

Below the White Rim, the canyons exhibit a habitat very different than the blackbrush community. Prince's plume (with tall stalks of small yellow flowers) is common, as are copperweed, globemallow, and squawbush. Bighorn sheep, canyon wrens, and rock squirrels are typical of the canyons. White throated swifts (fast moving swallow-like birds) are common along the canyon rim.

Within the canyons, a very specialized and limited plant community occurs where water seeps from the canyon walls. Once a few plants gain a foothold, others become established in the tangled roots and decaying vegetation. A mat of lush grasses, ferns, columbine, orchids, and other wetland plants develops right on the wet sandstone. In time, a huge mass of plants (a "hanging garden") may develop, usually in a sheltered spot and often high up on the cliffs.

Near the rivers, it's like a different world. Plants adapted to wet conditions, especially to being flooded now and then, live on the river banks. Native willows, cottonwoods, and others form a narrow but dense band of vegetation near the water. The exotic tamarisk competes with native plants and is replacing them. The lush vegetation provides food and cover for many birds and mammals which in turn provide food for predators. The water is still another habitat, with aquatic and amphibious animals. The typical desert habitat is close by, too, so an extraordinary range of birds and mammals may be seen in a small area.

There are other variations in the landscape, some subtle and others more pronounced. In east-west canyons, the north and south sides are often quite different, because the south side is more shaded (and therefore a little cooler and moister) than the north. Other variations occur in habitats, and there are always plants and animals adapted to them.

Guide to the WHITE RIM TRAIL

Canyonlands National Park

Utah

Navajo Sandstone: pale yellow, buff etc.; even texture and color, forms rounded humps.

Wingate Sandstone: medium buffs, reds, etc., often stained darker; forms huge sheer cliffs, often with towering spires, numerous vertical cracks present; boulders of Wingate usually litter slopes below cliffs.

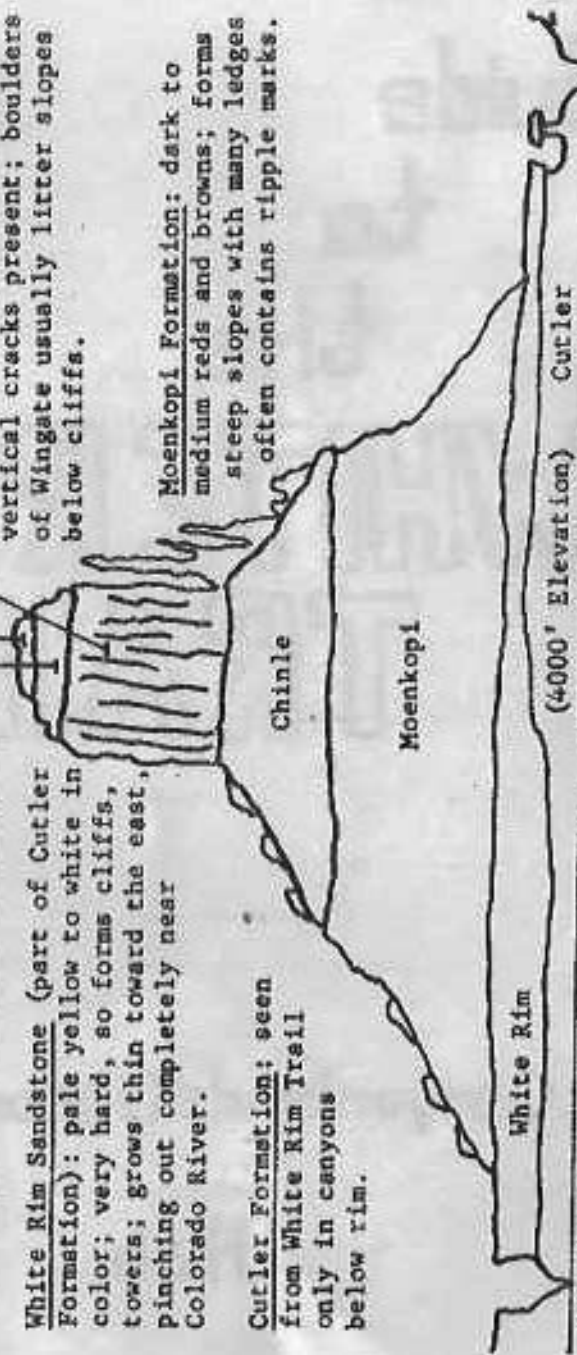
Moenkopi Formation: dark to medium reds and browns; forms steep slopes with many ledges often contains ripple marks.

Kayenta Formation: dark reds and browns; variable colors and texture; forms ledges, slopes, little cliffs, etc.

Chinle Formation: generally darker reds, browns, etc., usually with a distinctive blue-green layer exposed; forms slopes with ledges of resistant thin layers.

White Rim Sandstone (part of Cutler Formation): pale yellow to white in color; very hard, so forms cliffs, towers; grows thin toward the east, pinching out completely near Colorado River.

Cutler Formation: seen from White Rim Trail only in canyons below rim.



Stylized cross-section through the Island in the Sky between the canyon of the Green River (left side of sketch) and the Colorado River (right side). The vertical scale is greatly exaggerated and individual features or strata are not in proportion.

Welcome to the Island in the Sky District of Canyonlands National Park.

The trip along the White Rim, passable by four-wheel drive only, is approximately 111 miles to Moab if you are starting at the Shafer Trail/White Rim Trail junction east of the Island in the Sky. If you are starting where the White Rim Trail crosses the park boundary on the west side of the Island (near the Green River) the distance to Moab is about 101 miles.

To insure a safe trip, before leaving and on returning, check in at the Island in the Sky Ranger Station.

In addition to extra water for vehicles, carry at least 1 gallon of water per person. THERE IS NO WATER MADE AVAILABLE IN THE DISTRICT. Carry at least 5 extra gallons of gas. If possible, travel in parties of two vehicles. Remember 4-wheel drive is necessary for the trip around the White Rim. In the event of a break-down, stay on the road. Keep an eye on the weather since thunderstorms can send flash floods down the washes.

In addition to the above, please be aware of the following Park Regulations:

1. Drive on designated roads only. Off road travel kills plant life, disturbs wildlife, and the tracks mar the landscape.
2. All vehicles must be licensed for public road use; all drivers must have valid licenses.
3. Please carry out all of your trash.
4. If you intend to camp, see the map for the location of designated camping areas. With the exception of Lathrop Canyon, where there are pit toilets, grills, and picnic tables,

no facilities exist at the other campsites.

5. The trees and shrubs that grow on the rim, and even the dead wood, are important parts of the environment. None of it may be used for firewood, although you may find small quantities of driftwood along the river. We strongly recommend the use of portable stoves.
6. Leave all prehistoric structures, pictographs, and petroglyphs undisturbed. They all are much more delicate than they appear, and are easily damaged. Just climbing in and out of a ruin, or simply touching a pictograph, can cause serious damage to these irreplaceable treasures. We sometimes call it "innocent vandalism," and it is the source of far more damage than the malicious action of real vandals.

The climate - The tremendous effect of the arid climate on these high desert plateaus is easily seen in the landforms, the plant life, and the animal life. Because of the lack of water, grasses grow in clumps, while trees and bushes are well-spaced. The smaller animals usually obtain most of their water through seeds, stems or insects; the larger mammals must find free water in order to survive, usually from springs, washes, rain-filled potholes or along the rivers.

Distance to
Next stop*

Points of Interest

- | | |
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| 1.3 | (1) Looking up canyon, the Shafer Trail (once a cattle trail, then a rough 4-wheel drive route, now a fairly good road) can be |
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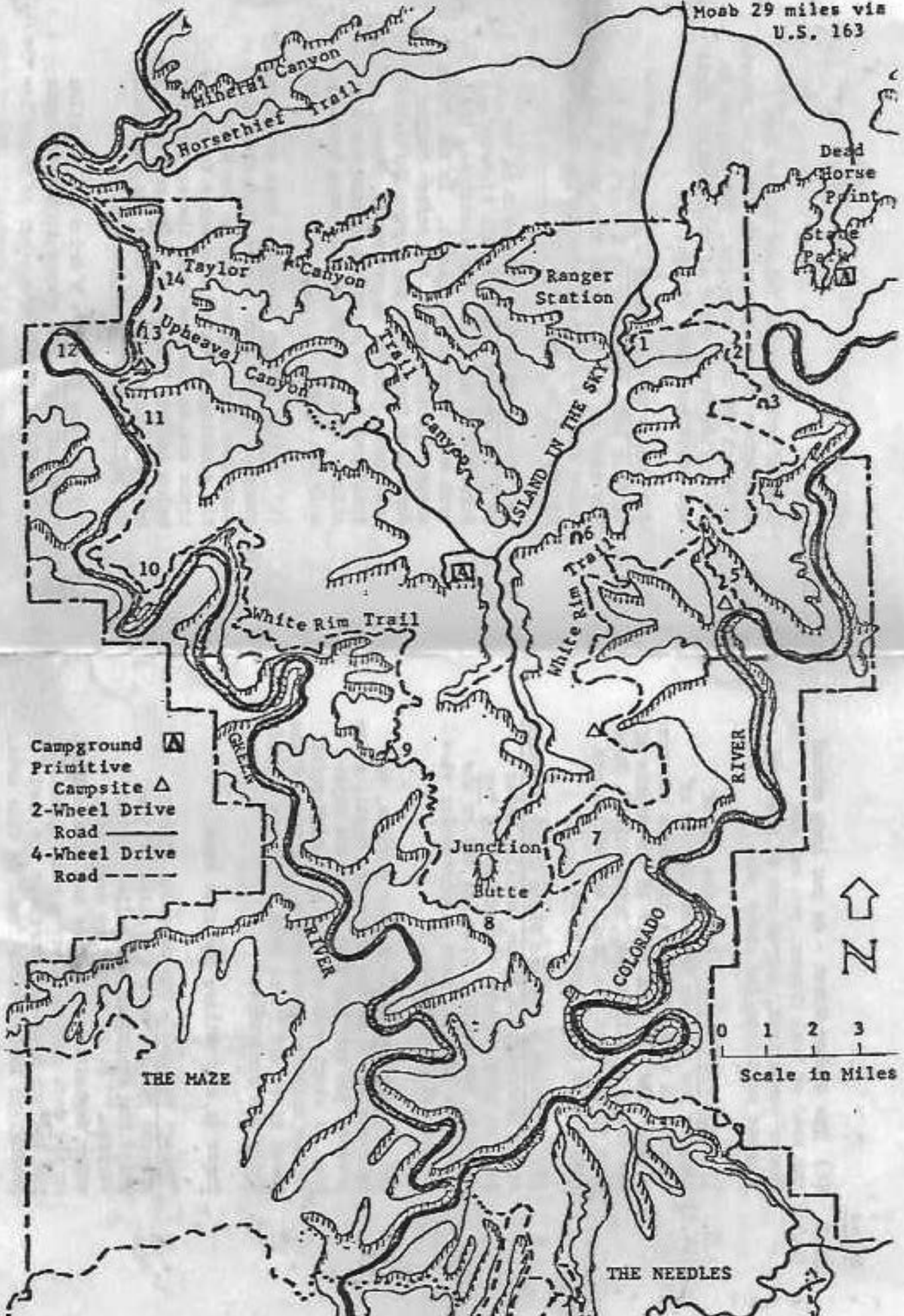
* Distances for west to east travel are in parentheses and begin at the end of this guide; for east to west travel, distances are not in parentheses and start at the point of interest.

Miles

seen climbing to the Island in the Sky. Also apparent are several of the major strata of which the area consists. The diagram on the inside front cover of this booklet lists and describes those strata.

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| 2.2
(1.3) | (2) <u>Goose Neck Overlook</u> - A pull-out to your left takes you to a short walk to the edge of the White Rim from which the Goose Neck, a large meander in the Colorado River, can be seen. |
| 5.0
(2.2) | (3) <u>Musselman Arch</u> - This arch is one of a few arches found in this District. Formed from the White Rim sandstone, the arch went through two stages. In the first stage, erosion removed the softer Butler formation from under the harder White Rim sandstone, causing an overhang. Then fractures in the White Rim behind the lip allowed that portion to fall away leaving only the span. |
| 3.5
(5.0) | (4) <u>Little Bridge Canyon</u> - Here are many examples of the same forces that created Musselman Arch. Fractures in the White Rim sandstone have allowed water to penetrate and in time cut away the softer rock below leaving pillars of stone protected by hard sandstone "caps." When the caps fall, the pillars erode away quickly. |
| 2.5
(3.5) | (5) <u>Lathrop Canyon</u> - A drive of 3.5 miles takes you down this canyon to the Colorado River and a campground. |

Moab 29 miles via
U.S. 163



- Campground 
- Primitive Campsite 
- 2-Wheel Drive Road 
- 4-Wheel Drive Road 

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0 1 2 3
Scale in Miles

THE MAZE

THE NEEDLES

Miles

- 14.5 (6) The Washer Woman - As you loop around
(2.5) the head of Buck Canyon, you can see Washer Woman Arch, carved out of the hard Wingate sandstone far above you.
- 3.8 (7) Monument Basin - From the rim of
(14.5) canyons you can see the same forces of erosion at work, but here in a more advanced stage. The 305 foot spire in the middle of the basin is called the "Totem Pole." Note that it has lost its "cap" and will erode faster than the canyon walls.
- 8.3 (8) Junction Butte and White Crack Overlook -
(3.8) At an intersection below Junction Butte you can take a short road extending two miles to the South. From its end on the slickrock you will have a spectacular view of much of Canyonlands.
- 17.0 (9) Murphy Hogback - Murphy Hogback, the
(8.3) half-way point on the White Rim Trail, rises between 300 and 350 feet above the White Rim. A short walk ~~to~~ west to a high point on the Hogback offers you a fine view of the Green River and Turks Head, with its cap of White Rim sandstone.

There is a primitive campsite here.

"Desert Varnish" - The numerous black streaks running down the walls of the White Rim sandstone are called "desert varnish." It is formed by evaporating water depositing manganese and iron oxides on the rock surface after a rain storm. The Indians used such surfaces for their petroglyph inscriptions found in this area.

Miles

- 5.2 (10) Anderson Bottom Overlook - A walk
(17.0) to the edge of the White Rim will give you a view of Anderson Bottom. From here you can see how the river cut through an old meander shortening its course by two miles and leaving an isolated "island." This area was once farmed.
- 2.2 (11) Potato Bottom - Driving along the
(5.2) edge of the Green River, you can see how ample soil moisture near the river encourages dense vegetation. Note the abundance of tamarisk, an exotic tree introduced to North America from the Mediterranean region. Tamarisk can survive only with ample moisture and it spreads rapidly into any wet area. It is killing and replacing native vegetation along the rivers.

There are campsites along Potato Bottom.

- 1.9 (12) Fort Bottom - Fort Bottom received
(2.2) its name from a prehistoric Indian ruin situated strategically on a high point in the meander in the river. An old log cabin is located by the river.
- 2.8 (13) Hardscrabble Bottom - There is a
(1.9) camping area near the river at the end of a short spur road leading south from the bottom of the hill. Please stay where others have stayed.
- 1.9 (14) Upheaval Bottom - Looking up
(2.8) Upheaval Canyon you can see some of the

Miles

uplifted rocks of Upheaval Dome. A salt "plug," squeezing up from the Paradox Formation 1000 or more feet below you, has warped the overlying strata up in a dome, fracturing rocks in the process. Erosion has stripped away much of the fractured material from the interior of the dome.

- (1.9) Park Boundary - here you leave Canyonlands National Park. It is approximately 29 miles via Horseshoe Trail back to the Ranger Station on the Island in the Sky or (if you do not return to the Ranger Station) about 41 miles to Moab.

The White Rim Trail provides access to three major parts of the park environment, each different from the others in appearance and in the life occurring in them. The other animals and the plants with which we share this world live where they do because they are adapted to the conditions of that particular place. Life adapted to one set of conditions (or "habitat") often cannot survive in a different habitat.

This arid, rugged land seems inhospitable to us, so we often use negative terms for it and its inhabitants. Our words reflect our adaptations and might be appropriate if we tried to live on the White Rim. The things that naturally live here, however, are well adapted to conditions here. Many plants and some animals native to this area would die in a "better" habitat, because it is "better" only in our eyes and the organism is not adapted to it. If a cactus had an opinion, it might consider

a lush, green area of rich black soil and moderate temperature to be a miserable place to live.

Animals move about from place to place and often utilize differing situations. Plants remain in one place and so must be adapted to any condition that occurs at that spot. A lizard exposed to full sun on a hot afternoon will overheat and die in a few minutes, so it seeks shade under a bush. That bush, however, must be able to withstand that intense heat and light without harm. In winter, the lizard hibernates in a sheltered place; the bush must be able to tolerate the cold.

Your adaptations to the environment are your clothing, your home and its utility systems, your vehicle, the equipment you use to store and transport food and water, and the entire socio-economic system that provides these and supports your other needs. Man is so skilled at adaptation that he can live anywhere on earth and so ingenious that he can invent new adaptations as needed. The lizard and the bush are more limited in their adaptability, and therefore are more limited in places to live.

Along much of the White Rim Trail, you are in the blackbrush community. Blackbrush is the abundant short bush with many stubby, dark branches. It is often associated with yucca, shadscale, Mormon tea, and pricklypear cactus. Blackbrush occurs in shallow soils (seldom grows where there is more than 18 inches of soil above bedrock) and the associated plants are adapted to that and the meager moisture and temperature extremes. Black-chinned sparrows, many varieties of lizards, and antelope ground squirrels live in this habitat and other animals use it for browsing (mule deer) or hunting (hawks, coyotes, etc.) but do not stay in the area all the time.