

Chapter GB

BIOSTRATIGRAPHY, EASTERN ROCK SPRINGS  
UPLIFT, GREATER GREEN RIVER BASIN

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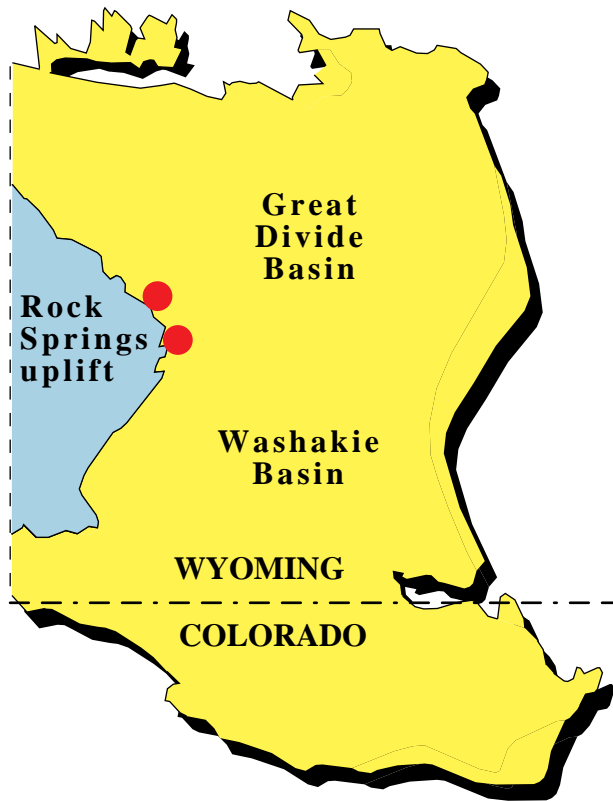
## BIOSTRATIGRAPHY

- 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 coal-bearing rocks in the Greater Green River Basin.
- Palynostratigraphy in the Greater Green River Basin is based on previously conducted palynological studies of outcrop sections in the region, which established the biostratigraphic framework.
- The ages of individual coal beds or zones were determined by analyses of samples collected more recently from reference sections in coal mines (fig. GB-1) in the eastern part of the basin, on the eastern flank of the Rock Springs uplift.
- Five of the six palynostratigraphic zones (fig. GB-2) within the Paleocene are present in the eastern part of the Greater Green River Basin. On the Rock Springs uplift, the principal Paleocene coal zone is the Deadman zone, which lies in Zone P3, in the middle part of the Paleocene (fig. GB-3).

## REFERENCES

Hettinger, R.D., Honey, J.G., and Nichols, D.J., 1991, Chart showing correlations of Upper Cretaceous Fox Hills Sandstone and Lance Formation, and lower Tertiary Fort Union, Wasatch, and Green River Formations, from the eastern flank of the Washakie basin to the southeastern part of the Great Divide basin, Wyoming: U.S. Geological Survey Miscellaneous Field Investigations Map I-2151, 1 chart.

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 determinations of Paleocene coal beds in the Great Divide Basin part of the Greater Green River Basin is based on palynologic analyses of samples from mines in the Point of Rocks-Black Butte coalfield, on the eastern flank of the Rock Springs uplift. The locations of these mines are shown by the red dots on the map.**

**Figure GB-1. Biostratigraphic reference sections in the eastern part of the Greater Green River Basin.**

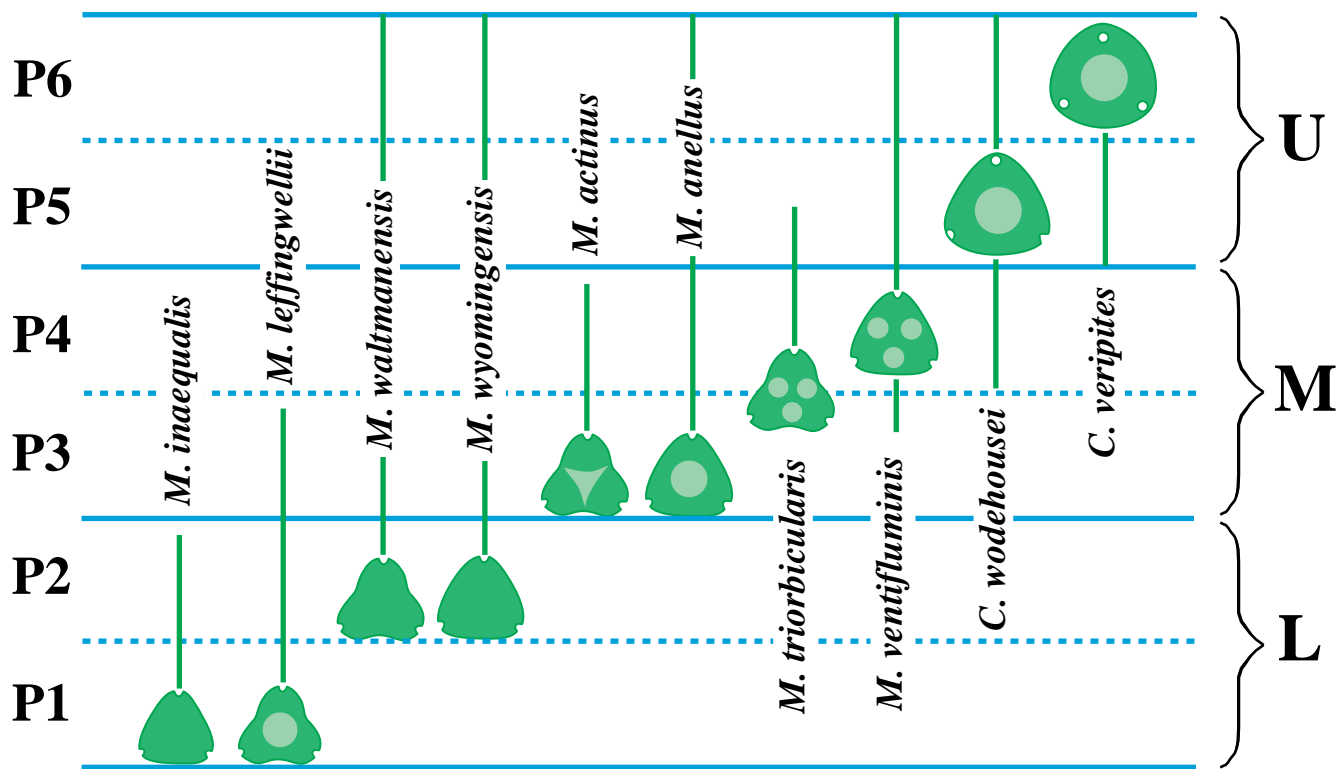
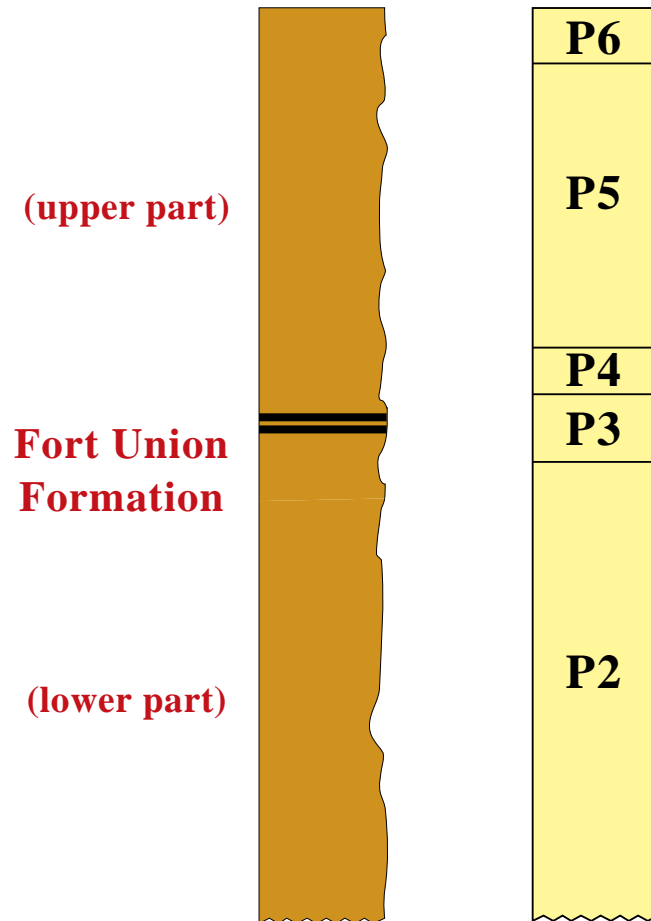


Figure GB-2. Occurrences of *Momipites* and *Caryapollenites* pollen and the definition of palynostratigraphic zones P1-P6. L, M, and U designate lower, middle, and upper Paleocene.



The palynostratigraphic zonation for the Greater Green River Basin is based on palynological data from reference samples collected from scattered outcrops in the eastern part of the basin. This biostratigraphic framework permits age determination and correlation of important coal beds such as those of the Deadman coal zone (dark bands at left).

**Figure GB-3. Palynostratigraphic zones of the Fort Union Formation in the Greater Green River Basin.**