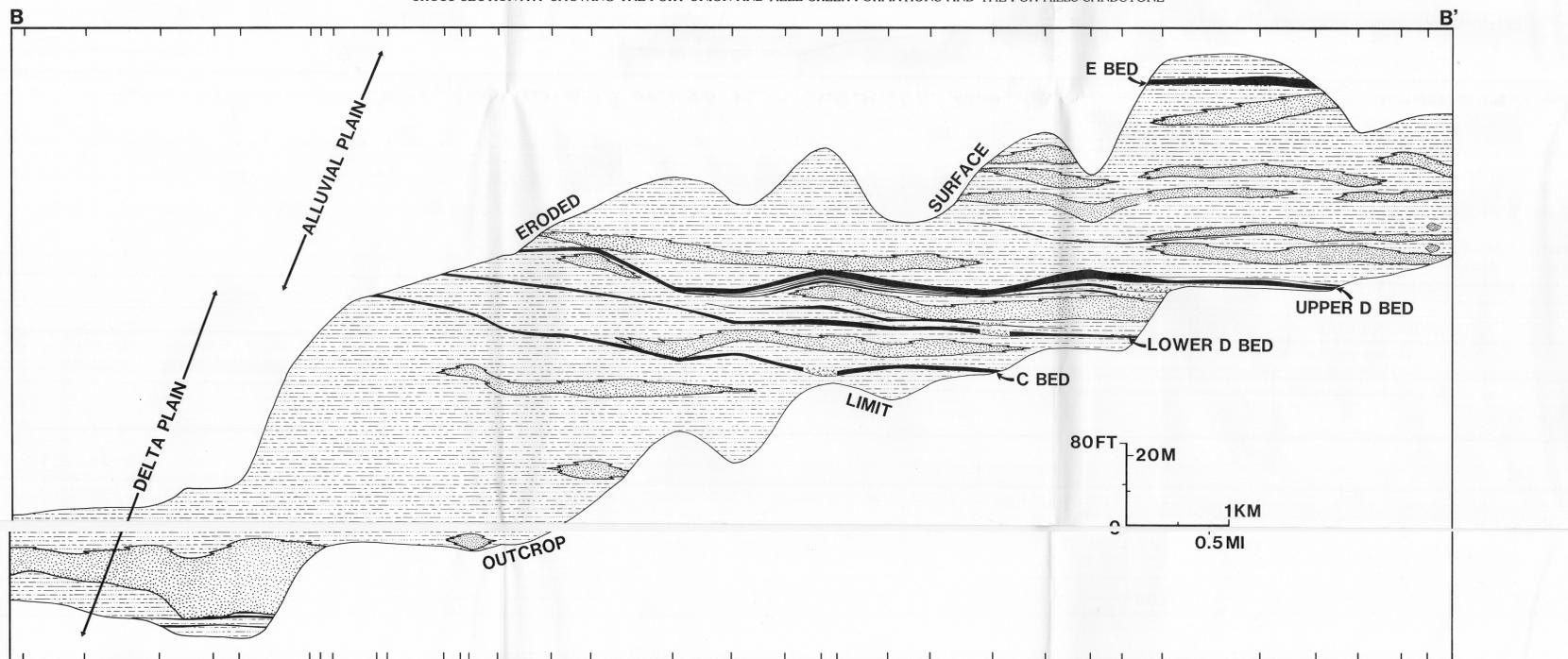
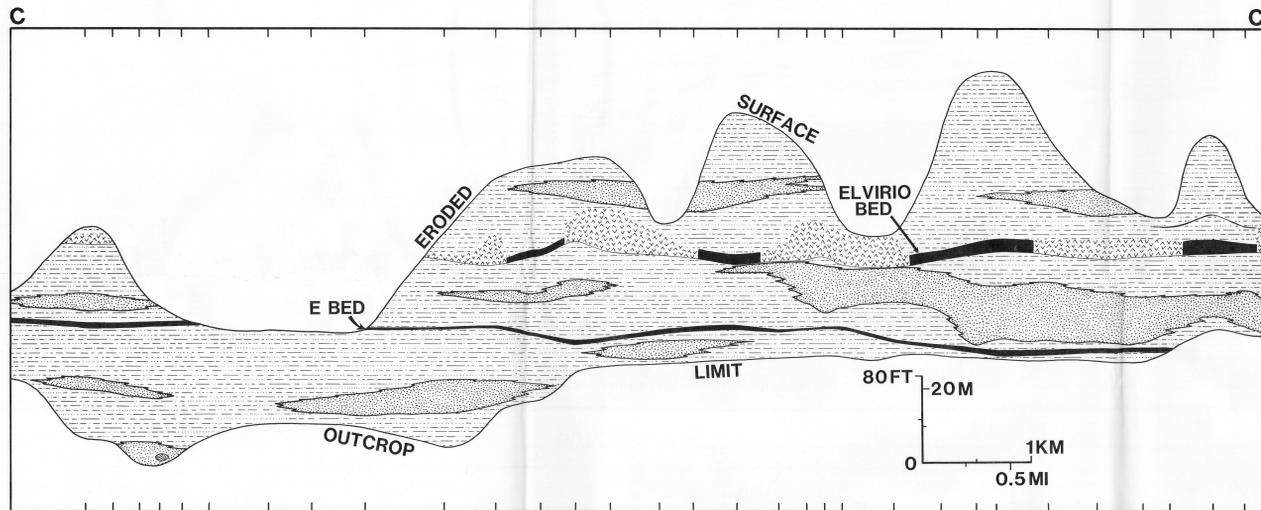


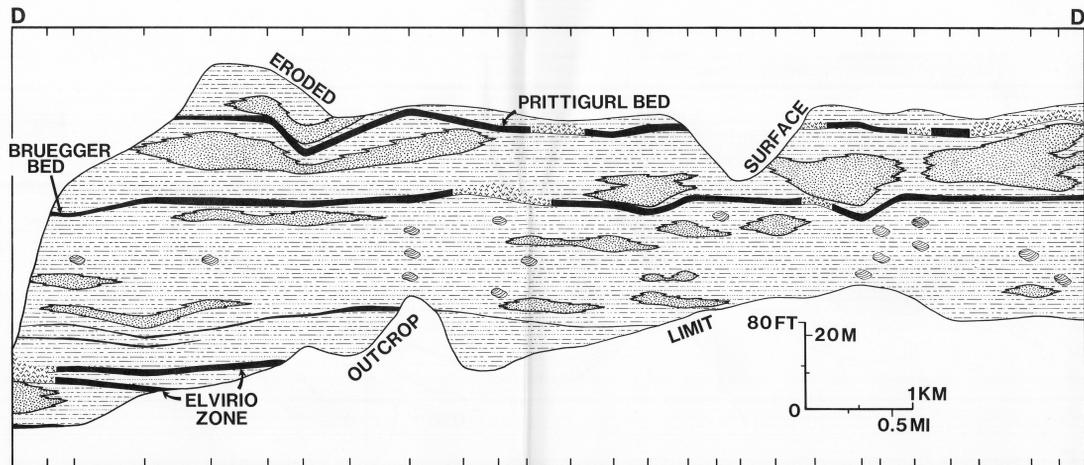
CROSS SECTION A-A' SHOWING THE FORT UNION AND HELL CREEK FORMATIONS AND THE FOX HILLS SANDSTONE



CROSS SECTION B-B' SHOWING THE FORT UNION FORMATION



CROSS SECTION C-C' SHOWING THE FORT UNION FORMATION



CROSS SECTION D-D' SHOWING THE FORT UNION FORMATION

ENVIRONMENTAL-STRATIGRAPHIC CROSS SECTIONS OF THE CRETACEOUS FOX HILLS SANDSTONE AND HELL CREEK FORMATION AND PALEOCENE FORT UNION FORMATION, RICHLAND AND ROOSEVELT COUNTIES, MONTANA

By
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INTRODUCTION

This study was conducted to determine the stratigraphic, lithologic, and depositional relationships of the Cretaceous Fox Hills Sandstone and Hell Creek Formation and the Paleocene Fort Union Formation. These relationships, shown in sections A-A', B-B', C-C', and D-D', were established from nearly continuous sections in the Hell Creek valley in the northern part of the study area. The river valley topography is characterized by bedrocks, which are described in detail in the accompanying report (Flores and Lepp, 1983). The regional geology is described in the report of the Montana Geological Survey (1980). The regional geology is described in the report of the Montana Geological Survey (1980). The regional geology is described in the report of the Montana Geological Survey (1980).

ROCK TYPES

The rock types of the Fox Hills Sandstone, Hell Creek Formation, and Fort Union Formation in the study area are described in detail by Lepp (1981). Genetic interpretation of the rock types was discussed by Lepp and Flores (1983). The lithologic types were used to establish the lithostratigraphic column and to establish the lithostratigraphic column and to establish the lithostratigraphic column. The lithologic types were used to establish the lithostratigraphic column and to establish the lithostratigraphic column. The lithologic types were used to establish the lithostratigraphic column and to establish the lithostratigraphic column.

Siltstone

Siltstone is the most abundant rock type in the three formations. It is commonly light gray to dark gray. The siltstone contains siltstone and shale. The siltstone contains siltstone and shale.

Shale

Shale is as abundant as siltstone and is commonly interbedded with it. It varies from gray to dark gray and contains clayey particles. It is mainly fine-grained, but some beds are coarser. The shale contains siltstone and shale. The shale contains siltstone and shale. The shale contains siltstone and shale. The shale contains siltstone and shale.

Carbonaceous shale

Carbonaceous shale is reddish brown (weathered) to black (fresh). It is a mixture of clayey siltstone and shale. The carbonaceous shale contains siltstone and shale.

Coal

Coal is mainly in the Paleocene Fort Union Formation. The Fort Union coal is the study area is lignite. The Fort Union coal is the study area is lignite. The Fort Union coal is the study area is lignite. The Fort Union coal is the study area is lignite. The Fort Union coal is the study area is lignite.

Limestone

Limestone is the least common rock type and is restricted to the Fort Union Formation. It is commonly interbedded with siltstone and shale. The limestone contains siltstone and shale.

Stratigraphic and lithostratigraphic environments

The stratigraphic and lithostratigraphic environments of the Fox Hills Sandstone, Hell Creek Formation, and Fort Union Formation are illustrated in cross sections A-A', B-B', C-C', and D-D'. These cross sections show continuous correlation of the Fort Union Formation from cross section B-B' through D-D'. Although the stratigraphic units are at a higher interval in the upper part of the Fort Union Formation, the correlation of the Fort Union Formation from cross section B-B' through D-D' is continuous.

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EXPLANATION

- SANDSTONE (CHANNEL)
- SANDSTONE (DISTRIBUTARY-MOUTH BAR)
- SANDSTONE, SILTSTONE, SHALE, AND LIMESTONE
- COAL AND CARBONACEOUS SHALE
- CLINKER
- BALL-AND-PILLOW STRUCTURE
- BURROW (BRACKISH-MARINE)
- MOLLUSK FOSSIL (FRESHWATER)

TICK MARKS INDICATE WHERE STRATIGRAPHIC SECTIONS WERE MEASURED

