Appendix 5. Numerical ages of key dinoflagellates based on Mowry catalog. Ranges in Western Interior may be truncated because of incomplete sections or sample limits. Taxa used in graphic correlation and in Figures 2 and 4 are marked by *. Comparison ages from northern mid latitude data (NML) calibrated to 98.9 Ma at top Albian (Williams et al. 2004). NM – not measured; NR – not reported.

TAXA	MOWRY AGE-Ma	WILLIAMS-Ma
*Aptea attadalica	102.0864-97.1633	
*Aptea polymorpha	101.9474-96.9635	NR-98.9
*Apteodinium deflandrei	97.8853-NM	98.33-NR
*Apteodinium grande	101.8070-96.0981	
*Apteodinium granulatum	97.8601-97.1725	
Apteodinium maculatum	97.9284-96.7526	NR-99.47
Apteodinium perforata	98.1941-97.0156	
Apteodinium reticulatum	101.9474-101.8333	
*Batioladinium jaegeri	101.9654-97.1030	
*Batioladinium micropodum	101.9474-101.9474	NR-100.27
*Carpodinium granulatum	97.105-NM	
Chichaouadinium boydii	101.9654-97.1283	
*Chichaouadinium vestitum	103.2886-96.0705	NR-98.9
Chlamydophorella discreta	97.0608-97.0586	
Chlamydophorella nyei	101.9474-96.5201	
Coronifera albertii	96.9775-96.5902	
*Coronifera oceanica	101.8070-96.5902	
Cribroperidinium auctificum	97.9284-97.1630	
*Cribroperidinium cooksoniae	97.8930-97.1081	
Cribroperidinium edwardsii	102.0864-95.4791	
Cribroperidinium exilicristatum	103.2886-96.5591	
Cribroperidinium intricatum	103.2886-97.8243	
*Cribroperidinium muderongense	98.3312-96.9775	
Cribroperidinium orthoceras	97.8576-97.8576	
Cribroperidinium sepimentum	101.8070-97.8723	
Cyclonephelium brevispinatum	97.9342-97.7049	
Cyclonephelium chabaca	97.8576-97.1081	
Cyclonephelium compactum	97.9284-96.5201	
*Cyclonephelium distinctum	101.9474-97.0525	
Cyclonephelium maugaad	97.8576-97.8341	
*Cyclonephelium membraniphorum	97.9284-96.6802	101.06-NR
*Cyclonephelium paucispinum	98.3251-96.5902	
*Dapsilidinium laminaspinosum	101.1227-97.1030	
Dingodinium albertii	97.3451-95.4791	

Dingodinium cerviculum	103.2886-97.1633	
Dinogymnium acuminatum	93.9284-NM	
Dinogymnium albertii	96.7040-96.7018	
Dinogymnium euclaense	93.7480-NM	
Dinopterygium cladoides	102.0858-96.6417	
Dinopterygium reticulatum	98.3992-96.9775	
Dinopterygium tuberculata	97.1748-97.1708	
*Ellipsodinium imperfectum	98.7023-97.1748	NR-98.94
Ellipsodinium rugulosum	97.9637-97.1708	
*Epelidosphaeridia spinosa	101.8241-93.0241	101.64-93.81
*Florentinia abbreviata	101.7912-97.7227	
Florentinia berran	98.3251-97.1861	
Florentinia cooksoniae	102.0864-96.5902	
Florentinia deanei	101.7057-NM	
*Florentinia laciniata	102.0864-97.0156	
*Florentinia mantellii	97.4247-96.5902	
*Florentinia radiculata	97.8576-96.5180	
*Florentinia resex	102.0858-96.5902	
*Fromea amphora	101.9474-96.5591	
Achritarch-Fromea fragilis	97.9284-96.7959	
Achritarch-Fromea glabella	101.7829-96.7710	
*Hapsocysta dictyota	97.2009-96.6932	
Heterosphaeridium difficile	94.3045-NM	NM
Hystrichodinium pulchrum	98.5193-97.8908	
Hystrichosphaeridium bowerbankii	97.8930-NM	
Hystrichosphaerina schindewolfii	99.1252-97.7966	
Kiokansium corollum	96.5093-96.5072	
Kiokansium perprolatum	102.0858-94.9538	
Kiokansium polypes	97.9284-96.5180	
Kiokansium unituberculatum	101.8070-96.1089	
Kleithriasphaeridium eoinodes	101.8070-97.1066	
*Kleithriasphaeridium loffrense	97.8576-NM	
Kleithriasphaeridium sarmentum	97.9615-97.1053	
Litosphaeridium arundum	101.9654-96.5902	
Litosphaeridium conispinum	101.1227-97.6174	
*Litosphaeridium siphoniphorum	97.6014-93.2654	101.6-93.81
*Luxadinium primulum	101.7829-96.0981	NR-98.9
*Luxadinium propatulum	102.0864-97.1773	NR-98.9
*Odontochitina costata	101.9474-96.5902	99.65-NR
Odontochitina operculata	101.8070-96.6417	

*Odontochitina rhakodes	102.0858-98.1252	
Odontochitina singhii	100.8879-96.9719	
*Oligosphaeridium albertense	102.0864-95.4791	
Oligosphaeridium anthophorum	99.1252-96.6932	
*Oligosphaeridium complex	101.8333-96.5201	
Oligosphaeridium prolixispinosum	93.2654-NM	
*Oligosphaeridium pulcherrimum	101.9654-97.1066	
*Oligosphaeridium tenuiprocessum	97.6088-97.2764	
*Oligosphaeridium totum	101.9474-96.4671	
Oligosphaeridium totum minus	102.0858-97.2010	
Oligosphaeridium verrucosum	97.5550-96.4671	
*Ovoidinium scabrosum	98.3992-96.5902	
*Ovoidinium verrucosum	98.4713-96.5200	100.00-95.84
*Palaeohystrichophora infusorioides	101.8333-NM	99.85-NR
*Palaeoperidinium cretaceum	101.9654-96.5591	
*Pareodinia ceratophora	101.9474-97.1257	NR-100.27
Pervosphaeridium cenomaniense	101.8070-96.6932	
Pervosphaeridium pseudhystrichodinium	96.8640-96.5201	
Pervosphaeridium truncatum	101.9654-96.5180	
Prolixosphaeridium conulum	98.1941-95.4791	
*Prolixosphaeridium parvispinum	97.9284-96.6417	
*Protoellipsodinium spinosum	101.4164-100.8879	NR-100.0
Protoellipsodinium touile	97.4247-96.9938	
*Psaligonyaulax deflandrei	98.1941-98.1460	101.64-NR
*Pseudoceratium anaphrissum	101.8862-97.2010	
Pseudoceratium eisenackii	102.0864-96.5591	
Pseudoceratium expolitum	102.0864-96.0981	
Pseudoceratium securigerum	102.0864-96.1756	
Pterodinium cingulatum	98.2956-96.5902	
*Pterodinium cornutum	97.3198-96.5201	
Spiniferites cingulatus	98.5722-96.8994	
Spiniferites lenzi	97.1066-96.5180	
Spiniferites membranaceus	102.0864-97.9115	
Spiniferites multibrevis	101.8070-96.5902	
Spiniferites pseudofurcatus	97.2764-97.2674	
Spiniferites ramosus ramosus	97.7268-96.9310	
Spiniferites twistringiensis	99.1252-97.7049	
*Stiphrosphaeridium anthophorum	101.9654-97.1861	NR-100.27
Subtilisphaera cheit	102.0858-93.9598	
Subtilisphaera deformans	102.5011-96.5201	

Subtilisphaera prelucida	101.8070-96.5201	
Surculosphaeridium Phoenix	98.2143-97.7049	
Systematophora cretacea	97.8576-97.1630	
Tanyosphaeridium salpinx	101.7057-96.5902	
*Tenua hystrix	97.8930-97.1066	
Wrevittia cassidata	102.0864-97.2736	
Xenascus ceratioides	97.4247-96.6932	
Xenascus plotei	101.8070-97.5393	
Xiphophoridium alatum	98.3606-96.5902	101.64-NR