

Chapter HB

BIOSTRATIGRAPHY, HANNA AND CARBON  
BASINS

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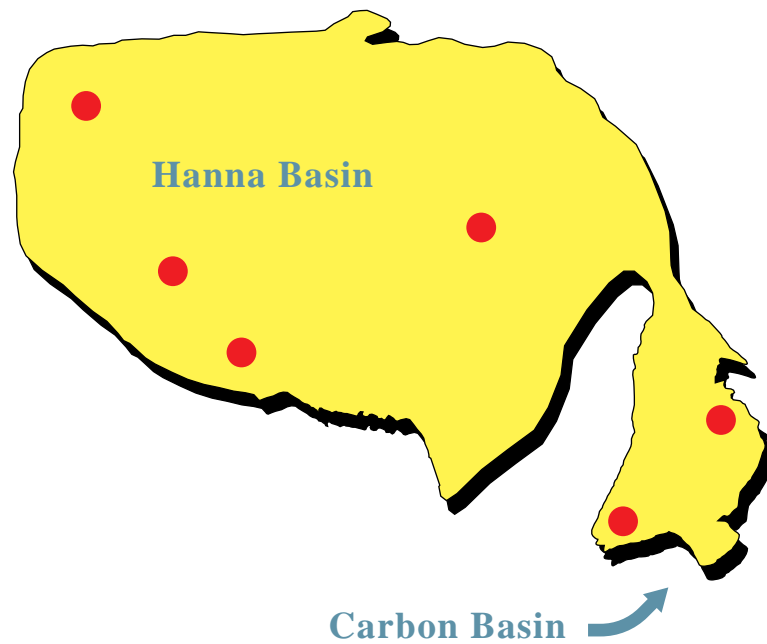
- HB-1.** Biostratigraphic reference sections in the Hanna and Carbon Basins.
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## BIOSTRATIGRAPHY

- The most common fossils in coal and coal-bearing rocks are pollen grains and spores. Thus, biostratigraphy based on pollen and spores (palynostratigraphy) has been used to determine the age of the coal beds and coal zones in the Hanna and Carbon Basins.
- Palynostratigraphy in the Hanna and Carbon Basins is based on regional palynological studies using reference sections in both basins (fig. HB-1). The reference sections include outcrops and coal mines.
- Two formations, the Ferris and the Hanna, are included in the exceptionally thick section of sedimentary rocks in these basins. The Paleocene part of this interval is divided into six palynostratigraphic zones (fig. HB-2) based on occurrences of fossil pollen and spores.
- Economic coal beds are present in the Paleocene parts of the Ferris and Hanna Formations in the Hanna and Carbon Basins (fig. HB-3).

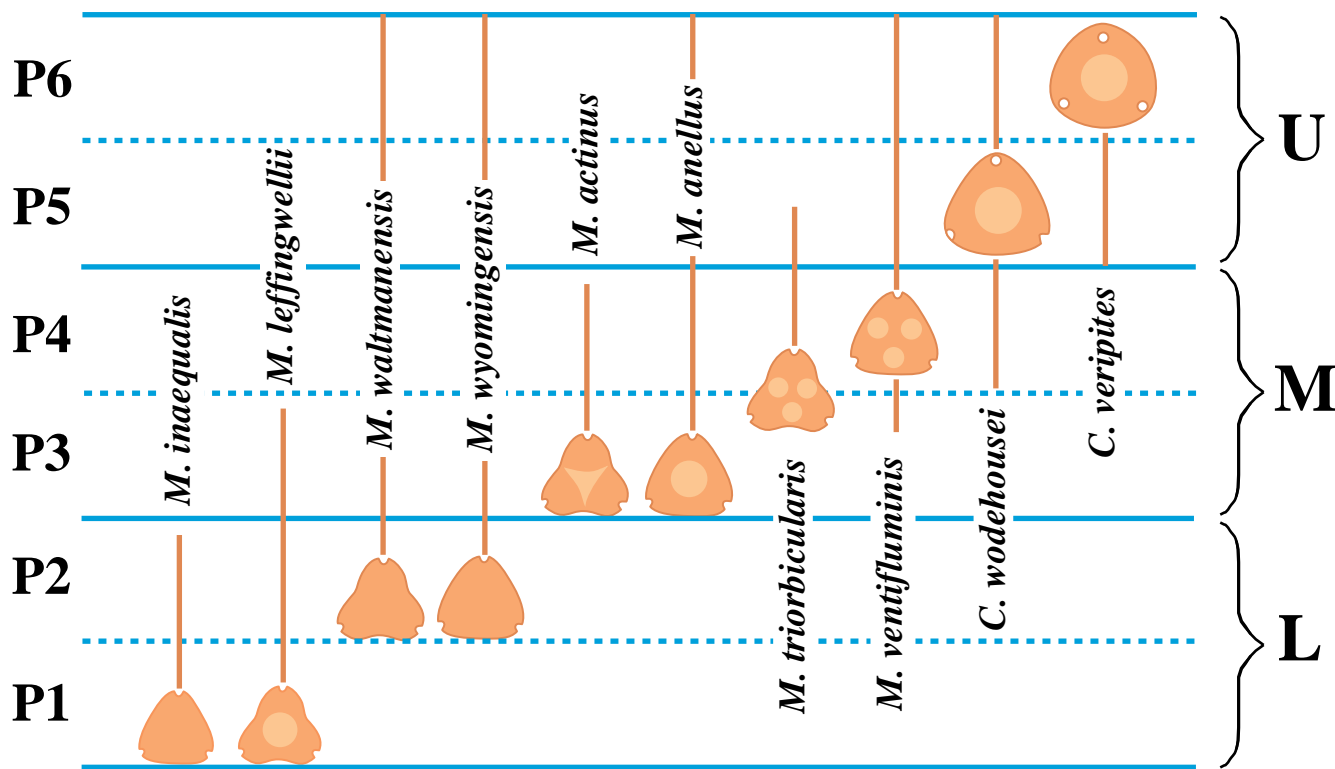
## REFERENCES

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- Nichols, D.J., and Ott, H.L., 1978, Biostratigraphy and evolution of the *Momipites-Caryapollenites* lineage in the early Tertiary in the Wind River Basin, Wyoming: *Palynology*, v. 2, p. 93-112.

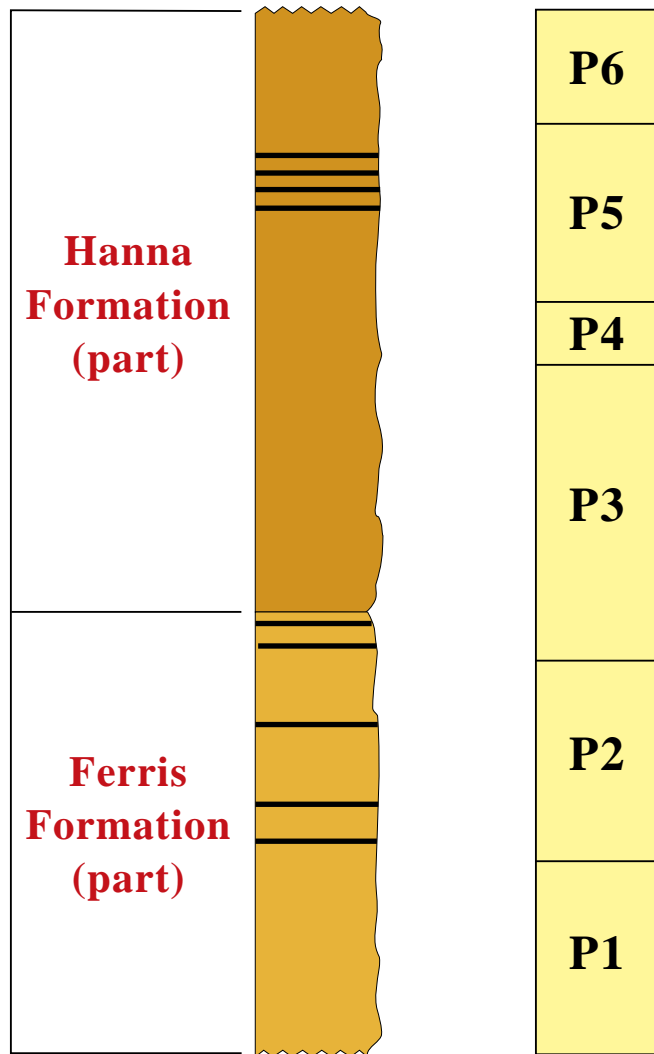


**Biostratigraphic age determination of the Paleocene coal beds of the Hanna and Carbon Basins is based on palynologic analyses of samples from selected outcrops and mines. Approximate locations of sample localities are indicated by red dots.**

**Figure HB-1. Biostratigraphic reference sections in the Hanna and Carbon Basins.**



**Figure HB-2. Occurrences of *Momipites* and *Caryapollenites* pollen and the definition of palynostratigraphic zones P1-P6. L, M, and U designate lower, middle, and upper Paleocene.**



The palynostratigraphic zonation for the Hanna and Carbon Basins is based on ranges of fossil pollen and spores analyzed in samples from coal beds and associated outcrops. Economically important coal beds are present in the upper part of the Ferris Formation and the upper part of the Hanna Formation.

**Figure HB-3. Palynostratigraphic zones of the Paleocene rocks in the Hanna and Carbon Basins.**