

## Stratigraphic Chart for Rocks Visible from Pryor Mountain Road

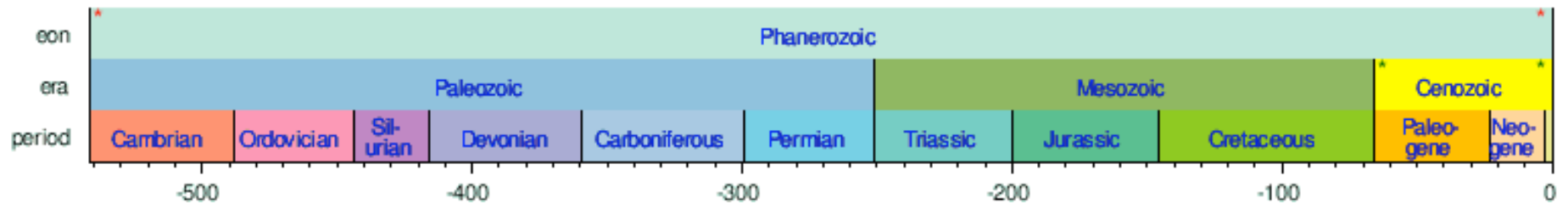
| Geologic age<br>(million years ago)                                | Formation Name                             | Photo<br>mile              | Thickness<br>(feet) | Rock types   | Depositional Environment   | Fossils   |
|--|--|----------------------------|---------------------|--|--|---|
| Late<br>Cretaceous<br>(100 to 66 mya)                              |  |                            |                     |  |  |   |
|  | <b>Frontier</b><br>(93 to 89 mya)          | 2.55<br>2.8<br>3.2<br>6.15 | 500                 | inter-layered sandstone, mudstone, and coal  | river delta and seafloor offshore  | marine ammonites, oysters, and other mollusks; non-marine plant fossils   |
|  | <b>Belle Fourche</b><br>(99 to 93 mya)     | 6.15                       | 350 to 400          | gray to black shale  | seafloor well offshore   | ammonites and bivalves  |
|  | <b>Mowry Shale</b>                         | 6.15                       | 250                 | light gray to silver-gray shale interbedded with thin beds of siltstone and sandstone. Bentonite beds common | seafloor well offshore   | Fish scales and bones abundant in some beds   |
| Early<br>Cretaceous<br>(146 to 100 mya)                            | <b>Thermopolis</b>                         | 6.15                       | 600                 | dark gray shale  | offshore seafloor mud on a stagnant oxygen-deprived sea floor                                | shark teeth and plesiosaurs   |
|  |  |                            |                     |  |  |   |
|  | <b>Upper Kootenai</b>                      | 7.3                        | 200 to 250          | reddish, purplish, and greenish shale interbedded with tan sandstone and thin gray limestone                 | rivers and lakes   | plants, freshwater mollusks, and dinosaurs; <i>Deinonychus</i> was first identified near Pryor Mountain Road.             |
|  | <b>Lower Kootenai (Pryor Conglomerate)</b> | 4.3<br>7.4                 | 20 to 60            | brown conglomerate and pebbly sandstone  | rivers and lakes   | essentially no fossils  |
|  | <b>Fall River Sandstone</b>                | 5.0                        | Less than 50        | tan sandstones interbedded with gray shale   | rivers and on the near shore seafloor  | bivalves and plants   |
| Late<br>Jurassic<br>(161 to 146 mya)                               |  |                            |                     |  |  |   |
|  | <b>Morrison</b>                            | 5.55<br>5.9                | 300                 | tan sandstone, gray to reddish shale, coal, and thin gray limestone  | rivers, lakes and swamps   | dinosaurs are common; Fossils of eight juvenile <i>Diplodocus</i> -like sauropods were found in near Pryor Mountain Road. |
|  |  |                            |                     |  |  |   |
|  | <b>Swift</b>                               | 5.85<br>5.9                | 100                 | tan sandstone and some gray shale  | seafloor nearshore   | oysters and belemnites  |
|  | <b>Rierdon</b>                             | 5.9                        | 150                 | gray shale and thin gray limestones  | seafloor well offshore   | abundant oyster-like mollusks and belemnites, as well as fish and ammonites   |
| Middle<br>Jurassic<br>(176 to 161 mya)                             | <b>Piper</b>                               | 5.9<br>7.9<br>8.15         | 100                 | reddish shale, gray shale, gray limestone and white gypsum   | shale: fresh or brackish lakes<br>limestone: shallow seafloor<br>gypsum: highly saline water | oysters and other bivalves, corals, and crinoids  |
| Early Jurassic,<br>Middle and Late<br>Triassic<br>(245 to 176 mya) |  |                            |                     |  |  |   |
| Early<br>Triassic<br>(251 to 245 mya)                              | <b>Chugwater</b>                           | 4.3, 5.9<br>7.9<br>26.1    | 500                 | red shale, siltstone, and sandstone  | ephemeral lakes and small streams  | essentially without fossils   |
| Permian<br>(299 to 251 mya)  | <b>Phosporia</b>                           |                            | 10                  | gray limestone and hard tan sandstone embedded with gray chert masses  | shallow sea floor  | brachiopods, bryozoans  |
|  |  |                            |                     |  |  |   |

|  |                         |              |      |  |   |  |
|--|-------------------------|--------------|------|--|---|--|
| <b>Pennsylvanian<br/>(Late Carboniferous)<br/>(318 to 299 mya)</b>       | <b>Tensleep</b>         | 11.5<br>16.2 | 200  | white to light tan, fine-grained, quartz-rich sandstone                            | shallow seafloor nearshore and wind laid dunes near the shore | protozoans                                   |
|  | <b>Amsden</b>           | 16.45        | 200  | reddish shale, gray shale, and gray limestone                                      | shallow seafloor  | Brachiopods and protozoans                   |
| <b>Late Mississippian</b>  |                         |              |      |  |   |  |
| <b>Middle Mississippian<br/>(345 to 326 mya)</b>                         | <b>Madison Group</b>    | 9.4          | 1000 | gray limestone, Mission Canyon: massive and thick-bedded<br>Lodgepole: thin-bedded | shallow seafloor  | brachiopods, crinoids, corals, and bryozoans |
|  |                         | 16.45        |      |  |   |  |
| 17.4   |                         |              |      |  |   |  |
| 20.95  |                         |              |      |  |   |  |
| <b>Late Devonian<br/>(385 to 345)</b>                                    | <b>Jefferson</b>        |              | 250  | gray and brownish dolostone  | shallow seafloor and tidal flats                              | corals                                       |
| <b>Early Devonian, Silurian and Late Ordovician<br/>(461 to 385 mya)</b> |                         |              |      |  |   |  |
| <b>Middle Ordovician<br/>(472 to 461 mya)</b>                            | <b>Bighorn Dolomite</b> |              | 500  | gray to white dolostones and limestones  | shallow seafloor  | corals, brachiopods, crinoids, and bryozoans |
|  |                         |              |      |  |   |  |



Shaded cells indicate unconformity.

### Geologic Time Scale:



Scale in million years before present (mya). The Carboniferous period is sometimes divided into the Mississippian and the Pennsylvanian periods.