Rabbit Mountain Geology:
The story is much more complicated than you might first imagine

The peaceful, gently hilly terrain that surrounds you has undergone many dramatic transformations to finally arrive at the landscape we enjoy today.

If you could time travel to this same location about 70 million years ago you would find yourself thrashing about in the open ocean with no land in sight. (Beware the hungry pterosaurs that soar in the skies above in search of food!) The solid rocks on which you now stand would lie nearly two miles below you with thousands of feet of younger rock and mud lying on top of them at the bottom of that shallow sea.

The Dakota Sandstone on which you stand was laid down about 140 million years ago as beach, lagoon, estuary, and near-shore sand deposits as that then nascent sea began slowly encroaching from the east to eventually drown all of what is now Colorado. Eventually this growing Cretaceous sea would connect the Arctic Ocean with the Gulf of Mexico, flooding the entire central portion on the continent. Over the next 60 million years, as the sea continued to deepen and advance to the west, thousands of feet of fine-grained oceanic silts and muds accumulated on top of what would become the Dakota Sandstone.

About 65 million years ago the bump and grind of continental drift, collision, and subduction to the west caused Colorado to begin to be uplifted from the sea and caused the shore to retreat eastward. Complicated and poorly understood titanic tectonic forces began to push up the Rocky Mountains we know today. As these ancient igneous rocks were forced up and squeezed outward they caused all the younger overlying sedimentary rocks to buckle, fracture, bend, and fold in complex patterns. In the mountains nearly all of the softer, younger overlying rocks have been eroded away leaving only the craggy hard igneous core of the Rocky Mountains.

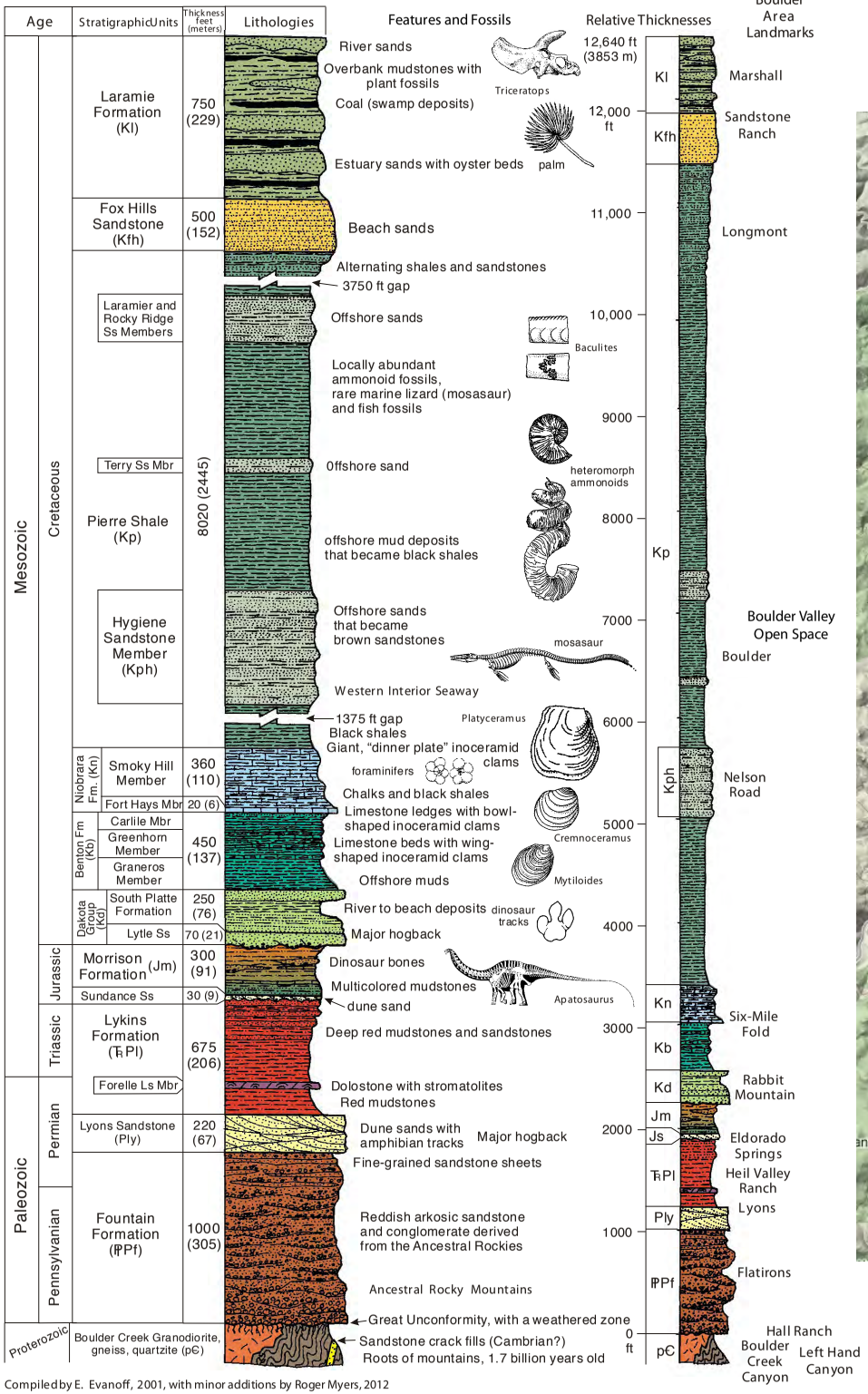
Along the edge of the mountain front the sedimentary rocks were tilted upward to the west. The Flatirons and linear hogbacks resulted from differential erosion of these tilted and alternating soft and hard layers of rock. Resistant layers emerged as hogbacks, softer layers resulted in the valleys between them. The folded and crumpled rocks of Rabbit Mountain were created around the same time, but have a more complex story to tell.

Later uplift about 10 to 20 million years ago raised the entire region about a mile into the air. Increased erosion in the mountains following this uplift buried most of the landscape features we see along the front range today under hundreds of feet of newer sediment. In the past million years or so, more recent erosion, enhanced by glaciation in the mountains and a wetter climate, helped remove much of those sediments from our area to again reveal the older rock layers below. The mesas we see along the mountain front represent remnants of those deep sediments. Streams draining eastward from the mountains have cut channels between the mesas and removed much material from around them. This is the surface we recognize and live on today.

So as you walk the tranquil trails of Rabbit Mountain, pause and try to imagine the wild ride these rocks have been on since they were first laid down as sands along the shores of an ancient sea as herds of dinosaurs ambled along its tropical shore.

Created by BCPOS volunteer naturalist Roger Myers, October 2015.

Sedimentary Rocks of the Boulder Area



Compiled by E. Evanoff, 2001, with minor additions by Roger Myers, 2012

Blue Mountain Fault Zone