Pedotype	Diagnostic Features	Classification (Mack / Soil Survey)	Fossil Content	Dominant Processes	MAP (mm/yr)	Environmental Interpretation
PT1	Generally weak horizonation, red to grayish-green color, highly calcareous	vertic Calcisols and gleyed vertic Calcisols / dry climate Vertisols: Torrerts or Xererts	Rhizohaloes, organic root fossils, few burrows, abundant shell fragments, lesser bone, teeth, and fecal material.	Non-steady deposition exceeded by rate of pedogenesis; shrink-swell; bioturbation; pedogenic calcite crystallization	143–169 (CIA-K) 109–139 (CALMAG)	Seasonally dry fen changing to a palustrine environment up-section
MPT2	Grayish green and grayish blue green, relict bedding, platy peds, calcareous rhizotubules, horizontal homo- to heterogeneous filled burrows, common compressed plant fossils, few, small carbonate nodules	gleyed argillic Protosols / gleyed Inceptisols	*Sigillariophyllum*, neuropterids, pecopterids, *Danaeites emersonii*, *Cordaites*, *Annularia*, organic root fossils, bone fragments, gastropods, lined burrows	Non-steady deposition exceeded by rate of pedogenesis; bioturbation	983–1291 (CIA-K)	Poorly to well-drained distal levee in close proximity to a fluctuating water table with seasonal precipitation
DPT2	Grayish green and grayish blue green transitioning to dusky brown up-section, more vertical rhizoliths than MPT2	argillic Protosols / Inceptisols	Neuropterids, pecopterids, cordaitaleans, *Autunia conferta*, organic root fossils	Non-steady deposition with variable rate of pedogenesis and bioturbation; little shrink-swell	1288–1333 (CIA-K)	Moderately to well-drained distal levee with a low water table and seasonal precipitation
PT3	Dark reddish to dusky brown upper profile with strong horizonation, a thin organic-rich A horizon, abundant yellow to green mottles, abundant, dispersed carbonate nodules and slickensides. Lower profile is grayish green with abundant calcareous nodules	gleyed vertic Calcisol / calcic Vertisol	Yellow and green rhizohaloes, calcareous rhizotubules, small ferruginous rhizoconcretions, burrows, seed fossil, plant compression fossils	Slow, steady sedimentation exceeded by rate of pedogenesis; bioturbation; shrink-swell	314–1198 (CIA-K) 282–960 (CALMAG)	Seasonally dry backswamp adjacent to a small alluvial channel in a monsoonal to xeric climate
PT4A	Grayish brown with common green mottles and rhizohaloes, large calcareous rhizoconcretions, large-scale slickensides, and dispersed to concentrated small carbonate nodules	calcic Vertisol / Vertisol	Large calcareous rhizoconcretions, few organic root fossils	Non-steady sedimentation, sometime less than rate of pedogenesis; strong shrink-swell	-	Seasonally hot and dry to hot and humid in a gilgai topographic landscape with relatively well- to imperfectly drained soils
PT4B	Color varies from very dusky red purple (5RP 2/2) and dark reddish brown (10R 3/4) to dusky yellow green (5GY 5/2) and pale green (10G 6/2) with abundant yellow mottles and rhizohaloes. Commonly contain ferruginous concretions and pedotubules	gleyed Vertisol or ferric concretionary Vertisol / Vertisol	Yellow-cored rhizohaloes with thin green rims, ferruginous root petrifactions, and organic root fossils	Non-steady sedimentation sometimes greater than rate of pedogenesis; shrink-swell	-	Marsh setting, possible brackish influence and imperfectly drained soils with some dry periods

PT5	Poor horizonation, dusky blue green, large root casts, irregular goethite (?) nodules, occurs between two PT4B paleosols	gleyed Protosol / gleyed Inceptisol	Large sand and calcite filled root casts, stump cast, ostracode fragments within the stump cast	Non-steady sedimentation that exceeds rate of pedogenesis; bioturbation	1221–1268 (CIA-K)	Formation on over-bank deposits within a marsh setting related to channel migration
PT6	Grayish brown mudstone with very-fine sand, relict bedding, weak platy beds, dispersed to dense bioturbation, clasts of other PT6 paleosols, few large slickensides	Protosol / Entisol or Inceptisol	Spiraled coprolites, sacral rib of a large tetrapod, plant compression fossils	Non-steady sedimentation that often greatly exceeded rate of pedogenesis; bioturbation	1330 (CIA-K)	Moderately well-drained proximal floodplain in a relatively hot and humid climate that periodically desiccated; likely flood deposits
PT7	Dark reddish brown to grayish brown with large slickensides, small dispersed calcareous nodules, and green rhizohaloes commonly with organic cores; weakly to highly calcareous matrix increasing up profile; highly bioturbated	Vertisol / Vertisol	Organic root fossils, shell fragments, plant compression fossils, feeding traces on plant fossils	Steady sedimentation rate exceeded by rate of pedogenesis; strong shrink-swell; bioturbation	521–887 (CIA-K) decreases up profile 453–726 (CALMAG) decreases up profile	Formation in interfluve deposits, periodically well-drained and drying under seasonal precipitation and semiarid to subhumid climatic conditions