Paper No. 250-4

Proposal to Establish a Type-Section for the *Allocrioceras hazzardi* Zone Preliminary to Establishment of a Formal Taxon-Range Zone Defining the Uppermost Ernst Member, Boquillas Formation, Big Bend National Park, Trans-Pecos Texas

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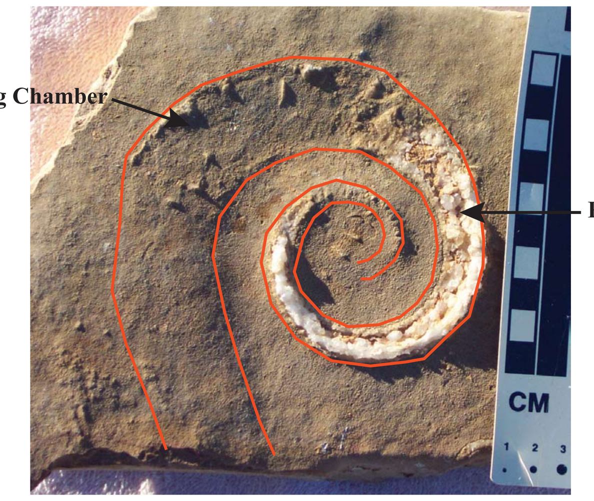
The *Allocrioceras hazzardi* zone (AHZ) is a taxon-range biozone infomally named for the heteromorph ammonite that is the most readily identifiable and diagnostic taxon within a regionally distinctive 1.13–1.74 meter thick stratigraphic interval. Based on correlation with established ammonite taxon-range zones and inoceramid interval zones, the lowermost indurated layer of the AHZ is less than a meter above the Coniacian/Turonian Stage Boundary (89.3 Ma). The uppermost of the four indurated ferruginous layers that comprise this interval has been previously proposed (Cooper et al, 2005) as defining the contact between the Ernst and San Vicente Members of the Boquillas Formation. Nineteen measured sections of the AHZ have been completed extending from Tornillo Creek in the Hot Springs area to the Nine Point Draw area near Persimmon Gap in Big Bend National Park and two fossils census surveys have been done in widely separate geographic localities. Seventeen invertebrate species (including a belemnite species with preserved soft body parts) and one vertebrate species have been identified from the AHZ fossil assemblage. Site 19, the proposed type section for the AHZ, is located within Big Bend National Park ≈205 meters east of the turnoff to the Hot Springs along the paved road. The lowermost layer is ≈2 meters above roadbed on the east side of a low ridge (N29°11.777', W102°59.805'). The 1.29 meter average thickness of the AHZ is characteristically developed at Site 19 and easily recognizable due to the distinctive brownish coloration of the interval. Site 19 has also been chosen because of its close proximity to the type section for the Ernst Member, Hot Springs Trail Reference Section (Cooper et al, 2007).

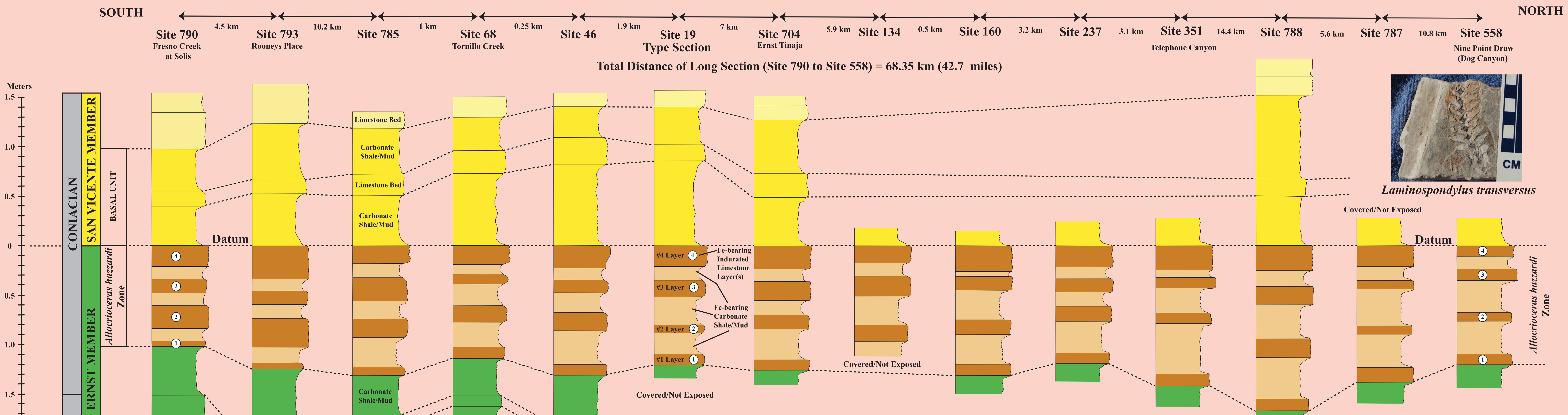
Belemnite/Squid with preserved soft body parts (probable new genus and species)

Allocrioceras hazzardi with living chamber (from Cooper, 2000)



Allocrioceras hazzardi with living chamber

LONG SECTION (SOUTH-NORTH) OF THE *Allocrioceras hazzardi* CHRONOSTRATIGRAPHIC ZONE (LOWERMOST CONIACIAN), EASTERN BIG BEND NATIONAL PARK, TEXAS



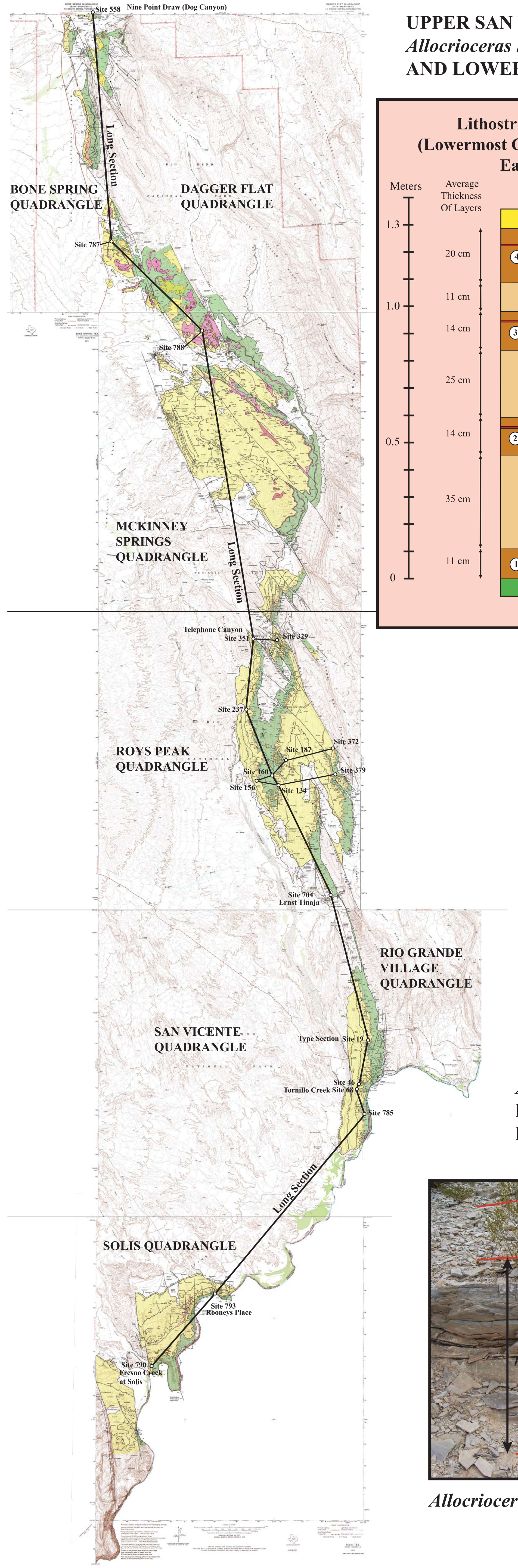
Coniacian Index Fauna identified in the *Allocrioceras hazzardi* Zone:
Cremnoceramus deformis erectus

Upper Turonain Index Fauna identified in the Upper Ernst (Green):
Cremnoceramus walterdorfensis
Mytiloides scupini
Mytiloides incertus
Inoceramus dakotensis
Inoceramus perplexus

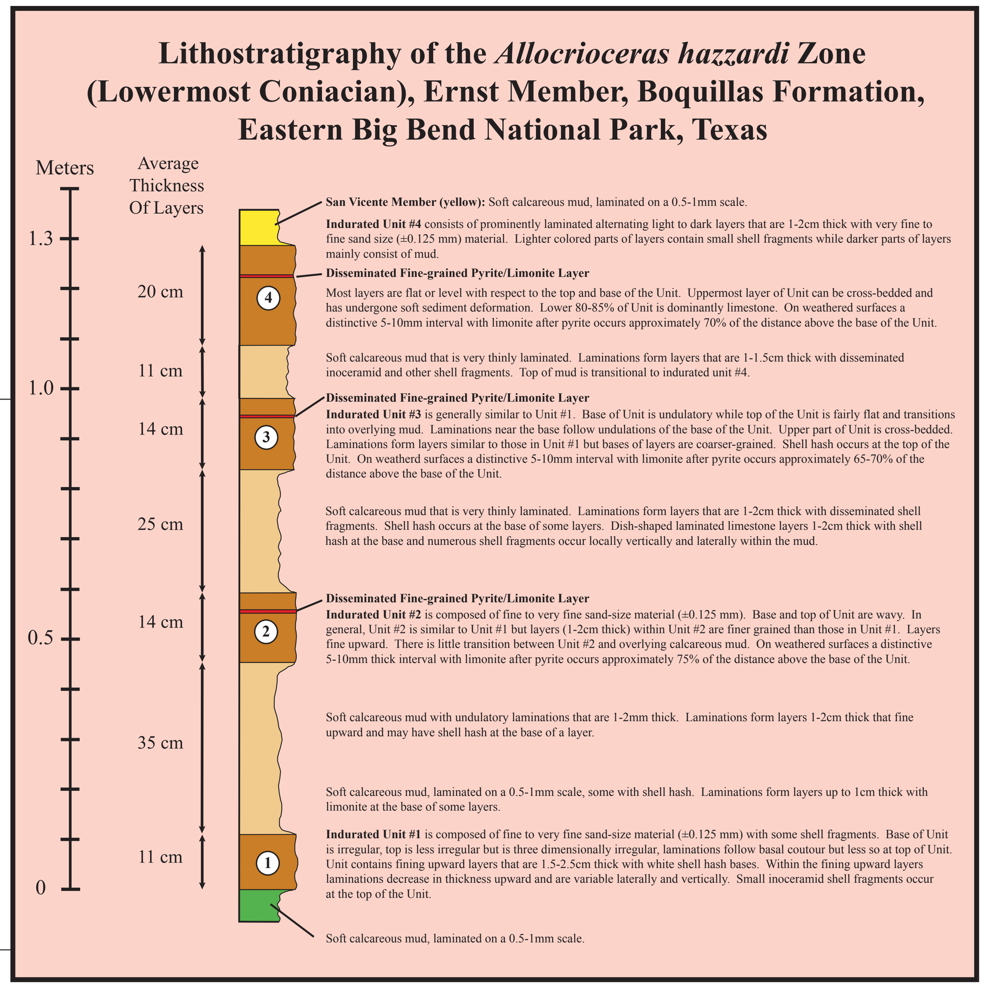
Allocrioceras hazzardi Zone at Nine Point Draw

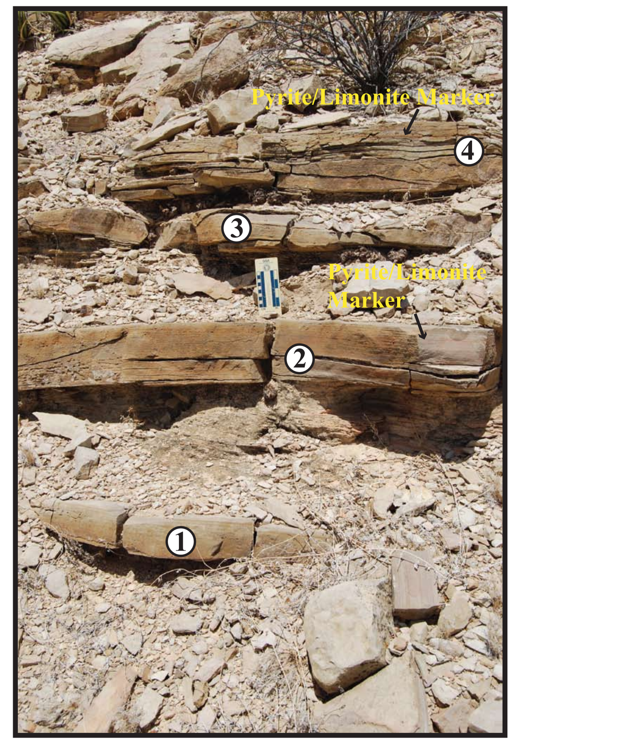
Allocrioceras hazzardi Zone (Lowermost Coniacian) of the Upper Cretaceous Boquillas Formation

UPPER SAN VICENTE MEMBER (YELLOW FILL)
Allocrioceras hazzardi ZONE (RED LINE)
AND LOWER ERNST MEMBER (GREEN FILL)

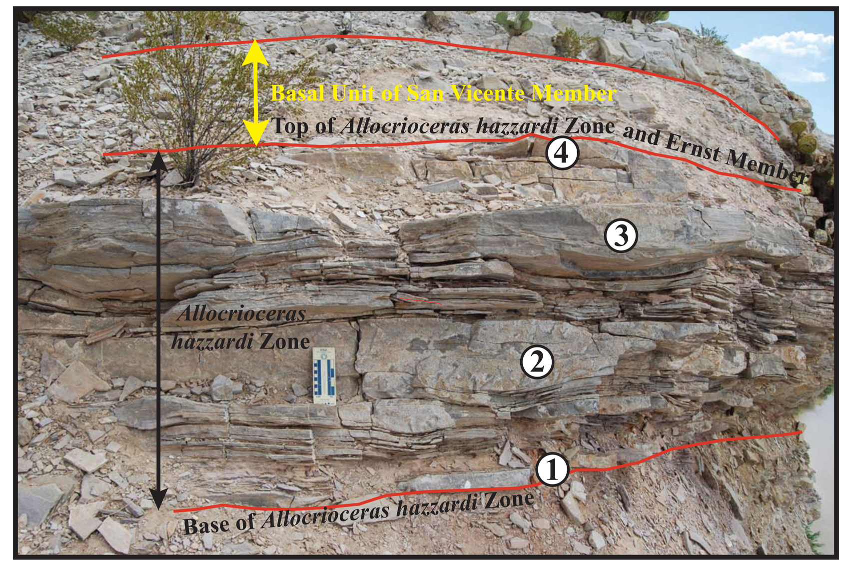


Lithostratigraphy of the *Allocrioceras hazzardi* Zone (Lowermost Coniacian), Ernst Member, Boquillas Formation, Eastern Big Bend National Park, Texas





Allocrioceras hazzardi Zone at type section locality (Site 19) showing the four indurated layers and three intervening mud/shale units.



Allocrioceras hazzardi Zone at Rooneys Place (Site 793).