Férussac, 1825)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Gastropoda	*Vitta tuberculata* (Schreter, 1915)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Alvania ampulla* (Eichwald, 1853)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Alvania oceani* (d'Orbigny 1852)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Alvania perregularis* (Sacco, 1895)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Atys miliaris* (Brocchi, 1814)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Bittium reticulatum* (da Costa, 1778)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Gastropoda	*Bittium spina* (Hörnes, 1855)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Caecum trachea* (Montagu, 1803)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Cerithidium multiliratum* (Brusina, 1877)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Cerithidium schwartzi* (Hörnes, 1856)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Chrysallida* sp.	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0
Gastropoda	*Chrysallida subtypica* (Sacco, 1892)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Clavatula oliviae* Hoernes & Auinger, 1891	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Anisocycla* cf. *nitidissima* (Montagu, 1803)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Eulima trulla* Boettger, 1906	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Euspira* sp.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Eulimella* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	Fusinidae indet.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Gibborissoia elata* (Boettger, 1902)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Gibborissoia varicosa* (de Basterot, 1825)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Gibbula pseudangulata* (Boettger, 1907)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Gibbula* sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Granulolabium bicinctum* (Brocchi, 1814)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Granulolabium plicatum* (Bruguière, 1791)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Hydrobia* cf. andrussowi Hilber, 1897	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Hydrobia frauenfeldi* (Hörnes, 1856)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Hydrobia subsuturata* Jekelius, 1944	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

WA1 (200–205 m) 1/1	WA1 (300–305 m) 3/1	WA1 (400–405 m) 5/1	PO1 (99.5–105 m) 3/1	PO1 (130–135 m) 4/2	PO1 (220–225 m) 7/2	PO1 (280–285 m) 9/1	PO1 (460–465 m) 15/1	PO1 (490–495 m) 16/1	PO1 (520–525 m) 17/2	AH1 (100–105 m) 4/1	AH1 (190–195 m) 7/4	AH1 (220–225 m) 8/2	AH1 (250–255 m) 9/3	AH1 (250–255 m) 9/4	AH1 (280–285 m) 10/2	GI1 (400–405 m) 4/1	KA1 (450–455,5 m) 7/4	KA1 (750–755 m) 13/1	KA1 (895–900 m) 15/2	KA2 (1,020–1,025 m) 3/1	KA2 (1,080–1,085 m) 4/3	SI3 (800–805 m) 6/3	SI3 (1,000–1,003 m) 8/2	MI1 (800–805 m) 1/2	MTW (1,510–1,517 m) 7/3
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Tab. 2 (Part 2).		**MisU1 (1,885–1,894 m) 3/4**	**MisU1 (1,885–1,894 m) 3/1**	**MisU1 (1,624–1,633 m) 1/2**	**HRD19 (590–595 m) 3/1**	**HRD19 (650–656 m) 7/1**	**HRD24 (256–260.5 m) 2/1**	**HRD24 (390–395 m) 3/1**	**HRD24 (550–555 m) 5/1**	**HRD24 (641–645 m) 7/1**	**HRD24 (775–779.5 m) 9/1**	**HRD25 (290–298 m) 1/1**	**HRD25 (310–315 m) 2/1**	**HRD25 (490–495 m) 4/1**	**HRD25 (550–557 m) 5/1**	**HRD25 (645–650 m) 7/1**
Gastropoda	*Mangelia* sp.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Mangelia* sp.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Manzonia scalaris* (Dubois, 1831)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Gastropoda	*Marginella* sp.	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Gastropoda	*Melanella* sp.	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Gastropoda	*Mitrella sarmatica* Kojumdgieva, 1969	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Mohrensternia inflata* (Hörnes, 1856)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Mohrensternia styriaca* Hilber, 1897	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Tritia dujardini* (Deshayes, 1844)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Tritia schoenni* (Hoernes & Auinger, 1882)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Tritia* sp. indet.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Gastropoda	*Tritia striatula* (Eichwald, 1829)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Tritia styriaca* (Hilber, 1879)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Tritia subasperata* (Boettger, 1906)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Gastropoda	*Naytiopsis karreri* (Hoernes & Auinger, 1882)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Odostomia* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Odostomia sp. 1*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	Opisthobranch indet.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Gastropoda	*Polinices* cf. *cerovaensis* Harzhauser, 2011	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Gastropoda	*Polinices* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Potamides theodiscus* (Rolle in Hilber, 1979)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Profundinassa fuchsi* (Koenen, 1872)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Pseudamnicola tholosa* Jekelius, 1944	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Gastropoda	*Pseudonoba striata* (Hörnes, 1856)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Pseudosetia laevigata* (Eichwald, 1850)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Raphitoma* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Raphitoma sparsa* Boettger, 1902	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Rissoina subconoidea* (Grateloup, 1847)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Sandbergeria perpusilla* (Grateloup, 1827)	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Gastropoda	*Stenothyroides schwartzi* (Hörnes, 1856)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Terebra* cf. *acuminata* (Borson, 1820)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Gastropoda	*Terebralia lignitarum* (Eichwald, 1830)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Tornus* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Turboella dilemma* (Boettger, 1902)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Turboella* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Turbonilla scalaris* (Eichwald, 1853)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Turbonilla* sp.	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Gastropoda	Turridae indet.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Turritella* s.l. *eryna* d'Orbigny, 1852	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	*Ptychidia vindobonensis* Handmann, 1882	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Gastropoda	*Vexillum* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaphopoda	*Gadila* sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaphopoda	*Gadilina jani* (Hörnes, 1856)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polychaeta	*Ditrupa cornea* (Linnaeus, 1767)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Osteichthyes	*Diaphus acutirostrum* (Holec, 1975)	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
Osteichthyes	*Diaphus austriacus* (Koken, 1891)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Osteichthyes	*Diaphus* sp.	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Osteichthyes	*Gadiculus argenteus* Guichenot, 1850	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Osteichthyes	*Lesueurigobius vicinalis* (Koken, 1891)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Tab. 2.
Presence/absence of macrofossils per sample.

WA1 (200–205 m) 1/1	WA1 (300–305 m) 3/1	WA1 (400–405 m) 5/1	PO1 (99.5–105 m) 3/1	PO1 (130–135 m) 4/2	PO1 (220–225 m) 7/2	PO1 (280–285 m) 9/1	PO1 (460–465 m) 15/1	PO1 (490–495 m) 16/1	PO1 (520–525 m) 17/2	AH1 (100–105 m) 4/1	AH1 (190–195 m) 7/4	AH1 (220–225 m) 8/2	AH1 (250–255 m) 9/3	AH1 (250–255 m) 9/4	AH1 (280–285 m) 10/2	GI1 (400–405 m) 4/1	KA1 (450–455,5 m) 7/4	KA1 (750–755 m) 13/1	KA1 (895–900 m) 15/2	KA2 (1,020–1,025 m) 3/1	KA2 (1,080–1,085 m) 4/3	SI3 (800–805 m) 6/3	SI3 (1,000–1,003 m) 8/2	MI1 (800–805 m) 1/2	MTW (1,510–1,517 m) 7/3
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

Nr.	Stratigraphy	Sample	Fisher Alpha Index	Equitability J	Dominance D	Epifaunal (%)	Epifaunal to Shallow Infaunal (%)	Infaunal (%)	Deep infaunal (%)	Inner neritic taxa (%)	IN-MN (%)	IN-ON (%)	MN-ON (%)	Inner neritic-bathyal taxa (%)	Middle neritic-bathyal taxa (%)	Outer neritic-bathyal taxa (%)	Bathyal taxa (%)	Oxic Indicators (%)	Oxic/Suboxic Indicators (%)	Suboxic Indicators (%)	Suboxic/Dysoxic Indicators (%)	Dysoxic Indicators (%)	High nutrient-flux Indicators (%)	Stress Indicators (%)	Number of Taxa
1	Ottnangian (lo)	GI1 (1,050–1,055 m) 17/1	1.09	0.66	0.36	1.13	83.08	4.14	0.00	0.00	0.00	0.00	0.00	44.74	1.13	1.13	3.01	1.13	0.00	0.00	1.13	0.00	0.00	0.00	6.00
2	Ottnangian (lo)	GI2 (1,084–1,086.7 m) 10/2	2.49	0.72	0.31	56.41	41.03	0.00	0.00	0.00	0.00	5.13	0.00	38.46	12.82	0.00	0.00	43.59	0.00	12.82	0.00	0.00	0.00	0.00	7.00
3	Ottnangian (lo)	MTW1 (1,380–1,385 m) 9/1	10.12	0.72	0.18	62.30	25.41	6.56	0.00	25.41	4.10	6.56	0.00	8.20	45.90	0.82	0.00	58.20	25.41	9.02	0.00	0.00	0.00	0.00	26.00
4	Ottnangian (lo)	MTW1 (1,480–1,485 m) 12/4	5.14	0.77	0.18	80.00	0.00	4.44	0.00	0.00	2.22	11.11	0.00	53.33	13.33	4.44	0.00	75.56	0.00	3.33	2.22	0.00	0.00	2.22	15.00
5	Ottnangian (up)	KA2 (1,140–1,145 m) 5/2	2.50	0.64	0.50	18.75	68.75	0.00	0.00	68.75	0.00	6.25	0.00	12.50	0.00	0.00	0.00	18.75	68.75	0.00	0.00	0.00	0.00	0.00	5.00
6	Ottnangian (up)	MTW1 (1,130–1,138 m) 4/7	7.64	0.72	0.21	83.51	9.28	3.09	0.00	9.28	2.06	26.80	0.00	7.22	48.45	1.03	0.00	78.35	10.31	7.22	0.00	0.00	0.00	0.00	20.00
7	Ottnangian (up)	MTW1 (1,130–1,138 m) 4/2	5.90	0.96	0.15	52.94	17.65	0.00	0.00	17.65	11.76	17.65	0.00	17.65	23.53	0.00	0.00	58.82	17.65	0.00	0.00	0.00	0.00	0.00	8.00
8	Ottnangian (up)	MisU1 (1,885–1,894 m) 3/1	1.28	0.62	0.47	0.00	65.08	0.00	0.00	65.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.05	65.08	0.00	0.00	0.00	0.00	0.00	5.00
9	Ottnangian (up)	MisU1 (1,885–1,894 m) 3/4	3.98	0.68	0.44	0.00	14.29	0.00	0.00	14.29	64.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.29	0.00	0.00	0.00	0.00	0.00	6.00
10	Ottnangian (up)	Si3 (1,335–1,340 m) 12/1	7.86	0.82	0.20	20.83	41.67	4.17	4.17	41.67	0.00	12.50	0.00	8.33	8.33	4.17	0.00	16.67	45.83	8.33	0.00	4.17	4.17	4.17	11.00
11	Ottnangian (up)	AH1 (370–375 m) 13/3	8.47	0.75	0.15	39.66	41.95	9.20	0.57	18.39	10.34	24.14	0.00	4.02	5.17	0.00	0.00	41.38	14.37	4.02	0.57	0.57	0.57	0.57	26.00
12	Ottnangian (up)	AH1 (430–435 m) 15/3	9.81	0.68	0.18	37.17	45.07	9.87	0.66	15.13	12.50	23.36	0.00	1.64	5.26	1.32	0.00	38.16	11.18	2.96	1.32	0.66	2.30	1.64	34.00
13	Ottnangian (up)	AH1 (520–523 m) 18/3	5.64	0.86	0.12	36.00	26.67	28.00	1.33	20.00	17.33	20.00	0.00	5.33	0.00	0.00	17.33	44.00	12.00	0.00	1.33	1.33	0.00	2.67	15.00
14	Ottnangian (up)	AH1 (610–615 m) 21/2	7.57	0.82	0.15	43.24	37.84	1.35	5.41	5.41	9.46	31.08	0.00	4.05	5.41	1.35	0.00	35.14	12.16	2.70	0.00	5.41	4.05	5.41	18.00
15	Ottnangian (upm)	KA2 (1,020–1,025 m) 3/1	2.46	0.72	0.35	65.00	17.50	0.00	0.00	15.00	17.50	5.00	0.00	60.00	0.00	2.50	0.00	60.00	20.00	2.50	0.00	0.00	2.50	0.00	7.00
16	Ottnangian (upm)	KA2 (1,020–1,025 m) 3/4	2.75	0.77	0.24	76.47	4.90	0.98	0.00	4.90	3.92	6.86	0.00	69.61	6.86	0.00	0.00	68.63	11.76	6.86	0.98	0.00	0.98	0.98	10.00
17	Karpatian (lo)	KA1 (701–705 m) 12/2	1.02	0.31	0.75	0.73	97.08	0.00	0.00	97.08	0.73	0.73	0.00	0.00	0.00	0.00	0.00	0.73	97.08	0.00	0.00	0.00	0.00	0.00	5.00
18	Karpatian (lo)	KA1 (750–755 m) 13/1	1.23	0.11	0.94	2.48	97.52	0.00	0.00	96.89	0.00	1.86	0.00	0.00	0.62	0.62	0.00	1.86	97.52	0.62	0.00	0.00	0.62	0.00	6.00
19	Karpatian (lo)	KA1 (895–900 m) 15/2	1.66	0.26	0.80	3.60	89.19	1.80	0.00	89.19	5.41	1.80	0.00	0.90	2.70	0.00	0.00	2.70	90.09	1.80	0.00	0.00	0.00	0.00	7.00
20	Karpatian (up)	HRD19 (819–820 m) 12/1	2.22	0.64	0.36	16.46	74.68	0.00	0.00	74.68	7.59	2.53	0.00	0.00	13.92	0.00	0.00	3.80	75.95	12.66	0.00	0.00	0.00	0.00	8.00
21	Karpatian (up)	KA1 (500–506 m) 8/1	0.91	0.17	0.89	0.91	98.63	0.00	0.00	98.63	0.46	0.46	0.00	0.00	0.00	0.00	0.00	0.91	98.63	0.00	0.00	0.00	0.00	0.00	5.00
22	Karpatian (up)	KA1 (550–555 m) 9/2	1.11	0.42	0.62	2.00	97.00	0.00	0.00	97.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	98.00	0.00	0.00	0.00	0.00	0.00	5.00
23	Karpatian (up)	KA1 (600–604 m) 10/4	2.58	0.50	0.49	3.66	85.37	2.44	1.22	85.37	0.00	1.22	0.00	2.44	3.66	0.00	0.00	3.66	85.37	1.22	1.22	1.22	1.22	2.44	9.00
24	Karpatian (up)	Si3 (1,250–1,255 m) 11/1	2.19	0.13	0.89	0.39	94.41	1.16	0.19	94.41	0.00	0.00	0.00	0.58	1.16	0.00	0.00	0.39	94.41	0.77	0.39	0.19	0.58	0.58	12.00
25	Badenian (lo)	WA1 (500–505 m) 7/4	4.18	0.56	0.35	88.70	0.00	3.48	0.00	0.00	0.00	6.96	0.00	29.57	56.52	0.00	0.00	35.65	0.87	53.91	2.61	0.00	1.74	0.00	14.00
26	Karpatian (Gi)	AH1 (250–255 m) 9/4	9.33	0.85	0.19	57.14	4.76	28.57	0.00	9.52	0.00	0.00	0.00	23.81	52.38	0.00	0.00	23.81	4.76	52.38	9.52	0.00	4.76	4.76	11.00
27	Karpatian (Gi)	AH1 (280–285 m) 10/2	16.73	0.82	0.07	37.41	5.76	23.02	1.44	8.63	7.91	15.83	0.00	14.75	20.50	0.72	0.00	34.17	6.83	15.83	7.91	1.44	6.12	7.55	48.00
28	Karpatian (Gi)	AH1 (310–315 m) 11/1	15.79	0.79	0.10	39.89	0.00	18.58	1.64	0.00	2.19	1.09	0.00	8.20	45.36	3.28	0.55	14.21	0.00	39.89	3.28	1.64	10.93	11.48	40.00
29	Karpatian (up)	HRD25 (665–670 m) 8/1	1.35	0.49	0.59	13.27	86.73	0.00	0.00	86.73	0.00	4.42	0.00	0.00	0.88	0.00	0.00	2.65	88.50	0.88	0.00	0.00	0.00	0.00	6.00
30	Badenian (lo)	HRD19 (630–635 m) 6/1	4.45	0.54	0.29	10.97	0.16	77.58	10.65	0.16	0.00	1.45	0.00	46.61	49.19	1.94	0.00	3.55	0.81	46.13	35.97	10.65	1.45	46.29	22.00

31	Badenian (lo)	HRD19 (650–656 m) 7/1	4.50	0.74	0.26	62.16	5.41	24.32	0.00	5.41	2.70	2.70	0.00	0.00	81.08	0.00	0.00	2.70	8.11	78.38	0.00	0.00	0.00	0.00	10.00
32	Karpatian (up)	HRD24 (775–779.5 m) 9/1	2.09	0.44	0.47	34.14	60.64	4.02	0.00	60.64	0.00	0.80	0.00	1.20	5.22	0.00	0.00	0.40	61.45	5.22	0.80	0.00	1.20	1.20	10.00
33	Badenian (l)	Si3 (900–906 m) 7/3	15.28	0.72	0.10	10.83	1.22	39.88	3.05	0.47	0.41	0.20	0.00	24.37	22.00	7.45	0.00	8.40	0.41	24.85	17.87	3.05	19.84	18.21	70.00
34	Badenian (l)	Si3 (1,000–1,003 m) 8/2	12.63	0.82	0.05	24.09	4.95	38.69	5.52	0.32	0.16	3.24	0.00	20.19	30.90	18.57	0.00	14.44	3.57	36.82	9.33	5.52	19.38	12.25	58.00
35	Badenian (lo)	HRD19 (495–500 m) 2/1	4.15	0.37	0.62	8.67	2.67	87.33	0.00	2.67	0.00	2.00	0.00	82.00	11.33	0.00	0.00	6.67	4.00	10.00	78.00	0.00	78.00	78.00	15.00
36	Badenian (lo)	HRD19 (571–576 m) 3/1	4.63	0.95	0.23	100.00	0.00	0.00	0.00	11.11	0.00	22.22	0.00	0.00	33.33	33.33	0.00	0.00	22.22	33.33	0.00	0.00	0.00	0.00	5.00
37	Badenian (lo)	HRD19 (590–595 m) 4/1	5.41	0.58	0.25	35.05	1.93	61.74	0.32	1.93	0.64	8.36	0.00	22.19	63.99	0.32	0.00	3.22	9.65	63.34	20.58	0.32	20.58	20.90	22.00
38	Badenian (lo)	HRD24 (550–555 m) 5/1	5.11	0.76	0.16	30.29	0.00	57.33	0.33	0.00	0.00	12.70	0.00	14.66	44.63	15.64	0.33	3.91	12.70	53.75	11.40	0.33	2.93	22.48	21.00
39	Badenian (lo)	HRD24 (620–624 m) 6/1	6.53	0.74	0.18	21.31	16.39	57.92	1.64	16.39	0.55	0.00	0.00	20.22	61.20	0.00	0.00	7.65	16.39	56.28	14.75	1.64	7.65	16.94	22.00
40	Badenian (lo)	HRD24 (641–645 m) 7/1	4.88	0.83	0.21	69.70	15.15	3.03	0.00	30.30	9.09	39.39	0.00	3.03	3.03	0.00	0.00	51.52	15.15	3.03	0.00	0.00	0.00	0.00	10.00
41	Badenian (lo)	HRD25 (490–495 m) 4/1	5.53	0.75	0.18	89.86	0.72	9.42	0.00	0.72	2.90	24.64	0.00	0.72	71.01	0.00	0.00	14.49	17.39	63.77	0.00	0.00	0.00	0.00	18.00
42	Badenian (lo)	HRD25 (550–557 m) 5/1	4.72	0.62	0.29	88.79	5.92	4.98	0.00	5.92	1.56	11.84	0.00	5.30	74.77	0.31	0.00	11.21	14.95	67.29	0.00	0.00	0.00	0.00	20.00
43	Badenian (lo)	HRD25 (645–650 m) 7/1	3.55	0.49	0.33	45.36	44.29	5.00	0.00	44.29	6.61	0.71	0.00	0.54	47.32	0.00	0.00	2.32	44.46	45.54	0.18	0.00	0.00	0.18	18.00
44	Badenian (lo)	PW U3 (1,123–1,128 m) 1/3	2.34	0.50	0.43	36.19	63.04	0.39	0.00	63.04	0.00	0.00	0.00	0.00	4.28	0.00	0.00	1.95	63.04	1.95	0.00	0.00	0.00	0.00	11.00
45	Badenian (lo)	Si3 (800–805 m) 6/3	4.00	0.78	0.18	48.48	40.40	1.01	0.00	67.68	0.00	16.16	0.00	1.01	0.00	0.00	0.00	24.24	43.43	0.00	0.00	0.00	0.00	0.00	13.00
46	Badenian (m)	AH1 (190–195 m) 7/4	9.17	0.68	0.16	58.82	33.73	2.35	0.00	38.24	5.29	38.24	0.00	3.33	1.37	0.20	0.00	36.08	44.90	0.98	0.59	0.00	0.20	0.20	37.00
47	Badenian (m)	AH1 (220–225 m) 8/2	11.06	0.81	0.07	33.62	16.55	20.52	4.31	17.24	19.14	15.00	1.55	7.59	21.72	2.41	0.00	17.59	24.31	16.90	5.00	4.31	3.79	7.76	44.00
48	Badenian (m)	HRD25 (290–298 m) 1/1	9.99	0.74	0.10	24.41	13.89	35.92	1.83	13.80	12.52	3.47	1.74	13.89	15.54	23.22	0.00	14.44	15.36	34.00	4.39	1.83	5.85	27.06	47.00
49	Badenian (m)	HRD25 (310–315 m) 2/1	9.63	0.88	0.09	35.29	4.71	18.82	20.00	4.71	3.53	12.94	0.00	10.59	25.88	11.76	0.00	22.35	14.12	14.12	4.71	20.00	23.53	34.12	22.00
50	Badenian (m)	PO1 (490–495 m) 16/1	4.81	0.75	0.19	18.60	34.11	8.53	0.00	37.21	22.48	16.28	0.00	1.55	5.43	0.00	0.00	0.78	50.39	4.65	0.78	0.00	0.78	0.78	16.00
51	Badenian (m)	PO1 (520–525 m) 17/2	16.42	0.81	0.05	66.26	9.40	5.31	0.16	14.71	24.10	17.57	0.00	5.47	17.16	0.98	0.00	41.83	19.53	5.15	1.39	0.16	1.80	0.74	71.00
52	Badenian (m)	WA1 (400–403 m) 5/1	9.99	0.71	0.11	18.82	13.81	43.85	3.49	13.96	11.84	7.44	0.00	16.69	16.08	21.55	0.00	7.13	20.94	29.44	15.17	3.49	18.06	38.85	42.00
53	Badenian (up)	WA1 (350–353 m) 4/2	7.03	0.94	0.18	41.67	8.33	33.33	0.00	8.33	8.33	0.00	0.00	8.33	25.00	0.00	0.00	25.00	8.33	25.00	8.33	0.00	0.00	8.33	7.00
54	Badenian	WA1 (450–455 m) 6/2	9.95	0.89	0.10	73.33	8.89	11.11	0.00	8.89	2.22	24.44	0.00	4.44	51.11	0.00	0.00	24.44	20.00	44.44	2.22	0.00	0.00	0.00	17.00
57	Sarmatian	AH1 (130–135 m) 5/1	2.71	0.82	0.19	73.58	10.38	15.09	0.00	25.47	50.94	23.58	0.00	0.00	0.00	0.00	0.00	78.30	10.38	0.00	0.00	0.00	0.00	0.00	10.00
58	Sarmatian	AH1 (160–165 m) 6/2	0.77	0.63	0.42	9.33	48.00	0.00	0.00	48.00	48.95	3.05	0.00	0.00	0.00	0.00	0.00	9.33	48.00	0.00	0.00	0.00	0.00	0.00	5.00
59	Sarmatian	PO1 (40–45 m) 1/1	3.47	0.66	0.35	70.89	16.46	5.06	7.59	16.46	63.29	8.86	0.00	12.66	0.00	0.00	0.00	70.89	16.46	0.00	5.06	7.59	1.27	12.66	11.00
60	Sarmatian	PO1 (99.5–105 m) 3/1	2.70	0.79	0.22	36.99	31.51	27.40	0.00	54.79	6.85	8.22	0.00	4.11	0.00	0.00	0.00	26.03	39.73	0.00	4.11	0.00	2.74	4.11	9.00
61	Sarmatian	PO1 (130–135 m) 4/2	2.84	0.62	0.27	32.73	42.27	3.42	0.00	42.27	26.80	24.82	0.00	2.52	0.90	0.00	0.00	8.63	63.67	0.90	2.52	0.00	1.44	1.98	15.00
62	Sarmatian	PO1 (160–165 m) 5/2	2.09	0.59	0.38	20.65	0.62	19.72	0.00	18.03	59.94	19.72	0.00	1.08	1.23	0.00	0.00	38.06	0.62	1.23	1.08	0.00	1.08	1.08	12.00
63	Sarmatian	PO1 (250–255 m) 8/1	3.47	0.78	0.20	17.72	20.25	8.86	31.65	20.25	35.44	2.53	0.00	39.24	1.27	0.00	0.00	16.46	21.52	1.27	7.59	31.65	7.59	39.24	11.00
64	Sarmatian	PO1 (280–285 m) 9/1	8.53	0.87	0.12	21.95	21.95	17.07	0.00	39.02	21.95	12.20	0.00	0.00	2.44	0.00	0.00	51.22	21.95	2.44	0.00	0.00	0.00	0.00	15.00
65	Sarmatian	Si3 (400–405 m) 2/2	4.97	0.86	0.12	27.89	9.52	47.62	2.72	14.29	27.21	10.20	0.00	40.14	5.44	0.00	0.00	25.85	16.33	5.44	37.41	2.72	25.17	36.05	17.00
66	Sarmatian	Si3 (500–505 m) 3/1	3.78	0.79	0.16	9.64	31.47	40.61	3.55	33.50	18.27	6.09	0.00	26.90	15.23	0.00	0.00	10.66	32.49	15.23	23.35	3.55	19.29	24.37	15.00
67	Sarmatian	Si3 (600–604 m) 4/2	1.51	0.33	0.70	13.07	2.61	83.01	0.00	2.61	1.96	12.42	0.00	83.01	0.00	0.00	0.00	1.31	14.38	0.00	83.01	0.00	83.01	83.01	7.00
68	Sarmatian	WA1 (200–205 m) 1/1	1.84	0.59	0.29	34.52	6.15	25.77	0.00	31.68	33.10	34.52	0.00	0.00	0.24	0.00	0.00	34.28	6.38	0.24	0.00	0.00	0.00	0.00	10.00
69	Sarmatian	WA1 (300–305 m) 3/1	2.98	0.43	0.43	29.06	0.78	62.03	0.00	62.03	7.03	28.91	0.00	0.63	0.00	0.16	0.00	29.06	0.78	0.47	0.31	0.00	0.31	0.31	16.00

Tab. 3.
Diversity indices and ecological and bathymetric data (% per sample) for selected foraminiferal assemblages.

	depth	habitat	oxygen	organic matter flux	stress marker	references
Ammonia spp.	IN	E to SI	O/S			2, 3, 4, 6, 13
Amphicoryna spp.	MN-B	INF	S			1, 3, 4, 5, 8
Amphimorphina haueriana	MN-B	INF	S			3, 21
Amphistegina radiata	IN-MN	E	O			2
Astrononion stelligerum	IN-B	INF	S			1, 2, 3, 6, 9, 10, 13
Aubignyna spp.	IN	INF?				2
Bathysiphon spp.	B	E		H		2, 8
Biapertorbis biaperturatus	ON-B	E				3, 5, 8
Biasterigerina planorbis	IN-MN	E	O			2, 3, 12, 17
Bolivina spp.	IN-B	DI	D		x	1, 2, 3, 4, 9, 11, 12, 14, 21
Borelis spp.	IN	E				2
Bulimina spp.	IN-B	INF	S/D	H (*B. elongata*)	x	1, 2, 3, 4, 5, 11, 14, 21
Cancris auriculus	MN-ON	E	S	H		2, 9
Cassidulina laevigata	MN-B	INF	S	M to H		1, 2, 3, 4, 12
Caucasina spp.	IN-B	INF	S/D			3, 4, 5, 9, 11, 14
Cibicidoides lobatulus	IN-MN	E	O			2, 3, 12, 13, 17, 20
Cibicidoides spp.	MN-B	E	O			1, 2, 3, 4, 5, 13, 17
Cribrostomoides subglobosus	IN-B	E to SI				2, 3
Cyclammina spp.	ON-A	E?				2
Cycloforina spp.		E				
Dentalina spp.	IN-B	INF	S/D			1, 3, 4, 13
Discorbinoides sp.	IN-MN					3
Elphidiella spp.	IN-ON	INF?				2
Elphidium spp. *(keeled)*	IN-ON	E	O			2, 3, 4, 17
Elphidium spp. *(unkeeled)*	IN	INF	O			2
Eponides repandus	IN-B	E	O			2, 12
Fissurina laevigata	IN-B	INF	S			1, 3, 12
Fursenkoina subacuta	IN-B	INF	S/D		x	1, 2, 3, 5, 11, 12, 14, 15, 21
Glandulina spp.	MN-B	INF	S			7, 12
Globulina gibba	IN-B		O			3, 2
Grigelis pyrula		INF	S			21
Guttulina spp.	IN-B	INF	S			3, 12
Hansenisca soldanii	ON-B	E	S			3, 9, 12, 16
Heterolepa dutemplei	IN-B	E	O			2, 3, 15
Hoeglundina elegans	ON-B	E to SI	S	H		1, 2, 3, 12
Laevidentalina spp.	ON-B	INF	S/D			3, 4, 8, 12
Lagena spp.	IN-B	INF	S			1, 3, 4, 5, 8, 9, 12
Lenticulina spp.	MN-B	E	S			1, 2, 3, 4, 8, 9, 12, 13, 15
Marginulina hirsuta	IN-B	INF?				8, 13, 18
Martinottiella communis	ON-B	E	O			2, 12, 13,
Melonis spp.	MN-B	INF	S/D	H		1, 2, 3, 4, 12, 13
miliolids	IN-ON	E				
Myllostomella recta	MN-B	INF				18, 19
Nonion spp.	MN-B	INF	S			1, 2, 3, 4, 12, 13
Nonionella turgida	IN-B	INF	S			1, 2, 6
Pappina spp.	MN-B	INF	S			3, 21
Pararotalia spp.	IN-MN	E	O			2, 3, 21
Plectofrondicularia spp.	MN-B	INF	S			3, 5, 21
Porosononion granosum	IN-MN					3, 4
Praeglobobulimina spp.	MN-B	DI	D	H	x	1, 2, 3, 4, 11, 12, 14, 17, 21
Pullenia spp.	ON-B	INF	S			1, 2, 3, 4, 9, 10, 12, 13
Pyrgo spp.	IN-B	E	O/S			1, 2
Quinqueloculina spp.	IN-ON	E	O/S			1, 2
Reticulophragmium spp.		E to SI				5
Reussella spinulosa	IN-ON	E	O			3, 21
Semivulvulina pectinata	MN-B	E	S			3, 2
Sigmoilopsis spp.	MN-B	E				3, 5, 13, 20
Siphonina reticulata	MN-B	E	O			13, 21
Siphonodosaria consobrina	ON-B	INF	S			3, 4, 21
Sphaeroidina bulloides	MN-B	E	S			1, 4, 12, 13
Spirolina austriaca	IN	E				2
Spiroloculina spp.	IN	E	O/S			2, 6
Spirorutilus carinatus	IN-B	E	O			3, 5, 21
Spirosigmoilina tenuis	MN-B	E	O			3, 12, 13, 20
Textularia spp.	IN-B	E	O			2, 3, 12, 17
Triloculina spp.		E	O			1, 2
Uvigerina spp.	MN-B	INF	S	H	x	1, 2, 3, 4, 11, 12, 14, 21
Vaginulinopsis hauerina	MN-B	INF	S			3, 8, 21
Valvulineria complanata	ON-B	INF	S		x	1, 3, 11, 14, 21

Tab. 4.
Ecologic preferences of selected benthic foraminifera. Bathymetric distribution: IN = inner neritic, MN = middle neritic, ON = outer neritic, B = bathyal, A = abyssal; microhabitat: E = epifaunal, SI = shallow infaunal, INF = infaunal, DI = deep infaunal; oxygen dependency: O = oxic, S = suboxic, D = dysoxic; dependency on organic matter flux: H = high flux, M = moderate flux; stress marker. References: 1: Kaiho (1994), 2: Murray (2006), 3: Hohenegger (2005), 4: Rögl & Spezzaferri (2003), 5: Pippèrr & Reichenbacher (2010), 6: Bernhard & Sen Gupta (1999), 7: Jones (1994), 8: Reolid et al. (2008), 9: Kouwenhoven & van der Zwaan (2006), 10: Den Dulk et al. (2000), 11: van Hinsbergen et al. (2005), 12: Pezelj et al. (2007), 13: Spezzaferri & Tamburini (2007), 14: Spezzaferri et al. (2002), 15: Báldi (2006), 16: Corliss (1991), 17: Martins et al. (2007), 18: Roetzel et al. (2006), 19: Grunert et al. (2010), 20: Wenger (1987), 21: Pezelj et al. (2013).

Zeitschrift/Journal: Jahrbuch der Geologischen Bundesanstalt

Jahr/Year: 2017

Band/Volume: 157

Autor(en)/Author(s): Harzhauser Mathias, Theobalt Dörte, Strauss Phillip, Mandic Oleg, Carnevale Giorgio, Piller Werner E.

Artikel/Article: Miocene biostratigraphy and paleoecology of the Mistelbach Halfgraben in the northwestern Vienna Basin (Lower Austria) 57-108