

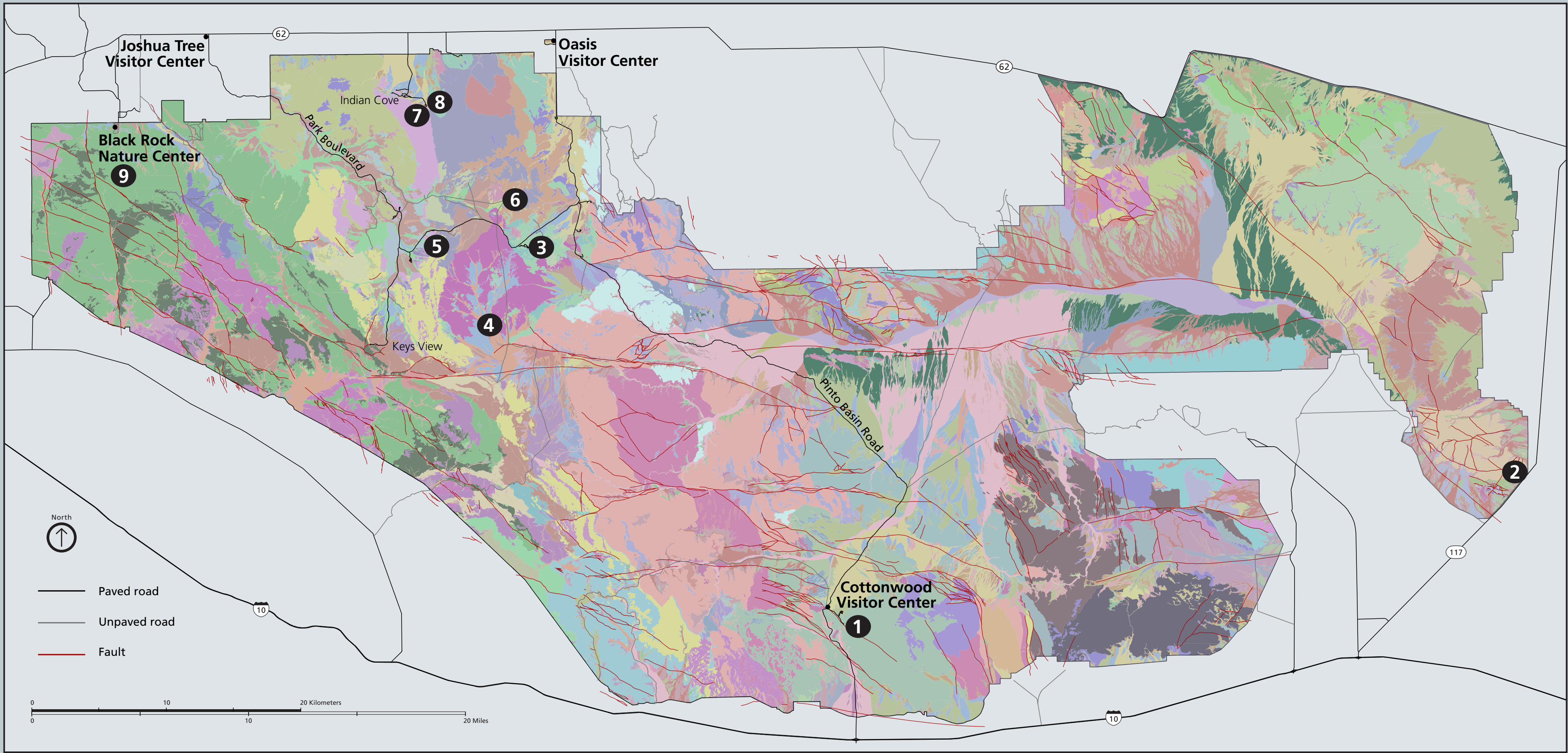
Joshua Tree: *A Geologic Wonderland*

Visitors are often fascinated by the breathtaking geologic landscape of Joshua Tree. It formed over billions of years through complex processes including the movement of tectonic plates, volcanism, erosion, uplift, and faulting.

Events that occurred deep beneath Earth’s surface are exposed to the light of day here, allowing us to glimpse the hidden architecture of our continent.

Tortured and twisted metamorphic stones tell a story of colossal heat and pressure. The crystalline structure of majestic granitic boulders reveal how fast molten rock cooled.

Every colored section on this map represents a distinct rock type—each telling its own chapter in the story of the park’s complex past.



- 1 Cottonwood Pass Monzogranite**
Find it at ... Mastodon Peak and Lost Palms Oasis Trails
- Igneous rock formed during the Cretaceous or Jurassic Periods (75–200 million years ago)
 - Cooled and solidified far below the surface; have been exposed by uplift and erosion

- 2 Phyllite (McCoy Mountains Formation)**
Find it at ... southern Coxcomb Mountains (off Highway 177)
- Metamorphic rock formed during the Cretaceous and Jurassic Periods
 - Sparkling appearance due to mica, graphite, and other mineral grains

- 3 White Tank Monzogranite**
Find it at ... Jumbo Rocks, White Tank, and Belle Campgrounds
- Igneous intrusion that solidified 15–20 miles below the surface during the Cretaceous and Jurassic Periods
 - Formed large crystals as it slowly cooled

- 4 Basalt**
Find it at ... Malapai Hill (Geology Tour Road)
- Igneous rock formed 3–7 million years ago during the Late Miocene Epoch by intrusive magma
 - Any lava flow or cinder cone that existed has eroded away

- 5 Pinto Gneiss**
Find it at ... top of Ryan Mountain Trail
- Metamorphic rock formed 1.7 billion years ago during the Proterozoic Eon
 - Alternating bands of dark and light minerals created during metamorphic processes

- 6 Skarn Deposits**
Find it at ... Desert Queen Mine
- Mineral deposits formed in fractures of existing igneous intrusions
 - Gold and other precious metals can be found in these deposits

- 7 Indian Cove Monzogranite**
Find it at ... west side of Rattlesnake Canyon Wash, Indian Cove, and Wonderland of Rocks
- Igneous intrusion that formed during the late Cretaceous Period
 - Contains small, red garnet-muscovite grains that give a shiny, glittery appearance.

- 8 Twentynine Palms Quartz Monzonite**
Find it at ... east side of Rattlesnake Canyon Wash and Fortynine Palms Oasis Trailhead
- Igneous intrusion formed around 242 million years ago during the Triassic Period
 - Characterized by large alkali feldspar phenocrysts—conspicuous crystals distinct from the surrounding mass

- 9 Foliated Gneiss with Intrusive, Granitic Rocks**
Find it at ... Black Rock Canyon
- Banded metamorphic rock formed during the Cretaceous Period
 - Extremely complex network of rock types due to repeated igneous intrusions; impossible to map in full detail