

## APPENDIX I

ABUNDANCE DATA OF PLANKTIC FORAMINIFERA FROM BRAZOS RIVER  
KTB SECTIONS

From Keller, this volume,  
Keller et al., this volume,  
Abravovich et al., this volume

Abundance data of planktic Foraminifera from KTB sequences and the late Maastrichtian along the Brazos River, Falls County, Texas (Tables 1–10). The KTB biostratigraphy of these sections and SEM micrographs of species are discussed and illustrated in Keller et al., this volume: *Biostratigraphy, age of Chicxulub impact and depositional environment of the Brazos River KTB sequences*. The mass extinction is illustrated and discussed in Keller, this volume: *KTB mass extinction in marginal and open marine environments: Texas and Tunisia*. The late Maastrichtian interval is discussed in Abramovich et al., this volume: *Maastrichtian planktic foraminiferal biostratigraphy and paleoenvironment of the Brazos River, Falls County, Texas*. Identification of the KT boundary is based on standard paleontological and stable isotope criteria. The recent controversial re-definition of this boundary event based on Chicxulub impact ejecta by some researchers has led to problems such as the failure to recognize reworked impact spherule layers, circular reasoning (Chicxulub is KTB age and therefore defines the KTB mass extinction), and hence prevented the assessment of the true age of this impact event as discussed in Keller, this volume: *Defining the Cretaceous–Tertiary boundary: A practical guide and return to first principles*.

Methods of sample preparation and data collection are found in the methods sections of these publications. Planktic foraminiferal species populations of each sample were picked from aliquots (Otto microsplitter) and mounted on microslides for a permanent record, which is housed in the Micropaleontological collection of Gerta Keller at Princeton University. The location of the Brazos sections are shown in Figure 1.

Because the quantitative foraminiferal data tables are very large, they are not printed in this Appendix I, but the files are provided as Excel tables in this CD.

Table 1. Relative abundance of planktic foraminifera at Brazos-1, > 63  $\mu\text{m}$ . This section is located along the west bank of the Brazos River where the sandstone complex and Danian is exposed, though this outcrop is no longer available for sampling due to River mud that covers the area. Note that negative sample intervals denote samples of the sandstone complex and below. Lithology, sample locations and Ir anomaly (Rocchia et al., 1996) are shown in Figure 2.

Table 2. Relative percent abundance of planktic foraminifera of well Mullinax-1, > 63  $\mu\text{m}$ , samples 1 to 87 (early Danian zone P1b to latest Maastrichtian *Plummerita hantkeninoides* zone CF1). Table 3A, samples 1–39; Table 3B samples 40–87. Mullinax-1 is at the same location as well KT-1. See Keller et al. (this vol.) and Figures 2 and 9 for lithologs.

Table 3. Relative percent abundance of planktic foraminifera of well Mullinax-1, > 63  $\mu\text{m}$ , samples 88–116.

Table 4. Relative percent abundance of planktic foraminifera of well Mullinax-1, > 150  $\mu\text{m}$ , samples 1–80a (early Danian to latest Maastrichtian zone CF1). Note that there are no foraminifera > 150  $\mu\text{m}$  in the early Danian.

Table 5A. Relative abundance of planktic foraminifera of well Mullinax-1, > 150  $\mu\text{m}$ , samples 80–100 (*Plummerita hantkeninoides* zone CF1).

Table 5B. Relative abundance of planktic foraminifera of well Mullinax-1, > 150  $\mu\text{m}$ , samples 101–116 (*Plummerita hantkeninoides* zone CF1).

Table 6. Relative percent abundance of Maastrichtian (*Plummerita hantkeninoides* zone CF1) planktic foraminifera > 63  $\mu\text{m}$  at the Cottonmouth Creek waterfall section CMAW. Figure 3 shows the litholog with sample depths.

Table 7. Relative abundance of Maastrichtian (*Plummerita hantkeninoides* zone CF1) planktic foraminifera > 150  $\mu\text{m}$  at the Cottonmouth Creek waterfall section CMAW. See Figure 3 for litholog with sample depths.

Table 8. Relative percent abundance of planktic foraminifera > 63  $\mu\text{m}$  in Maastrichtian to early Danian sediments of the Cottonmouth Creek CMB section located about 50 m downstream from CMAW. Note that these two sections are combined as CMAW-CMB in Figure 14 of Keller et al., this volume. The lithostratigraphic correlation and sample locations are illustrated in Figure 4. The interval of the Maastrichtian zone CF1 through the sandstone complex is from the CMAW section. The interval above the sandstone complex is from CMB.

Table 9. Relative percent abundance of planktic foraminifera > 63  $\mu\text{m}$  at the Cottonmouth Creek CM4 section. Note this is the updated data from Keller (1989), which is in all aspects identical to the section we collected in 2007 (Keller et al., this vol. Fig. 15), except that the nodular limestone level is between 80–90 cm above the sandstone complex rather than 60–70 cm reported earlier (Fig. 16). This difference is likely due to outcrop variations.

Table 10. Relative percent abundance of Maastrichtian planktic foraminifera > 63  $\mu\text{m}$  at the Cottonmouth Creek well KT3, samples 200–240 (Late Maastrichtian zones CF2-CF1).

Table 11. Relative percent abundance of Maastrichtian to Danian planktic foraminifera > 63  $\mu\text{m}$  at Cottonmouth Creek well KT3 samples 241–289.

Table 12. Relative percent abundance of Maastrichtian to Danian planktic foraminifera at the Brazos-3 section > 63  $\mu\text{m}$ . The lithology and sample location of this section is shown in Figure 5.

Table 13. Relative abundance (raw data and percent) of Maastrichtian to Danian planktic foraminifera in well Mullinax-3, > 63  $\mu\text{m}$ , samples 1–27.

Table 14. Relative abundance (raw data and percent) of Maastrichtian to Danian planktic foraminifera in well Mullinax-3, > 63  $\mu\text{m}$ , samples 28–55.

Table 15. Relative abundance of Late Maastrichtian planktic foraminifera in well Mullinax-3, > 63  $\mu\text{m}$ , samples 56–90.

Figure 1. Locations of KTB and late Maastrichtian sequences along the Brazos River, Falls County, Texas.

Figure 2. Lithology, sample locations and Ir anomaly of the Brazos-1 section, Falls County, Texas.

Figure 3. Litholog and sample positions of the Cottomouth Creek section, a tributary of the Brazos River, Falls County, Texas.

Figure 4. Lithologs and sample positions of the Cottonmouth Creek sections CMAW and CMB of the Brazos River tributary, Falls County, Texas. Note the two sequences are less than 50 m apart.

Figure 5. Lithology and sample location of the Brazos-3 section, Falls County, Texas.