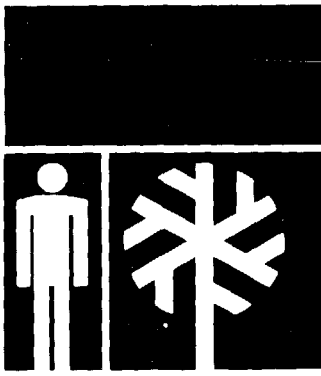
# draft national historic trail study
# draft environmental impact statement

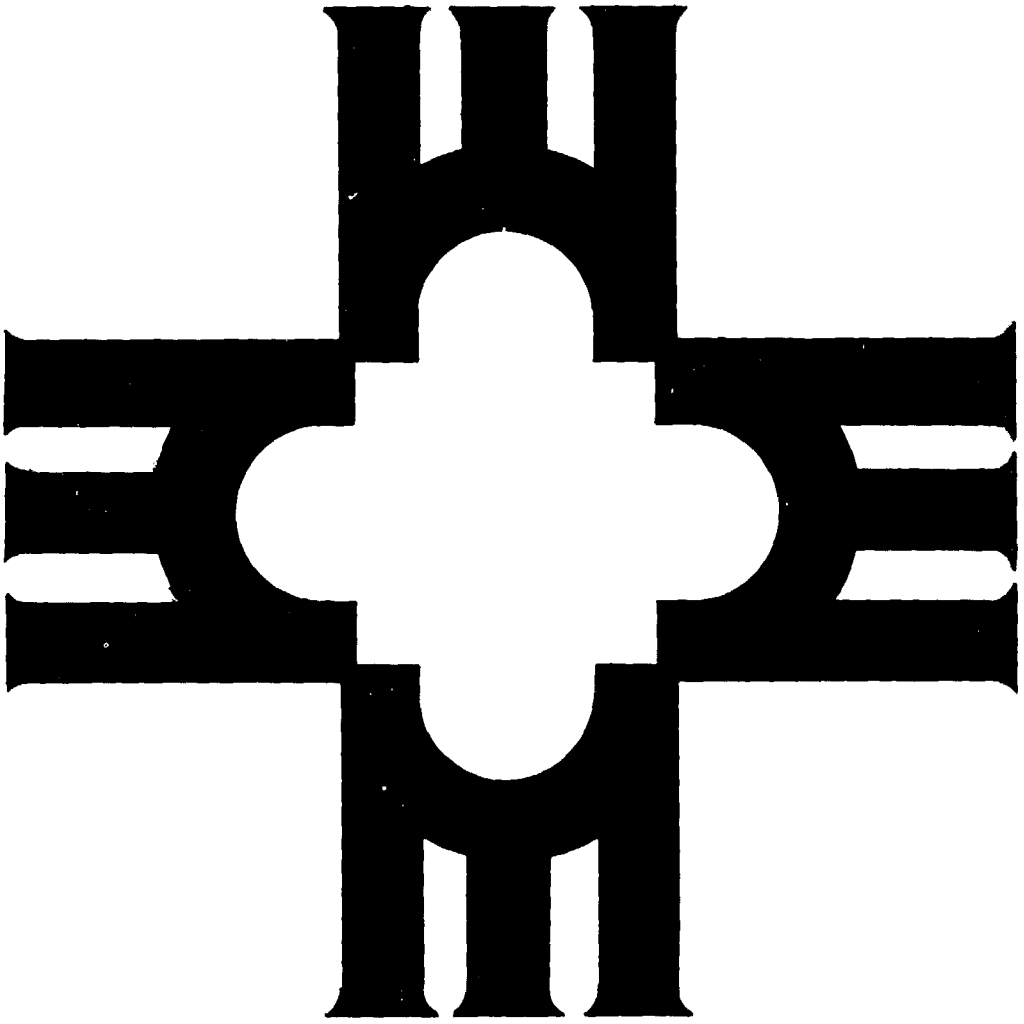
november 1980



# DOMINGUEZ-ESCALANTE



NATIONAL HISTORIC TRAIL/NEW MEXICO-COLORADO-UTAH-ARIZONA



The Dominguez-Escalante logo characterizes the interaction of the cultures in the Southwest in 1776, with the stylized sun rays representing the Native Americans, surrounding a typically Hispanic geometric motif. This shows the reciprocal influence each culture has had upon the other. Each of the four sides of the symbol represents a stylization of the initials D-E. Furthermore, the four sides form a cross, reflecting the religious origin of the Dominguez-Escalante expedition.

ERRATA SHEET

The following additions, deletions and revisions should be considered in reviewing this draft document. They will be incorporated into the final document along with such other changes as may be required as a result of the review process.

1. Page 76 - Substitute the following for the second paragraph under Impacts on Transportation and Utilities.

   "Because of the linear nature of the route, new transmission lines, pipelines or transportation corridors may conflict with some route segments. An example would be the proposed Allen-Warner Valley power project. Designation of the Dominguez-Escalante route as a national historic trail would require additional environmental considerations in the planning of such projects. Conversion of trail related historic, scenic and recreation lands to transportation or transmission corridors would be discouraged if there was a feasible and prudent alternative to the use of such lands.

   The impact on transportation and utilities would be minimal."

2. Page 79 - Substitute the following for the second paragraph under Impacts on Transportation and Utilities.

   "The linear nature of the trail route may create conflict with new transmission lines, pipelines, or transportation corridors along some route segments. Designation of the route as a national historic trail would require additional environmental considerations in the planning of such projects. Conversion of trail related historic, scenic, and recreational lands to transportation or transmission corridors would be discouraged if there was a feasible and prudent alternative to the use of such lands. Section 4(f) of the DOT Act would be applicable if a transportation project required the use of specific trail related historic sites and/or significant publicly owned recreation overlook or interpretive areas, but would not be applicable to existing roadways solely by virtue of their being marked to facilitate retracing of the route by motorists.

   The impact of implementing this alternative on transportation and utilities would be relatively minor."

3. Through oversight during preparation of the draft, a summary conclusion was not drawn with respect to the environmental impact on the various values considered under each of the alternatives. This will be done in the final environmental statement. The following statements which illustrate the concern are drawn for Alternative D, the recommended position, where not already identified.

a. Page 87 - Insert the following before Impacts on Recreation:

"Overall, the impact on Economics and Land Use is considered to be minor."

b. Page 89 - Insert the following as a last statement under Impacts on Landownership.

"The impact of the proposal on landownership will be negligible."

c. Page 89 - Insert the following as a last statement under Impacts on Transportation and Utilities:

"The overall impact on Transportation and Utilities will be minor."

4. Page 84 - Substitute the following paragraphs for the first paragraph under Impacts on Cultural and Historic Resources:

The route corridor is rich in cultural resources. Ninety-six properties, which are listed on the National Register of Historic Places, are located along the proposed trail alignment as are numerous known archeological resources. Development and use of the trail could lead to the discovery of additional cultural resources.

Development of the trail would promote visitation to the region and accessibility to previously little known sites. This could result in illegal pothunting on public lands, intensified compaction at historic or archeological sites and possibly some vandalism of cultural resources.

5. Pages 85 - Add the following as a new last paragraph under Impacts on Cultural and Historic Resources:

Overall, the impacts on historic and cultural values are expected to be beneficial in that positive measures would be taken to protect cultural and historic resources on some 90,000 acres of land along 770 miles of trail.

6. Page 89 - Substitute the following for the statement on Impacts on Transportation and Utilities:

Traffic volume along major highways and freeways that are near marked portions of the route could increase as a result of diverting travelers from other routes. The increase in traffic along lightly used secondary roads following the route could be considerably greater than present use. The increase in volume, however, is not expected to be great enough to necessitate expenditures for road improvements. However, incidental roadside parking areas or overlooks for interpretive signs would be required.

State highway departments may find it necessary to upgrade and widen short stretches of a road due to the need for pullouts. Increased traffic could also require more trash collection facilities.

Because of the linear nature of the route, new transmission lines, pipelines, or transportation corridors may conflict with some route segments. Designation of the route as a national historic trail would require additional environmental considerations in the planning of such projects. Conversion of trail-related historic, scenic, and recreational lands to transportation or transmission corridors would be discouraged if there was a feasible and prudent alternative to the use of such land. Section 4(f) of the DOT Act would be applicable if a transportation project required the use of specific trail-related significant historic sites and/or significant publicly owned recreation, overlook, interpretive, trail head, campsite, foot trail, or horse trail areas, but would not be applicable to existing roads and highways solely by virtue of their being marked to facilitate retracing of the route by motorists.

The impact of this alternative on Transportation and Utilities would be relatively minor.

7. Page 93 - Delete "significant historic site is involved" at the end of the statement on Transportation and Utilities and substitute the following in lieu thereof:

"specific trail-related significant historic site, or significant publicly owned recreation area, is involved, but would not apply to existing roads and highways solely by virtue of their being marked to facilitate retracing of the route by motorists."

8. Page 97 - Substitute the following for the material preceding Federal Agencies Contacted.

CONSULTATION AND COORDINATION

The Study was conducted and the proposed action developed by a study team composed of representatives of the major Federal land managing agencies in the area, the Heritage Conservation and Recreation Service and representatives of the Governors of the four States involved. Study team members are identified on pages 99 and 101. Specific contacts were made with the agencies, organizations and individuals identified below seeking their views with respect to the possible establishment of a Dominguez-Escalante National Trail, input to the study and concerns to be considered.

Ten public workshops were held in June - July 1979 in Page, Arizona; Cedar City, Salt Lake City, Vernal, and Provo, Utah; Montrose, Durango and Dolores, Colorado; and Santa Fe and Grants, New Mexico.

In summary, the consensus of all parties was that (1) the Dominguez-Escalante Trail should be designated for inclusion in the National Trails System,

(2) a continuous offroad trail was not feasible or desirable, and (3) private lands should not be acquired unless the lands were significant for trail purposes.

The Indian tribal groups involved with the high potential trail segments expressed concerns over permitting public use of their lands until they can determine how great that use might be and its effect on their lands and activities. The concerns appear to relate to whether the potential use would be spread out over the recreation season or concentrated in a relatively short period of time affording an opportunity for positive economic benefit.

## CONSULTATION IN THE PREPARATION OF THE PROPOSAL AND DRAFT ENVIRONMENTAL IMPACT STATEMENT

9. Page 100 - Add the following to the list of Federal Agencies:

U.S. Department of Transportation

Regional Representative of the Secretary

Region VI, Fort Worth, Texas

Region VIII, Denver, Colorado

Region IX, San Francisco, California

Add the following to the list of State agencies:

Arizona - Department of Transportation

Colorado - Department of Highways

New Mexico - State Highway Department

Utah - Department of Transportation

DRAFT NATIONAL HISTORIC TRAIL STUDY

DRAFT ENVIRONMENTAL IMPACT STATEMENT



# DOMINGUEZ - ESCALANTE NATIONAL HISTORIC TRAIL

**NEW MEXICO COLORADO UTAH ARIZONA**

Prepared by the Denver Service Center, National Park Service
United States Department of the Interior

Lorraine Mintzmyer

Regional Director
Rocky Mountain Regional Office

Robert G. Lee

Regional Director
Southwest Regional Office

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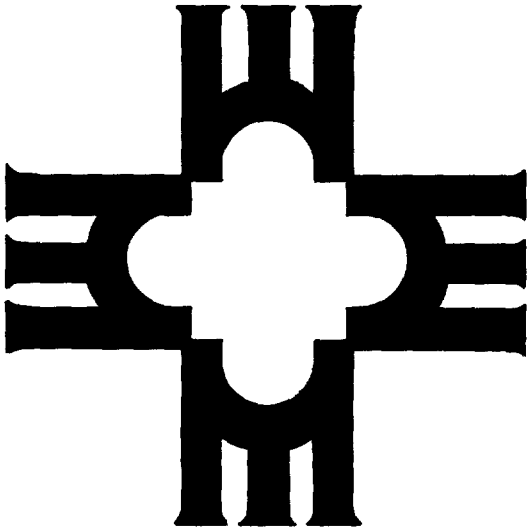
## GRAPHICS

## TABLES



## PHOTOGRAPHS

CC-BC: Colorado Centennial-Bicentennial Commission
DEBE: Dominguez-Escalante Bicentennial Commission
Credits: Janice Daigh - pages 10, 29, 52, 53, 55, 130
Bill Daley - page 54
Joe Cerquone - page 14



# PART 1 - DRAFT TRAIL STUDY

# INTRODUCTION

## PREVIOUS STUDY AND COMMEMORATION EFFORTS

Interest in preserving and interpreting the route of the 1776 explorers dates back to the 1930s. At that time the National Park Service was considering the establishment of an Escalante National Monument. At the end of the decade, Herbert E. Bolton, a member of the Secretary of the Interior's Advisory Board on National Parks, Historic Sites, Buildings and Monuments, recommended to the National Park Service that the route be developed so that visitors to the Southwest could learn the story of the 1776 expedition while traveling from park to park. Over such an extended period of time, changing land uses and other reasons precluded his concept of linking units of the National Park System.

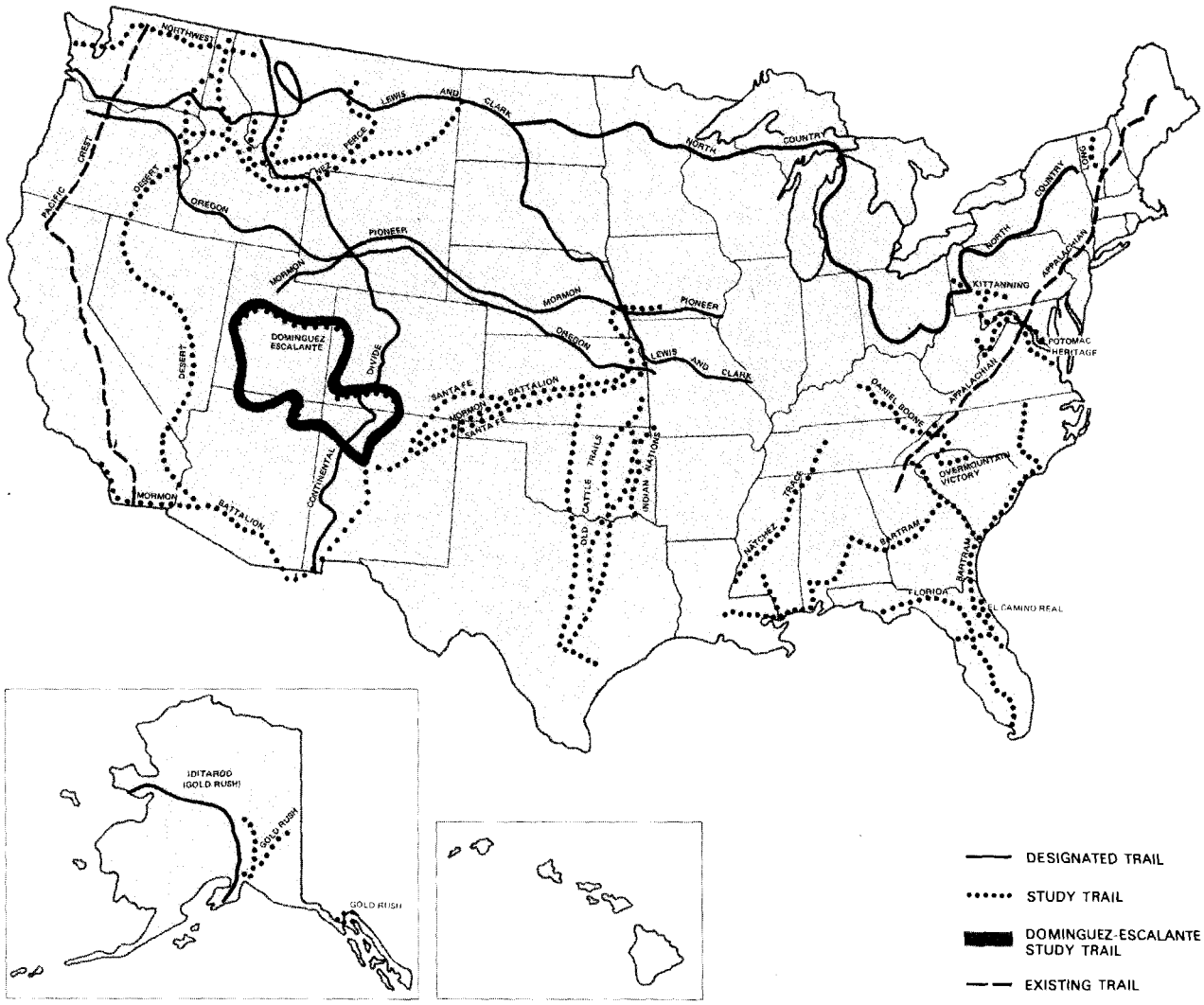
In 1973 the Dominguez-Escalante State/Federal Bicentennial Committee was organized to commemorate the 1776 expedition during the bicentennial celebration in the Four Corners States of New Mexico, Colorado, Utah, and Arizona. Representatives from state bicentennial commissions of the four states, federal agencies administering properties within the region, historical societies, and the private sector pursued a coordinated commemoration of the expedition.

With a grant from the Four Corners Regional Commission, the committee initiated a study to determine the exact route of the padres. The report, The Route of the Dominguez-Escalante Expedition 1776-77 by David E. Miller, was published in 1976 and is an accepted document regarding the reestablishment of the route. The route defined in that report was used as the basis for the present study.

Several notable projects resulted from the bicentennial. A new translation of the padres' journal by Fray Angelico Chavez of Santa Fe, New Mexico, was completed and published in 1976. It is generally considered to be one of the most accurate translations to date and was the primary information source in Dr. Miller's effort. An interpretive master plan was also prepared by Architects/ Planners Alliance. It was intended to give unity to the variety of commemorative efforts anticipated by the many agencies and groups along the route. Although use of the plan has been limited, it could provide a framework for present and future interpretation of the trail. The Bureau of Land Management developed several sites along the route consisting of wayside exhibits that interpret the Dominguez-Escalante expedition. Some sections of the route have been signed to assist hikers and horseback riders. In addition, other interpretive signs have been placed at locations where the route crosses highways.

## THE PRESENT STUDY

The National Trails System Act of October 2, 1968 (P.L. 90-543), established a system of national trails (see National Scenic and Historic Trails System map), which consisted of national scenic trails, national recreation trails, and connecting or side trails. On October 17, 1976, the




DESIGNATED TRAIL

STUDY TRAIL

DOMINGUEZ-ESCALANTE STUDY TRAIL

EXISTING TRAIL

# NATIONAL SCENIC AND HISTORIC TRAILS SYSTEM

## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

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act was amended by P.L. 94-527 to include the Dominguez-Escalante Trail for study as a national scenic trail. The route as identified in sec. 5(c) of the act is the "Dominguez-Escalante Trail, extending approximately two thousand miles along the route of the 1776 expedition led by Father Francisco Atanasio Dominguez and Father Silvestre Velez de Escalante, originating in Santa Fe, New Mexico; proceeding northwest along the San Juan, Dolores, Gunnison, and White Rivers in Colorado; thence westerly to Utah Lake; thence southward to Arizona and returning to Santa Fe."

Under authority of the National Parks and Recreation Act of November 10, 1978 (P.L. 95-625), a national historic trail category was added to the National Trails System Act (see appendix A). Due to the historic nature of the Dominguez-Escalante expedition, the route was studied and evaluated under new criteria provided by this law in addition to the criteria for national scenic trails.

A federal-state team was organized in October 1978, with the National Park Service designated as the lead agency. The team includes representatives from each of the four states, the Bureau of Land Management, the Water and Power Resources Service, and the Forest Service. Other federal agencies, local governments, tribal councils, and private interest groups provided essential assistance.

Although no actual trail exists, the general expedition route has been determined through previous efforts. Only those segments of the route that can be reestablished on the ground would be considered for development. In addition, a corridor 2½ miles wide on both sides of the 1,794-mile route was utilized to allow for variation in possible trail locations. This permits flexibility in avoiding problem areas that could affect future trail location. Emphasis was placed on evaluating the route's potential for preservation and public enjoyment of its scenic, historic, natural, and cultural qualities.

The study team used the following planning criteria to evaluate the 1,794-mile route for high potential hiking and horse trail segments:

Recreational, historical, cultural and interpretive potential
Landscape not severely modified since the original expedition
Evident scenic quality
Availability of land - public ownership desirable but private ownership would not exclude desirable segments from consideration
Segment at least a day's hike (8-12 miles) - exception would be when a shorter segment was needed to interpret a highly unique or significant site or event

Public comment was received in writing and during ten workshops held at various locations along or near the route (see "Consultation and Coordination" section). A mailing list of over 600 entries was developed early in the study and informational material was provided. Numerous consultations were held with key organizations and individuals.

Dominguez-Escalante statue at Spanish Fork, Utah

## NATIONAL SIGNIFICANCE

The national significance of the Dominguez-Escalante route was evaluated against the legislative criteria for both scenic and historic trails in addition to its scenic, natural, and cultural resources.

### National Historic Trail

Pursuant to the National Trails System Act a trail must meet the following criteria to qualify for designation as a national historic trail:

> It must be a trail or route established by historic use and must be historically significant as a result of that use.
>
> It must be of national significance with respect to any of several broad facets of American history, such as trade and commerce, migration and settlement, or military campaigns.
>
> It must have significant potential for public recreational use or historical interest based on historic interpretation and appreciation.

The Dominguez-Escalante expedition tied together a series of ancient Indian paths and Spanish trade trails that ran overland from Santa Fe through western Colorado to the Uintah Basin near Provo, Utah. From there the route ran south along the western side of Utah to Glen Canyon. Finally, the explorers emerged at Oraibi in the Hopi lands and from there followed the ancient route to Zuni, Acoma, Laguna, and Isleta. Turning north, Dominguez and Escalante followed the Camino Real (Royal Road) along the Rio Grande and passed the numerous Spanish and Pueblo Indian settlements to Santa Fe.

Following the Dominguez-Escalante expedition, portions of the trail developed into trade routes to northern Utah. The first part of the trail from Santa Fe via Abiquiu to the Uncompahgre River just beyond Gunnison, Colorado, was already known to New Mexico traders. After the expedition, the traders extended their commerce to the Great Basin. Thus, Dominguez and Escalante, because of their overland trek, opened a route extending from Santa Fe to Utah Lake near Provo that became an active trade route through the 1850s.

In the early 19th century a trail to California known as the Old Spanish Trail was blazed. The route developed out of traditional usage and utilized the eastern and western portions of the Dominguez-Escalante route. The route had been traversed so well by New Mexican traders that when Anglo-American explorers traveled the area, Hispanic guides often accompanied them.

The Dominguez-Escalante expedition is of multifold significance: (1) It ran for the first time the full course of a route that would later be used and developed by private traders from New Mexico; (2) It provided a systematic and significant record of the Native Americans and the country they passed through during this era; (3) It contained new geographical data that were cited and used for many years by explorers and scholars

and named many places along the route such as Escalante Ruins, Canõn Pintado, Musket Shot Springs, and El Malpais; (4) It established the base route of a northerly trail to California; and (5) It extended the Spanish claim to northern Utah.

Historically, the Dominguez-Escalante expedition symbolizes the larger drama of the development of the West. It is a part of America's frontier story that cuts across cultural, ethnic, and national influences. The cumulative uses of the trail were significant in the development of trade and immigration routes, as well as the eventual settlement of the San Luis Valley in southern Colorado. Interestingly, the more Anglo-American frontiersmen penetrated the hinterland from the East Coast the more they came to realize that they were entering a developed frontier area--that of the Hispanic west. At a certain point on a geographical, commercial, and cultural basis, and finally through the process of political incorporation, the two frontiers became one.

By the 1830s, portions of the Dominguez-Escalante route were used by Hispanic, Indian, and Anglo-American trappers and traders. Although new place-names resulted from transient visitations to the area, many of the Hispanic-Indian place-names, some dating to 1776, remained in usage on later American maps.

Many attempts were made by the Spanish to consolidate outposts of their North American empire with each other. This empire stretched in a jagged line from St. Louis, San Antonio, El Paso, Taos, Tucson, and San Francisco.

Prior to the 1760s, most trails ran on a north-south basis and very few connected any points between. After 1763 official attempts to link the frontier were made. The period from 1765-1821 was one of reexploration of the frontier in an effort to establish routes between northern settlements. The Dominguez-Escalante venture must be viewed as an integral part of this final burst of energy in a dying Spanish empire. These attempts were finally realized in the mid-19th century when transcontinental trails developed from such efforts and connected the East and West coasts. In 1869 an important event took place at Promontory Point, Utah, when the transcontinental railroad became a reality. Within this broad national perspective, the Dominguez-Escalante expedition has its place, for it was not only used as a trade route to the Great Basin, it became an inspiration to the idea that a northern route to California could be developed. In that context, the Dominguez-Escalante expedition symbolizes the larger drama of the development of the West.

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The National Trails System Act defines a national scenic trail as "an extended trail located to provide for maximum outdoor recreation opportunities and for the conservation and enjoyment of nationally significant scenic, natural or cultural values."

The Dominguez-Escalante route traverses portions of four states. Its extended nature ensures the availability of outstanding recreation

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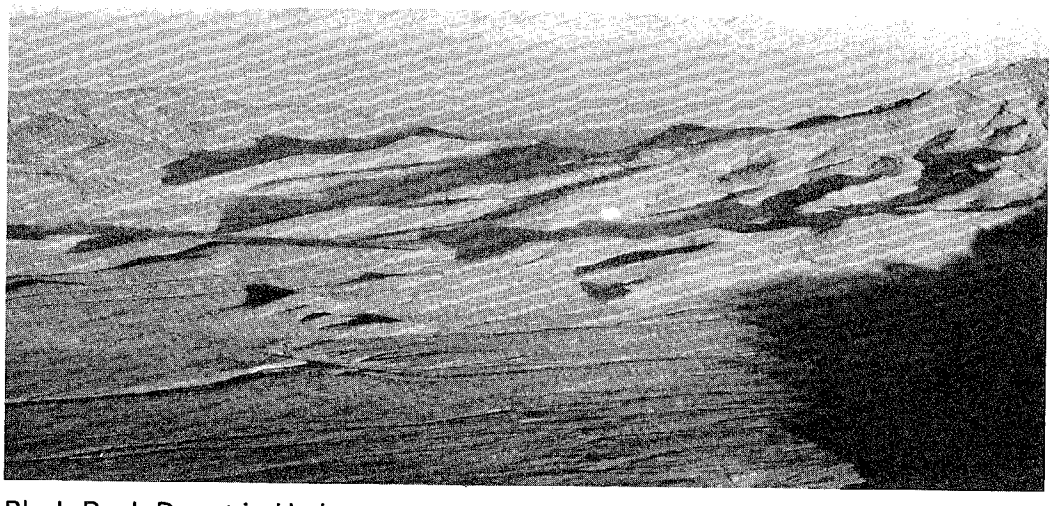
resources as shown in the accompanying photographs. Nationally known scenic themes associated with this route include the Rocky Mountains, the Great Basin, and the expansive deserts of the Arizona Strip. The route crosses four physiographic provinces, and trail users are exposed to a variety of topography, climate, vegetation, and wildlife.

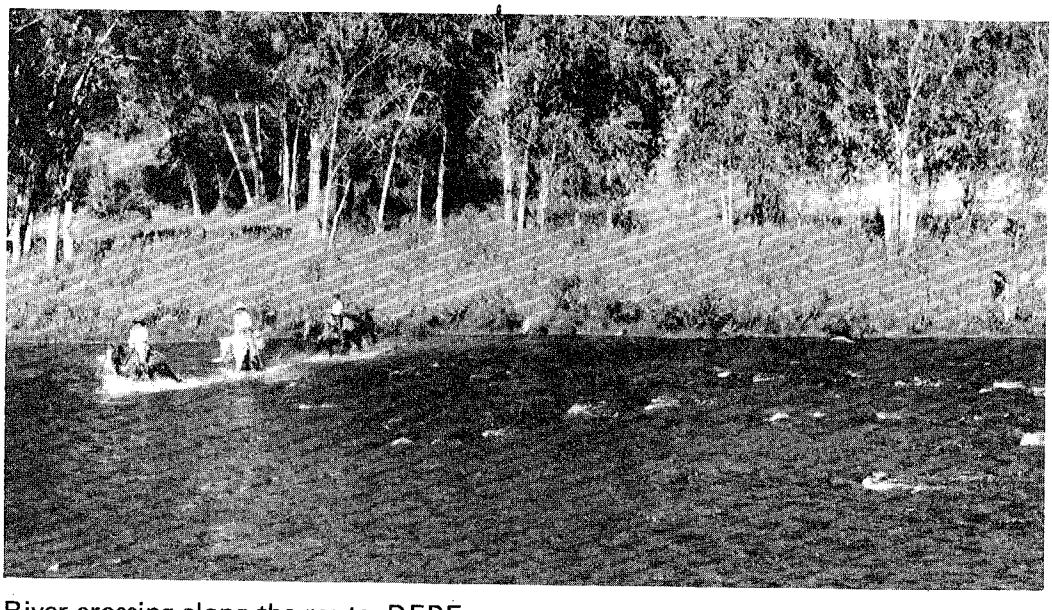
Application of the planning criteria yielded 13 high potential hiking and horse trail segments that are largely intact and provide opportunity for hikers and horseback riders to retrace the route of the Dominguez-Escalante expedition via unconfined and highly scenic trail segments. Although separate, each segment is capable of recreational development on its own merit. Recreational potential ranges from a brief outing to several weeks and from strenuous backpacking to leisurely strolling. The route also traverses lands of historical and cultural importance and provides opportunities for appreciation of Hispanic, Native American, and Mormon cultures.

The development of the entire Dominguez-Escalante route as a continuous offroad national trail was considered and rejected because of the difficulty and expense of acquiring nonpublic land. In addition, portions of the route have been obliterated or otherwise altered by changing land uses.

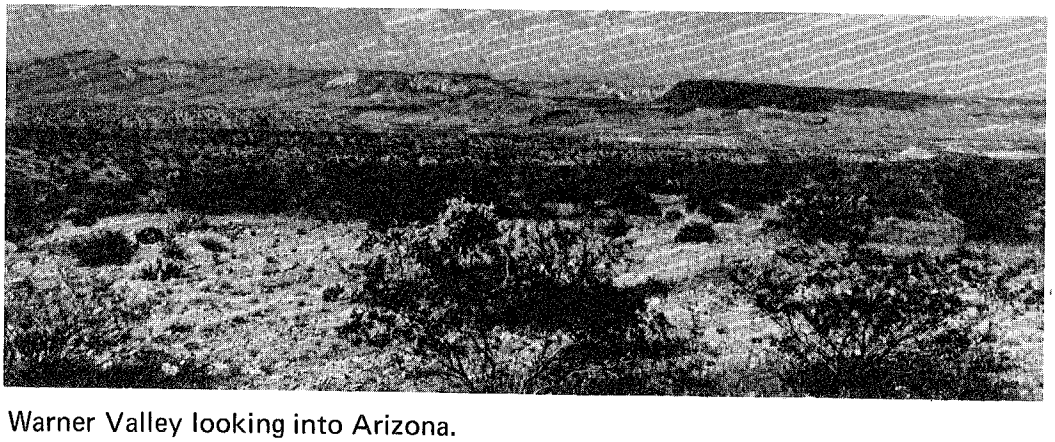
In conclusion, it was determined that the Dominguez-Escalante Trail would qualify as either a national historic trail or a national scenic trail. However, due to the expedition being one of the grand epic adventures within early Southwest history and an important part of our Hispanic heritage, tradition, and culture, the designation as a national historic trail best fits this event, which took place just over 200 years ago.



Black Rock Desert in Utah.



River crossing along the route. DEBE



Warner Valley looking into Arizona.

## SUMMARY OF FINDINGS AND RECOMMENDATIONS

### FINDINGS

The Dominguez-Escalante route qualifies as either a national historic trail or a national scenic trail.

Thirteen segments totaling 770 miles were found to have high potential for use as hiking and horse trails. Nationally significant scenic and natural values exist along with important cultural resources. Although separate from each other, each segment was found to be capable of development on its own merit.

The related alternative of developing a continuous 1,794-mile trail was examined and rejected because of the impracticability of acquiring such large amounts of nonfederal land, costs involved, and portions of the route having been irreversibly altered by modern day developments.

Landownership within the 13 high potential segments is estimated to be 62 percent public, 34 percent Native American, and 4 percent private.

Public support is in favor of designating a route having National Trails System status. This was expressed throughout the study and in ten public workshops held in June-July 1979 throughout the Four Corners States.

A trail logo has been developed and is generally accepted as symbolizing the Dominguez-Escalante expedition (see frontispiece). This logo, which represents a combination of culture, nature, and religion, was first conceived and used during the 1976 bicentennial commemoration and other efforts.

Approximately 265 miles of the recommended 13 high potential hiking and horse trail segments cross Native American lands. The reservations of the Jicarilla Apache, Southern Ute, Uintah-Ouray, Kaibab Paiute, Navajo, Hopi, and Zuni are involved. Native American interests in the trail have varied, and as yet, no definite commitment has been received from any of the tribal or individual ownerships.

### RECOMMENDATIONS

Due to the expedition being an important part of our Hispanic heritage, tradition, and culture, the entire 1,794-mile route should be designated by Congress as the Dominguez-Escalante National Historic Trail and declared a component of the National Trails System.

The route of the Dominguez-Escalante expedition should be marked where feasible along the public roads and highways that most closely parallel the actual historic route. As appropriate, such highway segments should be provided with interpretive turnouts.

Initial trail development would occur only on federally owned lands within the 13 high potential segments and involves only those areas where there is present use and/or in those areas showing an existing need. Further development would be determined if and when future demands needed to be met and on the availability of funds.

The Secretary of the Interior should be assigned responsibility for administration and overall coordination of the Dominguez-Escalante National Historic Trail.

Within two complete fiscal years of designation by the Congress as a national historic trail, a comprehensive trail management plan will be prepared by the administering agency.

Within one year after designation by the Congress, an advisory council should be established by the Secretary of the Interior to provide assistance on matters concerning the Dominguez-Escalante National Historic Trail.

Native Americans will be consulted during development of the comprehensive trail management plan to determine their desire in establishing segments of the trail on their lands. Development would be entirely at the discretion of tribal councils and/or individuals.

The logo as illustrated on the frontispiece of this document should be the standard symbol for the Dominguez-Escalante National Historic Trail. The logo will be used on all official signing and printed material.

## SUMMARY OF THE EXPEDITION AND ROUTE

### THE EXPEDITION

During the 17th and 18th centuries, Spain vigorously engaged in exploring and colonizing vast areas in what is now the American West and Southwest. In this drive northward from Mexico, one of the first areas to be settled was what is now New Mexico, with Santa Fe becoming the Spanish capitol in the early 1600s. A second arm of the movement northward resulted in the settlement of California in the mid-1700s.

During the decade of the 1770s, Spain sought to strengthen its northern frontier in the New World by exploring the lands between New Mexico and California. The intent was to link and open a line of communication between Santa Fe and Monterey, the newly established capitol of Spanish California. In addition, the explorers would introduce Christianity to Native Americans and locate suitable sites for establishing missions and settlements.

To these ends, two Franciscan friars, Francisco Atanasio Dominguez and Silvestre Velez de Escalante, left the Villa de Santa Fe (the City of Holy Faith) on July 29, 1776, leading a small party of explorers unaccompanied by military escort. During the course of their journey they would travel 1,794 miles, making a circle from Santa Fe through portions of present day New Mexico, Colorado, Utah, and Arizona, returning to Santa Fe on January 2, 1777.

On the second day the padres reached Abiquiu, the last Spanish outpost before entering the vast Ute territory to the north. As the expedition proceeded the Utes tried to discourage them from continuing. But Dominguez and Escalante, certain their God would protect them, entered the unfamiliar territory north of the Gunnison River. At Grand Mesa, two Timpanogos Utes from what is now Utah Valley joined the expedition. One of the Utes whom they called Silvestre became their guide and led them in early September along the difficult route through Spanish Fork Canyon, gateway to Utah Valley and the land of his people. The Timpanogos Utes received them warmly and were receptive to Christianity.

The expedition traveled south from Utah Valley to reconnoiter a possible route west through Paiute country. The Indians told Dominguez and Escalante that there was only desert to the west--they had no knowledge of an ocean. An early October snowstorm brought extreme cold, and they searched in vain for water and pasturage. The Ute guide who had joined the expedition at Utah Lake departed, and it was doubtful that Dominguez and Escalante could cross snow-covered mountains without a guide. If they continued west, there would be no assurance of replenishing their food and supplies, which were already limited. Thus the padres made the decision to return to Santa Fe, giving up their goal of finding a route to Monterey. Some members of the group, however, were disappointed with the decision to turn back and there were rumblings of insubordination. The padres decided to cast lots and leave the fate of the trip in the hands of God. After lengthy prayers the lots were cast, and the one marked return to Santa Fe was drawn.

Crossing the Grand Mesa in Colorado. DEBE

Looking north from Casting of the Lots site.

Six days later, near the present-day Arizona border, their provisions ran out. The Paiutes gave them nuts and berries, and as Escalante recorded, some of their horses began to be "deprived of their lives so we would not have to forfeit ours." The expedition moved upstream along the Colorado River through tortuous valleys and canyons in search of a possible crossing. After a week's exploration and several abortive attempts, they finally reached a ford that appeared shallow enough to cross. They cut footholds in the rock so that the horses could make it down the steep canyon to the river. Once across, they proceeded to the Hopi pueblos near present-day Oraibi, where they secured provisions.

Some 30 miles beyond the Hopi country, Dominguez and Escalante arrived at Zuni, home of Escalante, on November 23. They rested at Zuni for three weeks before departing for Santa Fe. Finally on January 2, 1777, after a trip lasting more than five months, the padres reached Santa Fe, ending their journey.

## THE ROUTE

A summary of the description of the route follows. A more detailed description of the high potential segments of the route and accompanying maps are found in appendix B.

Beginning in the picturesque foothills of the Sangre de Cristo Mountains at Santa Fe, the route of the Dominguez-Escalante expedition follows the Rio Grande north through the pleasant fertile valleys that still support the Pueblo Indians. Leaving the Rio Grande at its confluence with the Rio Chama, the route circles to the west of the San Juan Mountains with their 14,000-foot peaks.

For a short distance the route follows the Dolores River, with its steep and winding canyon, near the Colorado-Utah border. The route soon leaves the canyon and continues northeast over the Uncompahgre Plateau to the Uncompahgre River, which it follows for a few miles, and then cuts overland to the Gunnison River. Skirting the eastern edge of the Grand Mesa, with its magnificent setting of meadows, lakes, and forests, the route crosses the headwaters of the upper Colorado.

Descending to the Roan Plateau, the route enters a canyon containing a concentration of pictographs, which the padres named Cañon Pintado (Painted Canyon). From this plateau the route drops to the Uintah Basin in Utah.

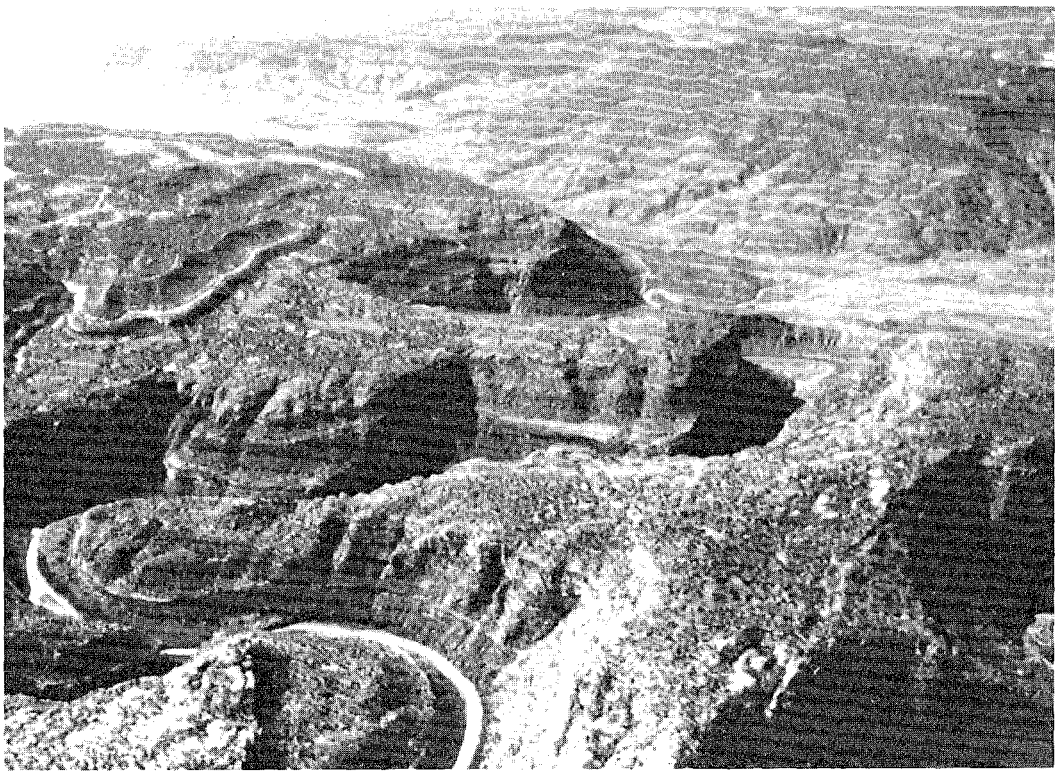
After crossing the Green River near Dinosaur National Monument the route follows the Duchesne River to the Strawberry River. It follows a tributary of the Duchesne westward to the Wasatch Mountains. Crossing the Wasatch Range through Diamond Fork Canyon, it reaches Spanish Fork Canyon, which leads into the Utah Valley and Provo, Utah.

Heading south the route follows the western edge of the Colorado Plateau and then drops onto the floor of the Sevier Desert, passing between the San Francisco and Cricket mountains to the west and the Mineral Mountains to the east.

Leaving the desert near Cedar City, Utah, the route parallels the base of the multicolored Hurricane Cliffs. It enters Arizona through the beautiful Warner Valley, climbs to the Uinkaret Plateau, and follows the plateaus to the area north of Grand Canyon known as the Arizona Strip.

The route follows along the base of the Vermillion Cliffs to the canyons of the Colorado River. The hazardous crossing of the Colorado, known as the Crossing of the Fathers, is now under the waters of Lake Powell. Across the Colorado, the route passes through the sparsely settled desert country of the Navajo and Hopi Indian reservations.

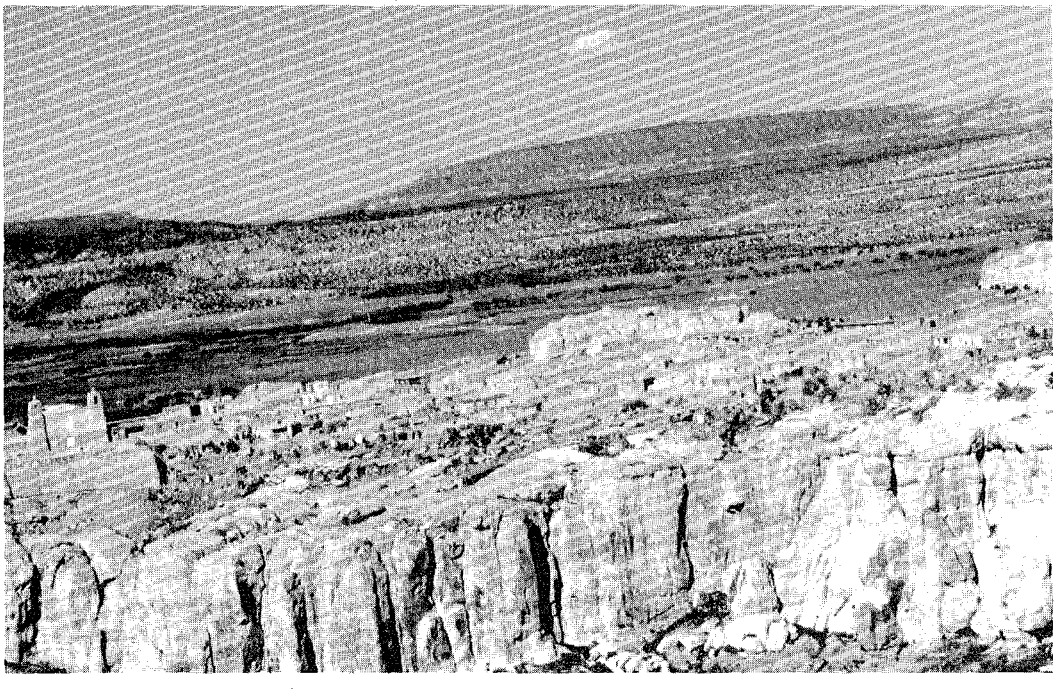
Reentering the rolling countryside of southeastern New Mexico, the route crosses the Zuni Indian reservation and passes the Acoma and Laguna pueblos prior to returning to Santa Fe.



Dolores River Canyon. CC-BC

Split Mountain, Dinosaur National Monument. CC-BC

Arizona Strip.



Acoma Pueblo (Sky City) in New Mexico.

## DESCRIPTION OF THE REGION

The Dominguez-Escalante expedition covered a distance of 1,794 miles. The route traverses an area of northern New Mexico, western Colorado, Utah, and northern Arizona, commonly referred to as the Four Corners States (see Vicinity map). The elevation of the route ranges from a minimum of 2,950 feet at Lake Powell to 9,500 feet near Electric Mountain where the expedition crossed the Grand Mesa in Colorado.

The region traversed by the Dominguez-Escalante expedition includes some of the least populated and developed territory of the United States, but it also includes several cities, agricultural land, and important energy and mineral resources. Some of the region is accessible only on foot, horse, or aircraft, or on low standard roads, but most of the route is within a few miles of major highways or railroads and often coincides with them. Also, several points near the Dominguez-Escalante route are accessible by scheduled commercial airlines.

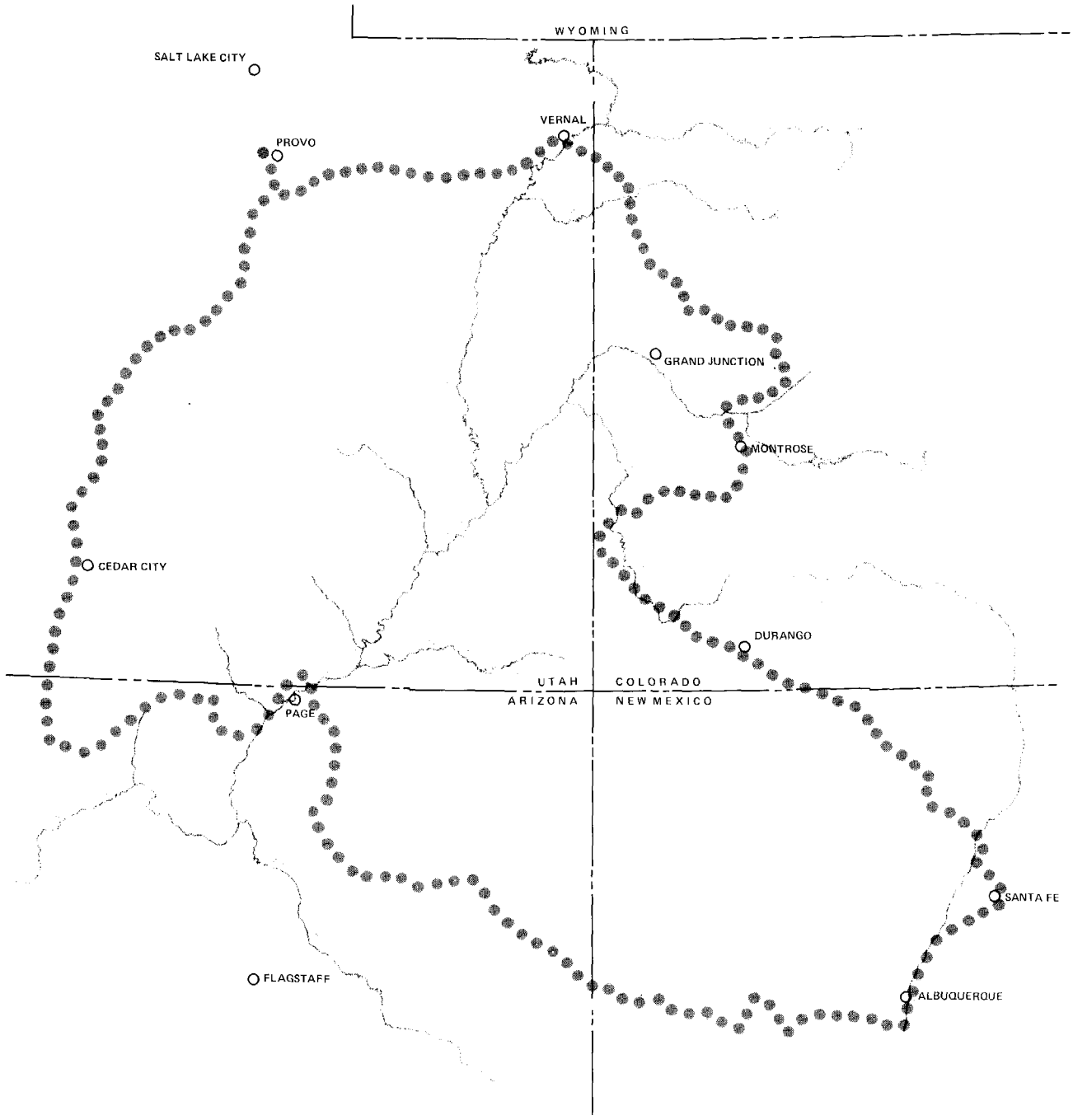
## PHYSICAL ENVIRONMENT

The Dominguez-Escalante route crosses parts of four physiographic provinces of the Cordilleran Mountain Region, which occupies the western third of the United States (see Regional Physiographic Provinces map). These include the Colorado Plateau, the Southern Rocky Mountains, the Middle Rocky Mountains, and the Basin and Range provinces. For most of its length the route remains within the Colorado Plateau.

The Colorado Plateau is an uplifted area with gently folded or nearly horizontal strata cut through by streams, many of which are deeply entrenched in canyons such as the Grand Canyon of the Colorado River.

The Southern and Middle Rocky Mountain provinces are complexly folded and uplifted segments of the earth's crust that have been subsequently carved by streams and glaciers. The Basin and Range Province is a large area centered mainly in Nevada and the western third of Utah. It also extends southward into Arizona and New Mexico and includes small portions of Idaho, Oregon, and California. It consists mostly of desert plains interrupted by north-south oriented mountain ranges formed from tilted fault blocks. A large part of this province is called the Great Basin because its drainage waters do not reach the sea but evaporate in saline lakes or form playas in the valleys between the mountain ranges. The largest of the saline lakes in this region is Great Salt Lake.

The topography of the entire region is generally rough and broken by cliffs, canyons, ridges, mesas, and buttes. There are also a number of broad valleys and plains that are largely level or gently rolling. The Rocky Mountains along the trail route include peaks over 12,000 feet and broad open valleys along the larger rivers such as the Colorado and the Gunnison. The highest summits are areas of barren rock, snow, and alpine tundra. From the valleys of the Colorado Plateau the topography looks similar to that of the Rocky Mountains, by virtue of steep canyon walls and several peaks that are over 11,000 feet. Other features of the




# VICINITY

## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL

NORTH

0 10 20 30 40 50 MILES

0 10 20 30 40 50 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

NHT/DE | 20019

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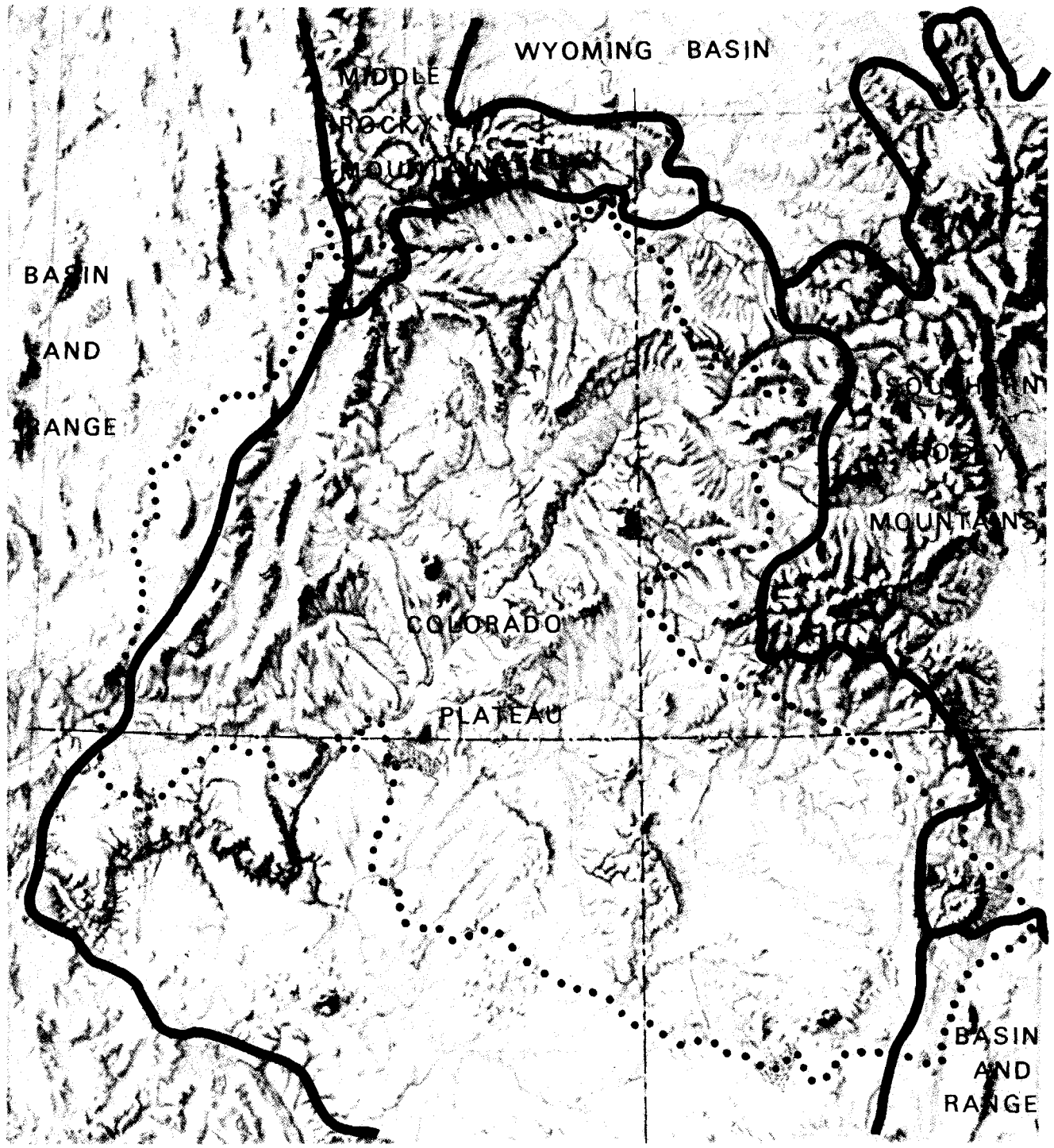


# REGIONAL PHYSIOGRAPHIC PROVINCES
## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL

PHYSIOGRAPHIC PROVINCE BOUNDARY

DOMINGUEZ-ESCALANTE TRAIL ROUTE

SOURCE: National Atlas "1972"

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

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Colorado Plateau Province are open plains, mesas, long ridges, or spectacular complexes of canyons and buttes, often with sand dunes, boulder fields, and colorful barren rock surfaces. Water sources are widely scattered and often intermittent, including many ephemeral and underground streams that occasionally surface as springs. The most common watercourses across the plains and through the canyons are washes that carry water during floods, which only occur every several years. Smaller areas of the study region are occupied by sand dunes, barren clay badlands, or lava flows and other volcanic features. The larger valleys contain extensive level areas suitable for irrigated agriculture. These include the valleys of the Rio Grande, the San Juan, the Gunnison, and the Colorado, and the complex of valleys on the edge of the Basin and Range Province in western Utah.

Most soils along the Dominguez-Escalante route are of semiarid to arid composition with accumulation of salts or carbonates. These soils are generally low in organic content and are dry at varying times during the year depending on elevation, local climate, and aspect. Slopes are variable--from gentle to steep depending on the local topography. Where steep, soils are often shallow and rocky. Soils along the route are not productive as a whole, except in the larger valleys discussed above. Irrigated agriculture is the primary activity on these valley soils, while the more rugged country is suitable only for grazing where water is available. In Colorado where the trail reaches higher elevations, small segments of more moist soils are encountered. For the most part these are steep and rocky environments unsuitable for most types of agriculture other than grazing.

The climate of the region varies greatly with elevation but is predominantly arid and temperate. The high summit areas above 12,000 feet may receive over 40 inches of annual precipitation, much of which falls as snow that remains throughout the year on shaded north slopes. At the lower elevations, precipitation ranges from less than 7 inches at Tuba City, Arizona, to 18 inches at Durango, Colorado, creating desert conditions except where the land is irrigated. Heavy snowstorms are common at intermediate and higher elevations. Thunderstorms are frequent during the summer throughout the region, and at lower elevations most of the precipitation occurs as infrequent heavy storms. The mean annual number of days with precipitation ranges from 45 at the lower elevations to 120 in the higher mountains. At lower elevations the frequency of precipitation as well as the amount varies widely from year to year. Snow covers substantial areas of the higher mountains for six months, but at lower elevations, snow seldom remains for more than a few days after occasional storms. The region is noted for its large number of sunny days in all seasons, making most winter days pleasant but creating critical conditions for outdoor activities during the summer.

Mean annual monthly low temperatures (January) range from 18° Fahrenheit at Grand Junction to 22°F at Albuquerque. The mean annual monthly high temperature (July) is 85°F in both locations. Extreme temperatures in the region have ranged from well below 0°F to well above 100°F with the lowest extremes in high mountain valleys and the highest extremes in the deserts of Arizona.

Over 200 years ago when Dominguez and Escalante led their expedition, scenic vistas in excess of 100 miles were common. With the coming of industrialization in the United States, the West began to experience deterioration of its pristine air. The overall air quality of the four-state region encompassed by the trail remained excellent into the 20th century, but large-scale copper mining operations in Utah and Arizona during and after World War II began to introduce significant air pollution. Within the last two decades additional introduction of particulates resulted from widespread development of the region's energy and mineral resources. During the next decade the region will experience much more development of its coal, oil, gas, and oil shale resources to contribute to the nation's projected energy goals. It is anticipated that this intense development of resources will substantially decrease overall air quality in the region.

Principal supplies of groundwater in the desert regions are found in alluvial fill of valleys of the Basin and Range Province, in intermountain basins in the Rocky Mountains, and in alluvium along a few larger streams in the Colorado Plateau.

The Dominguez-Escalante route is generally in a very arid region with limited supplies of surface water. Most major streams traversing the region carry a high sediment load. Other surface water is alkaline or brackish because of high evaporation rates. The major rivers in the region, such as the Colorado and Green, have increased in salinity from the introduction of dissolved agricultural fertilizers and from increases in upstream water use and diversion. Energy development and mining have also contributed to deteriorating water quality over the past few decades. The newly projected energy goals for the nation are likely to cause additional degradation of water quality. Because processing of oil shale requires enormous quantities of water, it is likely that total stream flow in the region will be reduced, further increasing salinity and proportions of other pollutants.

## VEGETATION

The vegetation of the region varies with local climatic conditions and elevation (see Regional Major Vegetation Types map). At the highest elevations of the Rocky Mountains, generally above 11,000 feet, the landscape consists of alpine tundra, rock, and snow, with scattered patches of whitebark pine. Below the alpine tundra on the mountains and in the higher valleys are forests dominated by Engelmann spruce, subalpine fir, and white fir.

Below the fir-spruce association, vegetation varies depending on the part of the region being discussed. In the southern portion of the region the fir-spruce zones are subtended by the ponderosa pine association. Douglas fir is a codominant of this zone and achieves dominance on north slopes. In the eastern and extreme north-central portion of the region lodgepole pine stands often subtend the fir-spruce zone. Again, Douglas fir is associated with this community and is dominant on north slopes. In the remainder of the region fir-spruce zones are generally subtended by stands of deciduous species. These include quaking aspen, mountain mahogany, and scrub oak.

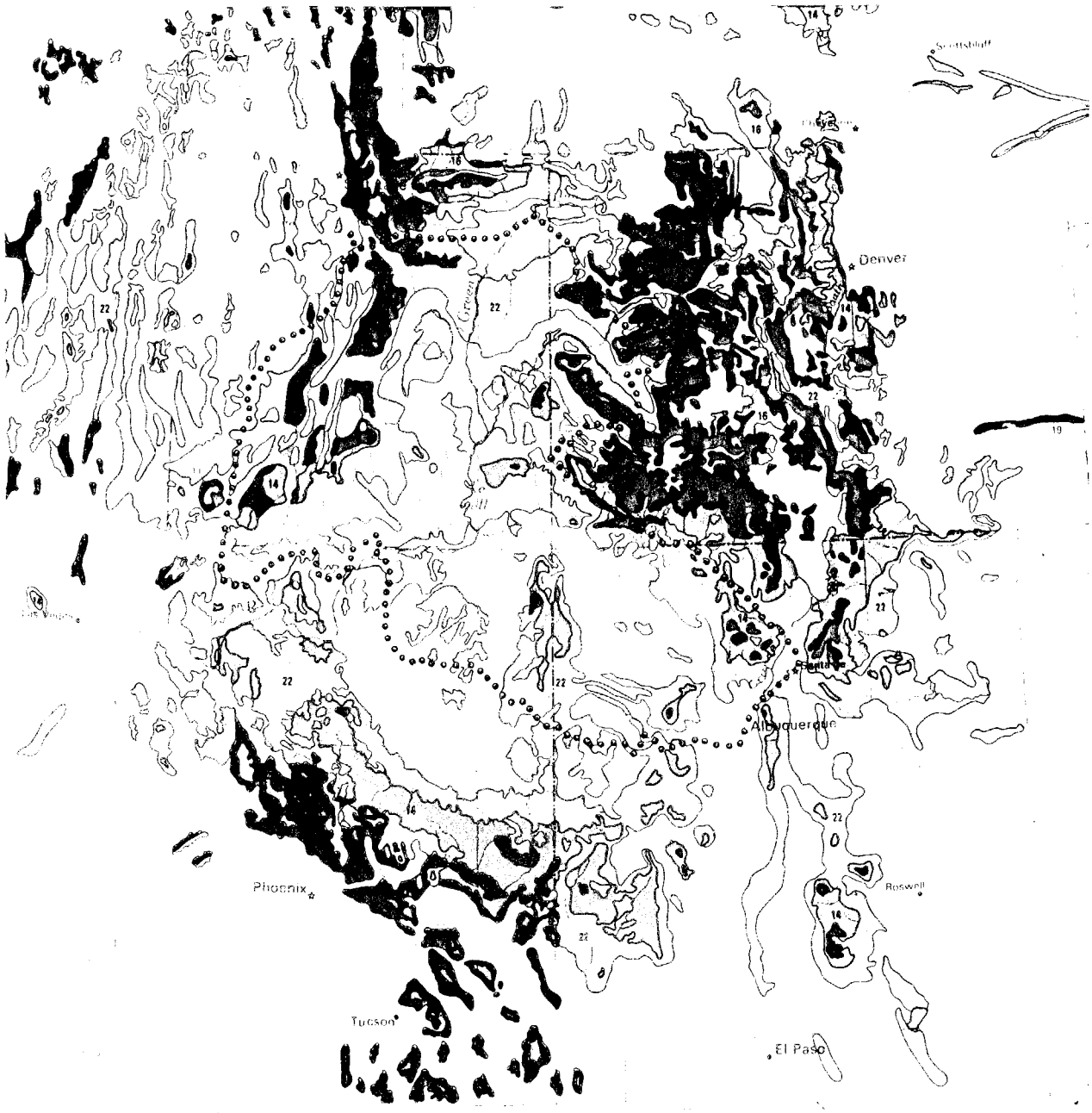
Scattered throughout these forests are meadows created by glacial deposits and beaver dams. Other open grasslands occur where the forest cover has been excluded by fire for extended periods. Between 5,000 and 7,000 feet, ridges and mesa tops are largely occupied by pinyon-juniper.

The lower forest boundary ranging from 5,000 to 6,000 feet is the level below which potential annual evapotranspiration exceeds annual precipitation. Below this level, except along streams and in irrigated areas, vegetation consists of grasses and shrubs that can become established during short seasons of adequate soil moisture and can survive prolonged dry periods. Trees and shrubs such as native cottonwood and willow and the exotic tamarisk grow along watercourses where their roots can reach relatively high water tables. Along some of the major streams cottonwood stands are extensive with many large trees. On the valley floors and plains of the Basin and Range Province, most of the area is covered by sagebrush. However, large areas support only salt-tolerant vegetation, predominantly greasewood-saltbush communities.

The vegetation of several of the larger valleys includes irrigated crops. Hay is grown in many smaller mountain valleys as well. The crops grown include wheat, barley, hay, sugar beets, beans, apples, pears, peaches, and apricots. Most of the orchards are in the valleys of the Gunnison and Colorado rivers near Montrose and Grand Junction where the growing season averages 160-190 days per year.

The Endangered Species Act of 1973 (P.L. 93-205) directed the Smithsonian Institution to prepare a list of candidate endangered and threatened plant species and to present their recommendations to Congress. Their report (House Document 94-51) listed 158 endangered and 250 threatened plants in the Four Corners States. These species, as well as others thought to be rare, are being studied extensively by federal and state agencies, universities, and private organizations. Their recommendations presented to the U.S. Fish and Wildlife Service are a partial basis for final determination of their official status. To date, only two species in this area have been officially listed by that agency. Both are in Utah, and only one is found along the route. Federal agencies, however, normally treat all candidate species as if they were officially listed until such time as further studies can be completed.

Along the high potential segments in Arizona, 76 plant species, which are proposed for endangered or threatened status, may be found. A report recommending official status for the species of the Arizona Strip country is in final preparation by the Bureau of Land Management in St. George, Utah. A report submitted to the Fish and Wildlife Service in 1978 by Ecology Consultants, Inc. lists five species in Colorado that may be found along the high potential segments. Seven species are found in New Mexico plus nine species that are of special concern to the New Mexico Heritage program. Twenty-nine species may be found in Utah along the high potential segments (Welsh and Thorne 1979). Candidate species that may be found along the high potential segments of the Dominguez-Escalante Trail are listed in appendix C.




| | |
|---|---|
| 11 | Douglas-fir |
| 14 | Ponderosa pine |
| 16 | Lodgepole pine |
| 18 | Fir-spruce |
| 19 | Hardwood |
| 22 | Pinyon-juniper |
| | Desert scrub |

# REGIONAL MAJOR VEGETATION TYPES
## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL

SOURCE National Atlas "1970"
United States Department Of The Interior / National Park Service

| | |
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## WILDLIFE

There have been changes in the study region fauna since 1776. The bison are gone as are the wolf and grizzly bear. Wild horses now roam in part of western Colorado crossed by the route. At the Crossing of the Fathers, one may see bald eagles in winter, which have recently come in large numbers and feed on introduced carp.

The fauna of the region includes a variety of mammals, birds, reptiles, amphibians, and fish. The more common mammals are elk, mule deer, pronghorn antelope, coyote, fox, skunk, badger, weasel, beaver, muskrat, marmot, porcupine, rabbit, and tree and ground squirrels.

Migratory waterfowl include many species of ducks and geese. Upland game birds of the region are the sage hen, ruffed grouse, quail, dove, wild turkey, and introduced pheasant. Songbirds are numerous. Predatory birds include hawks, owls, and bald and golden eagles.

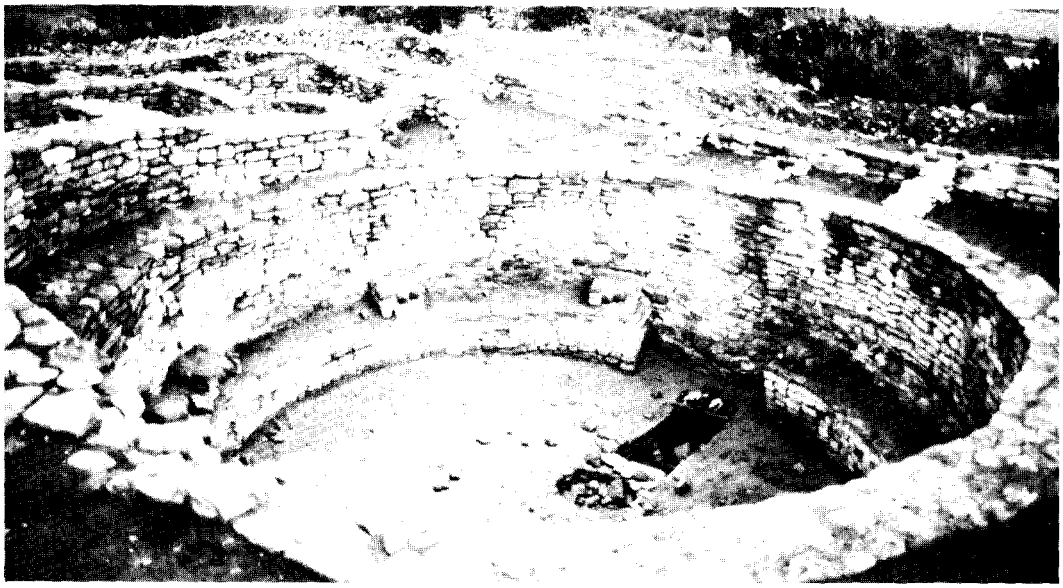
Fish include native trout, whitefish, and several other common and introduced species. Reptiles and amphibians are represented by several species of snakes, frogs, toads, salamanders, and lizards. Four species of rattlesnakes are also found along the route.

The endangered and threatened animals of the region (Federal Register, vol. 43, no. 238, Dec. 11, 1978) are the black-footed ferret, Utah prairie dog, bald eagle, American peregrine falcon, whooping crane, Colorado squawfish, Arizona trout, woundfin, and humpbacked chub. In addition, the razorback sucker, bonytail chub, Virgin River roundtail chub, and Great Basin Silverspot butterfly have been nominated for inclusion as endangered or threatened species.

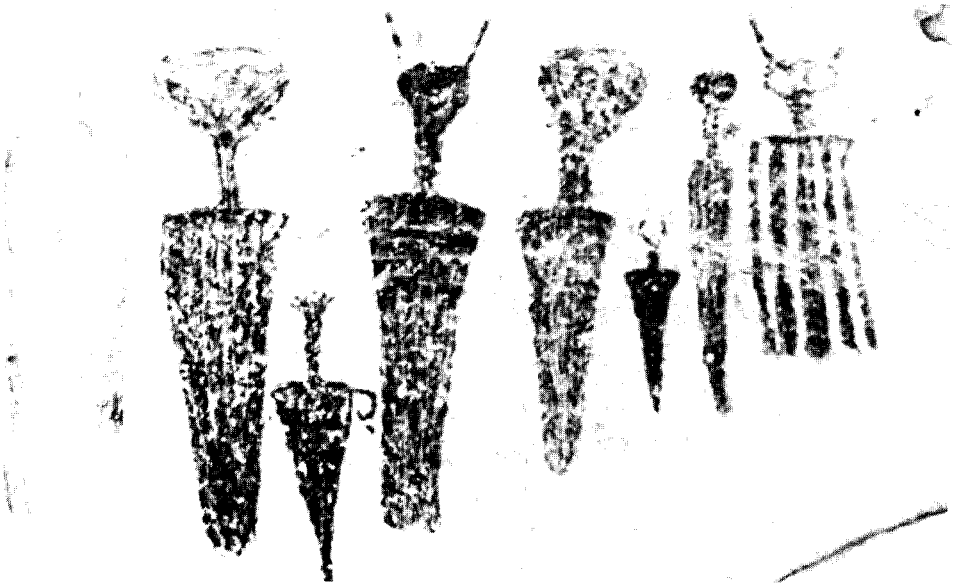
## CULTURAL AND HISTORIC RESOURCES

Since the Dominguez-Escalante expedition of 1776-77 was a one-time venture, no physical evidence of the actual route remains as compared to extant ruts found along the Oregon, California, and Santa Fe trails. Historic integrity exists in the recorded description of the route as well as existing natural and cultural features mentioned in the expedition journal. The route passes through a region rich in Native American cultures typified by numerous prehistoric archeological sites and contemporary communities.

A total of 96 properties along or near the route have been identified and are listed on the National Register of Historic Places (see appendix D). A number of Native American pueblos such as Tesuque, Old Oraibi, Zuni, Acoma, and others are listed on the National Register and are contemporaneous with the expedition. These pueblos exist much as they did 200 years ago. In addition, several other properties such as the Santa Fe Plaza, Escalante Ruins, Cañon Pintado, Inscription Rock, and Lee's Ferry are directly affiliated with the expedition. These sites may also be seen today in a relatively unaltered state. There are seven national historic landmarks situated on or near the trail corridor.



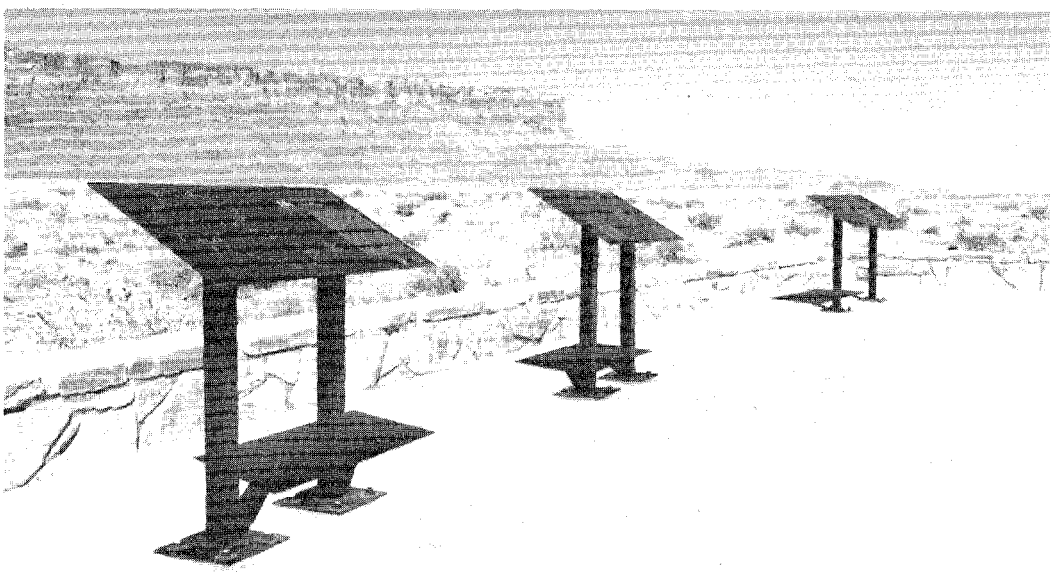
Escalante Ruins near Dolores, Colorado.



Pictographs at Cañon Pintado (Painted Canyon). CC-BC

Hopi Village. CC-BC


Commemorative marker along the route. DEBE



San Bartolome interpretive turnout of the Dominguez-Escalante expedition in Arizona.

The expedition has been commemorated through a number of grass roots marking programs and interpretation of significant sites affiliated with the route. Thirty-three commemorative markers, panels, and ramadas have been erected as a result of a major study commissioned by the Dominguez-Escalante State/Federal Bicentennial Committee. One of the more outstanding can be found at the Ute Indian Museum in Montrose, Colorado. Additionally, the Bureau of Land Management has developed the following major interpretive sites: El Malpais (The Bad Land), New Mexico; Escalante Ruins and Canõn Pintado, Colorado; Thermo Hot Springs, Casting of the Lots, Kanarraville Rest Area, and Musket Shot Springs, Utah; and San Bartolome Campsite, Arizona.

Visitors would have the opportunity to view many outstanding natural features along the route described in Escalante's journal. These include the massive San Juan Mountains, the desolate arid lands of western Utah, the multicolored Hurricane Cliffs astride the Utah-Arizona border, and the picturesque pueblo country of northeastern Arizona and western New Mexico and would provide the same visual panoramas as seen by Dominguez and Escalante.

As a result of site-specific surveys, federal and state agencies have identified numerous cultural resources along the trail corridor. Although these resources--principally archeological--are not directly affiliated with the Dominguez-Escalante expedition, a number of the sites may be nominated to the National Register in the future.

A comprehensive survey of cultural, historical, and archeological resources was not undertaken. This effort would have been premature for the following reasons:

> The trail plan is conceptual in nature, and a professional survey of the route would have generated more site-specific data than is necessary at present. The proposed legislation, if enacted, would require preparation of a comprehensive trail management plan and compliance with the National Historic Preservation Act of 1966, Executive Order 11593, and the National Environmental Policy Act of 1969.
>
> A comprehensive survey of these resources would focus attention on sensitive areas before funding is available for trail development and protective management.

## ECONOMICS AND LAND USE

The total population of Arizona, New Mexico, Utah, and Colorado was about 6 million in 1970, but this figure is skewed by urban areas proximate to the study region. The Four Corners region is growing rapidly, faster than the nation in population (3.7 times) and employment (2.4 times). Most of Colorado's population is located east of the Continental Divide, and most of Arizona's is in the southern half of the state. The total population of the study region is about 2 million, which includes Salt Lake City, Provo, and Albuquerque. In 1970 the Salt Lake City and Provo metropolitan areas contained 822,000 people (78 percent of

Utah's population) and Albuquerque contained 290,000 people. Other large cities are Santa Fe (46,000), Flagstaff (26,000), Grand Junction (20,000), and Durango (10,000). Few other towns in the region have populations exceeding 9,000. Many settlements have less than 1,000 people, and much of the area is unpopulated or has few residents. About 25 percent of the U.S. population of Native Americans and about 8 percent of the population of people of Spanish heritage reside in the region.

Employment in the region grew from 429,000 in 1950 to 694,000 in 1970, a 62 percent increase. Employment throughout the nation increased 35 percent during the same period. The region's per capita personal income increased from $1,174 to $3,923. This is a 16.4 percent increase.

Table 1

PER CAPITA INCOME BY STATE
(1976 dollars)

| State | Income | Rank |
|---|---|---|
| Arizona | 5,817 | 31 |
| Colorado | 6,503 | 15 |
| New Mexico | 5,213 | 45 |
| Utah | 5,487 | 36 |

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis.

The Dominguez-Escalante route goes through 6 counties in New Mexico, 11 in Colorado, 10 in Utah, and 4 in Arizona. All of these counties have had substantial population growth during the five-year period from 1970 to 1975 (see appendix E). This rapid population growth was because of the high birth rate and in-migration. Both of these phenomena caused county populations to be young, relative to the national population pattern. Most counties are rural. In-migration is mostly a result of the number of people who have moved directly to energy boom development areas hoping to find work.

The present economy of the study region is based mainly on grazing, agriculture, energy, and mineral resources (see table 2). On Indian reservations and in some smaller communities, agriculture and grazing have largely been at a subsistence level. The forests of the region are locally important as timber sources (see Distribution of Commercial Timber map) and for recreational use, hunting, and grazing. Much of the study region is used extensively for grazing while the land area of intensive agriculture is smaller. Nearly all cropland in the region is irrigated.

Table 2

LAND USE PATTERNS BY TRAIL MILES

| | Rangeland | Forest | Agriculture | Urban | Total |
|---|---|---|---|---|---|
| New Mexico | 320 | 75 | 0 | 12 | 407 |
| Colorado | 204 | 150 | 83 | 1 | 438 |
| Utah | 387 | 30 | 75 | 4 | 496 |
| Arizona | 428 | 25 | 0 | 0 | 453 |
| Total | 1,339 | 280 | 158 | 17 | 1,794 |
| Percent | 74 | 16 | 9 | 1 | 100 |

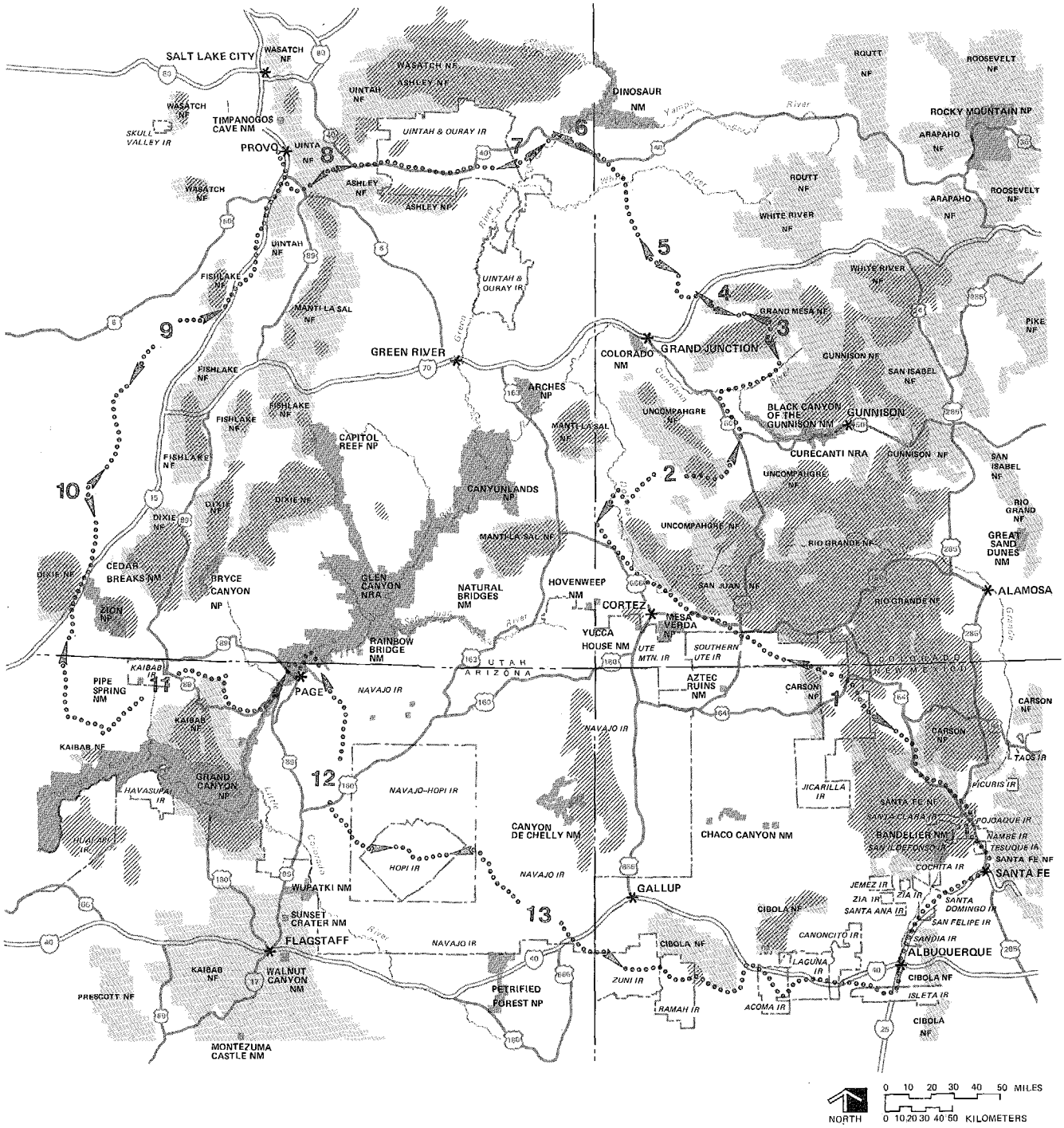
Agriculture and livestock production dominate many local economies and contribute substantially to the regional and the national economy. Twenty-five percent of Utah's manufacturing employment is associated with processing of dairy products, sugar beets, and other crops. Food processing accounts for a similar part of the economy of western Colorado.

Mining contributes significantly to the regional economy and to national supplies of fuels and metals. The annual average mineral production of the four states from 1964 to 1968 was valued at $2.2 billion, or about 9 percent of the value of U.S. mineral production in 1968. Much of this production occurred in parts of these states outside the study region, notably farther east in Colorado and in the southern parts of Arizona and New Mexico. The Four Corners States produced nearly 5 percent of the nation's coal, oil, and natural gas. Much of this production occurred in the study region.

Extensive oil shale deposits in Garfield and Rio Blanco counties in Colorado and Uintah County, Utah, are the largest potential source of petroleum in the U.S. (see Oil Shale Deposits map). Although their development has repeatedly been postponed since the 1920s due to technical and economic limitations, recent emphasis on national energy self-sufficiency may lead to the development of this resource in the 1980s. Oil and gas deposits have been developed in the Four Corners area as well as in northwestern Colorado and northeastern Utah (see Oil and Gas Producing Zones map). Gilsonite, asphalt, and bituminous sands are extracted in Uintah and Duchesne counties of Utah.

Western Colorado and much of Utah contain substantial deposits of known recoverable coal in the vicinity of the route (see Known Recoverable Coal Deposits map). These resources are likely to be developed during the next ten years as a contribution to the late 1980s national energy goals.

Potential sources of geothermal energy exist along the route in northern and western Utah and in eastern Arizona (see Potential Geothermal Zones map). As geothermal recovery technology evolves, a number of development sites in these areas are likely to be established.




NATIONAL PARK (NP), MONUMENT (NM), AND RECREATION AREA (NRA)

INDIAN RESERVATION (IR)

NATIONAL FOREST (NF)

HIGH POTENTIAL FOOT AND HORSE TRAIL SEGMENT

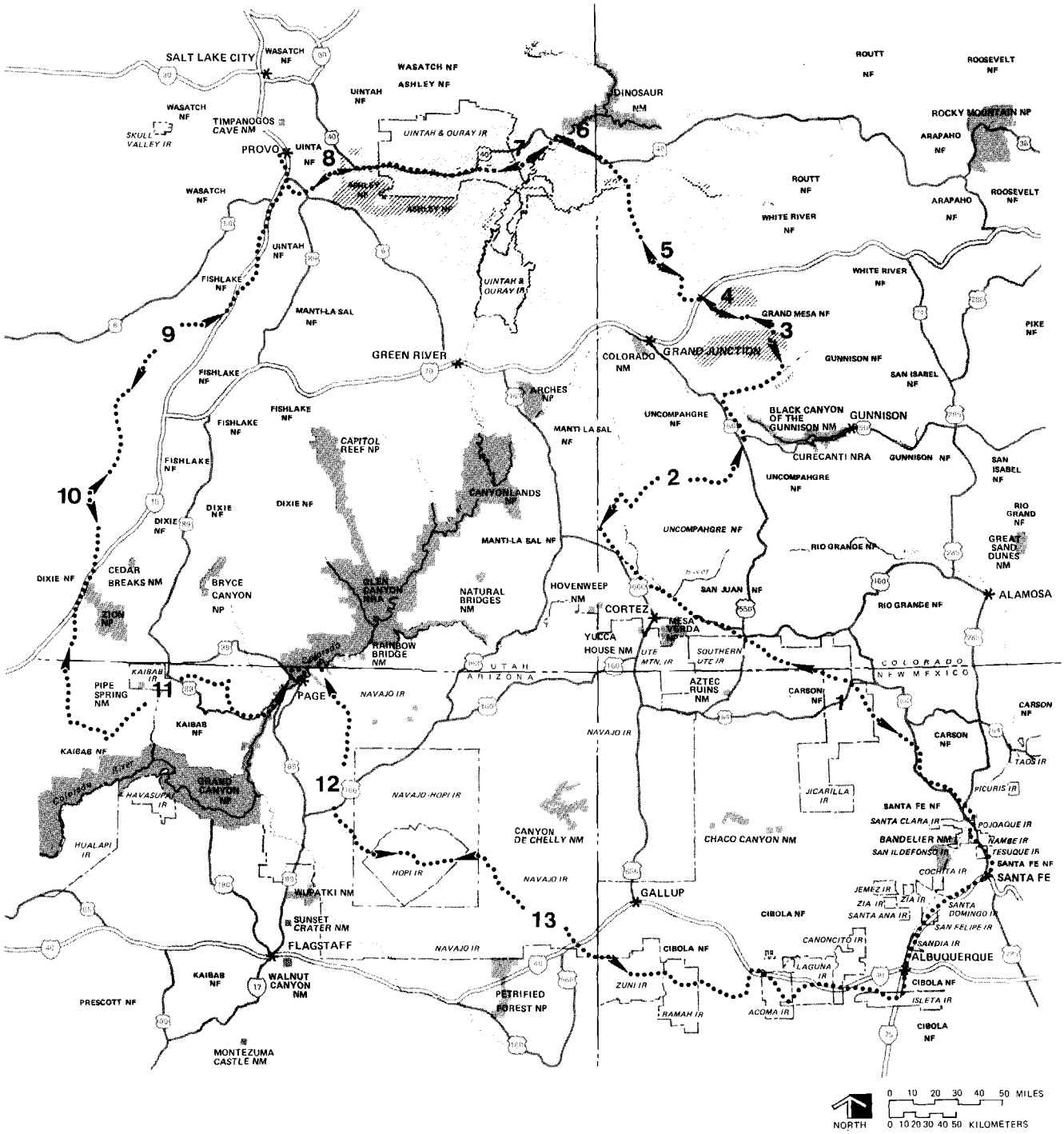
DISTRIBUTION OF COMMERCIAL TIMBER ALONG THE TRAIL

# DISTRIBUTION OF COMMERCIAL TIMBER

## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL


UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

| NHT/DE | 20010 |
|---|---|
| DSC | AUG 80 |




NATIONAL PARK (NP), MONUMENT (NM), AND RECREATION AREA (NRA)

INDIAN RESERVATION (IR)

NATIONAL FOREST (NF)

HIGH POTENTIAL FOOT AND HORSE TRAIL SEGMENT

OIL SHALE DEPOSITS ALONG THE TRAIL

# OIL SHALE DEPOSITS

## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL


UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

| NHT/DE | 20005 |
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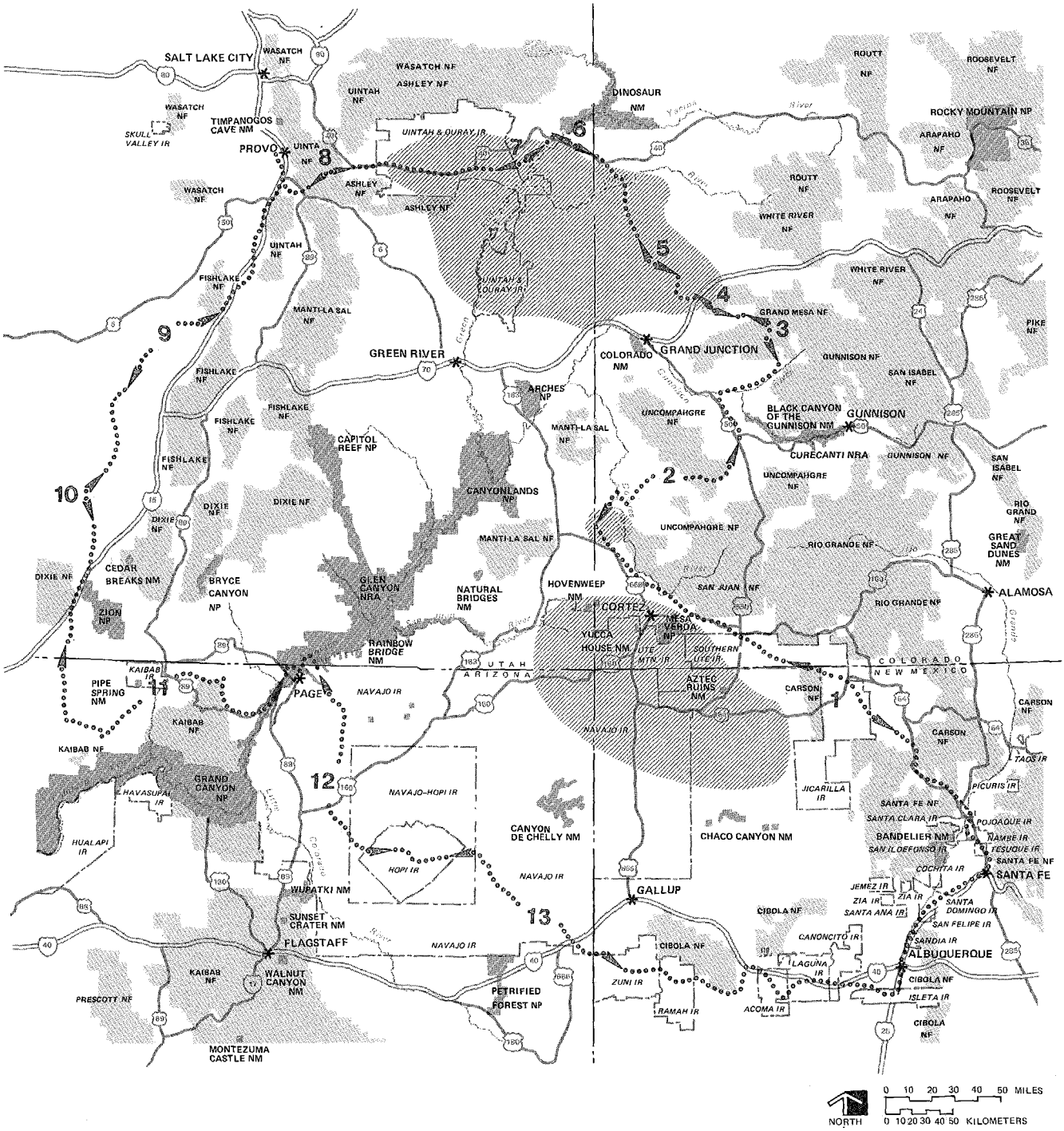


NORTH

0 10 20 30 40 50 MILES

0 10 20 30 40 50 KILOMETERS

NATIONAL PARK (NP), MONUMENT (NM), AND RECREATION AREA (NRA)

INDIAN RESERVATION (IR)

NATIONAL FOREST (NF)

HIGH POTENTIAL FOOT AND HORSE TRAIL SEGMENT

OIL AND GAS PRODUCING ZONES ALONG THE TRAIL

# OIL AND GAS PRODUCING ZONES
## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL


UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

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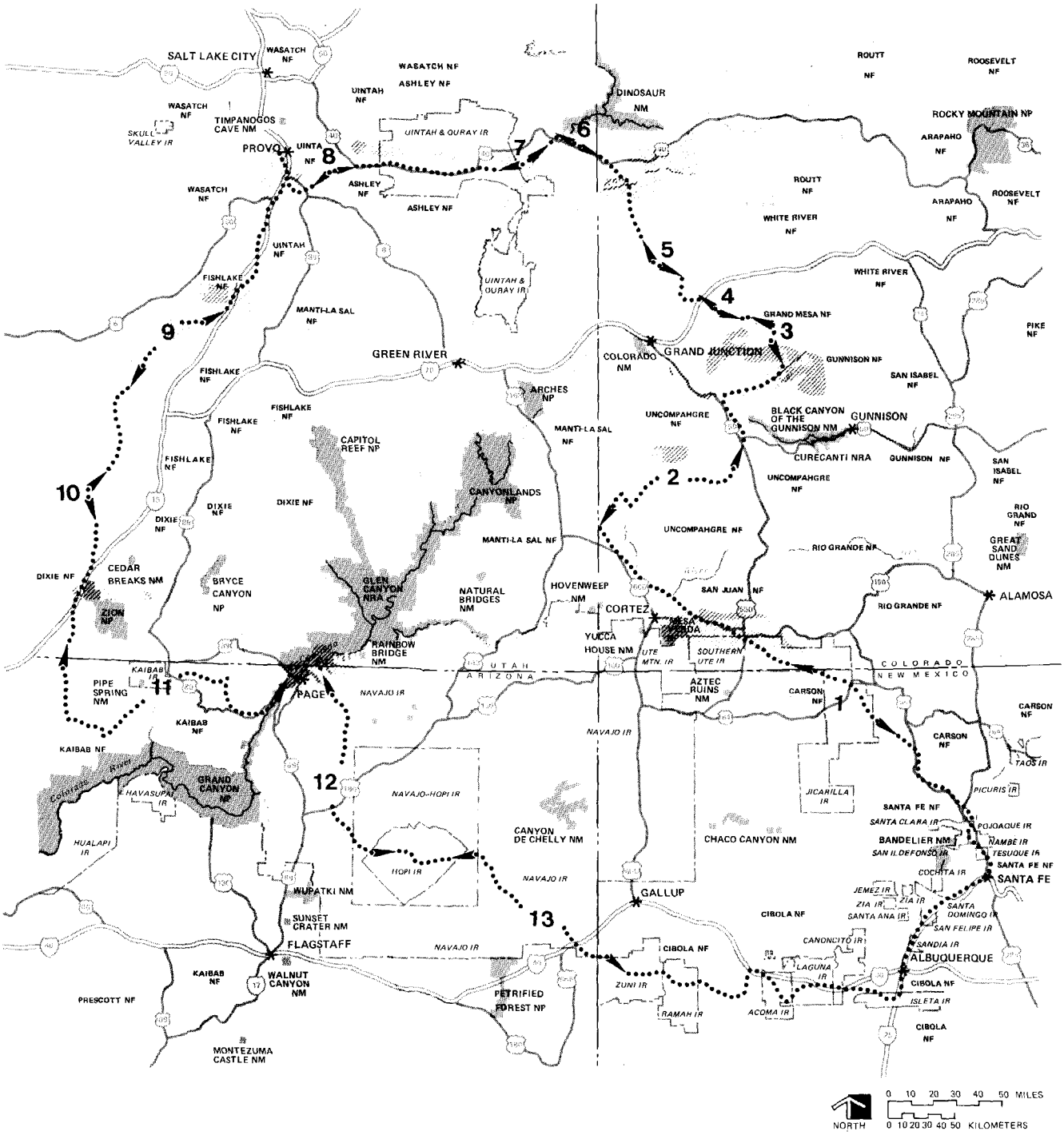
DSC | AUG 80




NATIONAL PARK (NP), MONUMENT (NM), AND RECREATION AREA (NRA)

INDIAN RESERVATION (IR)

NATIONAL FOREST (NF)

HIGH POTENTIAL FOOT AND HORSE TRAIL SEGMENT

KNOWN RECOVERABLE COAL DEPOSITS ALONG THE TRAIL

# KNOWN RECOVERABLE COAL DEPOSITS
## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL


UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

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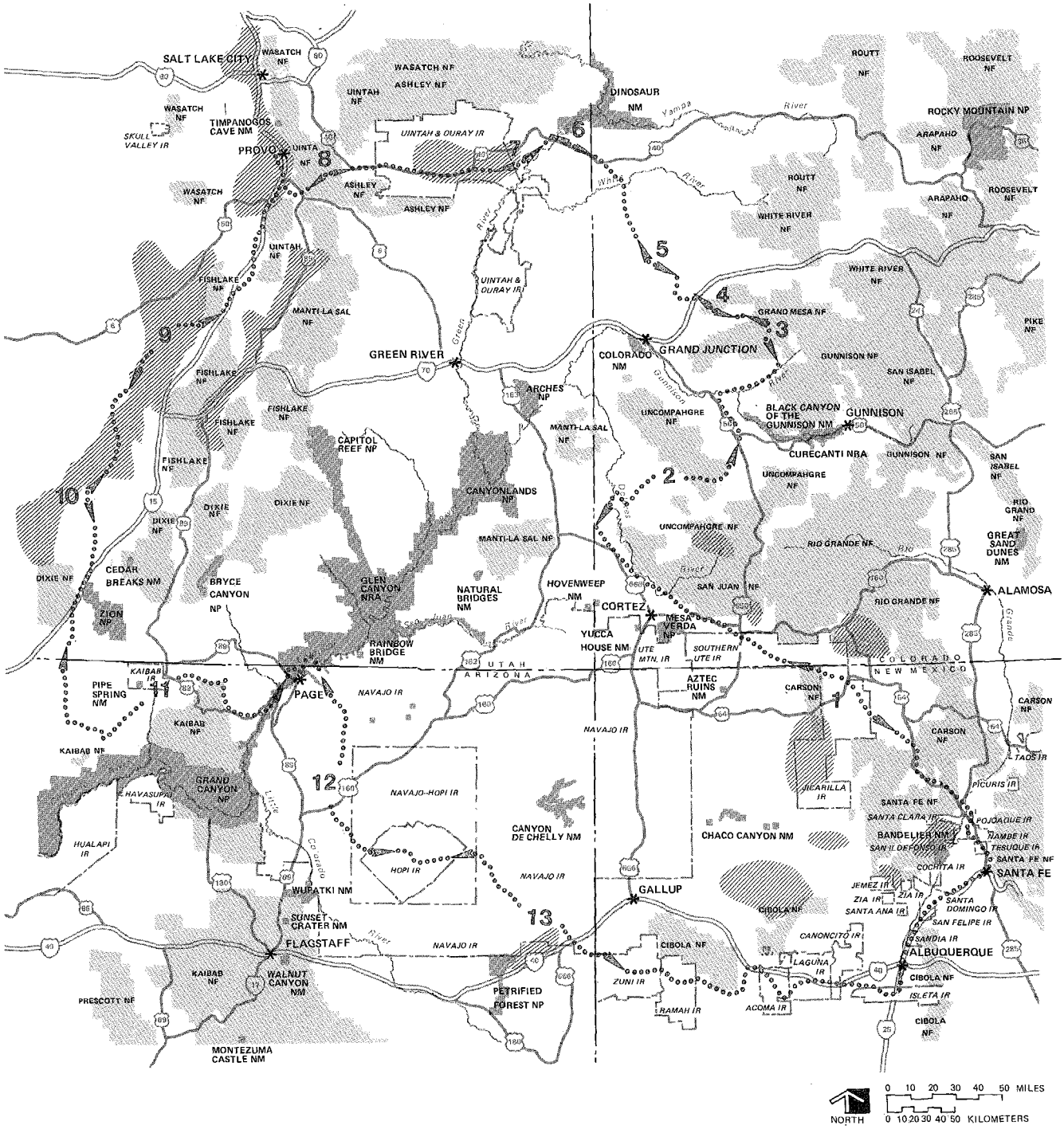
DSC | AUG 80




NATIONAL PARK (NP), MONUMENT (NM), AND RECREATION AREA (NRA)

*INDIAN RESERVATION (IR)*

NATIONAL FOREST (NF)

HIGH POTENTIAL FOOT AND *HORSE TRAIL SEGMENT*

POTENTIAL GEOTHERMAL ZONES ALONG THE TRAIL

# POTENTIAL GEOTHERMAL ZONES
## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL


UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

| | |
|---|---|
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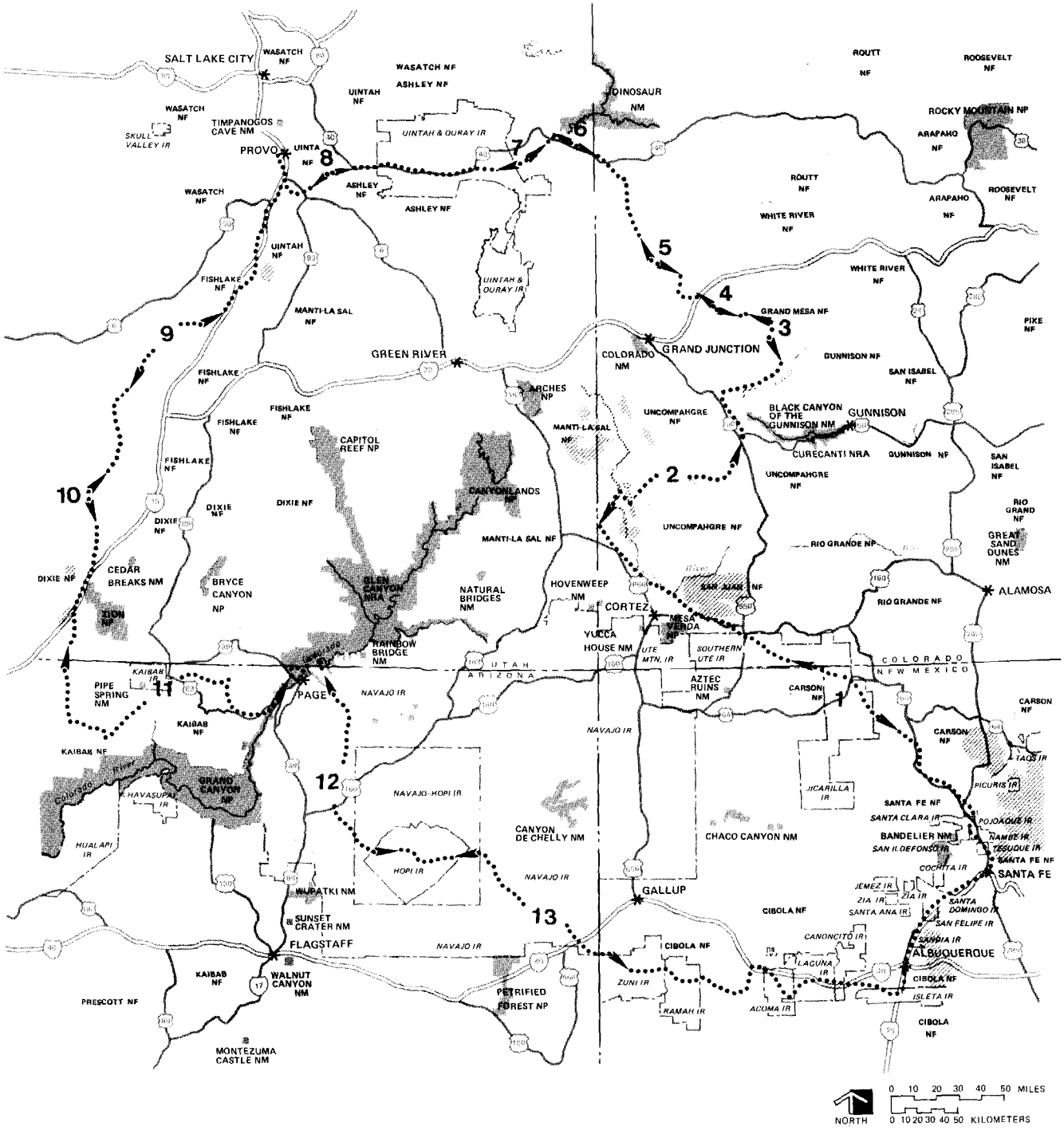
| DSC | AUG 80 |




NATIONAL PARK (NP), MONUMENT (NM), AND RECREATION AREA (NRA)

INDIAN RESERVATION (IR)

NATIONAL FOREST (NF)

HIGH POTENTIAL FOOT AND HORSE TRAIL SEGMENT

MAJOR METALLIC MINERAL ZONES ALONG THE TRAIL

# MAJOR METALLIC MINERAL ZONES
## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL


UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

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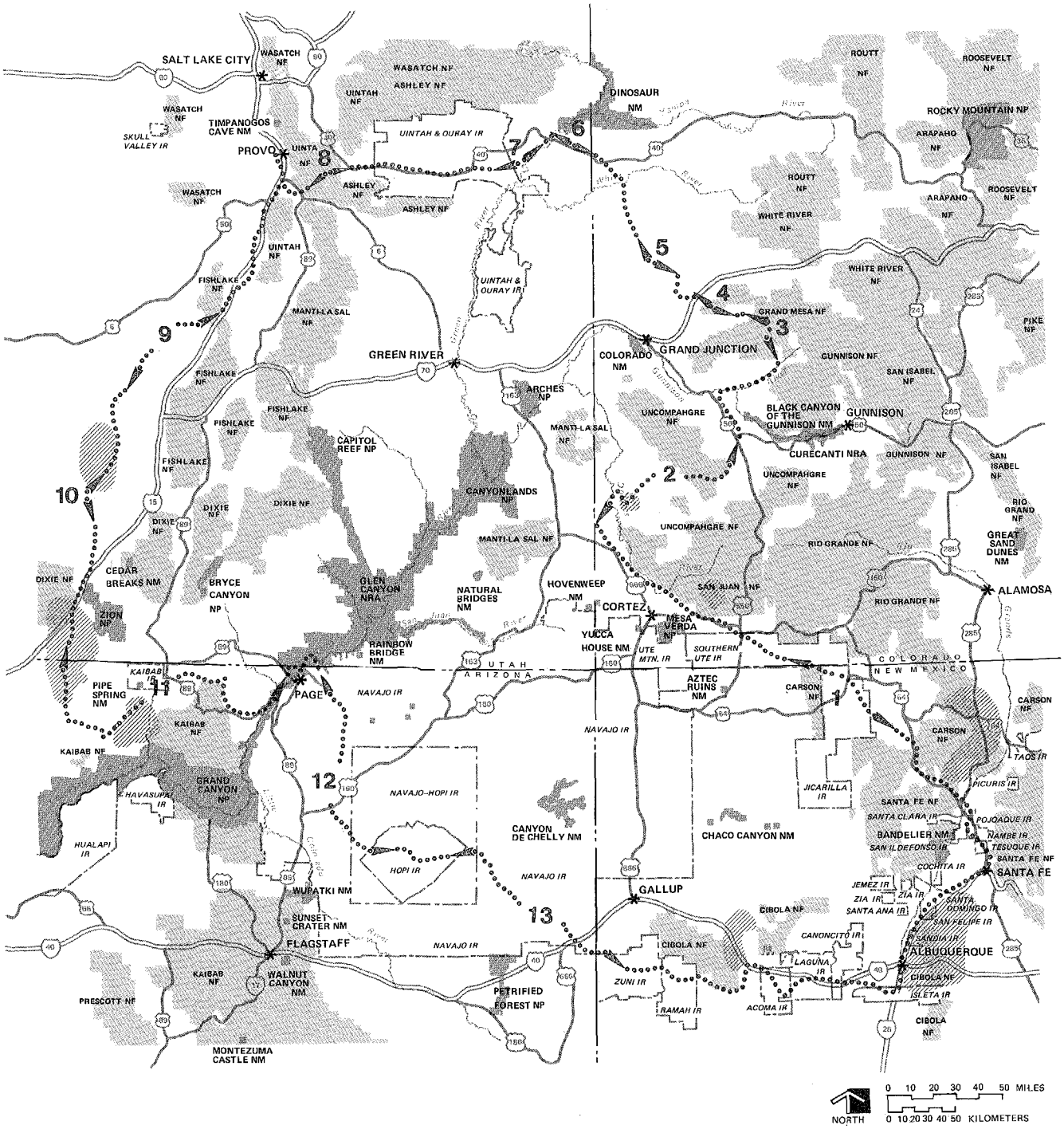
|---|---|
| DSC | AUG 80 |




NATIONAL PARK (NP), MONUMENT (NM), AND RECREATION AREA (NRA)

INDIAN RESERVATION (IR)

NATIONAL FOREST (NF)

HIGH POTENTIAL FOOT AND HORSE TRAIL SEGMENT

MAJOR NONMETALLIC MINERAL ZONES ALONG THE TRAIL

# MAJOR NONMETALLIC MINERAL ZONES

## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL


UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

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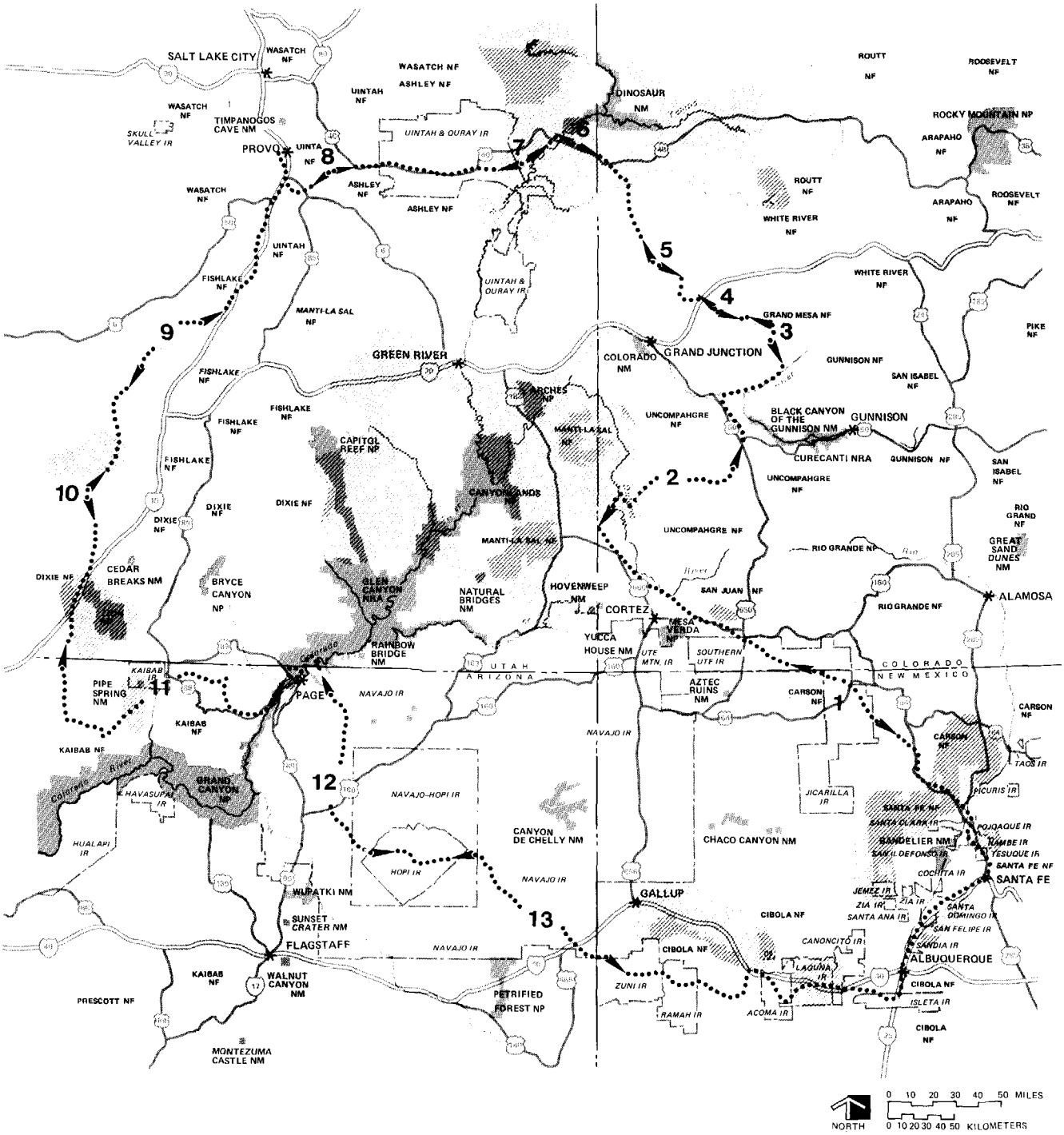
DSC | AUG 80




NATIONAL PARK (NP), MONUMENT (NM), AND RECREATION AREA (NRA)

INDIAN RESERVATION (IR)

NATIONAL FOREST (NF)

HIGH POTENTIAL FOOT AND HORSE TRAIL SEGMENT

URANIUM PRODUCING ZONES ALONG THE TRAIL

# URANIUM PRODUCING ZONES
## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL


UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

NHT/DE | 20003
DSC | AUG 80

Major metallic and nonmetallic mineral resources are found along the route in all four states (see Major Metallic and Nonmetallic Mineral Zones maps). These mineralized zones have produced substantial quantities of more than 16 different commodities and will undoubtedly continue to produce in the foreseeable future. Rising prices of minerals and changing world markets will ensure continued mining in many of these localities, renewed mining activity in some places, and intensive prospecting and exploration activities in the entire four-state region.

Coal and iron resources in Utah are of major importance to the state's economy with extensive mining of coking coal in Carbon and Emery counties and of high-grade iron ore in Washington and Iron counties. The iron ore deposits of these counties have been estimated at 100 million tons, with a 45 percent iron content. Forty percent of Utah's manufacturing employment is related to smelting, refining, processing, and manufacturing of mineral products. The state's iron and steel industry is centered in Provo.

In the late 1960s, New Mexico had 42 percent of the nation's known reserves of uranium. Utah is third among the states in volume of uranium resources and has the best quality reserves. Uranium deposits are also found throughout much of southwestern Colorado near the Utah border and in northeastern Arizona (see Uranium Producing Zones map).

## RECREATION

The study region is generally known for its recreational, cultural, and scenic resources and attracts large numbers of visitors. These opportunities are also available to the residents of the region.

The recreation attributes include mountains, deserts, farmlands, and historic as well as Spanish American and Indian cultures. Recreational enjoyment is enhanced by the predominance of public land, much of which is readily accessible. The region contains 14 national forests, 16 national monuments, 7 national parks, 3 national recreation areas, and 1 wildlife refuge (see table 3). In addition, the Bureau of Land Management administers public domain lands that are also open for public recreational use. Total federal landownership (which does not include Indian reservations) is about 60 million of the total 100 million acres of the region. About 37 million acres are public domain, 17 million acres are national forests, 4 million acres are national parks, monuments, and recreation areas, and 2 million acres are administered by the Water and Power Resources Service.

The Dominguez-Escalante Trail corridor contains numerous recreational opportunities including architectural tours, museums, and certain Indian ceremonies scheduled for public attendance. The architecture that can be viewed by people traveling the Dominguez-Escalante Trail represents a broad spectrum of the past. Spanish adobes in Santa Fe and Albuquerque, Native American pueblos in Arizona and New Mexico, and Mormon homes in Utah reflect architectural variety. Outstanding museums include the Palace of the Governors, the Ute Indian Museum, and the Hopi Cultural Center. The Dominguez-Escalante route passes through a

number of large Indian reservations, such as the Jicarilla Apache, Southern Ute, Uintah-Ouray, Kaibab Paiute, Navajo, Hopi, and Zuni. Travelers on the trail have the opportunity to learn about the great diversity that exists among these different Native American groups in terms of language, religion, lifestyles, and the contributions to this country's development. The Hopi Snake Dance, the Santa Fe Indian Market, the Zuni Tribal Fair, the pottery of Acoma and Santa Clara, Navajo rugs, and the basketwork of the Hopi are manifestations of such rich cultures.

Table 3

PUBLIC LANDS IN THE DOMINGUEZ-ESCALANTE ROUTE STUDY REGION

National Forests
- Arizona - Kaibab
- Colorado - San Juan, Uncompahgre, Grand Mesa, Gunnison
- New Mexico - Carson, Cibola, Santa Fe
- Utah - Uinta, Wasatch, Manti-La Sal, Fishlake, Dixie, Ashley

National Wildlife Refuge
- Utah - Ouray

National Parks
- Arizona - Grand Canyon, Petrified Forest
- Colorado - Mesa Verde
- Utah - Canyonlands, Zion, Arches, Bryce Canyon

National Monuments
- Arizona - Canyon de Chelly, Pipe Spring, Navajo, Sunset Crater, Wupatki
- Colorado - Dinosaur, Colorado, Black Canyon of the Gunnison
- New Mexico - Bandelier, El Morro, Chaco Canyon, Pecos, Aztec Ruins
- Utah - Cedar Breaks, Dinosaur, Natural Bridges, Timpanogos

National Recreation Areas
- Arizona - Glen Canyon, Lake Mead
- Colorado - Curecanti
- Utah - Glen Canyon

The landscape through which Dominguez and Escalante passed has been modified by man. Native Americans farmed extensively and built communities; Spanish-Americans farmed, mined, and grazed livestock; and Anglo-Americans farmed, mined, logged, and impounded rivers. These varied activities have successively altered the landscape, and relics from different eras illustrate the past.

A great deal of recreation takes place in the study region. Outdoor recreation includes hiking, camping, offroad vehicle use, and horseback riding. For example, in the mid-seventies, hiking and horseback riding use amounted to almost 5,000,000 activity occasions in New Mexico and

nearly 4,000,000 in Utah. Projections are for these uses to increase in the future. There are 39 recreation areas located along or near the route that provide opportunities of this nature (see appendix D). In the higher elevations winter sports such as snowmobiling, downhill and cross-country skiing, and snowshoeing attract many visitors. Mountain climbing is popular in the summer. There are also many opportunities for hunting and fishing.

## LANDOWNERSHIP

Federal lands total 116 million acres or 43 percent of the land area of the Four Corners States (see table 4). The Dominguez-Escalante expedition followed the major valleys or crossed plains, and these lands are largely occupied by private agriculture or Indian reservations. About 38 percent of the Dominguez-Escalante route crosses public lands, about 27 percent is on Indian reservations, and an estimated 35 percent is on privately owned land (see table 5).

Table 4

FEDERAL LAND BY AGENCY AND STATE
(thousands of acres)

| | AZ | CO | NM | UT | Total |
|---|---|---|---|---|---|
| Area of State | 72,688 | 66,486 | 77,766 | 52,697 | 269,637 |
| Federally Owned | 31,141 | 23,983 | 26,104 | 34,856 | 116,084 |
| Percent Federally Owned | 43 | 36 | 34 | 66 | 43 |
| Forest Service | 11,272 | 14,365 | 9,219 | 8,048 | 42,904 |
| Bureau of Land Management | 12,596 | 8,355 | 12,959 | 22,641 | 56,551 |
| National Park Service | 1,630 | 535 | 242 | 889 | 3,296 |
| Water and Power Resources Service | 1,059 | 317 | 199 | 1,305 | 2,880 |
| Fish & Wildlife Service | 877 | 52 | 316 | 98 | 1,343 |
| Other Agencies | 3,707 | 359 | 3,169 | 1,875 | 9,110 |

SOURCE: U.S. Department of the Interior, Bureau of Land Management, Public Land Statistics, 1976.

Table 5

ESTIMATED LANDOWNERSHIP ALONG THE DOMINGUEZ-ESCALANTE ROUTE

| Utah | Miles | Colorado | Miles |
|---|---|---|---|
| BLM | 125 | BLM | 221 |
| Uinta NF | 20 | White River NF | 5 |
| Fishlake NF | 5 | San Juan NF | 6 |
| State | 20 | Uncompahgre NF | 31 |
| Indian Reservations | 18 | Grand Mesa NF | 30 |
| Private | 308 | State | 0 |
| | | Indian Reservations | 37 |
| | | Private | 108 |
| Total | 496 | Total | 438 |

| Arizona | Miles | New Mexico | Miles |
|---|---|---|---|
| BLM | 145 | BLM | 3 |
| Kaibab NF | 5 | Carson NF | 15 |
| Glen Canyon NRA | 15 | Santa Fe NF | 8 |
| State | 10 | Cibola NF | 13 |
| Indian Reservations | 252 | State | 4 |
| Private | 26 | Indian Reservations | 185 |
| | | Private | 179 |
| Total | 453 | Total | 407 |

| All States | Miles |
|---|---|
| Bureau of Land Management | 494 |
| Forest Service | 138 |
| National Park Service | 15 |
| State | 34 |
| Indian Reservations | 492 |
| Private | 621 |
| Total | 1,794 |

The area occupied by Indian reservations includes the large Navajo reservation in northeastern Arizona, which encloses the Hopi reservation and extends into northwestern New Mexico and southeastern Utah. The Jicarilla Apache reservation lies farther east in New Mexico. Numerous Pueblo lands and reservations are found along the Rio Grande near Santa Fe and Albuquerque. To the south in New Mexico are the Zuni, Acoma, and Ramah reservations and to the west in Arizona is the Kaibab reservation.

The other Indian reservations in the region are the Uintah-Ouray reservation in northern Utah and the Southern Ute reservation and the adjacent Ute Mountain reservation in southwestern Colorado. The Dominguez-Escalante route crosses all of these except the Ute Mountain reservation.

A large part of the region (21 percent) consists of residual lands of public domain that were never claimed under the homestead acts for lack of agricultural potential. These lands are currently administered by the Bureau of Land Management, and are primarily used for grazing, recreation, and mineral exploration. A slightly smaller part of the region (16 percent) consists of the higher elevation lands reserved as national forests. These lands are used for grazing, mining, timber production, watershed protection, and recreation. The national forests are generally at higher elevations than the Dominguez-Escalante route, but the route crosses small areas of ten national forests.

## TRANSPORTATION AND UTILITIES

The transportation system strongly reflects population distribution and the location of natural resources and agriculture. Much of the region is accessible only by unimproved roads, but large areas of spectacular landscapes are readily accessible on good all-weather highways.

The region is linked to the rest of the country by Interstates 15, 25, 40, and 70, and by state highways. Scheduled airlines serve Salt Lake City, Albuquerque, Durango, and Grand Junction. Commuter airlines serve some of the smaller cities, and many communities have facilities for private aircraft. Salt Lake City and Grand Junction are on a major transcontinental railroad route providing passenger service between Chicago and San Francisco. Most towns have commercial bus service. Much of the study region can be reached by either public or private transportation.

The Dominguez-Escalante route is bisected by numerous electrical transmission corridors and oil and gas pipelines. The Navajo-McCullough line alone intersects the route three times along high potential segments. A carbon dioxide pipeline linking a well field area in southwestern Colorado to an injection field in west Texas parallels the trail for approximately 18 miles between Dolores and Mancos.

# TRAIL PLAN

## DESIGNATION AND ESTABLISHMENT

Designation and establishment of the Dominguez-Escalante National Historic Trail would provide a variety of outstanding scenic, recreational, historical, and interpretive opportunities for a large number of users. Motorists would find interpretive turnouts located at appropriate locations along portions of the route. Some related historic and archeological sites would also be interpreted. Trail users would experience traveling through mountains, deserts, and canyons that provide some of the most beautiful as well as challenging terrain in North America. Trail establishment could involve development of 13 high potential segments for use as hiking and horse trails. The following development priority is recommended:

Priority 1. Mark highways and public roads most closely following the historic route; develop a road guide to assist motorists and others in traveling the general route of the expedition; and interpret the historically and culturally significant areas along the route where feasible and desirable.

Priority 2. Develop initial trails only on federally owned lands and only where there is present use and/or in those areas that show an existing need. Any further development would be determined if and when future demands needed to be met and would take place within the 13 high potential segments. No initial development would occur on Native American lands.

Priority 3. Work with Native Americans to determine their interests and desires for developing high potential segments across their lands. It is mandatory that the appropriate party(s) is agreeable to any actual planning and development.

## TRAIL ALIGNMENT

The recommended alignment for the 13 high potential segments totaling 770 miles adheres as closely as possible to the historic route. However, when necessary, changes in alignment would be made to provide for safe travel, to enhance recreational opportunities, to reduce environmental impacts, to provide compatibility between multiuse management requirements and trail uses, and to allow for corrections in the historic route if found to be in error.

In addition to existing conventional trails, planning principles favor the incorporation of lightly used primitive road rights-of-way for use as hiking and horse trails where feasible and desirable. This reduces costs, environmental impacts, and conflicts with multiuse management while generally causing little, if any, loss in the quality of the trail experience. When a comprehensive trail management plan is completed, the extent of such rights-of-way can be determined. Preliminary analysis indicates that about 250 miles of rights-of-way exist.

## RIGHT-OF-WAY ACQUISITION

As stated in priority 2, the Dominguez-Escalante National Historic Trail would be developed only on federally owned lands within the high potential segments. There are private lands located within the high potential segments. Interests in nonfederal lands may be acquired by written cooperative agreement, donation, purchase with donated funds, or exchange.

Table 6 illustrates the estimated landownership by miles and acres along high potential segments.

A maximum corridor width of 1,000 feet is considered sufficient to develop, mark, buffer, and protect the immediate vicinity of the trail. In some cases it may not be necessary or possible to achieve the maximum 1,000-foot corridor width. However, the amount to be utilized should be the minimum necessary to permit adequate access and to preserve the integrity of the route and the quality of the trail experience. Use of a 1,000-foot-wide corridor through private lands within the high potential segments is estimated to involve about 3,750 acres.

A uniform set of standards would be developed by the administering secretary to ensure that guidelines for management practices are well defined and uniformly enforced with respect to managing and protecting the corridor.

## MOTORIZED VEHICLE USE

Some modern day roads coincide with or parallel much of the expedition route as shown by the mileages in table 7. It is recommended that the comprehensive trail management plan address such use by signing segments that coincide with the route and by developing an interpretive road guide that would be available to motorists wishing to follow portions of the route.

Motorized vehicle use by the general public on the high potential hiking and horse trail segments would be prohibited. However, limited motorized vehicular use would be permitted for emergencies or for adjacent landowners to have access to their lands for timber or grazing activities. This type of road access would generally be primitive and would do little to limit the recreational experience of trail users. This exception should, however, be subject to the following: (1) The trail managing agency must find that such use would not impair the values for which the trail was established; (2) Such use would not pose damage to natural and cultural resources; (3) It would not constitute a safety hazard to hikers or horseback riders; (4) It would be compatible with other management objectives for the areas; and (5) The advisory council for the trail should deem it appropriate.

Table 6

ESTIMATED LANDOWNERSHIP BY MILES AND ACRES
ALONG HIGH POTENTIAL SEGMENTS

| Segment | Federal | | Native American | | State & County | | Private | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Miles | Acres | Miles | Acres | Miles | Acres | Miles | Acres | Miles | Acres |
| 1 | 2 | 250 | 35 | 4,375 | 6 | 750 | 7 | 875 | 50 | 6,250 |
| 2 | 78 | 9,750 | 0 | 0 | 15 | 1,875 | 7 | 875 | 100 | 12,500 |
| 3 | 25 | 3,125 | 0 | 0 | 1 | 125 | 4 | 500 | 30 | 3,750 |
| 4 | 13 | 1,625 | 0 | 0 | 1 | 125 | 1 | 125 | 15 | 1,875 |
| 5 | 7 | 875 | 0 | 0 | 7 | 875 | 6 | 750 | 20 | 2,500 |
| 6 | 14 | 1,750 | 0 | 0 | 0 | 0 | 1 | 125 | 15 | 1,875 |
| 7 | 19 | 2,375 | 8 | 1,000 | 1 | 125 | 2 | 250 | 30 | 3,750 |
| 8 | 15 | 1,875 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 1,875 |
| 9 | 58 | 7,250 | 0 | 0 | 11 | 1,375 | 1 | 125 | 70 | 8,750 |
| 10 | 17 | 2,125 | 0 | 0 | 3 | 375 | 0 | 0 | 20 | 2,500 |
| 11 | 180 | 22,500 | 9 | 1,125 | 0 | 0 | 1 | 125 | 190 | 23,750 |
| 12 | 0 | 0 | 110 | 13,750 | 0 | 0 | 0 | 0 | 110 | 13,750 |
| 13 | 0 | 0 | 103 | 12,875 | 2 | 250 | 0 | 0 | 105 | 13,125 |
| Totals | 428 | 53,500 | 265 | 33,125 | 47 | 5,875 | 30 | 3,750 | 770 | 96,250 |

NOTE: 1 mile = 125 acres. This represents approximately a 1,000-foot corridor.

Table 7

VEHICULAR MILEAGES REQUIRED TO APPROXIMATE EXPEDITION ROUTE

| | A | B | C | D | TOTAL |
|---|---|---|---|---|---|
| Arizona | 10 | 140 | 175 | 150 | 475 |
| Colorado | 40 | 150 | 160 | 220 | 570 |
| New Mexico | 165 | 160 | 100 | 0 | 425 |
| Utah | 90 | 150 | 160 | 220 | 620 |
| TOTAL | 305 | 600 | 595 | 590 | 2,090 |

A = Interstate Highway System
B = U.S. Highways
C = State Highways
D = Secondary State or County Highways

NOTE: The total length of the highway route is not the same as the length of the expedition.

## TRAIL STANDARDS

An important planning consideration would be selection of some important historic sites for signing, interpretation, and protection to tell the story of the expedition. Sites should be located on the route of the expedition or within 5 to 10 miles of the trail. Sites such as the Escalante Ruins, Musket Shot Springs, and El Malpais are currently interpreted. Similarly, recreation sites and support facilities should also be located within 5 to 10 miles of the trail.

Establishment of the hiking and horse trail segments should recognize the need for standards to accommodate different terrain and various kinds and amounts of use. Sufficient latitude is also desirable in order to allow the development and operation of the trail to be compatible with management objectives of the involved agencies and other interests. Minimal development standards consistent with these objectives would be employed.

Development across certain lightly used open lands (e.g., trail segments within the Sevier Desert and Arizona Strip), would involve little more than directional marking and with little or no actual tread. However, initial development or upgrading of trails in mountainous terrain such as the Grand Mesa and Wasatch Range would involve higher engineering standards, such as those developed by the Forest Service for tread and travelway clearing. Generally, these involve a tread width of 18 to 24 inches with a travelway varying from 6 to 8 feet wide by 10 feet high. Construction standards would be developed as part of a comprehensive trail management plan and should keep long-range maintenance needs and costs to a minimum.

Construction would also involve a system of trailheads to provide access to the trail and intermediate primitive campsites to accommodate trail users. Existing facilities would be used wherever possible. Trailheads would be spaced approximately 2 days or 20-25 miles apart. Intermediate primitive campsites should be spaced at 10-mile intervals or 1 day's travel apart. Trailheads would provide parking, about 12 campsites, one group campsite, water, sanitation, and stock unloading and holding facilities. The on-trail primitive campsites would only provide water and simple sanitary facilities. Although the specific needs for each segment would not be determined until completion of a comprehensive trail management plan, it is estimated that a total of 35 trailheads and 40 primitive on-trail campsites would be required. Cost estimates for trailheads and primitive campsites are provided in table 8.

Development along the trail would be under the following constraints: (1) No facilities would be provided in established wilderness or primitive areas; (2) All facilities would be at least several hundred yards off the travel route; (3) Existing campsites would be expanded or improved only to standards; and (4) Campsites would not contain shelters. This is in keeping with contemporary backcountry management concepts to minimize ecological and sociological problems generated by use of fixed structures.

Due to widely dispersed use of the trail, no major interpretive centers would be developed; however, this would not preclude interpretation at existing visitor centers located close to the route. Overall interpretive development would be low key. Emphasis should be placed on self-guide publications (road and trail guides), trailhead orientation and information exhibits, and simple trailside interpretive devices. A standardized system of signs with the trail logo would also be used to provide destinations, mileages, and national trail recognition.

In order to retrace the route along existing highways, directional signs would be placed where feasible and appropriate. At areas of significant interest, cultural resources would be protected and displays would be developed.

Table 8

ESTIMATED COST PER TRAILHEAD AND PRIMITIVE CAMPSITE

Trailhead

| | |
|---|---|
| 12 car parking @ $600 per unit | $ 7,200 |
| 12 campsites @ $300 per site | 3,600 |
| Water system | 20,000 |
| Sanitary facilities - vault-type privy - 2 @ $15,000 | 30,000 |
| Stock ramp | 2,000 |
| Stock fencing area | 2,000 |
| Group site for 12 - 15 persons | |
| 5 car parking @ $600 per unit | 3,000 |
| 5 campsites @ $300 per site | 1,500 |
| Estimated Cost | 69,300 |
| Overhead-30 Percent | 20,790 |
| Total (Rounded) | $90,000 |

Primitive Campsite

| | |
|---|---|
| 10 campsites @ $300 per site | $ 3,000 |
| Water system | 20,000 |
| Sanitary facility - vault-type privy | 15,000 |
| Total | $38,000 |
| 25 percent increase in costs due to inaccessibility | 9,500 |
| | 37,500 |
| Overhead-30 Percent | 14,250 |
| Total (Rounded) | $62,000 |

## ADMINISTRATION AND COORDINATION

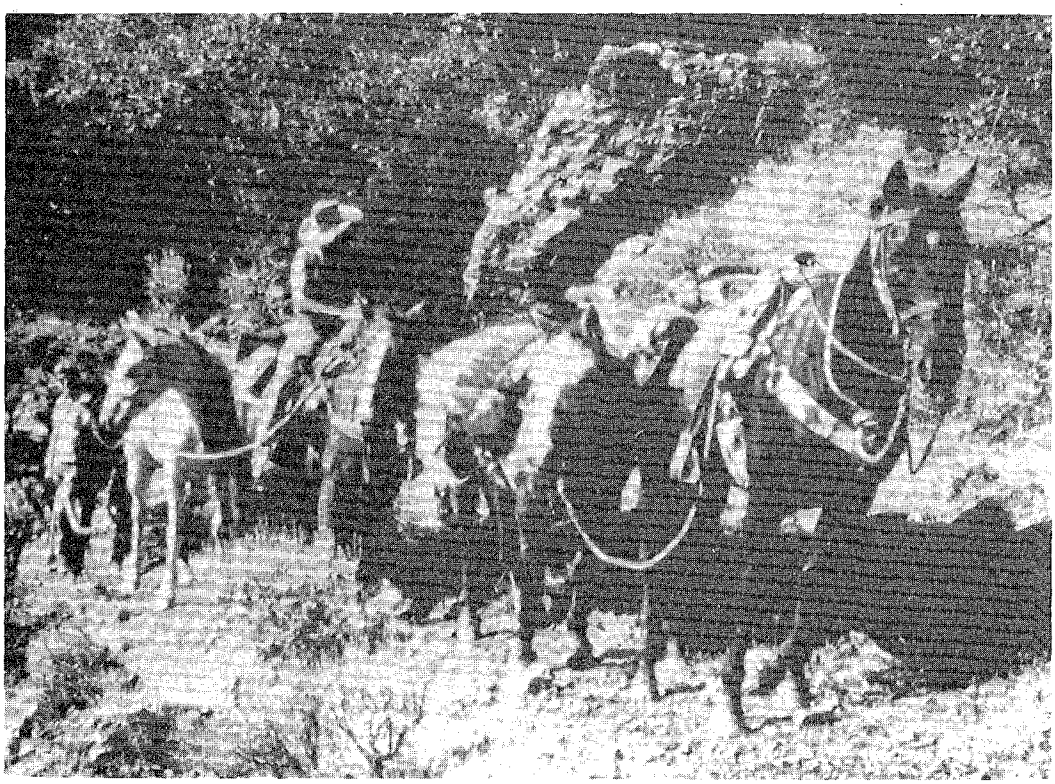
The Secretary of the Interior would be assigned responsibility for administration of the Dominguez-Escalante National Historic Trail. He would designate an agency within the department to coordinate the administration of the newly established trail.

To obtain guidance in preparing a comprehensive trail management plan, the secretary would consult with a trail advisory council as required in P.L. 90-543, sec. 5(d). He would also consult with concerned federal and state agencies and other local and private interests. In addition, each agency would be responsible for the administration of the trail on its own lands.

Full consideration will be given to minimizing the adverse effects upon the adjacent landowners or users (P.L. 90-543, sec. 7(a)). A similar effort must be made in conjunction with the high potential segments that cross Native American lands. During the development of the comprehensive

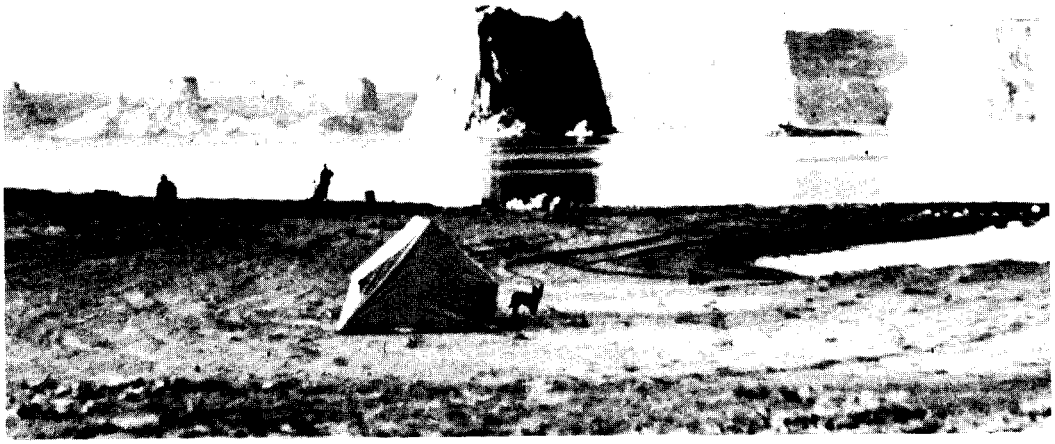
Livestock tank in open range desert country. DEBE

Horseback riding in the desert. DEBE

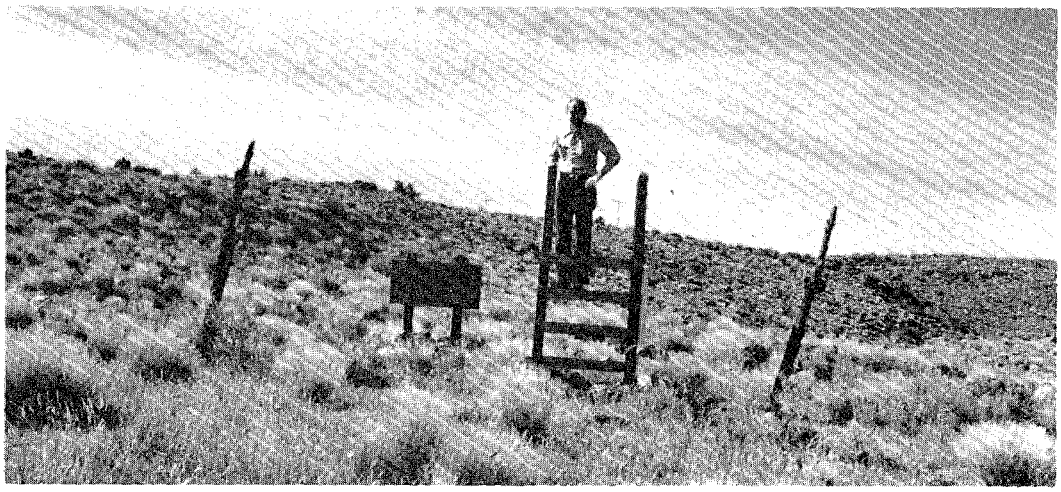


Horseback riding along a forest trail. DEBE

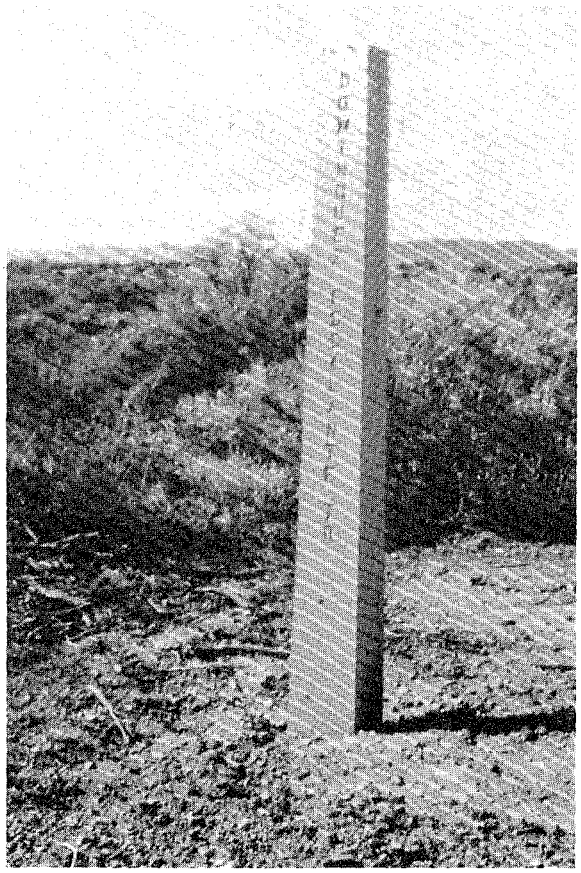
Camping along the route. DEBE



Camping along Lake Powell at the present day Crossing of the Fathers. Dominant rock is called Dominguez Rock. DEBE



Stile for hiker access.



Dominguez-Escalante marker found along portions of the route. DEBE

trail management plan, close coordination and cooperation would be necessary.

## ESTIMATED COSTS

The following costs are based on 1980 estimates, and final costs will be determined at the time actual development takes place. In addition, any specific development would not be determined until completion of a comprehensive trail management plan and would be based on existing and future needs. Any recommendations would be phased over a period of time and would be dependent on the availability of funds.

The initial cost estimate of directional and interpretive signing along the major highways would be $28,000. No cost estimates have been computed for the maintenance of signing along the highways, as this would come under highway maintenance requirements.

If maximum development of the foot and horse trail segments and related facilities occurred, the estimated cost would be $9,491,520 (see table 9). Under national historic trail designation no funds would be available to acquire the right-of-way of the estimated maximum of 3,750 acres of private lands within the high potential segments.

In those areas where trail construction would be required, it is estimated that the average cost would be $20,590 per mile for newly constructed trail and $8,580 per mile for improving existing trail. In those areas where no trail would be built, the cost would be approximately $250 per mile for installation of trail markers or signs within sight distance.

## COMPREHENSIVE TRAIL MANAGEMENT PLAN

Pursuant to P.L. 90-543, sec. 5(f), as amended by P.L. 95-625, the responsible secretary will prepare and submit to the Committee on Interior and Insular Affairs of the House of Representatives within two complete fiscal years of enactment a comprehensive trail management plan. The coordinating agency, as determined by the Secretary of the Interior, would prepare this plan after full consultation with affected federal land-managing agencies, governors of the affected states, and the advisory council. The plan would include an intertie with the Continental Divide National Scenic Trail.

## PROJECTED PUBLIC USE

The majority of public recreation along the Dominguez-Escalante route occurs in federal, state, and local recreation areas. A sample of the locations and the ownerships of recreational facilities is included in appendix D. The location and magnitude of recreational use of historic sites along the Dominguez-Escalante route is difficult to predict until preparation of a comprehensive trail management plan.

Table 9

ESTIMATED EASEMENT ACQUISITION, DEVELOPMENT, AND ANNUAL OPERATION COSTS OF HIGH POTENTIAL SEGMENTS

| | Capital Costs | | | |
|---|---|---|---|---|
| Segment | Easements[1] | Development[2] | Total | Annual Operation Cost[3] |
| 1 | 166,000 | 1,092,800 | 1,258,800 | 15,000 |
| 2 | 266,100 | 2,305,700 | 2,571,800 | 30,000 |
| 3 | 146,500 | 681,000 | 827,500 | 9,000 |
| 4 | 11,750 | 364,520 | 376,270 | 4,500 |
| 5 | 178,500 | 473,400 | 651,900 | 6,000 |
| 6 | 21,400 | 273,250 | 294,650 | 4,500 |
| 7 | 12,300 | 311,000 | 323,300 | 9,000 |
| 8 | 0 | 550,600 | 550,600 | 4,500 |
| 9 | 40,000 | 472,750 | 512,750 | 21,000 |
| 10 | 0 | 246,750 | 246,750 | 6,000 |
| 11 | 18,000 | 1,205,000 | 1,223,000 | 57,000 |
| 12 | 0 | 758,000 | 758,000 | 33,000 |
| 13 | 0 | 756,750 | 756,750 | 31,500 |
| TOTALS | 860,550 | 9,491,520 | 10,352,070 | 231,000 |

[1]No funds are available for easements under national historic trail designation. However, these estimated costs have been computed to provide a basis for donations and/or exchanges. They would also apply if the trail had been designated a national scenic trail.

[2]Costs include an overhead figure of 30 percent.

[3]Annual operation costs are estimated to be $300 per mile with 35 percent for administration and 65 percent for maintenance.

Because of the diversity in ownerships of recreational facilities, visitation figures are difficult to obtain. However, for example, the Bureau of Land Management has recently developed a roadside interpretive area at the padres' San Bartolome campsite located south of Lee's Ferry. Approximately 8,000 visits have been recorded for each of the last two years. With increased interpretation and publicizing of other sites along the route visitation should increase. It is estimated that approximately 90,000 visits per year would be likely to all present and future roadside interpretive trail related sites.

Seven areas administered by the National Park Service are within close proximity of the route. These include Mesa Verde and Zion national parks; Black Canyon of the Gunnison, Dinosaur, Pipe Spring, and El Morro national monuments; and Glen Canyon National Recreation Area. In 1978 there were almost 5,000,000 visits to these areas; however, in 1979, visitation dropped approximately 25 percent to just under 4,000,000, primarily due to the energy crisis.

Development of the high potential segments would increase public use. If 2 percent of the 4 million people who visited the national parks and monuments in the region in 1979 used the trail, this would amount to 80,000 visits. If a projection of this kind is added to other federal, state, and local recreation areas, an annual high potential trail visitation of 100,000 is considered realistic. Should segments crossing Native American lands not be developed, this figure would be reduced by approximately one-third.

The traffic volume along major highways coincident with the Dominguez-Escalante route is not expected to increase significantly as a result of trail establishment. Where the route follows lightly used secondary state and county roads, however, traffic may increase significantly. These roads could experience a 100 percent increase due to additional visitor interest in seeing portions of the expedition route. It is not expected that the increase in traffic volume would be great enough to necessitate additional road improvements or traffic control.

The seasonal use along the route would vary. The eastern and mountainous portions would be used approximately six months, while the western and southern portions in the desert would be used year-round. Late spring and early fall would be the prime time for desert segments due to cooler temperatures. Winter use of these segments may also be popular.

## CONNECTING AND SIDE TRAILS

The following section briefly describes the major trails (existing or potential) that would intersect or parallel the Dominguez-Escalante route (also see Existing and Potential Connecting and Side Trails map).

Continental Divide Trail - From the Canadian border to the Mexican border (3,100 miles) generally along the Continental Divide; crosses the Dominguez-Escalante route on the Jicarilla Indian reservation and the Cibola National Forest - both locations are in New Mexico. This trail has

recently been designated by Congress for establishment as a national scenic trail and will be administered by the U.S. Forest Service.

Old Spanish Trail - From Santa Fe, New Mexico, westward to Los Angeles, California; generally follows the Dominguez-Escalante route from Santa Fe to Dolores, Colorado, and again crosses the Dominguez-Escalante route just north of Cedar City, Utah. Use of this trail was from 1829 to 1848.

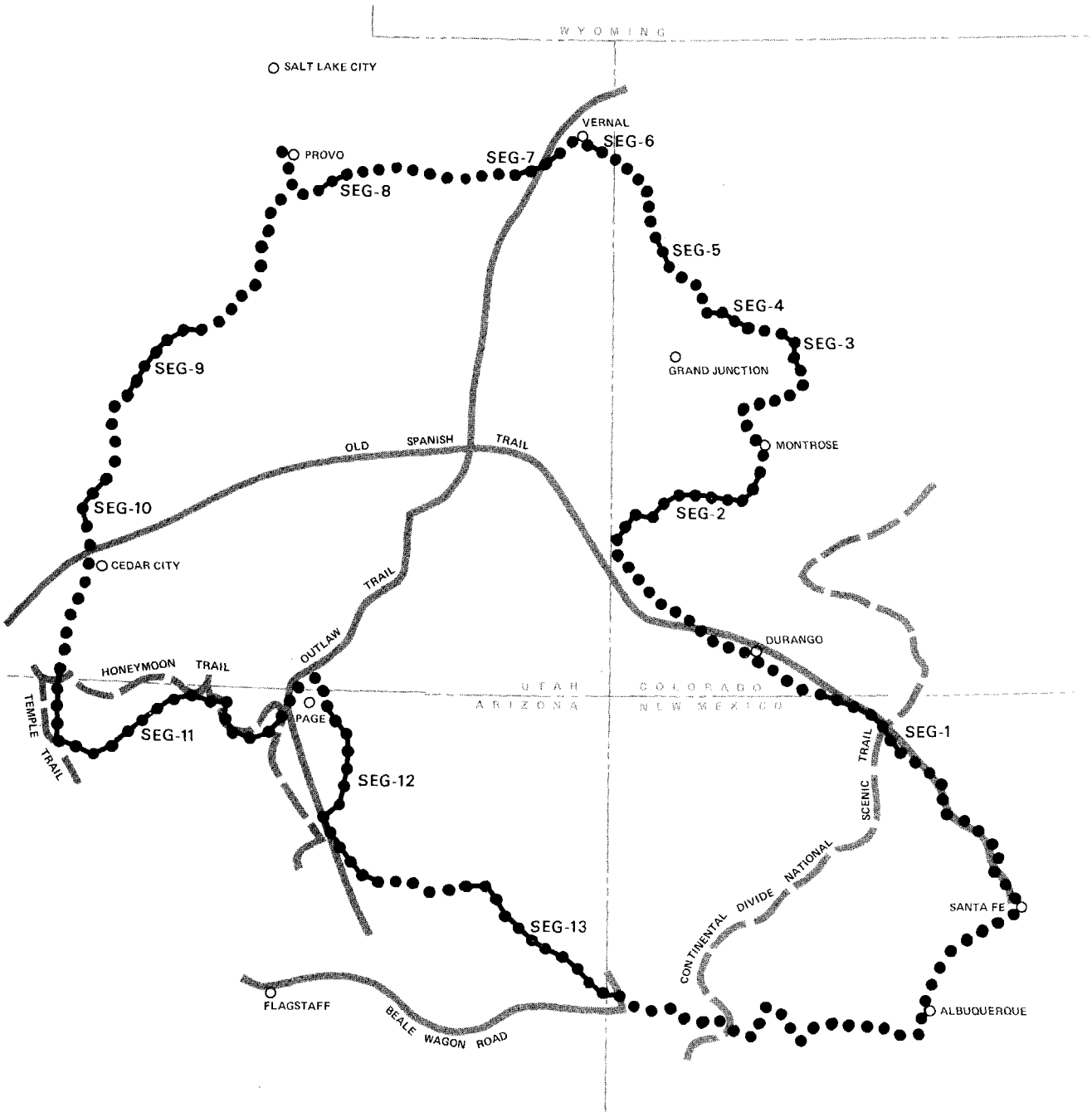
Temple Trail - From Mt. Trumbull in northwest Arizona to St. George, Utah; north of Mt. Trumbull the trail parallels the Dominguez-Escalante route to the vicinity of the Arizona-Utah border. From 1871 to 1876 the trail was used to haul timber for the building of the Mormon Temple in St. George. The trail is administered by the Bureau of Land Management.

Honeymoon Trail - From Sunset, Arizona, along the Little Colorado River to St. George, Utah; crosses the Dominguez-Escalante route at the Arizona-Utah border just southeast of St. George and parallels the route along the Vermillion Cliffs to Lee's Ferry. Beginning in 1878, Mormons used the trail for some 50 years to travel to the temple in St. George to take their marriage vows. The trail is administered by the Bureau of Land Management.

Beale Wagon Road - From Fort Defiance, New Mexico, to the Colorado River near Kingman, Arizona; the Dominguez-Escalante route is crossed by the Beale Road at Zuni. Used in the 1870s, the trail was an important step in providing rapid and safe passage for troops and supplies traveling across central Arizona.

Outlaw Trail - From El Paso, Texas, to the vicinity of Landusky, Montana; crosses the Dominguez-Escalante route near the Colorado River in Arizona and near Vernal, Utah. This trail served as a route for those who lived outside the law, and in the late 19th and early 20th centuries was used by such notorious outlaws as Butch Cassidy and the Sundance Kid.

NOTE: All but the Continental Divide Trail possess the potential for nomination to the National Register of Historic Places.




EXISTING TRAIL

POTENTIAL TRAIL

DOMINGUEZ-ESCALANTE ROUTE

HIGH POTENTIAL SEGMENT

NORTH

0 10 20 30 40 50 MILES

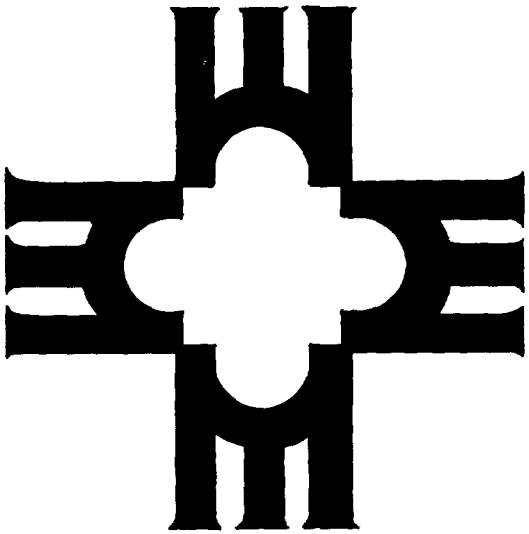
0 10 20 30 40 50 KILOMETERS

# EXISTING AND POTENTIAL CONNECTING AND SIDE TRAILS

## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

NHT/DE | 20020
DSC | AUG 80



# PART 2 - DRAFT ENVIRONMENTAL IMPACT STATEMENT

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

# DRAFT ENVIRONMENTAL IMPACT STATEMENT

## Dominguez-Escalante National Historic Trail
## New Mexico/Colorado/Utah/Arizona

The Dominguez-Escalante Trail is located in McKinley, Rio Arriba, Santa Fe, Bernalillo, Sandoval, and Valencia counties of New Mexico; Archuleta, Dolores, La Plata, Montezuma, Delta, Montrose, Ouray, San Miguel, Garfield, Mesa, and Rio Blanco counties of Colorado; Utah, Wasatch, Beaver, Iron, Kane, Washington, Duchesne, Uintah, Juab, and Millard counties of Utah; and Apache, Coconino, Navajo, and Mohave counties of Arizona.

Abstract: The draft trail study (part I) was conducted pursuant to the National Trails System Act, Public Law 90-543. It recommends federal legislation to designate the 1,794-mile route of the 1776 expedition as a component of the National Trails System, within the category of national historic trails. The trail study also includes recommendations to mark and interpret the route along the highways and to develop trail segments for public use. The draft environmental impact statement (part II) describes four alternatives, including the recommended proposal, and the impacts of each alternative.

All comments should be sent to:

Regional Director, RMRO
National Park Service
655 Parfet
P.O. Box 25287
Denver, Colorado 80225

or

Regional Director, SWRO
National Park Service
P.O. Box 728
Santa Fe, New Mexico 87501

For further information contact:

Eugene Duhamel
National Park Service
Denver Service Center, SPN
755 Parfet
P.O. Box 25287
Denver, Colorado 80225
(303) 234-6239

Date comments must be received: _____

## SUMMARY

The recommended proposal (alternative D) will designate the entire route of the Dominguez-Escalante expedition as a national historic trail, mark the historic route along highways, and develop 13 high potential segments as hiking and horse trails. Other alternatives considered include (1) no federal action or status quo, (2) designate the entire route as a national historic trail but do not mark or develop any segments, and (3) designate the entire route as a national historic trail and mark it along highways with interpretive signs but do not develop any segments. The route qualifies as either a national historic or scenic trail; however, because the alternatives and impacts would be the same for each, only the selected designation of a national historic trail was addressed. Development of the entire route as a continuous hiking or horse trail was not considered feasible or desirable because of the existing land uses currently in practice and the prohibitive cost of acquiring private land along major portions of the route.

Implementation of the proposal will ensure protection of the scenic and historic natural resources along 80,875 acres of the route, which crosses federal lands. In addition, a maximum of 3,750 acres of private land and 5,875 acres of state and county land could be designated as a national historic trail and will be utilized as a foot and horse trail. An estimated recreational use of 100,000 visits annually would occur throughout the proposed trail segments. An estimated 90,000 additional visitors would have the opportunity to view the route from existing highways and interpretive turnouts. Approximately 33,125 acres of proposed high potential segments would cross several Indian reservations, and development of these segments would be entirely contingent upon approval of each tribal council. Designation will not afford complete protection of the resources where the route crosses nonfederal land.

In a comparative sense, impact of the trail upon the environment will be minimal. However, direct and indirect effects of energy and mineral resources development are likely to result in some localized impacts on the proposed trail. Within 50 percent of the proposed route are zones having potential for development of coal, oil and gas, oil shale, geothermal energy, and uranium, and some conflicts may occur between the trail corridor and activities associated with discovery and extraction of these resources. Specific sites where impacts will occur depends upon routing and alignment of the trail. Although similar conflicts are also likely to occur in the development of other metallic and nonmetallic minerals, these are not expected to be as intense as energy-related resources because these commodities have less potential for occurrence along the route.

Direct conflicts caused by energy and mineral development include scenic impacts from structures, piles of overburden, dust clouds, and widespread alteration of the trail environment. Additional impacts include noise and odors from milling or retort operations.

Indirectly, population increases in the Four Corners States will put high recreational pressures on the trail environment. There will be a continued downward trend of regional air quality, reducing distant scenic

vistas along the trail. Therefore, persons using the trail would not view the sights as Dominguez and Escalante did.

Conflicts with candidate threatened and endangered plants will occur only along the high potential segments. Impacts of trail development will be mitigated to avoid conflicts with threatened or endangered plants or animals.

The route corridor is rich in cultural resources. Ninety-six properties, which are listed on the National Register of Historic Places, are located along the proposed trail alignment. The trail study is subject to section 106 compliance as described in the Advisory Council on Historic Preservation's regulations "Protection of Historic and Cultural Properties" (see appendix F). In addition, numerous archeological resources are known to occur in the vicinity of the route. Development and use of the trail would also reveal new finds. Major conflicts to these cultural resources stem from two principal sources--mineral exploration and development and future recreational use and promotion of the trail. Growing demands for the extensive energy and mineral resources may impact currently known or unknown archeological resources along or near the trail. In addition, development of the trail for recreational purposes would promote visitation to the region and accessibility to previously little known sites. Impacts to the resources, which would likely occur, include illegal pothunting on public lands, intensified trampling on and around historic and archeological sites, and unauthorized vehicular traffic. Increased traffic on the trail would prompt visitation to National Register properties along or near the corridor.

## PURPOSE OF AND NEED FOR ACTION

The National Trails System Act of 1968 was amended in 1976 to authorize a study of the Dominguez-Escalante Trail to determine the suitability and desirability of designating it as a component of the National Trails System. The National Park Service was designated to conduct the study in cooperation with federal, state, and local governmental agencies, private corporations, and interested groups and individuals.

The purpose of the proposed action is to designate the Dominguez-Escalante route as a national historic trail, mark the route along highways, and develop high potential foot and horse trail segments.

Development of the trail would provide an opportunity to commemorate the expedition, provide present-day tourists and/or hikers an opportunity to retrace all or parts of the route, and give trail users an opportunity to relive the experiences of the Dominguez-Escalante expedition. In addition, the proposed action would provide for ever-increasing outdoor recreational needs. New recreational opportunities for hiking, horse use, pleasure driving, as well as increased access for camping, fishing, and hunting would be available.

## AFFECTED ENVIRONMENT

The environment that would be affected by the proposal is discussed in part I of this document under "Summary of the Expedition and Route," and "Description of the Region," and in part III, appendix B, "Description of High Potential Segments."

## ALTERNATIVES INCLUDING THE PROPOSAL AND THEIR CONSEQUENCES

Because of the conceptual nature of the study, the discussion of alternatives and their consequences is based on regional information. The agencies charged with implementing the proposal are required to conform to the provisions of the National Environmental Policy Act of 1969 as amended, the National Historic Preservation Act of 1966, the Endangered Species Act of 1973 as amended, Executive Order 11988 (Floodplain Management), Executive Order 11593 (Protection and Enhancement of the Cultural Environment), and the Advisory Council on Historic Preservation's regulations for "Protection of Historic and Cultural Properties" (36 CFR 800). If the route is designated by Congress as a national historic trail, the responsible agency will conduct a two-year study leading to the development of a comprehensive trail management plan. During that study detailed surveys of all proposed high potential segments would be conducted to determine areas of sensitivity (i.e., endangered species, archeological and historic resources). Careful consideration would be given to these areas, and before final trail alignments are established, mitigating measures for protection of the resources would be implemented.

As previously stated, the Dominguez-Escalante Trail qualifies as either a national historic trail or a national scenic trail. Because the alternatives of either designation are the same, only the impacts of the selected designation of a national historic trail have been addressed. The exception would be that under scenic trail designation funds can be appropriated for acquisition for private lands where under historic trail designation they cannot.

Formulation and evaluation of any alternative must consider the relationship between use of recreational trails and whatever multiuse resources management practices are in effect at given locations. Sec. 7(a) of the National Trails System Act states that "development and management of each segment of the National Trails System shall be designed to harmonize with and complement any established multiple-use plans for that specific area in order to insure continued maximum benefits from the land." The location and width of selected rights-of-way on federally managed lands will be by agreement between agency heads and the administering secretary. Establishment of any national historic trail corridor would therefore have to be done in a manner to achieve both recreational and resource utilization benefits. For example, the trail would have to coexist with extensive grazing allotments. In select timber harvest and sales units there would necessarily be such resource-related activity within sight and sound of trail users. The same relationship would also exist between a trail and mineral, oil, and gas activities. In turn, it would be incumbent on those agencies managing the foregoing resources to plan and mitigate the effect of such land uses upon a trail or trail corridor wherever possible.

The concept of a continuous offroad foot and horse trail was considered and rejected as not being a feasible alternative. This was due in part to much of the route being altered by developments such as highways and

present-day land uses involving agriculture, mining, and oil and gas extraction. Most if not all of the historic and recreation potential has been lost along such portions. The cost of land acquisition and public opposition to the purchase of large amounts of private lands were also considered in the rejection of this alternative.

The alternatives that were considered feasible during the Dominguez-Escalante Trail study and their environmental impacts are discussed below. A summary of impacts and costs by alternative is included at the end of this section (see table 12).

## ALTERNATIVE A - NO FEDERAL ACTION

### Description

A no action alternative would basically maintain the status quo. Interested agencies and groups could be expected to interpret nondesignation as a lack of interest at the national level, and much of the momentum for planning, preservation, and development along the historic route would be lost. There would be no central source of information, and the route would remain essentially unmarked with many of the points of interest lacking interpretation. Loss of the historic scene as well as specific sites from conversion of trail lands to other contemporary uses would continue subject to the constraints of the National Historic Preservation Act of 1966, the National Environmental Policy Act, Executive Order 11593, and other statutory requirements. However, some limited development and interpretation by agencies and groups would continue.

An estimated 60 percent or more of the Dominguez-Escalante route has undergone modification of surface soils and vegetation from cultivation, construction of roads and utilities, and development of urban areas and mineral resources. With or without the proposal the trail environment may continue to be altered by changes in land use.

### Consequences

The impacts discussed under this alternative would also be encountered under alternatives B, C, and D on all private, state, and Native American lands that are not proposed for development.

Impacts on the Physical Environment. Expansion of agricultural lands would continue to change the trail environment into a different landscape than that which the expedition experienced. Development activities centered mostly on energy and mineral resource extraction would alter much of the physical landscape within the trail environment on both public and private lands. Along with surface disturbances of varying type and extent, construction of reservoirs, pipelines, powerlines, and other development would occur with little or no regard for the integrity of the original trail environment.

Overall deterioration of air quality throughout the region due to increasing development of energy and mineral resources is an impact on

the trail environment. Scenic vistas witnessed, such as the Dominguez-Escalante expedition route, are partially obliterated by airborne particulates, and it is anticipated that viewing distance would continue to decrease over the next decade.

This alternative would have no impact on the climate, air quality, or water quality.

Impacts on Vegetation. Vegetation along the route would continue to be modified unless segments of the trail are voluntarily acquired by state or local agencies for protection and public use. Development processes that could be expected in the area include cultivation of rangeland, clearing of woodlands for grazing purposes, mining and oil and gas exploration and development, highway construction, and pipeline/utility line right-of-way construction.

Natural processes such as fires, landslides, avalanches, and floods would also continue to modify existing vegetation.

Private, state, or Native American organizations may elect to develop segments of the trail that cross their lands. This effort would be uncoordinated and would likely result in development of short discontinuous trail segments.

Sections of the trail in Utah, which are already marked with interpretive signs, would continue to be subject to impacts such as vegetation removal and trampling.

Endangered and threatened plant species currently along the route would continue to be subjected to existing development. Any proposed development on federal lands would likely include mitigating measures for the protection of such species. Certain organizations may elect to provide protection to sensitive habitats if a large number of rare species are present.

Impacts on Wildlife. Public lands would continue to be administered in accordance with existing management policies, which would generally maintain the status quo for fish and wildlife. Potential conversion of rural and grazing lands to urban areas and irrigated cropland would lead to the alteration of existing vegetative communities with associated loss of wildlife habitat.

Impacts on Cultural and Historic Resources. Historic and archeological sites eligible for inclusion on the National Register of Historic Places would continue to be nominated. All sites eligible for inclusion on the National Register would be subject to archeological surveys under E.O. 11593 and to compliance with section 106 of the National Historic Preservation Act and its implementing regulations (36 CFR 800).

The route passes through a region rich in Native American culture typified by numerous prehistoric archeological sites and contemporary communities. Currently known or unknown archeological sites where unprotected would remain vulnerable to vandalism, pothunting, development injurious to cultural and historical values, and deterioration

from natural causes. Opportunities for the identification and evaluation of cultural resources along and near the trail corridor would be lost due to the lack of coordinated resource survey work required by federal legislation resulting from trail designation.

The absence of planning, coordination, management, and control of access points, trailheads, hiking trails, camping areas, and other recreational uses could impact portions of the route. Existing or informal motorized traffic would continue unchecked.

Without designation the historic integrity of the corridor would be subject to impacts from agriculture, logging, energy and mineral development, utility and highway construction, and increased visitation stemming from population growth in the Four Corners region. The existence of the route would not have to be considered in most planning.

Impacts on Economics and Land Use. Local economies would not be affected by this alternative. The local tax base would not be reduced because no private lands would be converted to public ownership. Additional constraints on the conversion of land uses for economic gain would not be created. There would be no additional trail-related tourist expenditures or the development of tourist-oriented facilities.

Changes in current patterns and trends of land use would not occur as a result of this alternative. Private lands near populated areas would probably continue to be converted to urban uses. Private lands away from urban areas with potential for recreation or cultivation as croplands would probably continue to be converted to such uses. Public lands may continue to be converted to roads, utility corridors, or recreational uses. However, such uses would be within the constraints of the National Historic Preservation Act of 1966, the Endangered Species Act of 1973, and other statutory obligations.

Because no federal action would be taken to protect the route, impacts on the timber industry would occur only if state or local agencies decide to acquire lands for protection of the integrity of the original trail environment.

Use of land along the route for grazing has altered the trail environment. This activity would continue under all the alternatives including the proposal. Segments of the trail in Utah that cross grazing land have been marked and used for several years without impact on grazing. To avoid the problem of hikers leaving gates open, stiles have been erected at points where the route crosses fences.

Due to the nation's projected energy goals, development of energy and mineral resources in the vicinity of the route would continue to occur at an increasing rate without regard to its natural or cultural attributes. Prospecting for new energy resources and minerals would continue without regard to proximity of the route.

Impacts on Recreation. Public land-managing agencies would not be mandated to provide additional recreational opportunities along the Dominguez-Escalante Trail. Thus, establishment of additional recreational

areas along the route would be in competition with recreation demands on other public lands. With the limited amount of funds available for recreational developments, no assurance could be given that new areas would be developed along the route.

Due to the energy boom, the anticipated rise in population in the Four Corners region would increase the demand for recreation. This would cause increased visitor pressure on existing facilities and might result in new recreational developments that could impact the integrity of the historic route environment if not properly integrated with the trail concept. If not designated, the recreational opportunity to hike or ride the historic route in an unconfined, wild environment would be foregone.

Impacts on Landownership. Under this alternative, no change in landownership would occur unless interest was initiated by state or local agencies or there was public pressure to preserve the scenic and historic route. Then some additional lands along the route might be converted from private to public ownership for preservation of natural and cultural values or for public use. Such conversions would likely be uncoordinated and their probable extent is unknown.

Impacts on Transportation and Utilities. This alternative would create no additional demands on transportation facilities along the route of the Dominguez-Escalante expedition.

Energy resources along the route would be developed as it became economically feasible or in the national interest, and utility corridors could continue to expand. Additional disruption of the route from new transportation projects would likely occur with energy development.

## ALTERNATIVE B - DESIGNATE ENTIRE ROUTE AS A NATIONAL HISTORIC TRAIL

### Description

Congress would commemorate the entire route of the Dominguez-Escalante expedition and designate it as a national historic trail. There would be no directional marking or interpretation along the highways and no development of trail facilities. Such commemoration would involve no federally mandated or coordinated trail development. However, this action could provide future impetus to establish portions of the trail on federally owned lands and could help to create interest in development of additional sections of the route in other ownerships. This alternative would require federal agencies who administer lands crossed by the route to maintain the present scene.

A total of 647 miles (36 percent) of the trail crosses federal property, resulting in 80,875 acres recommended for designation as a historic trail corridor. The remaining 1,147 miles (64 percent) of the trail cross lands that are under Native American, state, or private ownership.

Designation of the entire route as a national historic trail would preclude development along a 1,000-foot-wide corridor (125 acres per mile), where

the route crosses federal land. Although no precedent would be set, the option would remain open to federal agencies to develop portions of the route as foot or horse trails. In addition, user facilities such as campgrounds and interpretive signs might be installed.

Coordination of trail development between lands managed by adjacent agencies would likely be sporadic, and development of trail segments would probably be discontinuous. This action would not affect segments on state, Native American, or private lands, although nothing would preclude such commemoration should individual owners wish to do so.

Consequences

Impacts on the Physical Environment. Designation may promote increased use of some of the more accessible portions of the route on federal lands, which would result in localized soil compaction and subsequent alteration of erosional patterns. Under this alternative portions of the trail would cross 647 miles of federal lands and would be protected from uses that would alter the trail environment. As a result, soils would remain largely in their present state except for the localized impacts of visitor use. Impacts on the remaining 1,147 miles of the trail route on nonfederal lands would be the same as those discussed in alternative A. The region's air and water quality would not be affected by this alternative.

Impacts on Vegetation. No further adverse impacts on vegetation would occur unless actions were initiated separately by administering agencies to develop trail segments on their land. As mentioned in alternative A, this effort would be uncoordinated and would likely result in unpredictable discontinuous segments of the trail being developed.

Assuming no development, endangered and threatened species habitat encountered along the trail would be preserved in its present state. Any development would require mitigating measures to avoid damage to these species and their habitats.

No formal protection would be afforded nonfederal lands. Traditional uses would likely persist, resulting in some loss of vegetative cover. The effect on nonfederal lands is essentially the same as that discussed under alternative A.

Endangered and threatened plant habitats would be provided little or no protection on nonfederal lands as discussed in alternative A.

Impacts on Wildlife. As in alternative A, this alternative would essentially maintain the status quo in relation to wildlife; however, habitat within the historic trail corridor crossing federal property would be ensured preservation. There would be no adverse impacts on endangered and threatened wildlife.

Impacts on Cultural and Historic Resources. Because federal agencies managing land through which the trail corridor passes would be responsible for protecting the historic scene, future cultural resource

management of these areas would include identification, evaluation, and nomination of cultural resources to the National Register of Historic Places. All proposals affecting National Register properties would be subject to E.O. 11593 and sec. 106 compliance. Further federal agency planning may recommend interpretation or protection of cultural resources in areas managed by these agencies. Federal agencies may also influence the management of cultural resources in other jurisdictions.

Trail designation could result in greater visitation leading to impacts on cultural resources especially in areas not under federal management.

The possible development of trail segments may result in increased foot and horse traffic along the route leading to impacts on currently known or unknown archeological resources, as well as National Register properties along the trail. Future planning should address concerns for cultural resources through signing, patrolling, protective barriers, and unauthorized use of motorized vehicles.

Impacts on Economics and Land Use. No anticipated changes in local or regional economics would result from this alternative. On segments under nonfederal management, no impacts on land use would be expected. If state or local governments initiate actions to develop certain segments, impacts on land uses would be similar to those discussed in alternative D. On segments under federal management, some existing land uses would be excluded to ensure preservation of the natural and historical values of the route.

Commercial timber harvesting or firewood cutting would be excluded along all segments of the route that cross federal land (approximately 35 miles). Assuming the entire 35 miles are suitable for leasing, a maximum of 4,400 acres would be unavailable for timber harvesting. Approximately 1,750 acres (40 percent) are in the Grand Mesa National Forest in Colorado; 1,325 acres (30 percent) are in the Uncompahgre National Forest in Colorado; and 1,325 acres (30 percent) are in the Santa Fe National Forest in New Mexico. Considering the small amounts of land in any one localized area, the impact of removing this land from the market would not significantly affect either local or regional timber industries.

Because grazing is considered to be compatible with trail designation, continued grazing would not affect its natural and cultural values. Designation would not result in a reduction in grazing as no effort would be made to fence the trail corridor.

Development of energy and mineral resources on federally managed portions of the trail route would be subject to limitations and regulations in and adjacent to the trail corridor. This may cause minor increases in mining or energy development costs and would involve constraints on these activities. Depending on the size of the operation activity near the route, there would be movement of varying amounts of surface material and overburden. This would change surface drainage patterns and cause detrimental scenic impacts. Appropriate surface reclamation procedures would return the trail environment to an aesthetic landscape but would not duplicate the original environment as seen by Dominguez and Escalante. Dust clouds and smoke from mining or energy development are

likely to be seen at varying times from the trail. Underground mining might be done under the trail with little or no short-term impact, but eventually subsidence might affect the surface topography and create a hazard to trail users. Oil and gas resources situated under the trail corridor might be recovered by directional drilling. The presence of nearby drilling rigs and ancillary equipment would produce short-term impacts of noise, scenic intrusion, and occasional dust clouds. All energy or mineral developments on federal lands in the vicinity of the trail would be subject to environmental analysis pursuant to the National Environmental Policy Act.

On nonfederal lands, energy and mineral development would increase without regard to the trail significance or its scenic integrity.

Although this alternative would involve some impact on federally managed portions of the route, these impacts would not be significant either locally or regionally.

Impacts on Recreation. This alternative would create wider knowledge of the trail. Interested conservation organizations, hiking clubs, and historical societies would publicize the trail and use would increase. Past use on an existing portion of the trail has shown that with some publicity up to 1,000 people per year have used the trail.

There would be an absence of planning and management of informal camping areas, access points, and other uses. Without such controls, managing agencies would not be able to site visitor use areas in optimum locations.

Impacts on Landownership. No impacts on landownership would occur under this alternative.

Impacts on Transportation and Utilities. Implementation of this alternative would not create any additional demands for transportation facilities or result in an increase of traffic.

Because of the linear nature of the route, new transmission lines or pipelines may conflict with some route segments. An example would be the proposed Allen-Warner Valley power project. Designation of the Dominguez-Escalante route as a national historic trail would require additional consideration of the importance of the trail and discourage conversion of the historic, scenic, and potential recreational lands to transmission corridors. The requirements of the National Environmental Policy Act and section 106 of the National Historic Preservation Act would have to be complied with for proposed transmission corridors. This would not always stop a project but would require a decision as to its relative need versus environmental protection and preservation of cultural resources. These provisions would apply for alternative C as well as the proposal (alternative D).

## ALTERNATIVE C - DESIGNATE ENTIRE ROUTE AS A NATIONAL HISTORIC TRAIL BUT MARK ROUTE ONLY ALONG HIGHWAYS

### Description

The entire Dominguez-Escalante route would be designated a national historic trail. Highways and public roads close to the actual trail would be marked to help motorists and others traveling the general route. There would be no coordinated development of the high potential foot and horse trail segments. In some instances, main highways closely parallel the route while in others a separation of several miles exists, and viewing would be difficult. The use of overlooks where feasible would help alleviate this condition. Route locations crossing highways would be marked and interpreted where appropriate for the visitor's knowledge and enjoyment. Other historically and culturally significant areas along the route could also be interpreted and developed along with provisions for self-guided tours. In addition, literature could be developed to use with self-guided tours. To facilitate retracing the route, a logo, such as that previously described in this document could be used to mark the route along highways and other roads. It would also be incorporated into all interpretive and directional signing.

### Consequences

Only the impacts of trail designation were discussed in alternative B; the added impacts of marking are addressed below.

Impacts on the Physical Environment. Marking the route would result in greater public interest and would increase use of the more accessible portions. Localized soil compaction and alteration of erosional patterns are likely to be greater than for the previous alternative, but the overall impact on soils would be minor.

The anticipated deterioration of air quality expected in the next decade would reduce distant scenic views as previously stated. Because more people would be utilizing the trail route, this impact would be greater in the sense that it is perceived by more people.

There would be no impacts on water quality under this alternative except for minor localized siltation in drainages near highly compacted soils.

Impacts on Vegetation. The impacts of marking the route would be negligible except in those instances where interpretive turnouts are constructed. These would require some clearing of vegetation; however, it is not known how large the turnouts would be and how many are likely to be installed (up to 200 acres could be involved). If a turnout is paved, or rendered relatively impervious to water, the drainage of rainwater from the parking lot would alter the vegetation at the drainage point. Although this effect is very localized, it can be striking in the arid climate of the Southwest. The alteration is frequently in the form of exotic plants such as Johnson grass, alfalfa, or Russian thistle.

Careful surveys of potential sites before selection and construction would mitigate any possible conflicts with endangered and threatened species habitat.

Impacts on Wildlife. This alternative would not have any additional impacts on wildlife except for the loss of habitat from the construction of turnouts.

Impacts on Cultural and Historic Resources. Much of the local population along certain segments of the route is comprised of distinct ethnic groups of Native Americans, Hispanics, and Mormons. An increase in tourist visitation would have impacts that these groups may perceive as negative. Thus, these and other rural residents along the route may be apprehensive about an action that could encourage an influx of tourists.

The placement of signs, road markers, and overlooks could result in visual intrusion of the natural and historic scene. Unless designed with great sensitivity, contemporary signing would be out of place at sites such as Santa Fe Plaza, Cañon Pintado, and Escalante Ruins. Design of signs and overlooks should be subject to the highest standards so as not to impact the visual integrity of natural or cultural resources along or near the route.

Prior to the development of traffic turnouts and interpretive overlooks, archeological surveys would be conducted to identify properties eligible for inclusion on the National Register of Historic Places. The same constraints would also apply here as in the previous alternatives.

The agency responsible for implementing this alternative would then develop a cultural resources management plan to protect and interpret such resources. Increased awareness of the route's cultural attributes would lead to additional National Register nominations by agencies managing land along the trail corridor.

Impacts on Economics and Land Use. Anticipated increases in visitor traffic could affect the local economy of communities along the route by intensifying the demand for lodging, food, and vehicle services. Although relatively small, these impacts could result in other effects such as increased land demand for housing and the tourist industry. Also, there would be an increased demand for trucking to supply businesses, with the subsequent need for highway improvement.

The total amount of land converted to interpretive turnouts would be insignificant and would not substantially impact any land use.

Impacts on Recreation. Marking the route could attract up to 90,000 visitors, which would lead to some misuse. This increased public use, particularly by unauthorized offroad vehicles, would cause some disturbance to soils and vegetation and some alteration to the trail environment. Increased public knowledge of and interest in the Dominguez-Escalante Trail could lead to accelerated littering and vandalism with the loss of cultural artifacts and damage from illegal excavation. However, this impact would be most severe on the more remote public lands. Marking the route would make it more accessible to a greater

number of people and provide an opportunity for them to more easily retrace the route.

Impacts on Landownership. Marking the route and constructing interpretive turnouts could possibly involve land exchanges or purchases of small amounts of land for purposes of developing or enlarging turnouts. No information is currently available on the number or size of potential turnouts; therefore, no estimate is given for specific areas likely to be involved in landownership changes.

Impacts on Transportation and Utilities. Traffic volume along major highways and freeways that are near marked portions of the route could increase as a result of diverting travelers from other routes. The increase in traffic along lightly used secondary roads following the route could be 100 percent greater than present use. The increase in volume is not expected to be great enough to necessitate expenditures for road improvements. However, incidental roadside parking areas or overlooks for interpretive signs would be required. State highway departments may find it necessary to upgrade and widen specific stretches of road due to the need for pullouts. The increased traffic would also require an increase in trash collection facilities.

Because of the linear nature of the Dominguez-Escalante route, transportation projects are likely to cross the corridor and may be subject to sec. 4(f) of the U.S. Department of Transportation Act of 1966 as amended. Under national historic trail status, this would involve use of land from a significant historic property, such as those eligible for or on the National Register of Historic Places.

## ALTERNATIVE D - DESIGNATE ENTIRE ROUTE AS A NATIONAL HISTORIC TRAIL, MARK ROUTE ALONG HIGHWAYS, AND DEVELOP HIGH POTENTIAL FOOT AND HORSE TRAIL SEGMENTS

### Description

This alternative is the recommended action as discussed in the "Trail Plan" section in part I of this document. In addition to designation of the entire route as a national historic trail, the route will be marked and interpreted along highways, and 13 high potential segments will be recommended for development as nonmotorized foot and horse trails. Within these segments, some sections may be signed as cross-country routes with little or no development. The 13 high potential segments total 770 miles and vary in length from 15 to 190 miles. A corridor width of 1,000 feet is considered sufficient to locate, provide for trail construction as needed, and protect the immediate vicinity of the trail. Under this alternative, 428 miles of federal land (within the high potential segments) will be developed. An additional 219 miles of federal land will be protected by designation but will not be developed. Thus, up to 989 miles of the route could be involved.

The planning criteria used to determine the recommended high potential segments for trail development were as follows: recreational, historic, cultural, and interpretive potential; landscape not severely modified since

the original expedition; evident scenic quality; availability of land--public ownership desirable, but private ownership will not exclude desirable segments from consideration; and segment at least a day's hike (8-12 miles).

Each trailhead will involve the development of about 12 campsites, one group campsite, sanitary facilities, a water system, and provisions for unloading and holding pack and saddle stock. Trailheads will be at intervals of approximately 25 miles, although this spacing will be modified somewhat by the location of existing road systems to minimize new road construction. Each trailhead development will modify 2-5 acres of land, and as currently envisioned, there will be approximately 35 trailheads. Therefore, the total land area affected will be approximately 70-175 acres. Primitive trailside campsites spaced at approximately 10-mile intervals will require 2-5 acres each. About 40 campsites (80-200 acres) will be provided with water and sanitary facilities. Camping areas will require fencing to exclude grazing. No shelters will be provided.

Trail development on Indian reservations will be entirely at the discretion of the tribal councils and/or individuals on each reservation. It must be agreeable to the appropriate party before any portion of the trail is developed on their lands. The impacts discussed here assess development for the entire 770 miles of the high potential segments and will be reduced if any of the segments or portions thereof are not developed.

This alternative also recognizes possible development of other trail segments. Any such segment in private or other ownership, if qualified under the National Trails System Act, could be added through application to the Secretary of the Interior.

Consequences

Impacts on the Physical Environment. Overall impacts of the proposed trail development will not extensively impact soils. There will be construction-related impacts affecting 150-375 acres as trailheads and trailside campgrounds are established. Additionally, a 2-foot-wide trail tread 770 miles in length equals 190 acres of compacted soil. Long-term soil compaction in these areas is likely to affect local drainage patterns and vegetation. The change in drainage patterns could be offset by appropriately located culverts and channels. Construction of highway turnouts will also cause short-term soil disturbance and fugitive dust. These areas will also experience long-term soil compaction by concentrated visitor use.

Implementation of this alternative will have no effect on regional or local climate, but stimulation of public interest will result in a greater number of people traveling the trail route. Some visitors unfamiliar with the rigors of desert climate may underestimate water requirements or experience overexposure to heat. These effects could be minimized by informing visitors of such hazards along certain portions of the trail and by providing hints for desert travel and survival through interpretive literature and maps.

Construction of trailheads and trailside campgrounds is likely to result in some temporary, localized dust generation, but the overall impact on air quality will be minimal. Automobile use along the route is likely to increase, but not to the point that overall air quality of the region will be affected. Some localized areas such as trailheads may experience intermittent concentrations of exhaust emissions from vehicles.

Because overall air quality in the trail region has been declining and is expected to decline further from energy and mineral development, trail users will not experience the same vistas as did the Dominguez-Escalante expedition. Although this would also be true for the previous alternatives, the impact under this alternative will be greater because it would be perceived by the largest number of people.

Construction of trailheads, campgrounds, and sanitation facilities over 150-375 acres will result in some minor localized siltation of watercourses near the developments. Over a long period, soil compaction at these locations as well as along developed portions will cause some minor sedimentation in streams along moist segments of the trail.

Location of potable water sources along arid segments of the trail is likely to be difficult at prescribed 10-mile intervals and may be a limiting factor on the siting of developments. Planning of such sites should include a hydrologic analysis at an early stage.

Where water supplies and sanitation facilities are developed, the local hydrologic systems may be affected, depending upon the mode of wastewater treatment.

Impacts on the physical environment for the most part will be local and short term.

Impacts on Vegetation. It cannot be accurately determined at this time how much vegetation is likely to be cleared along the 770 miles of proposed developed trail. Approximately 427 miles of trail cross shrublands that require little or no clearing. This leaves 343 miles of trail that cross areas containing some type of tree vegetation (see table 10). These areas may or may not require clearing as the trail would weave between trees wherever possible to blend with the environment. Also, nearly 250 miles of lightly used primitive roads may be utilized for trail purposes, further reducing the amount of clearing required.

An additional 150-375 acres of vegetation will be cleared for the construction of trailheads and primitive campsites. It is assumed that much of the existing vegetation will remain to mask the construction scar and to blend the facilities with their surroundings.

The high potential segments of the trail will require the development of access points for trailhead purposes. The siting of these access points will be tailored to existing facilities and roads wherever possible to minimize construction.

Additional vegetation may be disturbed if sidetrails are established leading to significant interpretive sites. These sites may be as much as 5-10

Table 10

MILES OF VEGETATION TYPES ALONG HIGH POTENTIAL SEGMENTS

| High Potential Segment | Shrubland | Scrub Oak | Pinyon-Juniper | Hardwood | Ponderosa Pine | Fir-Spruce |
|---|---|---|---|---|---|---|
| 1 | 3 | 0 | 39 | 0 | 8 | 0 |
| 2 | 15 | 0 | 70 | 4 | 8 | 3 |
| 3 | 0 | 7 | 0 | 10 | 0 | 13 |
| 4 | 4 | 5 | 6 | 0 | 0 | 0 |
| 5 | 5 | 7 | 3 | 5 | 0 | 0 |
| 6 | 15 | 0 | 0 | 0 | 0 | 0 |
| 7 | 30 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 0 | 9 | 6 | 0 | 0 |
| 9 | 70 | 0 | 0 | 0 | 0 | 0 |
| 10 | 20 | 0 | 0 | 0 | 0 | 0 |
| 11 | 120 | 0 | 70 | 0 | 0 | 0 |
| 12 | 95 | 0 | 15 | 0 | 0 | 0 |
| 13 | 50 | 0 | 55 | 0 | 0 | 0 |
| TOTAL | 427 | 19 | 267 | 25 | 16 | 16 |

miles off the main trail. Completion of the comprehensive trail management plan will determine how many sidetrails will be established and how many acres will be involved.

Where the trail passes through forested areas, cleared vegetation will not be totally lost. Trees may be sold commercially, cut and stacked for use as firewood, or used in the construction of trail facilities. In areas where only shrub species are encountered, cleared vegetation will likely be chipped and either disposed of or used as mulch in reseeding unstable slopes.

Because soil compaction will take place on the trail, water from runoff might create artificial conditions along both sides of the trail, resulting in abnormal vegetation densities and growth rates. Along with elimination of native species by clearing, this might create conditions that will favor the growth of nonnative plants. Conditions similar to those along road shoulders may exist where nonnative plants proliferate and extend their ranges. Seeds of nonnative plants may be introduced into backcountry trail areas not currently within their range and will find conditions favorable to their growth. These seeds may be brought to the area by several methods, including (1) hay brought in for horses, (2) mud on the shoes of hikers and horses, and/or (3) seeds employed to revegetate unstable slopes. In many instances, nondesirable exotic plants accidentally or purposely introduced have become troublesome and costly pests. Examples include the Russian thistle (tumbleweed), tamarisk or salt-cedar, and cheat grass. Measures should be instituted early in planning to prevent such introductions, which detract from the natural environment. Mitigating measures that may help alleviate some of these problems include use of native seeds for revegetation and use of local hay for stock feeding. Enclosed storage areas at the trailheads where hay can be kept dry and the stock fed will prevent unnecessary dispersal. Little can be done to prevent seed introduction from the mud carried in on the shoes of hikers and horses.

Endangered and threatened plants are known to exist in relationship to the corridor route. Enough flexibility can be allowed in the layout of an exact trail route, and it is anticipated that most conflicts with endangered and threatened species habitats can be resolved with careful surveys during the comprehensive trail management plan.

Overall effects of trail development will not severely impact vegetation because areas cleared will be the minimum necessary to construct the trail and associated facilities and will involve only 970 acres over the entire 770 miles of high potential segments.

Impacts on Wildlife. Land management agencies responsible for trail implementation will investigate the impacts on wildlife as an integral part of their comprehensive trail management planning and NEPA-related activities on a site-by-site basis. As determined during such planning, the level of development will dictate the extent of disruption. In some instances, the development of trail facilities will destroy habitat and consequently reduce the local wildlife carrying capacity.

Along the high potential segments, increased human contact may create stresses on certain species such as elk, deer, and grouse. These stresses could force resident wildlife to neighboring habitat areas. If these areas are at carrying capacity, an overall reduction of population could be expected. Such impacts will be localized and insignificant.

Hikers and horseback riders will introduce food sources for some forms of wildlife, particularly rodents, crows, ravens, jays, and small seed-eating birds. To a lesser extent, animals such as coyote, raccoon, fox, and skunk will be attracted to camping areas for food remains and by the concentrations of small prey.

Maintained trails become preferred travel routes for larger species of animals, particularly coyote, fox, and black bear. A trail that is used moderately often serves as an attraction to certain forms of wildlife and may actually increase the population levels of some species in areas along the trail route.

Endangered and threatened wildlife species along the trail route include the bald eagle, Utah prairie dog, American peregrine falcon, whooping crane, and black-footed ferret. Listed fish species are the Colorado squawfish, woundfin, Arizona trout, and humpbacked chub. These species have been included on a list prepared by the Secretary of the Interior pursuant to the Endangered Species Act of 1978 as amended. This act provides for the protection of these species and sec. 7 states:

> All other Federal departments and agencies shall, in consultation with and with the assistance of the Secretary . . . and by taking such action necessary to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of such endangered species and threatened species or result in the destruction or modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with the affected States, to be critical.

Implementing land-managing agencies will conform to this act and will consider the impacts in their comprehensive trail management planning. Only the peregrine falcon has been observed along certain portions of the route in Colorado. During the comprehensive trail management planning, provisions will be made to avoid peregrine nesting or hunting habitat. Likewise, during the two-year planning period a biological assessment of all endangered species will be conducted.

Overall, impacts on wildlife are not expected to be extensive.

Impacts on Cultural and Historic Resources. Increased foot and horse traffic, as well as development of campsites, overlooks, and trailheads on the high potential segments, could result in degradation, vandalism, and destruction of currently known or unknown cultural resources and National Register properties.

The comprehensive trail management plan will address hiking, horseback riding, and the development of trailheads, scenic overlooks, and

campsites to suggest professional methods to ameliorate impacts on cultural resources.

Development of high potential segments will conform with appropriate cultural resources legislation and professional standards. The same constraints will apply here as in the previous alternatives.

The agency responsible for implementing this alternative will coordinate closely with public agencies and private organizations to devise effective protective development and interpretation for National Register properties as well as other cultural resources along the trail. Protective development of cultural resources such as fencing will lessen chances for vandalism. The comprehensive trail management plan could suggest methods for controlling unauthorized or informal offroad vehicular traffic on those portions of the trail designated for hiking and horseback riding.

Impacts on Economics and Land Use. The economic impacts of the proposal will be similar, but of a greater magnitude, than those in alternative C because more visitors will be attracted to a developed trail. In addition, there will be short-term economic benefits from trail construction. Maintenance of the trail will be the responsibility of the land-managing agencies and will create a limited demand for local employment. The major impact of the proposal on land use will be to influence decisions to preserve the characteristics of the Dominguez-Escalante Trail and its environment. Minor quantitative changes in existing land uses may result from the implementation of this proposal.

The impacts on federal land will not be significantly different from those addressed in alternative B. On the 30 miles that cross private land, a corridor less than 1,000 feet wide will be desirable if feasible.

Impacts on the timber industry involved in sales on federally owned lands will be the same as in alternative B, because in both cases, a maximum corridor 1,000 feet wide will be removed from the market.

Trailside campsites will be fenced to keep livestock away from the facilities. While these enclosures will represent a small loss of grazing (80-200 acres), they will also serve a positive function by allowing the more palatable species of forage within the enclosures to produce seed at intervals along the trail.

Due to current national energy needs, it is probable that the four-state study region will experience unprecedented development of coal, oil and gas, oil shale, and uranium. Increased development of other minerals is also expected. Table 11 shows portions of the trail route crossing areas of energy and mineral development. Mileage and percent figures are given for the entire route as well as for the high potential segments. The graphics in the "Description of the Region" section of this document depict the location of these zones.

Implementation of this alternative will cause a minor impact on the energy and mineral industries by the withdrawal of federally managed portions of the trail corridor. This will amount to 647 lineal miles of trail. Estimating land area at 125 acres per mile, the total federal land will be

Table 11

ZONES OF EXISTING AND POTENTIAL ENERGY AND MINERAL DEVELOPMENT WITHIN 5 MILES OF THE 1,794-MILE DOMINGUEZ-ESCALANTE TRAIL ROUTE

| Type of Resource | Lineal Miles of Total Route Occupied | | Lineal Miles of High Potential Trail Segments Occupied | |
|---|---|---|---|---|
| | Miles | % | Miles | % |
| Known Recoverable Coal | 277 | 16 | 40 | 5 |
| Oil and Gas Producing Zones | 236 | 13 | 69 | 9 |
| Oil Shale Deposits | 164 | 9 | 59 | 8 |
| Uranium Producing Zones | 321 | 18 | 110 | 14 |
| Potential Geothermal Producing Areas | 185 | 10 | 71 | 9 |
| Metallic Mineral Producing Zones | 293 | 16 | 92 | 12 |
| Nonmetallic Mineral Producing Zones | 199 | 11 | 65 | 8 |
| Composite of All Energy and Mineral Zones* | 929 | 52 | 339 | 44 |

*Some mineral resources overlap or occur together.

80,875 acres. Although it is certain that energy or mineral resources do not exist along every mile of the route under federal jurisdiction, it is likely that some exploitable resources will be found.

In addition, where energy or mining activities on federal lands occur within view of the trail corridor, regulations will be enforced to lessen intrusive impacts. Such regulations will not prohibit mining within view of the trail but will serve to protect the integrity of the route by preventing or reducing obtrusive activities and by requiring reclamation. Such measures will result in a higher cost of energy or mining activities on federal lands in the immediate vicinity of the trail. In spite of these measures, some visual impacts are likely to occur, along with noise from heavy machinery and blasting. In portions of northwestern Colorado and northeastern Utah, extensive development of oil shale may result in visible accumulation of spent shale.

Because 44 percent of the high potential segments is in nonfederal ownership, a substantial portion has potential for energy and mineral development without regard to protecting the trail environment. Similarly, nonfederal portions of the remaining trail will be subject to energy and mineral development without regard to trail integrity. As federal ownership amounts to no more than 36 percent of the entire route, it is probable that unmitigated energy and mineral development activities will have a significant impact on the trail.

There are a number of somewhat localized impacts involving minor changes in land use. Regional industries connected with timber, energy, and mineral resources will be affected only in areas of limited extent where these resources coincide with the trail route.

Impacts on Recreation. The Dominguez-Escalante route is relatively unknown to the public on a national level except for National Register properties and trail landmarks that have received interpretive development. Many cultural resources are undeveloped and unknown. Public use of little publicized route segments and historic sites has been relatively light. Most of the trail and associated resources to date have been regional and local.

When action is taken to make cultural resources and trail segments along the Dominguez-Escalante route more accessible and better known, substantial increases in recreational use can be expected. The current public interest in cultural resources, where portrayed in an appealing manner, is exhibited by the 63,714,679 visits recorded in 1978 at 152 historic sites administered by the National Park Service.

Development of the 13 high potential segments will result in significant public recreational facilities at relatively low cost. Certain trail segments will receive greater visitation from metropolitan centers such as Santa Fe, Salt Lake City, Provo, and Albuquerque.

It is estimated that with optimum development and accessibility the Dominguez-Escalante Trail will have 190,000 visits per year.

A broader spectrum of the public will retrace portions of the route along highways if proposed route marking, interpretation, and public information programs are implemented. Barring severe gasoline shortages, the automobile will continue to be the most popular means for following the approximate route on public roads. The use of bicycles along highways may also increase as may the use of buses for group tours.

Immediate public recreational use along the Dominguez-Escalante Trail will come from nearby residents. This is expected to continue for reasons of convenience, familiarity due to proximity and higher travel costs. However, long-term use of national attractions is greatest from persons residing in urban areas.

The period of use along most of the trail is approximately six months although some of the major segments could be accessible all year. Because of summer heat and dusty back roads, travel is more comfortable during spring and fall at the lower elevations. Cooler temperatures make summer travel more pleasant along the mountainous segments.

The establishment and use of campgrounds result in gradual deterioration of nearby trees and other vegetation primarily from soil compaction and smoke damage. The long-term result may be hard-packed or dusty ground. Planning and management can help lessen these impacts, but a certain amount of resource degradation will be irreversible. The collection of firewood around camping areas interrupts normal nutrient recycling and gradually denudes an area of rotting wood, which is a specialized faunal habitat.

Some soil compaction due to trail use increases the likelihood of erosion although this can largely be mitigated by trail design and maintenance. The damage done by hikers taking shortcuts across switchbacks is the most difficult to mitigate.

The potential for impacts from horses will require attention in planning. Such impacts include trail wear, dust generation, soil compaction, odor, insects, and the introduction of seeds from exotic plants in feed and droppings. Trailside nibbling by horses produces slow cumulative effects on the vegetation. Due to the selective nature of feeding, species that are most preferred disappear and are replaced by less palatable species. Horses impact water quality at stream crossings and compact soil leading to faster runoff.

Overall, the impact of this alternative will be the development of significant recreational opportunities. More attention will be drawn

to certain scenic areas, and improved access will make them available for public viewing.

Impacts on Landownership. Lands under federal management will remain under the jurisdiction of the administering agency. Those agencies administering public lands through which the trail crosses will establish a minimum 1,000-foot-wide corridor. A uniform set of standards will be developed by the administering secretary to ensure that guidelines for management practices are well-defined and uniformly enforced for managing and protecting the trail corridor.

Along high potential segments, an estimated 30 miles of the route crosses private land affecting a maximum of 3,750 acres. Preferably, access across private lands will be accomplished by easements, land exchange, donations, or cooperative agreements with landowners.

No change in ownership will occur on the 265 miles of high potential segments that cross Native American lands. Trail administration on Indian lands will be tribal responsibility.

Impacts on Transportation and Utilities. The traffic volume along major highways and freeways in the proximity of the Dominguez-Escalante Trail is not expected to increase significantly as a result of this alternative. Some travelers will be attracted from parallel routes to take advantage of the trail's recreational and historical elements. Where the trail follows lightly used secondary roads, traffic may increase significantly. Compliance with sec. 4(f) of the U.S. Department of Transportation Act of 1966 (as amended) will be the same as for the preceding alternative.

Existing utility corridors will not be relocated as a result of the proposal.

Table 12

SUMMARY OF IMPACTS AND COSTS BY ALTERNATIVE

| | ALTERNATIVE A<br>No Federal Action | ALTERNATIVE B<br>Designate Entire Route As a National Historic Trail | ALTERNATIVE C<br>Designate Entire Route As a National Historic Trail but Mark Route Only Along Highways | ALTERNATIVE D (THE PROPOSAL)<br>Designate Entire Route As a National Historic Trail, Mark Route Along Highways, and Develop High Potential Foot and Horse Trail Segments |
|---|---|---|---|---|
| ACTION INVOLVED | No federal action; status quo maintained | Congress designates route as a national historic trail; preserve 1,000-foot-wide corridor along 647 miles of federal lands involving 80,875 acres; maintain status quo on nonfederal land | Same as alternative B plus mark where route is contiguous to highways and construct interpretive turnouts | Same as alternative C plus develop a maximum of 770 miles of foot and and horse trails along 13 high potential segments; also construct approximately 35 trailheads involving 70-175 acres and about 40 primitive campsites involving 80-200 acres |
| PHYSICAL ENVIRONMENT | Continued alteration of historic landscape; air and water quality status quo | Protection of corridor 647 miles (80,875 acres) of route environment; status quo on remaining 1,147 miles; air and water quality status quo | Same as alternative B plus localized soil disturbance at turnouts | Same as alternative C plus soil compaction of 340-565 acres resulting in minor localized erosion; short-term effects on air and water quality; minor long-term impacts on water quality |
| VEGETATION | Continued alteration of vegetation along historic route; status quo on endangered and and threatened plants | Protection of corridor involving 80,875 acres of vegetation; status quo on endangered and threatened plants | Same as alternative B plus loss of small amounts of vegetation at turnouts | Same as alternative C plus loss of vegetation on 340-565 acres; potential spread of exotic plants |
| WILDLIFE | Status quo maintained with possible habitat loss; status quo on endangered and threatened wildlife | Protection of corridor involving 80,875 acres of habitat; status quo on endangered and threatened wildlife | Same as alternative B plus loss of small amounts of habitat at turnouts | Same as alternative C plus alteration of habitat over 340-565 acres |
| CULTURAL AND HISTORIC RESOURCES | Status quo resulting in loss of historic resource | Preservation of historic route corridor along 647 miles of the route that crosses federal land | Same as alternative B plus possible increased impacts on ethnic communities | Same as alternative C plus foot and horse traffic impacting known or unknown cultural resources |

| | | | | |
|---|---|---|---|---|
| ECONOMICS AND LAND USE | Status quo maintained; no local tourist-related economic benefits | Economic status quo maintained; potential disruption of timber harvesting on 4,400 acres; no disruption to grazing or agriculture; potential constraints on some areas related to energy and mineral development in federal corridor | Potential benefits to local economies from tourist-related expenditures; timber, grazing agriculture, and mineral extraction impacts same as alternative B | Economic benefits stemming from tourism, trail construction, and maintenance; land use impacts same as alternative B plus possible effect on 77 miles of nonfederal land and 265 miles of Native American lands; maximum of 989 miles of the route corridor possibly affected |
| RECREATION | No new recreational facilities developed | Same as alternative A; increased awareness may promote informal use | Interpretive facilities provided; increased recreational use over alternative B | Up to 770 miles of hiking trails and 75 campsites developed; maximum recreational use for both trail and highway users |
| LANDOWNERSHIP | No change | No change | Possible conversion of ownership for turnouts involving small amounts of land | No changes in federal, state, county, or Indian ownership; an estimated 3,750 acres of private lands possibly affected by easements |
| TRANSPORTATION AND UTILITIES | No constraints on transportation projects; no demands for additional transportation facilities or utilities | Same as alternative A | Possible constraints on transportation projects; slight increase in traffic resulting in need for upgrading roads; new turnout construction required | Same as alternative C |
| COSTS | No cost | No cost | $28,000 - Development | $9,519,520 - Maximum Development*<br>$231,000 - Maximum Annual Maintenance |

*Under national scenic trail designation, the maximum cost will be increased by $860,550 to include the cost of easements across private lands.

## ANALYSIS OF ALTERNATIVES AND THEIR IMPACTS

The analysis below was made to relate the impacts of the four alternatives and to show the advantages and disadvantages of each.

### PHYSICAL ENVIRONMENT

Under alternatives A and B there would be no effects on air and water quality and soils. Localized disturbance would occur at the turnouts under alternatives C and D with additional disturbance in those areas where trails would be constructed under the proposal (alternative D).

There would be continued and unchecked alteration of the integrity of the route under alternative A. Under Alternatives B, C, and D the route corridor would be protected on federal lands; the proposal would also protect the route corridor on nonfederal lands along the high potential segments.

### VEGETATION

A continued, although undetermined, loss of vegetation would occur along the entire historic route under alternative A. Some loss of vegetation would also occur at the turnouts under alternatives C and D. In addition, under the proposal there would be a loss of vegetation along the high potential segments. The corridor along the 647 miles of federal lands under alternatives B, C, and D would be protected.

### WILDLIFE

There would be continued, although undetermined, loss of wildlife habitat along the entire historic route under alternative A. A loss of habitat would also occur at the turnouts under alternatives C and D. Under the proposal there would be an additional loss of habitat along the high potential segments. The corridor along the 647 miles of federal lands under alternatives B,C, and D would be protected.

### CULTURAL AND HISTORIC RESOURCES

The loss of cultural and historic resources would be greatest under alternative A. The historic route corridor would be preserved along the 647 miles of federal lands under alternatives B, C, and D; in addition, nonfederal lands within the high potential segments would also be protected under the proposal.

Under alternatives C and D there would be some adverse impacts from degradation, vandalism, and destruction of sites as a result of development. Also, under these two alternatives there would be increased impacts on the ethnic communities along the route.

## ECONOMICS AND LAND USE

There would be no tourist-related benefits resulting from alternative A and very few under alternative B. Benefits would increase under alternative C and would be the greatest under the proposal with the construction and maintenance of the high potential segments.

The development of natural resources such as timber and minerals would be the greatest under alternative A. Under alternatives B, C, and D there would be some restrictions on development involving the corridor located on federal lands. Also, there would be restrictions involving the turnouts under alternatives C and D. The proposal would also restrict development along the high potential segments, which could involve up to 77 miles of nonfederal lands and 265 miles of Native American lands.

## RECREATION

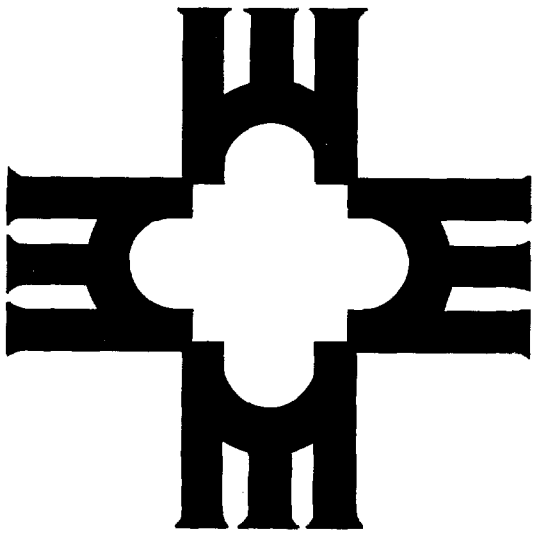
There would be no recreational development under alternative A whereas increased awareness of the route may promote informal use under alternative B. Some interpretive facilities would be provided at the turnouts, and increased use of facilities would occur along the highways under alternatives C and D. In addition, the proposal would also provide campsites along the high potential segments.

## LANDOWNERSHIP

Under alternatives A and B there would be no change in landownership. There would be some potential conversion of ownership for the turnouts constructed under alternatives C and D. In addition, a maximum potential of 3,750 acres of private lands could be affected under the proposal.

## TRANSPORTATION AND UTILITIES

There would be no constraints on transportation projects nor demands for additional facilities under alternatives A and B. The development of turnouts may require some minor road upgrading under alternatives C and D. Both alterntives C and D would increase the use of the road system but not to the extent of upgrading it. Sec. 4(f) of the U.S. Department of Transportation Act of 1966 as amended would also apply under both alternatives whenever the use of land from a significant historic site is involved.



# PART 3 - SUPPORTING DATA

## CONSULTATION AND COORDINATION

There is a general consensus that the Dominguez-Escalante Trail be designated for inclusion in the National Trails System. This consensus includes the general public, Bureau of Land Management, Forest Service, Water and Power Resources Service, states, and Indian tribes.

A series of ten public workshops were held in June-July 1979 in Page, Arizona; Cedar City, Salt Lake City, Vernal, and Provo, Utah; Montrose, Durango, and Dolores, Colorado; and Santa Fe and Grants, New Mexico.

The public workshops expressed the concerns that a continuous offroad trail was not feasible or desirable and that private land should not be acquired by the government unless the land was significant for trail purposes.

The tribal groups that are involved with the high potential hiking and horse trail segments have concerns over permitting public use of their land until they can determine how great that use may be and the effect it may have.

## CONSULTATION IN THE PREPARATION OF THE STUDY REPORT AND DRAFT ENVIRONMENTAL IMPACT STATEMENT

### Federal Agencies Contacted

U.S. Department of Agriculture

Forest Service
- Carson National Forest
- Cibola National Forest
- Fishlake National Forest
- Grand Mesa National Forest
- Gunnison National Forest
- Intermountain Regional Office
- Rocky Mountain Regional Office
- San Juan National Forest
- Santa Fe National Forest
- Southwest Regional Office
- Uinta National Forest
- Uncompahgre National Forest
- White River National Forest

Soil Conservation Service
- Arizona State Conservationist
- Colorado State Conservationist
- New Mexico State Conservationist
- Utah State Conservationist

U.S. Department of the Interior

Bureau of Land Management
- Arizona Strip District Office
- Cedar City District Office
- Colorado State Office
- Denver Service Center
- Graig District Office
- Grand Junction District Office
- Montrose District Office
- New Mexico State Office
- Richfield District Office
- Utah State Office
- Vernal District Office

Bureau of Reclamation
- Upper Colorado Region

Fish and Wildlife Service
- Region 2
- Region 6

Heritage Conservation and Recreation Service
- Mid-Continent Region
- South Central Region

State Agencies Contacted

Arizona

- Commission of Agriculture and Horticulture
- Desert Botanical Gardens
- Game and Fish Department
- Museum of Northern Arizona
- Northern Arizona State University
- Outdoor Recreation Coordinating Commission, Liaison Office
- State Historic Preservation Officer
- State Parks Department

Colorado

- Colorado Historical Society
- Colorado State University, Plant Information Network
- Department of Natural Resources, Wildlife Management Division
- Division of Plant Industry
- State Historic Preservation Officer

New Mexico

- Department of Game and Fish
- Natural Resources Department, State Park and Recreation Division
- State Historic Preservation Officer

Utah

State Department of Natural Resources
Division of Wildlife Resources
Outdoor Recreation Agency, State Planner
State Historic Preservation Officer

Private Organizations and Individuals Contacted and/or Consulted

Merrill J. Mattes, Littleton, Colorado
Mary Steward, North Fork Historical Society, Paonia, Colorado
Jicarilla Apache Indian Reservation
Southern Ute Indian Reservation
Uintah-Ouray Indian Reservation
Kaibab Paiute Indian Reservation
Navajo Indian Reservation
Hopi Indian Reservation
Zuni Indian Reservation

Study Team Members

Bureau of Land Management
Roger Blair, Arizona Strip District
Dan Martin, Colorado State Office
Leo Flynn, New Mexico State Office
Richard Fike, Utah State Office

Bureau of Reclamation
W.L. Rusho, Upper Colorado Regional Office

Heritage Conservation and Recreation Service
Ken Czarnowski, Mid-Continent Regional Office

National Park Service
Gene Balaz, Denver Service Center
Eugene Duhamel, Denver Service Center
Margaret Twyman, Southwest Regional Office
Charles Adams, Rocky Mountain Regional Office

State Representatives
Tanna Baldwin, Arizona
Walt Borneman, Colorado
Robert Findling, New Mexico
Melvin Smith, Utah

## COORDINATION IN THE REVIEW OF THE STUDY REPORT AND DRAFT ENVIRONMENTAL IMPACT STATEMENT

### Federal Agencies

U.S. Department of Agriculture

- Forest Service
  - Rocky Mountain Regional Office
  - Southwestern Regional Office
  - Intermountain Regional Office
- Soil Conservation Service
  - Arizona State Office
  - Colorado State Office
  - New Mexico State Office
  - Utah State Office

U.S. Department of the Interior

- Bureau of Land Management
  - Arizona State Office
  - Colorado State Office
  - New Mexico State Office
  - Utah State Office
- Bureau of Reclamation
  - Upper Colorado Region
- Fish and Wildlife Service
  - Region 2
  - Region 6
- Heritage Conservation and Recreation Service
  - Mid-Continent Region
  - South Central Region

### State Agencies

Arizona

- Game and Fish Department
- Outdoor Recreation Coordinating Commission
- State Historic Preservation Officer
- State Parks Department

Colorado

- Department of Natural Resources, Wildlife Management Division
- State Historic Preservation Officer

New Mexico

Department of Game and Fish
Natural Resources Department, State Park and Recreation Division
State Historic Preservation Officer

Utah

State Department of Natural Resources
Division of Wildlife Resources
Outdoor Recreation Agency
State Historic Preservation Officer

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Ken Czarnowski, Mid-Continent Regional Office

National Park Service
Gene Balaz, Denver Service Center
Eugene Duhamel, Denver Service Center
Margaret Twyman, Southwest Regional Office
Charles Adams, Rocky Mountain Regional Office

State Representatives
Tanna Baldwin, Arizona
Walt Borneman, Colorado
Robert Findling, New Mexico
Melvin Smith, Utah

U.S. Forest Service
Steve Sigstad, Rocky Mountain Regional Office

# APPENDIX A

## NATIONAL TRAILS SYSTEM ACT [1] (1968)

AN ACT To establish a national trails system, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

### SHORT TITLE

SECTION 1. This Act may be cited as the "National Trails System Act".

### STATEMENT OF POLICY

SEC. 2. (a) In order to provide for the ever-increasing outdoor recreation needs of an expanding population and in order to promote the preservation of, public access to, travel within, and enjoyment and appreciation of the open-air, outdoor areas and historic resources of the Nation, trails should be established (i) primarily, near the urban areas of the Nation, and (ii) secondarily, within scenic areas and along historic travel routes of the Nation, which are often more remotely located.

(b) the [2] purpose of this Act is to provide the means for attaining these objectives by instituting a national system of recreation, scenic and historic trails, by designating the Appalachian Trail and the Pacific Crest Trail as the initial components of that system, and by prescribing the methods by which, and standards according to which, additional components may be added to the system.

### NATIONAL TRAILS SYSTEM

SEC. 3. The national system of trails shall be composed of—

(a) National recreation trails, established as provided in section 4 of this Act, which will provide a variety of outdoor recreation uses in or reasonably accessible to urban areas.

(b) National scenic trails, established as provided in section 5 of this Act, which will be extended trails so located as to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass.

(c) National historic trails, established as provided in section 5 of this Act, which will be extended trails which follow as closely as possible and practicable the original trails or routes of travel of national historical significance. Designation of such trails or routes shall be continuous, but the established or developed trail, and the acquisition thereof, need not be con-

[1] The National Trails System Act (16 U.S.C. 1241-1249), as set forth herein, contains Public Law 90-543 (Oct. 2, 1968) and the amendments made by Public Law 94-527 (Oct. 17, 1976); Public Law 95-248 (Mar. 21, 1978); and Public Law 95-625 (Nov. 10, 1978).

[2] The word "the" at the beginning of section 2(b) should be capitalized, but was erroneously enacted with the lowercase spelling.

tinuous onsite. National historic trails shall have as their purpose the identification and protection of the historic route and its historic remnants and artifacts for public use and enjoyment. Only those selected land and water based components of an historic trail which are on federally owned lands and which meet the national historic trail criteria established in this Act, are established as initial Federal protection components of a national historic trail. The appropriate Secretary may subsequently certify other lands as protected segments of an historic trail upon application from State or local governmental agencies or private interests involved if such segments meet the national historic trail criteria established in this Act and such criteria supplementary thereto as the appropriate Secretary may prescribe, and are administered by such agenices or interests without expense to the United States.

(d) Connecting or side trails, established as provided in section 6 of this Act, which will provide additional points of public access to national recreation, national scenic or national historic trails or which will provide connections between such trails.

The Secretary of the Interior and the Secretary of Agriculture, in consultation with appropriate governmental agencies and public and private organizations, shall establish a uniform marker for the national trails system.

NATIONAL RECREATION TRAILS

SEC. 4. (a) The Secretary of the Interior, or the Secretary of Agriculture where lands administered by him are involved, may establish and designate national recreation trails, with the consent of the Federal agency, State, or political subdivision having jurisdiction over the lands involved, upon finding that—

(i) such trails are reasonably accessible to urban areas, and, or

(ii) such trails meet the criteria established in this Act and such supplementary criteria as he may prescribe.

(b) As provided in this section, trails within park, forest, and other recreation areas administered by the Secretary of the Interior or the Secretary of Agriculture or in other federally administered areas may be established and designated as "National Recreation Trails" by the appropriate Secretary and, when no Federal land acquisition is involved—

(i) trails in or reasonably accessible to urban areas may be designated as "National Recreation Trials" by the Secretary of the Interior with the consent of the States, their political subdivisions, or other appropriate administering agencies, and

(ii) trails within park, forest, and other recreation areas owned or administered by States may be designated as "National Recreation Trails" by the Secretary of the Interior with the consent of the State.

NATIONAL SCENIC AND NATIONAL HISTORIC TRAILS

SEC. 5. (a) National scenic and national historic trails shall be authorized and designated only by Act of Congress. There are

hereby established the following National Scenic and National Historic Trails:

(1) The Appalachian National Scenic Trail, a trail of approximately two thousand miles extending generally along the Appalachian Mountains from Mount Katahdin, Maine, to Springer Mountain, Georgia. Insofar as practicable, the right-of-way for such trail shall comprise the trail depicted on the maps identified as "Nationwide System of Trails, Proposed Appalachian Trail, NST-AT-101-May 1967", which shall be on file and available for public inspection in the office of the Director of the National Park Service. Where practicable, such rights-of-way shall include lands protected for it under agreements in effect as of the date of enactment of this Act, to which Federal agencies and State were parties. The Appalachian[1] Trail shall be administered primarily as a footpath by the Secretary of the Interior, in consultation with the Secretary of Agriculture.

(2) The Pacific Crest National Scenic Trail, a trail of approximately two thousand three hundred fifty miles, extending from the Mexican-California border northward generally along the mountain ranges of the west coast States to the Canadian-Washington border near Lake Ross, following the route as generally depicted on the map, identified as "Nationwide System of Trails, Proposed Pacific Crest Trail, NST-PC-103-May 1967" which shall be on file and available for public inspection in the office of the Chief of the Forest Service. The Pacific Crest Trail shall be administered by the Secretary of Agriculture, in consultation with the Secretary of the Interior.

(3) The Oregon National Historic Trail, a route of approximately two thousand miles extending from near Independence, Missouri, to the vicinity of Portland, Oregon, following a route as depicted on maps identified as "Primary Route of the Oregon Trail 1841-1848", in the Department of the Interior's Oregon Trail study report dated April 1977, and which shall be on file and available for public inspection in the office of the Director of the National Park Service. The trail shall be administered by the Secretary of the Interior.

(4) The Mormon Pioneer National Historic Trail, a route of approximately one thousand three hundred miles extending from Nauvoo, Illinois, to Salt Lake City, Utah, following the primary historical route of the Mormon Trail as generally depicted on a map, identified as, "Mormon Trail Vicinity Map, figure 2" in the Department of the Interior Mormon Trail study report dated March 1977, and which shall be on file and available for public inspection in the office of the Director, National Park Service, Washington, D.C. The trail shall be administered by the Secretary of the Interior.

(5) The Continential Divide National Scenic Trail, a trail of approximately thirty-one hundred miles, extending from the Montana-Canada border to the New Mexico-Mexico border, following the approximate route depicted on the map, identified as "Proposed Continental Divide National Scenic Trail" in the Department of the Interior Continental Divide Trail study report dated March 1977 and which shall be on file and available for public inspection

[1] The words "National Scenic" were apparently unintentionally omitted in the last sentence of paragraph (1) when they were inserted elsewhere by Public Law 95-625.

in the office of the Chief, Forest Service, Washington, D.C. The Continental Divide National Scenic Trail shall be administered by the Secretary of Agriculture in consultation with the Secretary of the Interior. Notwithstanding the provisions of section 7(c), the use of motorized vehicles on roads which will be designated segments of the Continental Divide National Scenic Trail shall be permitted in accordance with regulations prescribed by the appropriate Secretary.

(6) The Lewis and Clark National Historic Trail, a trail of approximately three thousand seven hundred miles, extending from Wood River, Illinois, to the mouth of the Columbia River in Oregon, following the outbound and inbound routes of the Lewis and Clark Expedition depicted on maps identified as, "Vicinity Map, Lewis and Clark Trail" study report dated April 1977. The map shall be on file and available for public inspection in the office of the Director, National Park Service, Washington, D.C. The trail shall be administered by the Secretary of the Interior.

(7) The Iditarod National Historic Trail, a route of approximately two thousand miles extending from Seward, Alaska to Nome, Alaska, following the routes as depicted on maps identified as "Seward-Nome Trail", in the Department of the Interior's study report entitled "The Iditarod Trail (Seward-Nome Route) and other Alaskan Gold Rush Trails" dated September 1977. The map shall be on file and available for public inspection in the office of the Director, National Park Service, Washington, D.C. The trail shall be administered by the Secretary of the Interior.

(b) The Secretary of the Interior, through the agency most likely to administer such trail, and the Secretary of Agriculture where lands administered by him are involved, shall make such additional studies as are herein or may hereafter be authorized by the Congress for the purpose of determining the feasibility and desirability of designating other trails as national scenic or national historic trails. Such studies shall be made in consultation with the heads of other Federal agencies administering lands through which such additional proposed trails would pass and in cooperation with interested interstate, State, and local governmental agencies, public and private organizations, and landowners and land users concerned. The studies listed in subsection (c) of this section shall be completed and submitted to the Congress, with recommendations as to the suitability of trail designation, not later than three complete fiscal years from the date of enactment of their addition to this subsection, or from the date of enactment of this sentence, whichever is later. Such studies, when submitted, shall be printed as a House or Senate document, and shall include, but not be limited to:

(1) the proposed route of such trail (including maps and illustrations);

(2) the areas adjacent to such trails, to be utilized for scenic, historic, natural, cultural, or developmental, purposes;

(3) the characteristics which, in the judgment of the appropriate Secretary, make the proposed trail worthy of designation as a national scenic or national historic trail; and in the case of national historic trails the report shall include the recommendation of the Secretary of the Interior's National

Park System Advisory Board as to the national historic significance based on the criteria developed under the Historic Sites Act of 1935 (49 Stat. 666; U.S.C. 461);[1]

(4) the current status of land ownership and current and potential use along the designated route;

(5) the estimated cost of acquisition of lands or interest in lands, if any;

(6) the plans for developing and maintaining the trail and the cost thereof;

(7) the proposed Federal administering agency (which, in the case of a national scenic or national historic trail wholly or substantially within a national forest, shall be the Department of Agriculture);

(8) the extent to which a State or its political subdivisions and public and private organizations might reasonably be expected to participate in acquiring the necessary lands and in the administration thereof;

(9) the relative uses of the lands involved, including: the number of anticipated visitor-days for the entire length of, as well as for segments of, such trail; the number of months which such trail, or segments thereof, will be open for recreation purposes; the economic and social benefits which might accrue from alternate land uses; and the estimated man-years of civilian employment and expenditures expected for the purposes of maintenance, supervision, and regulation of such trail;

(10) the anticipated impact of public outdoor recreation use on the preservation of a proposed national historic trail and its related historic and archeological features and settings, including the measures proposed to ensure evaluation and preservation of the values that contribute to their national historic significance; and

(11) to qualify for designation as a national historic trail, a trail must meet all three of the following criteria:

(A) It must be a trail or route established by historic use and must be historically significant as a result of that use. The route need not currently exist as a discernible trail to qualify, but its location must be sufficiently known to permit evaluation of public recreation and historical interest potential. A designated trail should generally accurately follow the historic route, but may deviate somewhat on occasion of necessity to avoid difficult routing through subsequent development, or to provide some route variation offering a more pleasurable recreational experience. Such deviations shall be so noted on site. Trail segments no longer possible to travel by trail due to subsequent development as motorized transportation routes may be designated and marked onsite as segments which link to the historic trail.

(B) It must be of national significance with respect to any of several broad facets of American history, such as trade and commerce, migration and settlement, or military campaigns. To qualify as nationally significant, historic

[1] The reference to 16 U.S.C. was erroneously omitted when paragraph (3) of this subsection was amended by section 551(11) of Public Law 95-625.

use of the trail must have had a far-reaching effect on broad patterns of American culture. Trails significant in the history of native Americans may be included.

(C) It must have significant potential for public recreational use or historical interest based on historic interpretation and appreciation. The potential for such use is generally greater along roadless segments developed as historic trails, and at historic sites associated with the trail. The presence of recreation potential not related to historic appreciation is not sufficient justification for designation under this category.

(c) The following routes shall be studied in accordance with the objectives outlined in subsection (b) of this section:

(1) Continental Divide Trail, a three-thousand-one-hundred-mile trail extending from near the Mexican border in southwestern New Mexico northward generally along the Continental Divide to the Canadian border in Glacier National Park.

(2) Potomac Heritage Trail, an eight-hundred-and-twenty-five-mile trail extending generally from the mouth of the Potomac River to its sources in Pennsylvania and West Virginia, including the one-hundred-and-seventy-mile Chesapeake and Ohio Canal towpath.

(3) Old Cattle Trails of the Southwest from the vicinity of San Antonio, Texas, approximately eight hundred miles through Oklahoma via Baxter Springs and Chetopa, Kansas, to Fort Scott, Kansas, including the Chisholm Trail, from the vicinity of San Antonio or Cuero, Texas, approximately eight hundred miles north through Oklahoma to Abilene, Kansas.

(4) Lewis and Clark Trail, from Wood River, Illinois, to the Pacific Ocean in Oregon, following both the outbound and inbound routes of the Lewis and Clark Expedition.

(5) Natchez Trace, from Nashville, Tennessee, approximately six hundred miles to Natchez, Mississippi.

(6) North Country Trail, from the Appalachian Trail in Vermont, approximately three thousand two hundered miles through the States of New York, Pennsylvania, Ohio, Michigan, Wisconsin, and Minnesota, to the Lewis and Clark Trail in North Dakota.

(7) Kittanning Trail from Shirleysburg in Huntingdon County to Kittanning, Armstrong County, Pennsylvania.

(8) Orgeon Trail, from Independence, Missouri, approximately two thousand miles to near Fort Vancover, Washington.

(9) Santa Fe Trail, from Independence, Missouri, approximately eight hundred miles to Sante Fe, New Mexico.[1]

(10) Long Trail, extending two hundred and fifty-five miles from the Massachusetts border northward through Vermont to the Canadian Border.

(11) Mormon Trail, extending from Nauvoo, Illinois, to Salt Lake City, Utah, through the States of Iowa, Nebraska, and Wyoming.

(12) Gold Rush Trails in Alaska.

(13) Mormon Battalion Trail, extending two thousand miles from Mount Pisgah, Iowa, through Kansas, Colorado, New Mexico, and Arizona to Los Angeles, California.

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[1]The word "Santa Fe" is erroneously spelled "Sante Fe" the second time it appears.

(14) El Camino Real from St. Augustine to San Mateo, Florida, approximately 20 miles along the southern boundary of the St. Johns River from Fort Caroline National Memorial to the St. Augustine National Park Monument.

(15) Bartram Trail, extending through the States of Georgia, North Carolina, South Carolina, Alabama, Florida, Louisiana, Mississippi, and Tennessee.

(16) Daniel Boone Trail, extending from the vicinity of Statesville, North Carolina, to Fort Boonesborough State Park, Kentucky.

(17) Desert Trail, extending form the Canadian border through parts of Idaho, Washington, Oregon, Nevada, California, and Arizona, to the Mexican border.

(18) Dominguez-Escalante Trail, extending approximately two thousand miles along the route of the 1776 expedition led by Father Francisco Atanasio Dominguez and Father Silvestre Velez de Escalante, originating in Santa Fe, New Mexico; proceeding northwest along the San Juan, Dolores, Gunnison, and White Rivers in Colorado; thence westerly to Utah Lake; thence southward to Arizona and returning to Santa Fe.

(19) Florida Trail, extending north from Everglades National Park, including the Big Cypress Swamp, the Kissimme Prairie, the Withlacoochee State Forest, Ocala National Forest, Osceola National Forest, and Black Water River State Forest, said completed trail to be approximately one thousand three hundered miles long, of which over four hundred miles of trail have already been built.

(20) Indian Nations Trail, extending from the Red River in Oklahoma approximately two hundred miles northward through the former Indian nations to the Oklahoma-Kansas boundary line.

(21) Nez Perce Trail extending from the vicinity of Wallowa Lake, Oregon, to Bear Paw Mountain, Montana.

(22) Pacific Northwest Trail, extending approximately one thousand miles from the Continental Divide in Glacier National Park, Montana, to the Pacific Ocean beach of Olympic National Park, Washington, by way of—

(A) Flathead National Forest and Kootenai National Forest in the State of Montana;

(B) Kaniksu National Forest in the State of Idaho; and

(C) Colville National Forest, Okanogan National Forest, Pasayten Wilderness Area, Ross Lake National Recreation Area, North Cascades National Park, Mount Baker, the Skagit River, Deception Pass, Whidbey Island, Olympic National Forest, and Olympic National Park in the State of Washington.

(20) Overmountain Victory Trail, extending from the vicinity of Elizabethton, Tennessee, to Kings Mountain National Military Park, South Carolina.[1]

(d) The Secretary charged with the administration of each respective trail shall, within one year of the date of the addition of any national scenic or national historic trail to the system, and within sixty days of the enactment of this sentence for the Appalachian and Pacific Crest National Scenic Trails, establish an advisory council for each such trail, each of which councils shall expire ten years from the date of its establishment. The appropriate Secretary shall consult with such council from time to time with respect to

[1] Paragraph (20), added by section 551(13) of the National Parks and Recreation Act of 1978 (Public Law 95-625), should be numbered paragraph (23).

matters relating to the trail, including the selection of rights-of-way, standards for the erection and maintenance of markers along the trail, and the administration of the trail. The members of each advisory council, which shall not exceed thirty-five in number, shall serve for a term of two years and without compensation as such, but the Secretary may pay, upon vouchers signed by the chairman of the council, the expenses reasonably incurred by the council and its members in carrying out their responsibilities under this section. Members of each council shall be appointed by the appropriate Secretary as follows:

(i) a member appointed to represent each Federal department or independent agency administering lands through which the trail route passes, and each appointee shall be the person designated by the head of such department or agency;

(ii) a member appointed to represent each State through which the trail passes, and such appointments shall be made from recommendations of the Governors of such States;

(iii) one or more members appointed to represent private organizations, including corporate and individual landowners and land users, which in the opinion of the Secretary, have an established and recognized interest in the trail, and such appointments shall be made from recommendations of the heads of such organizations: *Provided,* That the Appalachian Trail Conference shall be represented by a sufficient number of persons to represent the various sections of the country through which the Appalachian Trail passes; and

(iv) the Secretary shall designate one member to be chairman and shall fill vacancies in the same manner as the original appointment.

(e) Within two complete fiscal years of the date of enactment of legislation designating a national scenic trail, except for the Continental Divide National Scenic Trail, as part of the system, and within two complete fiscal years of the date of enactment of this subsection for the Pacific Crest and Appalachian Trails, the responsible Secretary shall, after full consultation with affected Federal land managing agencies, the Governors of the affected States, the relevant advisory council established pursuant to section 5(d), and the Appalachian Trail Conference in the case of the Appalachian Trail, submit to the Committee on Interior and Insular Affairs of the House of Representatives and the Committee on Energy and Natural Resources of the Senate, a comprehensive plan for the acquisition, management, development, and use of the trail, including but not limited to, the following items:

(1) specific objectives and practices to be observed in the management of the trail, including the identification of all significant natural, historical, and cultural resources to be preserved (along with high potential historic sites and high potential route segments in the case of national historic trails), details of anticipated cooperative agreements to be consummated with other entities, and an identified carrying capacity of the trail and a plan for its implementation;

(2) an acquisition or protection plan, by fiscal year, for all lands to be acquired by fee title or lesser interest, along with

detailed explanation of anticipated necessary cooperative agreements for any lands not to be acquired; and

(3) general and site-specific development plans including anticipated costs.

(f) Within two complete fiscal years of the date of enactment of legislation designating a national historic trail or the Continental Divide National Scenic Trail as part of the system, the responsible Secretary shall, after full consultation with affected Federal land managing agencies, the Governors of the affected States, and the relevant Advisory Council established pursuant to section 5(d) of this Act, submit to the Committee on Interior and Insular Affairs of the House of Representatives and the Committee on Energy and Natural Resources of the Senate, a comprehensive plan for the management, and use of the trail, including but not limited to, the following items:

(1) specific objectives and practices to be observed in the management of the trail, including the identification of all significant natural, historical, and cultural resources to be preserved, details of any anticipated cooperative agreements to be consummated with State and local government agencies or private interests, and for national scenic or national recreational trails an identified carrying capacity of the trail and a plan for its implementaton; and

(2) the process to be followed by the appropriate Secretary to implement the marking requirements established in section 7(c) of this Act.

CONNECTING AND SIDE TRAILS

SEC. 6. Connecting or side trails within park, forest, and other recreation areas administered by the Secretary of the Interior or Secretary of Agriculture may be established, designated, and marked as components of a national recreation, national scenic or national historic trail. When no Federal land acquisition is involved, connecting or side trails may be located across lands administered by interstate, State, or local governmental agencies with their consent: *Provided,* That such trails provide additional points of public access to national recreation, national scenic, or national historic trails.

ADMINISTRATION AND DEVELOPMENT

SEC. 7. (a) Pursuant to section 5(a), the appropriate Secretary shall select the rights-of-way for national scenic and national historic trails and shall publish notice thereof in the Federal Register, together with appropriate maps and descriptions: *Provided,* That in selecting the rights-of-way full consideration shall be given to minimizing the adverse effects upon the adjacent landowner or user and his operation. Development and management of each segment of the National Trails System shall be designed to harmonize with and complement any established multiple-use plans for that specific area in order to insure continued maximum benefits from the land. The location and width of such rights-of-way across Federal lands under the jurisdiction of another Federal agency shall be by agreement between the head of that agency and the appropriate

Secretary. In selecting rights-of-way for trail purposes, the Secretary shall obtain the advice and assistance of the States, local governments, private organizations, and landowners and land users concerned.

(b) After publication of notice in the Federal Register, together with appropriate maps and descriptions, the Secretary charged with the administration of a national scenic or national historic trail may relocate segments of a national scenic or national historic trail right-of-way, with the concurrence of the head of the Federal agency having jurisdiction over the lands involved, upon a determination that: (i) Such a relocation is necessary to preserve the purposes for which the trail was established, or (ii) the relocation is necessary to promote a sound land management program in accordance with established multiple-use principles: *Provided,* That a substantial relocation of the rights-of-way for such trail shall be by Act of Congress.

(c) National scenic or national historic trails may contain campsites, shelters, and related-public-use facilities. Other uses along the trail, which will not substantially interfere with the nature and purposes of the trail, may be permitted by the Secretary charged with the administration of the trail. Reasonable efforts shall be made to provide sufficient access opportunities to such trails and, to the extent practicable, efforts shall be made to avoid activities incompatible with the purposes for which such trails were established. The use of motorized vehicles by the general public along any national scenic trail shall be prohibited and nothing in this Act shall be construed as authorizing the use of motorized vehicles within the natural and historical areas of the national park system, the national wildlife refuge system, the national wilderness preservation system where they are presently prohibited or on other Federal lands where trails are designated as being closed to such use by the appropriate Secretary: *Provided,* That the Secretary charged with the administration of such trail shall establish regulations which shall authorize the use of motorized vehicles when, in his judgment, such vehicles are necessary to meet emergencies or to enable adjacent landowners or land users to have reasonable access to their lands or timber rights: *Provided further,* That private lands included in the national recreation, national scenic, or national historic trails by cooperative agreement of a landowner shall not preclude such owner from using motorized vehicles on or across such trails or adjacent lands from time to time in accordance with regulations to be established by the appropriate Secretary. Where a national historic trail follows existing public roads, developed rights-of-way or waterways, and similar features of man's nonhistorically related development, approximating the original location of a historic route, such segments may be marked to facilitate retracement of the historic route, and where a national historic trail parallels an existing public road, such road may be marked to commemorate the historic route. The Secretary of the Interior and the Secretary of Agriculture, in consultation with appropriate governmental agencies and public and private organizations, shall establish a uniform marker, including thereon an appropriate and distinctive symbol for each national recreation, national scenic, and national historic trail. Where the trails cross

lands administered by Federal agencies such markers shall be erected at appropriate points along the trails and maintained by the Federal agency administering the trail in accordance with standards established by the appropriate Secretary and where the trails cross non-Federal lands, in accordance with written cooperative agreements, the appropriate Secretary shall provide such uniform markers to cooperating agencies and shall require such agencies to erect and maintain them in accordance with the standards established.

(d) Within the exterior boundaries of areas under their administration that are included in the right-of-way selected for a national recreation, national scenic, or national historic trail, the heads of Federal agencies may use lands for trail purposes and may acquire lands or interests in lands by written cooperative agreement, donation, purchase with donated or appropriated funds or exchange.

(e) Where the lands included in a national scenic or national historic trail right-of-way are outside of the exterior boundaries of federally administered areas, the Secretary charged with the administration of such trail shall encourage the States or local governments involved (1) to enter into written cooperative agreements with landowners, private organizations, and individuals to provide the necessary trail right-of-way, or (2) to acquire such lands or interests therein to be utilized as segments of the national scenic or national historic trail: *Provided,* That if the State or local governments fail to enter into such written cooperative agreements or to acquire such lands or interests therein after notice of the selection of the right-of-way is published, the appropriate Secretary may (i) enter into such agreements with landowners, States, local governments, private organizations, and individuals for the use of lands for trail purposes, or (ii) acquire private lands or interests therein by donation, purchase with donated or appropriated funds or exchange in accordance with the provisions of subsection (g) of this section. The lands involved in such rights-of-way should be acquired in fee, if other methods of public control are not sufficient to assure their use for the purpose for which they are acquired: *Provided,* That if the Secretary charged with the administration of such trail permanently relocates the right-of-way and disposes of all title or interest in the land, the original owner, or his heirs or assigns, shall be offered, by notice given at the former owner's last known address, the right of first refusal at the fair market price.

(f) The Secretary of the Interior, in the exercise of his exchange authority, may accept title to any non-Federal property within the right-of-way and in exchange therefor he may convey to the grantor of such property and federally owned property under his jurisdiction which is located in the State wherein such property is located and which he classifies as suitable for exchange or other disposal. The values of the properties so exchanged either shall be approximately equal, or if they are not approximately equal the values shall be equalized by the payment of cash to the grantor or to the Secretary as the circumstances require. The Secretary of Agriculture, in the exercise of his exchange authority, may utilize authorities and procedures available to him in connection with exchanges of national forest lands.

(g) The appropriate Secretary may utilize condemnation proceedings without the consent of the owner to acquire private lands or interests therein pursuant to this section only in cases where, in his judgment, all reasonable efforts to acquire such lands or interests therein by negotiation have failed, and in such cases he shall acquire only such title as, in his judgment, is reasonably necessary to provide passage across such lands: *Provided*, That condemnation proceedings may not be utilized to acquire fee title or lesser interests to more than an average of one hundred and twenty-five acres per mile. Money appropriated for Federal purposes from the land and water conservation fund shall, without prejudice to appropriations from other sources, be available to Federal departments for the acquisition of lands or interests in lands for the purposes of this Act. For national historic trails, direct Federal acquisition for trail purposes shall be limited to those areas indicated by the study report or by the comprehensive plan as high potential route segments or high potential historic sites.

(h) The Secretary charged with the administration of a national recreation, national scenic, or national historic trail shall provide for the development and maintenance of such trails within federally administered areas and shall cooperate with and encourage the States to operate, develop, and maintain portions of such trails which are located outside the boundaries of federally administered areas. When deemed to be in the public interest, such Secretary may enter written cooperative agreements with the States or their political subdivisions, landowners, private organizations, or individuals to operate, develop, and maintain any portion of a national scenic or national historic trail either within or outside a federally administered area.

Whenever the Secretary of the Interior makes any conveyance of land under any of the public land laws, he may reserve a right-of-way for trails to the extent he deems necessary to carry out the purposes of this Act.

(i) The appropriate Secretary, with the concurrence of the heads of any other Federal agencies administering lands through which a national recreation, national scenic, or national historic trail passes, and after consultation with the States, local governments, and organizations concerned, may issue regulations, which may be revised from time to time, governing the use, protection, management, development, and administration of trails of the national trails system. In order to maintain good conduct on and along the trails located within federally administered areas and to provide for the proper government and protection of such trails, the Secretary of the Interior and the Secretary of Agriculture shall prescribe and publish such uniform regulations as they deem necessary and any person who violates such regulations shall be guilty of a misdemeanor, and may be punished by a fine of not more than $500, or by imprisonment not exceeding six months, or by both such fine and imprisonment.

STATE AND METROPOLITAN AREA TRAILS

SEC. 8. (a) The Secretary of the Interior is directed to encourage States to consider, in their comprehensive statewide outdoor recre-

ation plans and proposals for financial assistance for State and local projects submitted pursuant to the Land and Water Conservation Fund Act, needs and opportunities for establishing park, forest, and other recreation and historic trails on lands owned or administered by States, and recreation trails on lands in or near urban areas.

The Secretary is also directed to encourage States to consider, in their comprehensive statewide historic preservation plans and proposals for financial assistance for State, local, and private projects submitted pursuant to the Act of October 15, 1966 (80 Stat. 915), as amended, needs and opportunities for establishing historic trails. He is further directed, in accordance with the authority contained in the Act of May 28, 1963 (77 Stat. 49), to encourage States, political subdivisions, and private interests, including nonprofit organizations, to establish such trails.

(b) The Secretary of Housing and Urban Development is directed, in administering the program of comprehensive urban planning and assistance under section 701 of the Housing Act of 1954, to encourage the planning of recreation trails in connection with the recreation and transportation planning for metropolitan and other urban areas. He is further directed, in administering the urban open-space program under title VII of the Housing Act of 1961, to encourage such recreation trails.

(c) The Secretary of Agriculture is directed, in accordance with authority vested in him, to encourage States and local agencies and private interests to establish such trails.

(d) Such trails may be designated and suitably marked as parts of the nationwide system of trails by the States, their political subdivisions, or other appropriate administering agencies with the approval of the Secretary of the Interior.

RIGHTS-OF-WAY AND OTHER PROPERTIES

SEC. 9. (a) The Secretary of the Interior or the Secretary of Agriculture as the case may be, may grant easements and rights-of-way upon, over, under, across, or along any component of the national trails system in accordance with the laws applicable to the national park system and the national forest system, respectively: *Provided,* That any conditions contained in such easements and rights-of-way shall be related to the policy and purposes of this Act.

(b) The Department of Defense, the Department of Transportation, the Interstate Commerce Commission, the Federal Communications Commission, the Federal Power Commission, and other Federal agencies having jurisdiction or control over or information concerning the use, abandonment, or disposition of road ways, utility rights-of-way, or other properties which may be suitable for the purpose of improving or expanding the national trails system shall cooperate with the Secretary of the Interior and the Secretary of Agriculture in order to assure, to the extent practicable, that any such properties having values suitable for trail purposes may be made available for such use.

AUTHORIZATION OF APPROPRIATIONS

SEC. 10.[1] There are hereby authorized to be appropriated for the acquisition of lands or interests in lands not more than $5,000,000 for the Appalachian National Scenic Trail and not more than $500,000 for the Pacific Crest National Scenic Trail. From the appropriations authorized for fiscal year 1979 and succeeding fiscal years pursuant to the Land and Water Conservation Fund Act (78 Stat. 897), as amended, not more than the following amounts may be expended for the acquisition of lands and interests in lands authorized to be acquired pursuant to the provisions of this Act:

(a) The Appalachian National Scenic Trail, not to exceed $30,000,000 for fiscal year 1979, $30,000,000 for fiscal year 1980, and $30,000,000 for fiscal year 1981, except that the difference between the foregoing amounts and the actual appropriations in any one fiscal year shall be available for appropriation in subsequent fiscal years. It is the express intent of the Congress that the Secretary should substantially complete the land acquisition program necessary to insure the protection of the Trail within three complete fiscal years following the date of enactment of this sentence. Until the entire acquisition program is completed, he shall transmit in writing at the close of each fiscal year the following information to the Committee on Energy and Natural Resources of the Senate and to the Committee on Interior and Insular Affairs of the House of Representatives:

(A) the amount of land acquired during the fiscal year and the amount expended therefor;

(B) the estimated amount of land remaining to be acquired; and

(C) the amount of land planned for acquisition in the ensuing fiscal year and the estimated cost thereof.

(b) For the purposes of Public Law 95-42 (91 Stat. 211), the lands and interests therein acquired pursuant to this section shall be deemed to qualify for funding under the provisions of section 1, clause 2, of said Act.

(c) There is hereby authorized to be appropriated such sums as may be necessary to implement the provisions of this Act relating to the trails designated by paragraph 5(a) (3), (4), (5), (6), and (7): *Provided,* That no such funds are authorized to be appropriated prior to October 1, 1979: *And provided further,* That notwithstanding any other provisions of this Act or any other provisions of law, no funds may be expended for the acquisition of lands or interests in lands for the Continental Divide National Scenic Trail, the Oregon National Historic Trail, the Mormon Pioneer National Historic Trail, the Lewis and Clark National Historic Trail, and the Iditarod National Historic Trail.

[1] The "(a)" which appears at the beginning of the second paragraph was apparently intended to be inserted at the beginning of the first paragraph. See paragraph (5) of Public Law 95-248 (Mar. 21, 1978).

# APPENDIX B

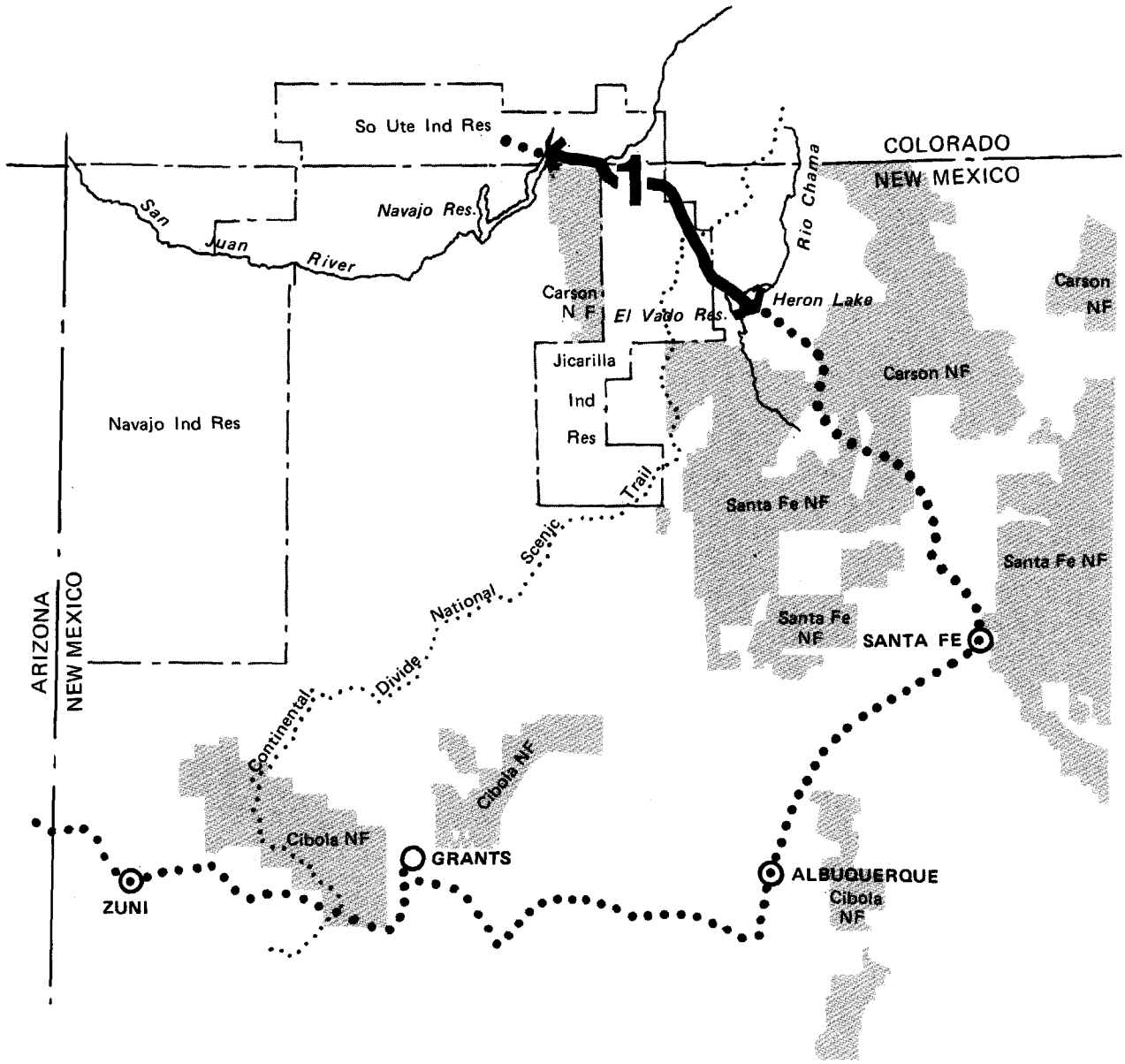
## DESCRIPTION OF HIGH POTENTIAL SEGMENTS

### NEW MEXICO

Segment 1 (El Vado Reservoir, New Mexico, to Navajo Reservoir, Colorado - 50 miles). The segment starts at the south end of the reservoir within El Vado Lake State Park and meanders northeast to the reservoir within Heron Lake State Park. Between these points the state of New Mexico currently has a 5.5 mile long right-of-way for trail development.

The route then crosses the Rio Chama and continues northwest up Boulder Creek. After several miles it enters the Jicarilla Apache reservation. Here the terrain is predominantly mountainous with scattered woods and spectacular rock formations. This is also one of the best wildlife areas in New Mexico. Several camping facilities run by the Jicarillas are situated near the route. The route crosses the Continental Divide and intersects the recently authorized Continental Divide National Scenic Trail. For a short distance the route crosses the Carson National Forest and then enters Colorado. In Colorado the route is within the Southern Ute Indian reservation. Here it crosses the San Juan River. An existing graveled road may be utilized to reach the end of the segment on the eastern end of the Navajo Reservoir.

(NOTE: The high potential segment, which includes Zuni, New Mexico, is found in segment 13 in the Arizona section.)



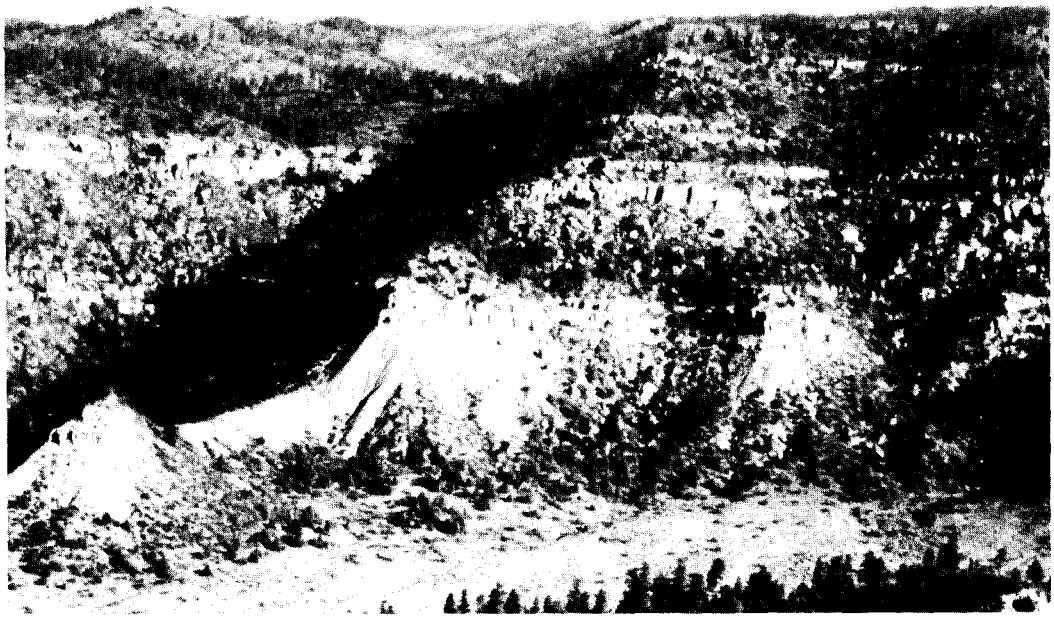

# HIGH POTENTIAL SEGMENT-NEW MEXICO
## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL

0 10 20 30 MILES

NORTH 0 10 20 30 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

NHT/DE | 20018
DSC | AUG 80



Jicarilla Indian Reservation.

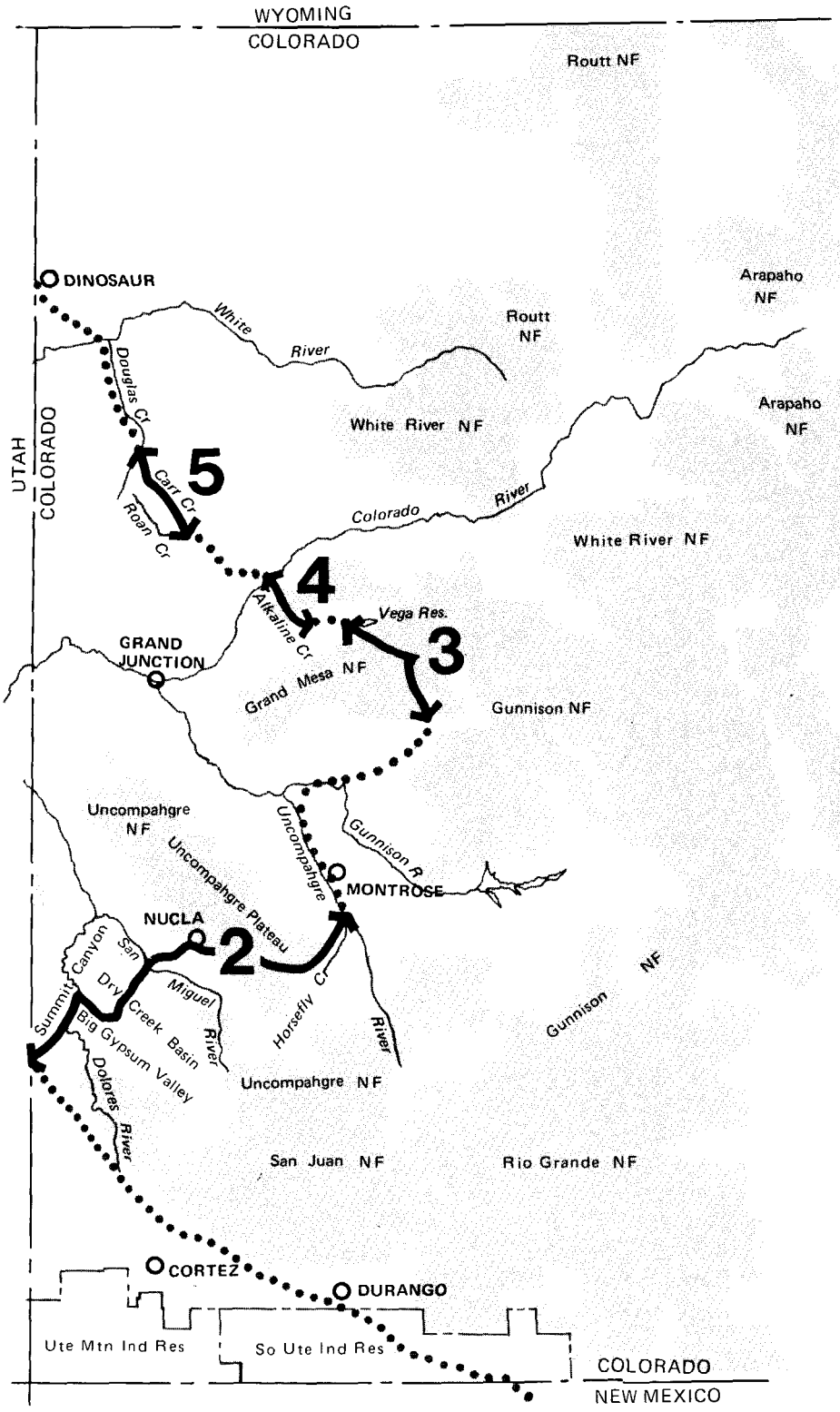
COLORADO

Segment 2 (Utah-Colorado border northeast to the Uncompahgre River - 100 miles). This segment begins near the Utah border and heads northeast via the steep and rocky Summit Canyon to the Dolores River. Here the route follows the recently proposed Dolores Wild and Scenic River for 8 miles. Upon discovering its narrow, steep, and winding canyon, the expedition went only as far as Little Gypsum Valley before turning southeast. Traveling along the edge of the Big Gypsum Valley the route turns due north across a narrow ridge and drops into Dry Creek Basin. Leaving the basin along the west fork of Dry Creek the route follows this drainage past the southern end of Paradox Valley to the San Miguel River at West Vancorum. Ascending a steep hill from the river the route then travels through the San Miguel Valley. Just above Nucla the valley narrows into a canyon and the route begins its ascent of the timbered Uncompahgre Plateau. The route parallels Cottonwood Creek and enters the Uncompahgre National Forest. It crosses Red Canyon and follows Horsefly Creek on its north side passing the crest of the plateau at 9,000 feet. The route then descends through a stand of aspen and passes several natural springs. The segment ends near the Uncompahgre River just south of Montrose.

Segment 3 (Southern boundary of the Gunnison National Forest to Vega Reservoir - 30 miles). This segment begins at the southern boundary of the Gunnison National Forest and follows Hubbard Creek on an existing gravel road to the top of Grand Mesa. (Grand Mesa is one of the largest flat top mountains in the world.) Much of this segment is within the Grand Mesa National Forest and above 8,000 feet. The route passes the southern end of Bronco Knob and enters the headwaters of Plateau Creek. The creek is followed to Vega Reservoir, which terminates the segment. A Colorado state recreation area is located here.

Segment 4 (Plateau Creek north to the Colorado River - 15 miles). The next segment begins west of Plateau City and ascends Hayes Mesa. Here it reenters Grand Mesa National Forest and climbs to the top of Battlement Mesa. On the east side of Castle Peak in the White River National Forest the route joins Alkalai Creek. The route descends to the plain and terminates on the south side of the Colorado River.

Segment 5 (Carr Creek to the East Fork of Douglas Creek - 20 miles). This high potential segment begins at the confluence of Carr and Roan creeks. The route utilizes an existing dirt road as it ascends Carr Creek to the divide between the Colorado and White Rivers. Here is a sweeping view of the rugged Cathedral Bluffs that parallel Douglas Creek. The route continues through open gently sloping hills and crosses above the headwaters of Lake Creek. It then drops down a long slope to the East Fork of Douglas Creek thus ending the segment.




# HIGH POTENTIAL SEGMENTS-COLORADO
## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL

0 10 20 30 MILES

NORTH 0 10 20 30 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

NHT/DE | 20015
DSC | AUG 80

San Miguel River near Nucla, Colorado. CC-BC

Uncompahgre Plateau. CC-BC

UTAH

Segment 6 (Utah-Colorado boundary to Green River - 15 miles). This segment begins near the Colorado-Utah border and proceeds westward through the Green River Valley. The route parallels Cliff Ridge of the Blue Mountain Plateau through open rangeland.

The Bureau of Land Management has established an interpretive exhibit at Musket Shot Springs to commemorate two springs within a musket shot's distance of each other as described in Escalante's journal. In addition, at the Cockleburr Wash Petroglyphs site a series of panels depicting goats, birds, and human-like figures, as well as circles and irregularly shaped lines, may be observed. The segment ends near the Green River, just south of Dinosaur National Monument.

Segment 7 (South of Vernal, Utah, to Uintah-Ouray Reservation - 30 miles). This segment begins on state land just south of Vernal, Utah. The route travels southwest across open, rolling rangeland. Once past Asphalt Ridge there is a high hill nearby where one gets a panoramic view of the Green River. The padres felt hostile Indians might be encountered if they were too close to the Green River, and their route paralleled the river from a distance. North of Pelican Lake the route enters the Uintah-Ouray Indian Reservation. The segment follows the Duchesne River and ends south of Randlett.

Segment 8 (West side of Strawberry Lake to Diamond Fork - 15 miles). The next segment starts on the west side of Strawberry Reservoir in the Uinta National Forest. Heading west it enters the rough and rugged Wasatch Mountains. Going south between Red Hollow and Wanrhodes Canyon the segment terminates at Diamond Fork Creek.

Segment 9 (Fishlake National Forest to Black Rock, Utah - 70 miles). The segment begins beyond Scipio Pass and heads west across Fishlake National Forest. Here one can see Pavant Butte, an extinct volcanic cone.

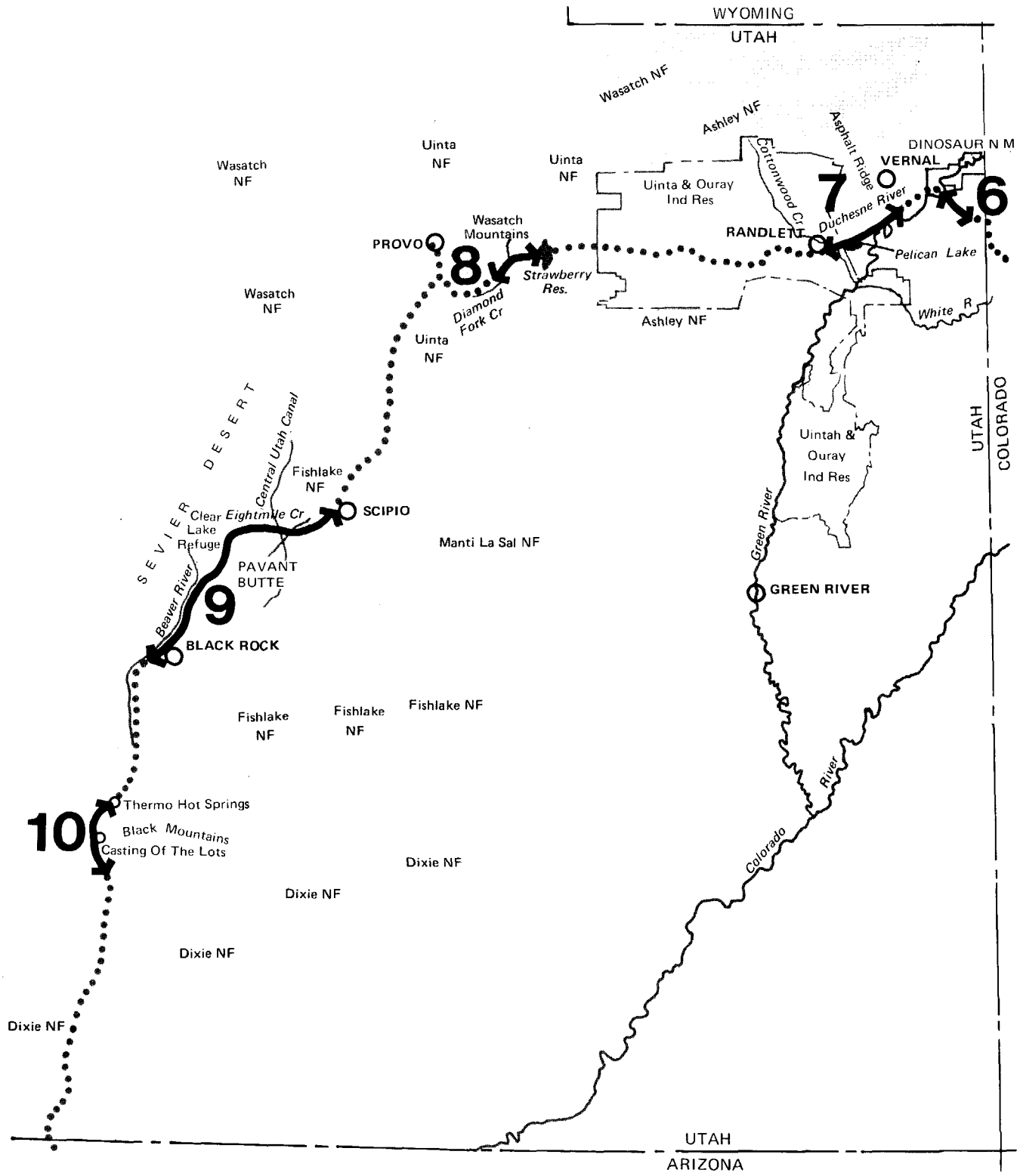
Leaving Fishlake National Forest along Eightmile Creek the route follows a dirt road for 5 miles through irrigated farmland. Shortly after crossing the Central Utah Canal it enters the Sevier Desert. The route then nears Pavant Butte and provides an opportunity to observe the sheer cliff on its west side. The area is strewn with volcanic ash and rock. The Clear Lake State Waterfowl Refuge is west of the route and offers opportunities to observe wildlife.

The route continues southwest to Beaver River. The Cricket Mountains to the west provide contrast to the flatness of the desert. The Beaver River is followed all the way to Black Rock, Utah, thus ending the segment.

Segment 10 (Thermo Hot Springs to Horse Hollow - 20 miles). The next segment begins where the Bureau of Land Management has developed an interpretive site at Thermo Hot Springs. Continuing along the foot of the Black Mountains, the route soon reaches the site of the Casting of the Lots. The Bureau of Land Management has an interpretive display here

that relates the decision of the padres to return to Santa Fe rather than attempting to reach Monterey.

The route continues through open sagebrush until it reaches the juniper-covered slopes of Horse Hollow where the segment ends. This segment has been signed by the Bureau of Land Management. The Old Spanish Trail, which linked Santa Fe to Los Angeles, crosses this segment at its southern end.




# HIGH POTENTIAL SEGMENTS-UTAH
## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL

0 10 20 30 MILES

NORTH 0 10 20 30 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

| NHT/DE | 20017 |
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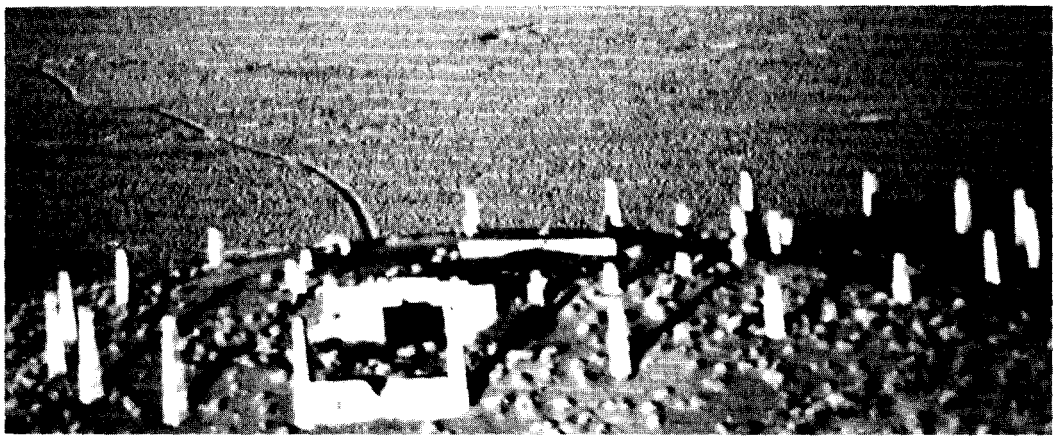
| DSC | AUG 80 |

Fishlake National Forest.



Ruins on top of Pavant Butte.

Thermo Hot Springs.

ARIZONA

Segment 11 (Sand Mountain to Glen Canyon National Recreation Area - 190 miles). This segment begins at Sand Mountain, southwest of Hurricane, Utah. It is the longest of the high potential segments. Heading south from Sand Mountain the route enters Warner Valley providing spectacular views of northern Arizona and southern Utah. Near the Utah-Arizona border the route crosses the Honeymoon Trail, which runs from northeastern Arizona along the Little Colorado River to St. George, Utah. In addition, the Temple Trail bisects the Dominguez-Escalante route in this same area.

The route swings eastward through Rock Canyon, which is over 1,500 feet deep at its mouth. Due to the extreme difficulty of the ascent, the padres turned back and continued south paralleling the Hurricane Cliffs. At a slight break in the cliffs the route turns eastward and climbs to the Uinkaret Plateau. The route then swings in a southeasterly direction across rolling plains accented by occasional cinder cones. The route passes through Antelope Valley, then turns northeast and nears Heaton Knoll, a prominent volcanic landmark. Once near Bull Rush Wash it follows the drainage to a point where it turns due east. Near here it enters the Kaibab Indian reservation.

Just south of Fredonia the route leaves the Kaibab Indian reservation and follows Johnson Wash for a short distance. It then swings north to the Shinarump Cliffs and ascends the Kaibab Plateau. The Honeymoon Trail again crosses the Dominguez-Escalante route in this area. The route descends the plateau to Coyote Spring, which was probably used by the padres.

The route heads south over open country and parallels the Honeymoon Trail, crosses a narrow divide, and drops into House Rock Valley. Continuing down House Rock Valley the route remains close to the base of the Vermillion Cliffs. The cliffs form the Vermillion Cliffs Natural Area administered by the Bureau of Land Management. Along the nearby highway an interpretive display describes the padres' San Bartolome campsite in House Rock Valley.

The route continues to Lee's Ferry where the padres first attempted to cross the Colorado River. Here the route enters the Glen Canyon National Recreation Area.

The route turns up Paria Canyon along the Paria River and begins to ascend Echo Cliffs. Once on top, the route moves northeast toward Wahweap where the segment ends.

Segment 12 (Utah-Arizona border to Oraibi, Arizona - 110 miles). This segment begins on the Navajo Indian reservation just south of Lake Powell and heads south along the Rainbow Plateau. This is the most remote high potential segment.

The route passes the Tse Tonte Cliffs providing a view of Tower Butte and Wild Horse Mesa. Just beyond the cliffs the padres attempted to go due east but after a day's travel found this not feasible and returned to

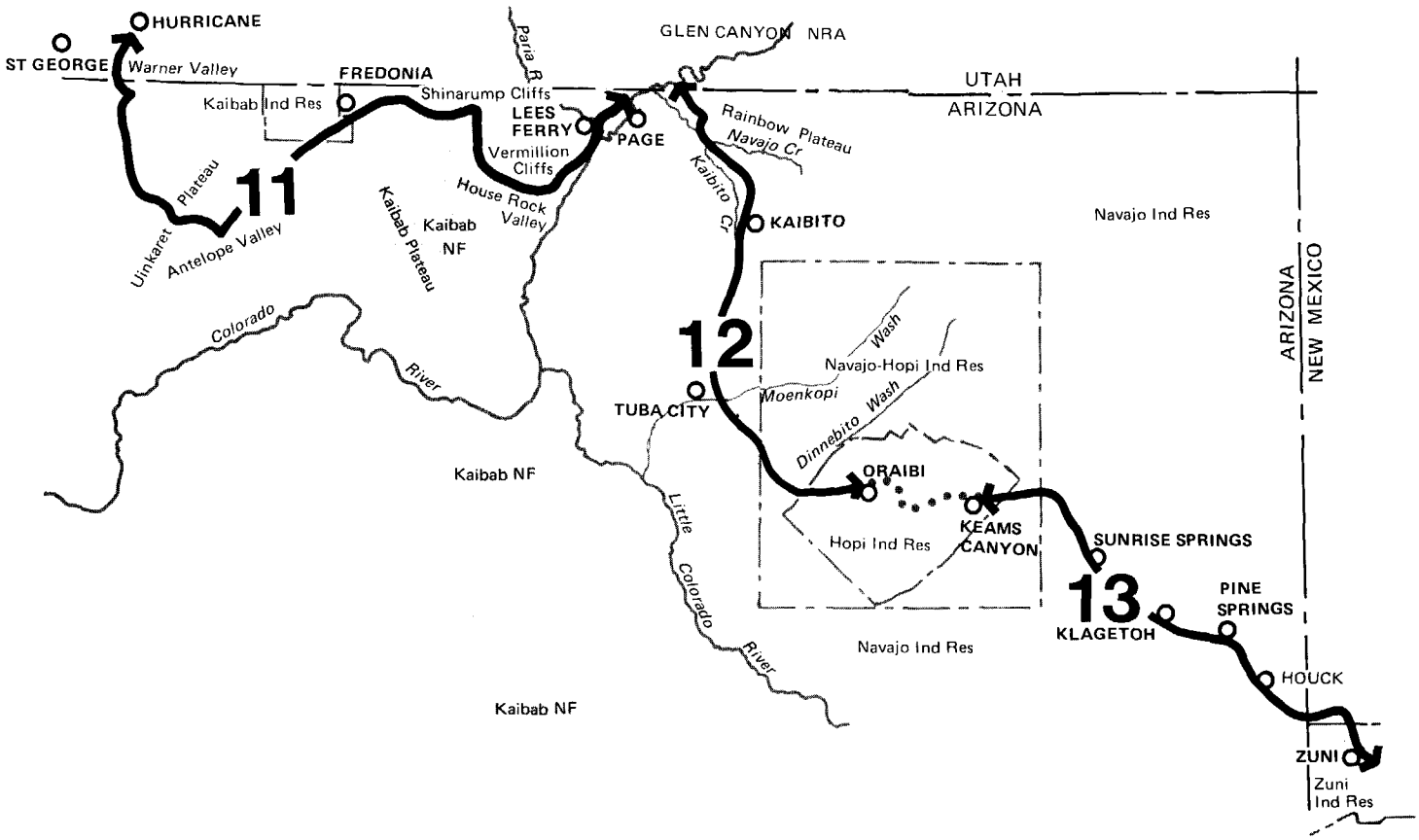
their original point and continued south. As the route leaves the plateau it crosses the floor of Navajo Canyon at the confluence of Navajo and Kaibito creeks. This area is flooded when Lake Powell reaches 3,646 feet. The route is steep and rocky as it climbs out of the canyon onto the Kaibito Plateau. The route crosses several small sand dunes to Kaibito Village, which is the first of the few villages encountered. From here the route ascends low hills, traverses an open valley, and passes Preston Mesa. South of the mesa it crosses frequent stretches of sand intermixed with outcroppings of sandstone. Just east of Tuba City it enters Pasture Canyon and passes four springs, which were found by the padres.

From Pasture Canyon the route swings east of Moenkopi and dips into Moenkopi Wash. It climbs to the top of Coal Mine Mesa and enters the Navajo-Hopi reservation. At Dinnebito Wash the route enters the Hopi reservation. From here the route follows open country to Oraibi where the segment ends.

Segment 13 (Keams Canyon, Arizona, to Zuni, New Mexico - 105 miles). The segment begins at the village of Keams Canyon and soon leaves the Hopi reservation and again enters the Navajo reservation. It crosses the headwaters of Jadito Wash and meanders through low hills and numerous gullies to the village of Sunrise Springs. The route continues southeast through pinyon-juniper woodland and passes Klagetoh and continues to Pine Springs. The route then traverses a narrow valley to Houck.

The route continues to meander southeasterly through pinyon-juniper to the Arizona-New Mexico border at the edge of the Navajo reservation.

The route reenters New Mexico near Bosson Wash. After a short distance it enters the Zuni reservation and then follows Bosson Wash just west of Zuni Buttes. This wash is followed to Zuni ending the segment. At this point the route is crossed by the Beale Wagon Road. Here also the old mission church built in 1629 has been restored except for the rectory.




# HIGH POTENTIAL SEGMENTS-ARIZONA
## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL

0 10 20 30 MILES

NORTH 0 10 20 30 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

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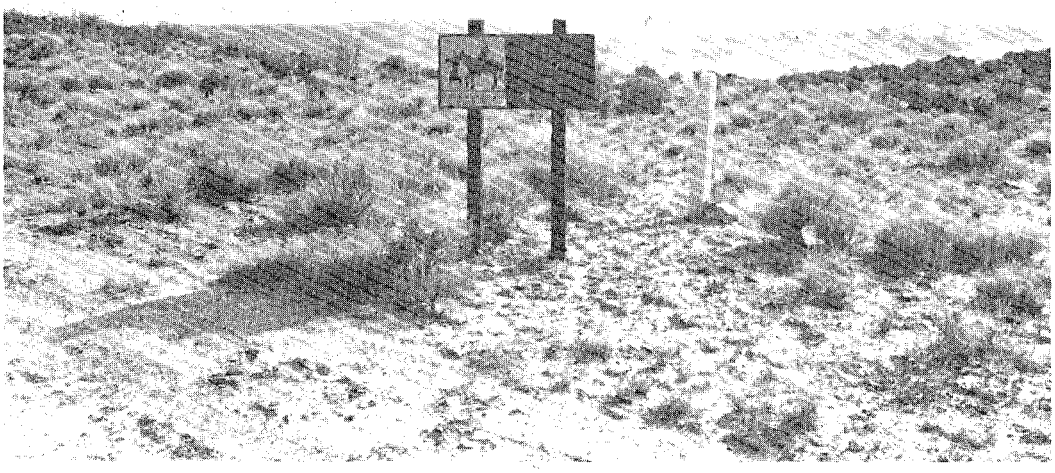
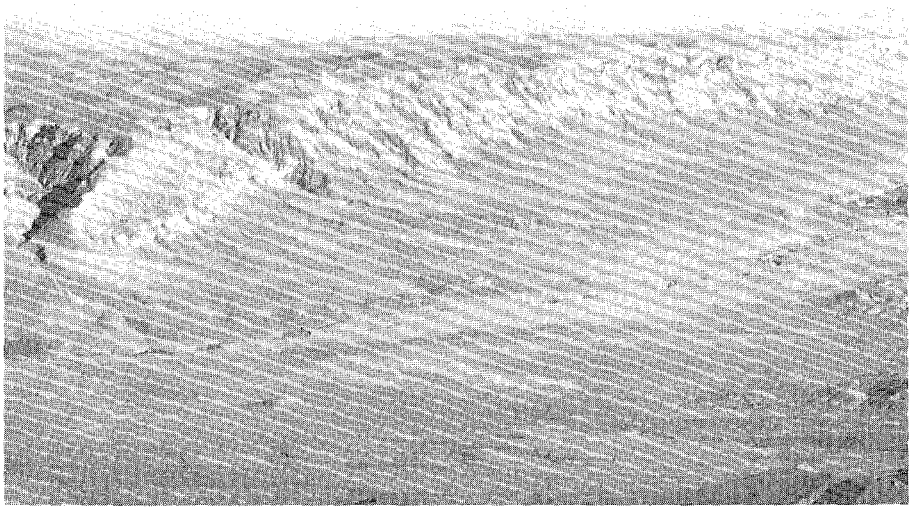
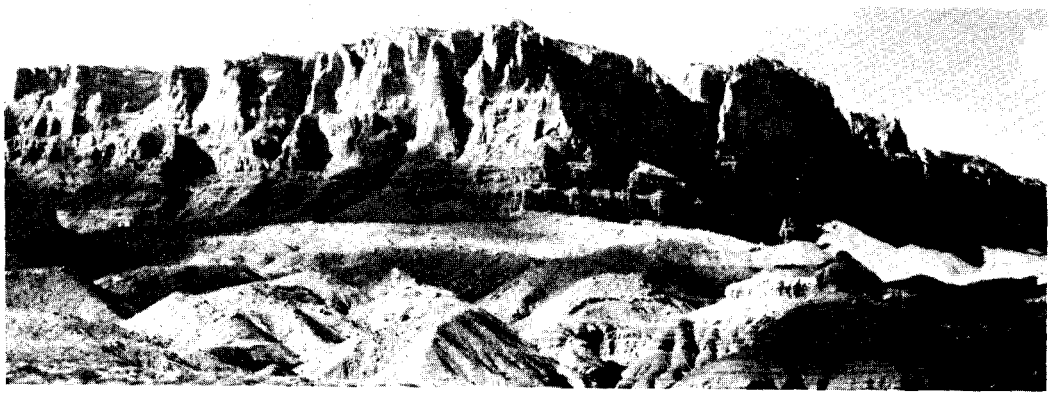


Trailhead at Sand Mountain.

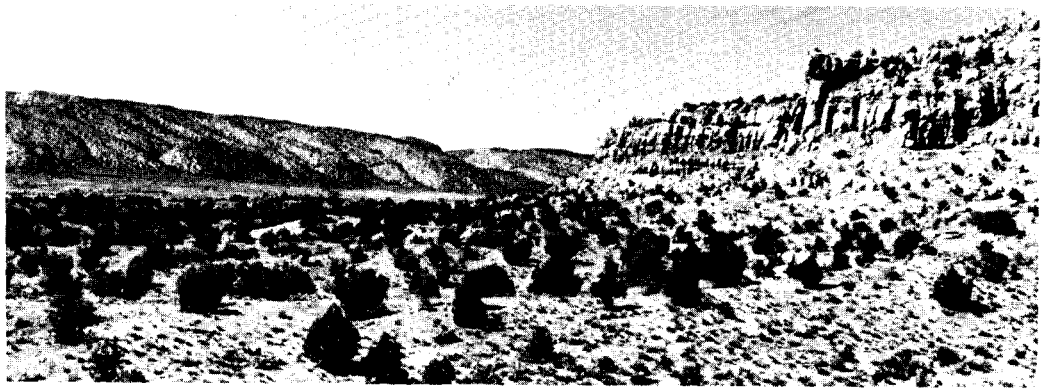


Hurricane Cliffs.



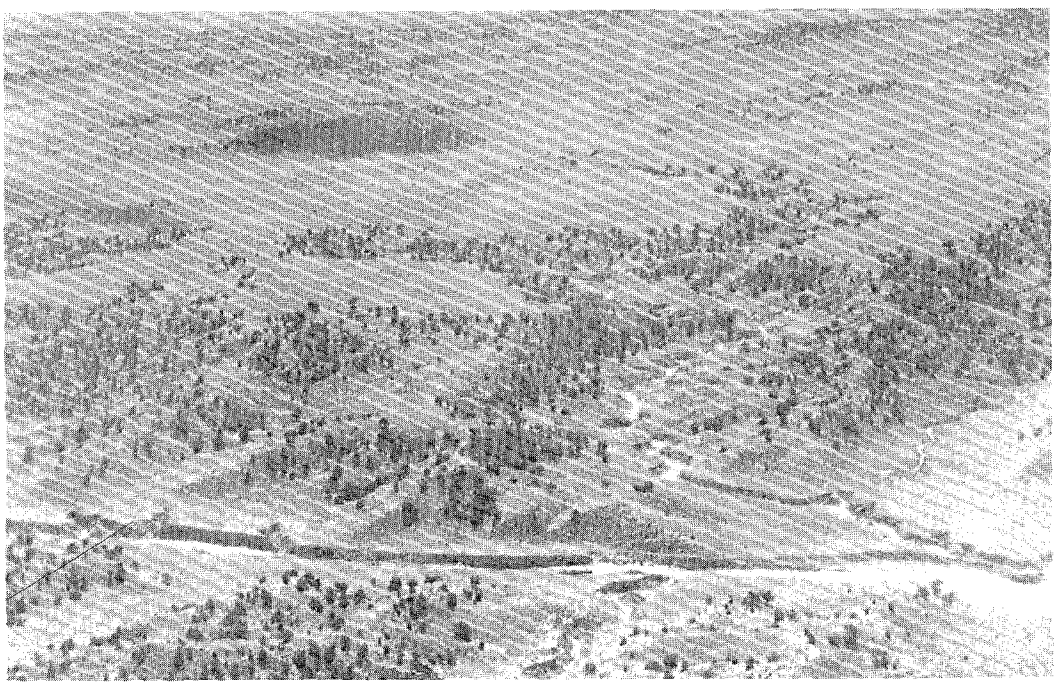
Vermillion Cliffs.

Looking down Paria Canyon to the Colorado River Canyon. DEBE



House Rock Valley.

Sand Dunes north of Tuba City, Arizona.



Navajo Indian Reservation.

Zuni Mission and oven. CC-BC

APPENDIX C

CANDIDATE ENDANGERED AND THREATENED PLANT SPECIES THAT MAY BE FOUND ALONG THE HIGH POTENTIAL SEGMENTS OF THE DOMINGUEZ-ESCALANTE TRAIL

| Species | Status | County | Source of Information |
|---|---|---|---|
| ARIZONA | | | |
| Agave mckelveyana | E | Mohave | USFWS 1979 |
| Agave utahensis kaibabensis | T | Coconino | Phillips 1979 |
| Allionia cristata | E | Navajo | USFWS 1979; Phillips 1979 |
| Amsonia palmeri | T | Coconino | Phillips 1979 |
| Apocynum jonesii | E | Coconino | USFWS 1979 |
| Aquilegia desertorum | T | Coconino, Navajo | Phillips 1979 |
| Arabis gracilipes | T | Mohave, Coconino | Phillips 1979 |
| Arctomecon humilis | E | Mohave | USFWS 1979; Phillips 1979 |
| Argemone arizonica | T | Coconino | Phillips 1979 |
| Asclepias cutleri | T | Unknown | Phillips 1979 |
| Astragalus ampullarius | T | Mohave, Coconino | Phillips 1979; BLM 1979 |
| Astragalus beathii | E | Coconino | USFWS 1979; Phillips 1979 |
| Astragalus cremnophylax | E | Coconino | USFWS 1979; Phillips 1979 |
| Astragalus desparatus conspectus | T | Mohave, Coconino | BLM 1979 |
| Astragalus ensiformis | T | Mohave | Phillips 1979; BLM 1979 |
| Astragalus lancearius | T | Mohave | Phillips 1979; BLM 1979 |
| Astragalus lentigenosus ambiguus | T | Mohave | Phillips 1979 |
| Astragalus striatiflorus | T | Mohave, Coconino | Phillips 1979 |
| Astragalus xiphoides | E | Navajo | USFWS 1979; Phillips 1979 |
| Camissonia exilis | T | Coconino, Mohave | Phillips 1979; BLM 1979 |
| Camissonia parryi | T | Mohave | Phillips 1979; BLM 1979 |
| Camissonia specuicola | E | Coconino | USFWS 1979 |
| Carex specuicola | E | Coconino | USFWS 1979 |
| Castilleja kaibabensis | T | Coconino | Phillips 1979 |
| Clematis hirsutissima arizonica | T | Mohave, Coconino | BLM 1979 |
| Coryphantha vivipara alversonii | T | Mohave | Phillips 1979 |
| Coryphantha vivipara rosea | T | Mohave | Phillips 1979 |
| Cowania subintegra | E | Mohave | USFWS 1979 |
| Cryptantha atwoodii | E | Coconino | USFWS 1979; Phillips 1979; BLM 1979 |
| Cryptantha semiglabra | T | Mohave, Coconino | Phillips 1979; BLM 1979 |
| Cymopterus newberryi | T | Coconino | Phillips 1979; BLM 1979 |
| Draba asprella asprella | E | Coconino | USFWS 1979 |
| Draba asprella kaibabensis | E | Coconino | USFWS 1979 |
| Draba asprella stelligera | T | Coconino | Phillips 1979 |
| Eriogonum darrovii | E | Coconino, Mohave | USFWS 1979; Phillips 1979; BLM 1979 |
| Eriogonum heermanni subracemosum | T | Coconino, Navajo | Phillips 1979; BLM 1979 |
| Eriogonum mortonianum | E | Mohave, Coconino | USFWS 1979; Phillips 1979; BLM 1979 |
| Eriogonum ovalifolium vineum | T | Mohave, Coconino | Phillips 1979 |
| Eriogonum thompsonae atwoodii | E | Mohave, Coconino | USFWS 1979; Phillips 1979; BLM 1979 |
| Eriogonum thompsonae thompsonae | T | Mohave | Phillips 1979; BLM 1979 |

| | | | |
|---|---|---|---|
| Eriogonum zionis coccineum | E | Mohave | USFWS 1979 |
| Fraxinus anomala lowellii | T | Coconino | Phillips 1979 |
| Fraxinus cuspidata macropetala | T | Mohave, Coconino | Phillips 1979 |
| Haplopappus salicinus | E | Coconino | USFWS 1979 |
| Haplopappus scopulorum | T | Mohave, Coconino Navajo, Apache | Phillips 1979 |
| Hymenoxys subintegra | T | Coconino, Navajo | Phillips 1979 |
| Lupinus cutleri | T | Apache | Phillips 1979 |
| Machaeranthera mucronata | T | Coconino | Phillips 1979 |
| Mentzelia nitens leptocaulis | E | Mohave | USFWS 1979 |
| Nama retrorsum | T | Apache | Phillips 1979 |
| Opuntia whipplei multigeniculata | T | Mohave | Phillips 1979 |
| Pediocactus bradyi | E | Mohave, Coconino | USFWS 1979; Phillips 1979; BLM 1979 |
| Pediocactus paradinei | T | Mohave | Phillips 1979; BLM 1979 |
| Pediocactus peeblesianus fickeiseniae | T | Mohave, Coconino | Phillips 1979; BLM 1979 |
| Pediocactus peeblesianus peeblesianus | E | Navajo | USFWS 1979; Phillips 1979 |
| Pediocactus sileri | E | Mohave, Coconino | USFWS 1979; Phillips 1979; BLM 1979 |
| Penstemon bicolor roseus | T | Mohave | Phillips 1979 |
| Penstemon clutei | E | Coconino | USFWS 1979 |
| Penstemon virgatus pseudoputus | T | Coconino | Phillips 1979 |
| Peteria thompsonae | T | Mohave, Coconino | Phillips 1979; BLM 1979 |
| Phacelia cephalotes | T | Navajo | Phillips 1979 |
| Phacelia constancei | T | Mohave, Coconino | Phillips 1979; BLM 1979 |
| Phacelia filiformis | E | Mohave, Coconino | USFWS 1979 |
| Phacelia rafaelensis | T | Mohave, Coconino | Phillips 1979; BLM 1979 |
| Phacelia serrata | T | Coconino | Phillips 1979 |
| Phacelia welshii | E | Coconino | USFWS 1979; Phillips 1979 |
| Phlox cluteana | T | Navajo, Apache | Phillips 1979 |
| Phlox jonesii | T | Unknown | Phillips 1979 |
| Primula specuilcola | T | Mohave, Coconino | Phillips 1979 |
| Psoralea epipsila | E | Mohave, Coconino | USFWS 1979; Phillips 1979; BLM 1979 |
| Puccinella parishii | T | Coconino | Phillips 1979 |
| Ranunculus inamoenus subaffinus | E | Coconino | USFWS 1979 |
| Rosa stellata | T | Mohave | Phillips 1979 |
| Senecio franciscanus | E | Coconino | USFWS 1979 |
| Silene rectiramea | E | Coconino | USFWS 1979 |
| Sisymbrium kearneyi | E | Mohave | USFWS 1979 |

COLORADO

| | | | |
|---|---|---|---|
| Astragalus wetherillii | T | Garfield | ECI 1978 |
| Echinocereus triglochidiatus inermis | E | Ouray | ECI 1978 |
| Pediocactus knowltonii | E | Archuleta | ECI 1978 |
| Penstemon retrorsus | E | Montrose | ECI 1978 |
| Sullivantia purpusii | T | Garfield | ECI 1978 |

NEW MEXICO

| | | | |
|---|---|---|---|
| Abronia bigelovii | R* | Santa Fe, Sandoval | NMHPSCC 1978 |
| Aletes sessiliflorus | R | McKinley, Taos | NMHPSSC 1978 |
| Androstepphium breviflorus | R | San Juan | NMHPSSC 1979 |
| Astragalus accumbens | T | Valencia | USFWS 1975 |
| Astragalus cyaneus | R | Santa Fe | NMHPSSC 1979 |
| Astragalus feensis | R | Santa Fe, Bernalillo | NMHPSSC 1979 |
| Astragalus oocalycis | E | San Juan | SMI** 1978 |
| Celmatis hirsutissima var. arizonica | T | McKinley | USFWS 1975 |
| Dalea scariosa | T | Bernalillo, Sandoval, Valencia | USFWS 1975 |
| Erigeron rhizomatus | E | McKinley | USFWS 1975 |
| Erigeron pulcherrimus | R | Santa Fe, Rio Arriba | NMHPSSC 1978 |
| Erythronium grandiflorum | R | Rio Arriba | NMHPSSC 1978 |
| Opuntia viridiflorus | R | Santa Fe | NMHPSSC 1978 |
| Pediocactus papyracanthus | T | Bernalillo, McKinley, Sandoval, Santa Fe, Valencia | USFWS 1975 |
| Phlox caryophylla | T | Rio Arriba | SMI 1978 |
| Spiranthes magnicamporum | R | Valencia | NMHPSSC 1979 |

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*R-New Mexico Heritage Program Species of Special Concern

**Smithsonian Institution, Ayensu, E. S. and R. A. DeFillips, 1978, Endangered and Threatened Plants of the United States.

UTAH

| | | | |
|---|---|---|---|
| Arabis demissa languida | T | Uintah | Welsh 1979 |
| Arabis demissa russeola | T | Uintah | Welsh 1979 |
| Arctomecon humilis | E | Washington | Welsh 1979 |
| Astragalus ampullarius | T | Washington | Welsh 1979 |
| Astragalus chloodes | T | Uintah | Welsh 1979 |
| Astragalus detritalus | T | Uintah | Welsh 1979 |
| Astragalus duchesnensis | T | Uintah, Duchesne | Welsh 1979 |
| Astragalus hamiltonii | T | Uintah | Welsh 1979 |
| Astragalus lancearius | T | Washington | Welsh 1979 |
| Astragalus saurinus | T | Uintah | Welsh 1979 |
| Cuscuta warneri | E | Millard | Welsh 1979 |
| Cymopterus coulteri | T | Uintah, Millard | Welsh 1979 |
| Cymopterus duchesnensis | T | Uintah | Welsh 1979 |
| Draba asprella zionensis | T | Washington | Welsh 1979 |
| Eriogonum corymbosum matthewsae | E | Washington | Welsh 1979 |

| | | | |
|---|---|---|---|
| Eriogonum saurinum | T | Uintah | Welsh 1979 |
| Eriogonum thompsonae albiflorum | T | Washington | Welsh 1979 |
| Eriogonum thompsonae thompsonae | T | Washington | Welsh 1979 |
| Eriogonum zionis zionis | T | Washington | Welsh 1979 |
| Hedysarum boreale gremiale | T | Uintah, Duchesne | Welsh 1979 |
| Helianthus deserticolus | E | Washington | Welsh 1979 |
| Hymenopappus filifolius tomentosus | T | Washington | Welsh 1979 |
| Machaeranthera kingii | T | Utah | Welsh 1979 |
| Pediocactus sileri | E | Washington | Welsh 1979 |
| Penstemon garrettii | E | Wasatch | Welsh 1979 |
| Phacelia anelsonii | T | Washington | Welsh 1979 |
| Phacelia argillacea | E* | Utah | Welsh 1979 |
| Phacelia cephalotes | T | Washington | Welsh 1979 |
| Sphaeralcea caespitosa | T | Millard | Welsh 1979 |

*Officially listed, Federal Register 9/28/78

APPENDIX D

RECREATION AREAS AND ACTIVITIES - NEW MEXICO

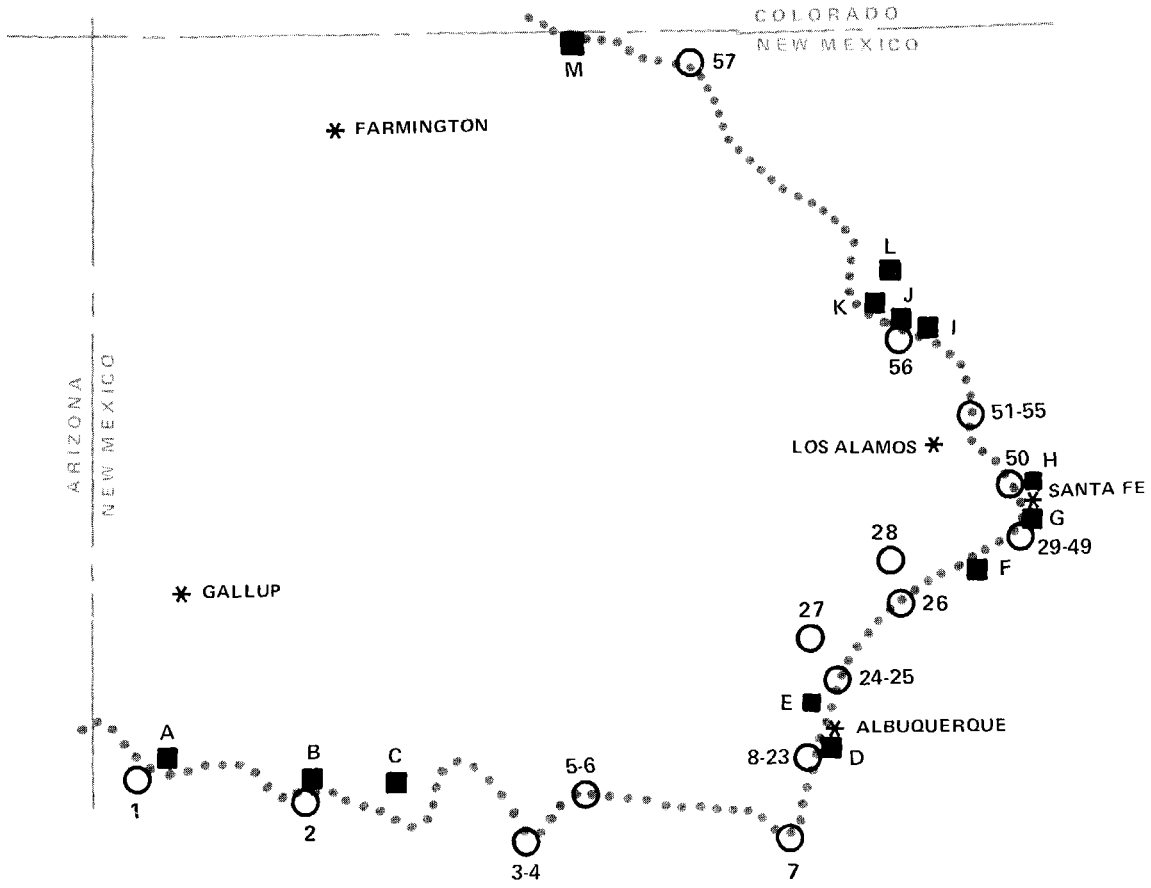
| Map Key Ltr. | Name of Area | Ownership | Camping | Swimming | Fishing | Boating | Hiking | Picnicking |
|---|---|---|---|---|---|---|---|---|
| A. | Zuni Pueblo Indian Reservation (5 areas) | I | X | | X | | | |
| B. | El Morro National Monument | F | X | | | | X | |
| C. | Cibola National Forest | F | X | | | | X | |
| D. | Albuquerque (16 areas) | P | X | | | | | |
| E. | Coronado State Park | S | X | | | | X | X |
| F. | San Marcos Campground | P | X | | | | | |
| G. | Santa Fe (4 areas) | P | X | X | | | | |
| H. | Hyde State Park | S | X | X | | | X | X |
| I. | Carson National Forest | F | X | | X | | X | X |
| J. | Abiquiu Dam | F | X | | X | | X | X |
| K. | El Vado Lake State Park | S | X | X | X | X | X | X |
| L. | Heron Lake State Park | S | X | X | X | X | X | X |
| M. | Navajo Lake State Park (2 areas) | S | X | X | X | X | X | X |

Key to Ownership: F - Federal; S - State; P - Private; I - Indian

## NATIONAL HISTORIC PLACES - NEW MEXICO

| Map Key No. | Name of Site | County | Location |
|---|---|---|---|
| 1. | Hawikuh (NHL) | Valencia | Zuni vicinity |
| 2. | El Morro National Monument | Valencia | El Morro vicinity |
| 3. | San Estevan Del Ray Mission Church (NHL) | Valencia | Acoma |
| 4. | Acoma (NHL) | Valencia | Casa Blanco |
| 5. | Laguna Pueblo | Valencia | Albuquerque vicinity |
| 6. | San Jose de la Laguna Mission and Convento | Valencia | Laguna Pueblo |
| 7. | Isleta Pueblo (Tuei) | Bernalillo | Isleta |
| 8-23. | Salvador Armijo House<br>First Methodist Episcopal Church<br>Hodgin Hall<br>Huning Highlands Historic District<br>Kimo Theatre<br>Occidental Life Building<br>Rancho de Carnue Site<br>Rosenwald Building<br>San Felipe de Neri Church<br>Southwestern Brewery & Ice Co.<br>Berthold Spitz House<br>Superintendent's House Atlantic & Pacific Railroad<br>Antonio Vigil House<br>First National Bank Building<br>J.H. O'Reilly House<br>Bareta-Bledsoe House | Bernalillo | Albuquerque |
| 24. | Our Lady of Sorrow Church | Sandoval | Bernalillo |
| 25. | Kuana Cave | Sandoval | Bernalillo vicinity |
| 26. | Santo Domingo Pueblo (Kiva) | Sandoval | Albuquerque vicinity |

| Map Key No. | Name of Site | County | Location |
|---|---|---|---|
| 27. | Tamaya (Santa Ana Pueblo) | Sandoval | Bernalillo |
| 28. | Cochiti Pueblo | Sandoval | Santa Fe vicinity |
| 29-48. | Barrio de Analco Historic District<br>Alfred M. Bergere House<br>Gregorio Crespin House<br>Randall Davey House<br>Ingneo-Valdez House<br>Federal Building<br>Fort Marcy Officer's Residence<br>Hayt-Wientge House<br>NPS Southwest Regional Office<br>Palace of the Governors<br>Reredos of Our Lady of the Night<br>Santa Fe Historic District<br>Santa Fe Plaza<br>Second Ward School<br>Eugenie Shonnard House<br>Spiegelberg House<br>Pinckney R. Tully House<br>U.S. Courthouse<br>Donaciano Vigil House<br>Fort Marcy Ruins | Santa Fe | Santa Fe |
| 49. | Otowi Historic District | Santa Fe | Santa Fe vicinity |
| 50. | Tesuque Pueblo | Santa Fe | Santa Fe vicinity |
| 51. | La Inglesia De Santa Cruz and Site of the Plaza of Santa Cruz | Santa Fe | Santa Cruz |
| 52. | San Ildefonso Pueblo | Santa Fe | Espanola vicinity |
| 53. | San Juan Pueblo (Oke 'Onwi) | Rio Arriba | Santa Fe vicinity |
| 54. | Santa Clara Pueblo (Kapo 'Onwi) | Rio Arriba | Espanola vicinity |
| 55. | San Gabriel de Younge-Ouinge (NHL) | Rio Arriba | Espanola vicinity |
| 56. | Santa Rosa de Lima de Albiqui | Rio Arriba | Abiquiu vicinity |
| 57. | Vicenti site | Rio Arriba | Dulce vicinity |




# NATIONAL HISTORIC SITES AND RECREATION AREAS-NEW MEXICO

## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL

○ HISTORIC SITE

■ RECREATION AREA

0 10 20 30 MILES

NORTH 0 10 20 30 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

| | |
|---|---|
| NHT/DE | 20014 |
| DSC | AUG 80 |

APPENDIX D (CONT'D)

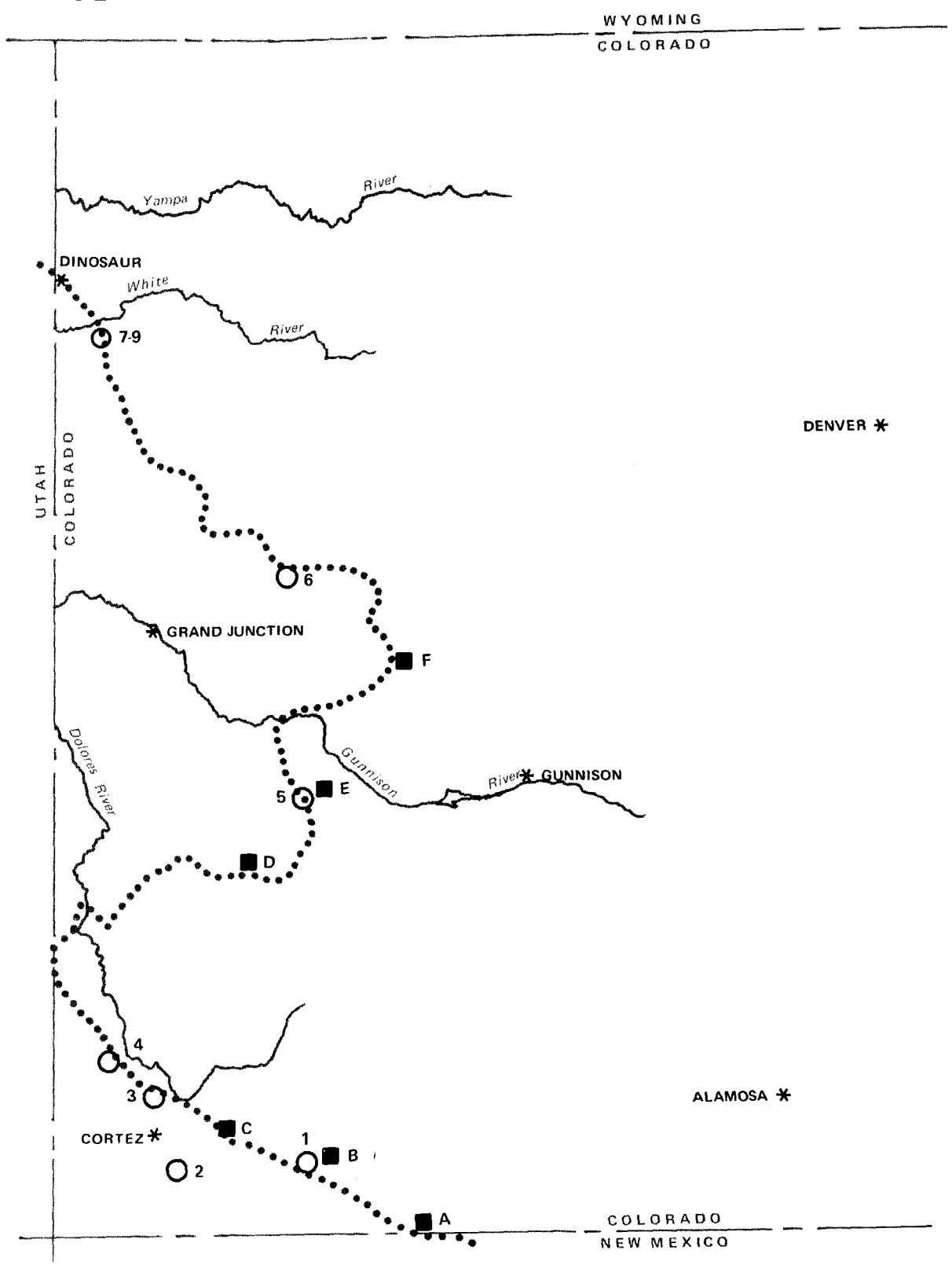
RECREATION AREAS AND ACTIVITIES - COLORADO

| Map Key Ltr. | Name of Area | Ownership | Camping | Swimming | Fishing | Boating | Hiking | Picnicking |
|---|---|---|---|---|---|---|---|---|
| A. | Navajo SRA | S | X | X | X | X | X | X |
| B. | Durango (14 areas) | P | X | | | | | |
| C. | San Juan (2 areas) | F | X | | X | | | |
| D. | Grand Mesa Uncompahgre (2 areas) | F | X | | | | X | X |
| E. | Montrose (2 areas) | P | X | | | | | |
| F. | Paonia Reservoir RA | S | X | | X | X | X | X |

Key to Ownership: F - Federal; S - State; P - Private; I - Indian

NATIONAL HISTORIC PLACES - COLORADO

| Map Key No. | Name of Site | County | Location |
|---|---|---|---|
| 1. | Ute Mountain, Ute Mancos Canyon Historic District | La Plata | Durango vicinity |
| 2. | Mesa Verde National Park | Montezuma | Cortez vicinity |
| 3. | Escalante Ruins | Montezuma | Dolores vicinity |
| 4. | Lowry Ruin (NHL) | Montezuma | Pleasant View vicinity |
| 5. | Ute Memorial Site | Montrose | Montrose vicinity |
| 6. | Convict's Bread Oven | Mesa | Molina vicinity |
| 7-9. | Canõn Pintado<br>Carrot Men Pictograph Site<br>Fremont Lookout Fortification Site | Rio Blanco | Rangely vicinity |




# NATIONAL HISTORIC SITES AND RECREATION AREAS - COLORADO

## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL

○ HISTORIC SITE

■ RECREATION AREA

0 10 20 30 MILES

NORTH 0 10 20 30 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

NHT/DE | 20011
DSC | AUG 80

APPENDIX D (CONT'D)

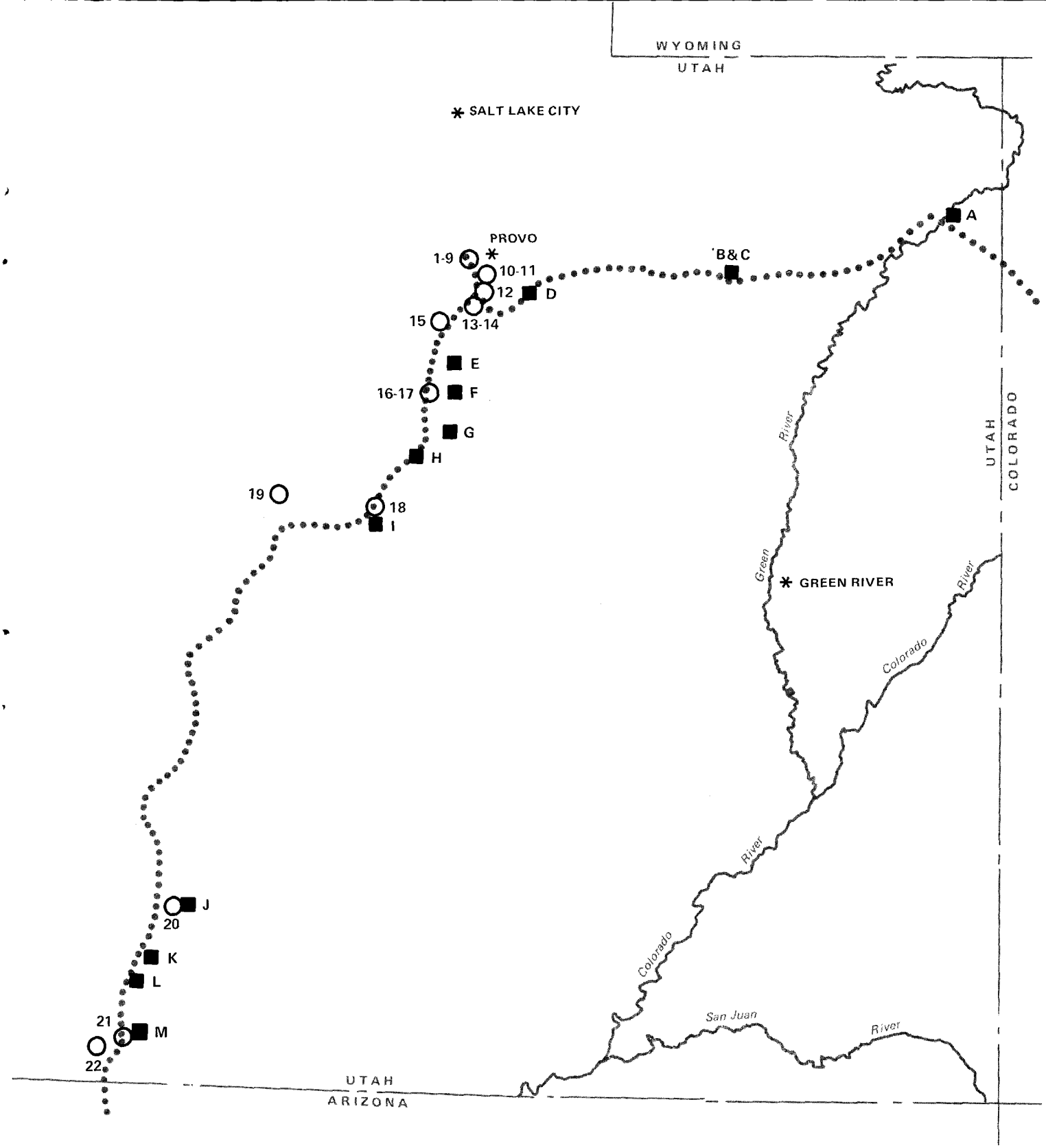
RECREATION AREAS AND ACTIVITIES - UTAH

| Map Key Ltr. | Name of Area | Ownership | Camping | Swimming | Fishing | Boating | Hiking | Picnicking |
|---|---|---|---|---|---|---|---|---|
| A. | Dinosaur National Monument (2 areas) | F | X | | X | X | X | X |
| B. | Starvation Lake RA | S | X | X | X | X | X | X |
| C. | Starvation Campground | P | X | X | X | X | X | X |
| D. | Spanish Fork (2 areas) | P | X | | X | | | X |
| E. | Nephi | P | X | | X | | | X |
| F. | Ockey's RKOA | P | X | X | X | | | |
| G. | Manti LaSal National Forest | F | X | | X | | | |
| H. | Yuba Lake | S | X | X | X | X | X | X |
| I. | Fishlake National Forest | F | X | | X | | X | X |
| J. | Cedar City KOA | P | X | X | | | | |
| K. | Red Lodge Campground | P | X | | | | | |
| L. | Dixie National Forest | F | X | | | | | |
| M. | Hurricane (2 areas) | P | X | | | | | |

Key to Ownership: F - Federal; S - State; P - Private; I - Indian

## NATIONAL HISTORIC PLACES - UTAH

| May Key No. | Name of Site | County | Location |
|---|---|---|---|
| 1. | Olmstead Station Powerhouse | Utah | Provo vicinity |
| 2-9. | Clark-Taylor House<br>Simon P. Eggesten Sr. House<br>Knight Block<br>Provo Tabernacle<br>Peter M. Wentz House<br>Brigham Young Academy<br>Hines Mansion<br>Provo Third Ward Chapel and Amusement Hall | Utah | Provo |
| 10-11. | Reed Smoot House (NHL)<br>Jacob Houte House | Utah | Springville |
| 12. | Ira W. Garner House | Utah | Salem |
| 13-14. | Christopher F. Dixon House<br>John Dixon House | Utah | Payson |
| 15. | Tintic Standard Reduction Mill | Utah | Goshen vicinity |
| 16. | George Carter Whitmore Mansion | Juab | Nephi |
| 17. | Nephi Mounds | Juab | Nephi vicinity |
| 18. | Pharo Village | Millard | Scipio vicinity |
| 19. | Fort Deseret | Millard | Deseret vicinity |
| 20. | George H. Wood House | Iron | Cedar City |
| 21. | Hurricane Canal | Washington | Hurricane vicinity |
| 22. | Fort Pearce | Washington | Washington vicinity |




# NATIONAL HISTORIC SITES AND RECREATION AREAS - UTAH

## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL

○ HISTORIC SITE

■ RECREATION AREA

0 10 20 30 MILES

NORTH 0 10 20 30 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

NHT/DE | 20013
DSC | AUG 80

APPENDIX D (CONT'D)

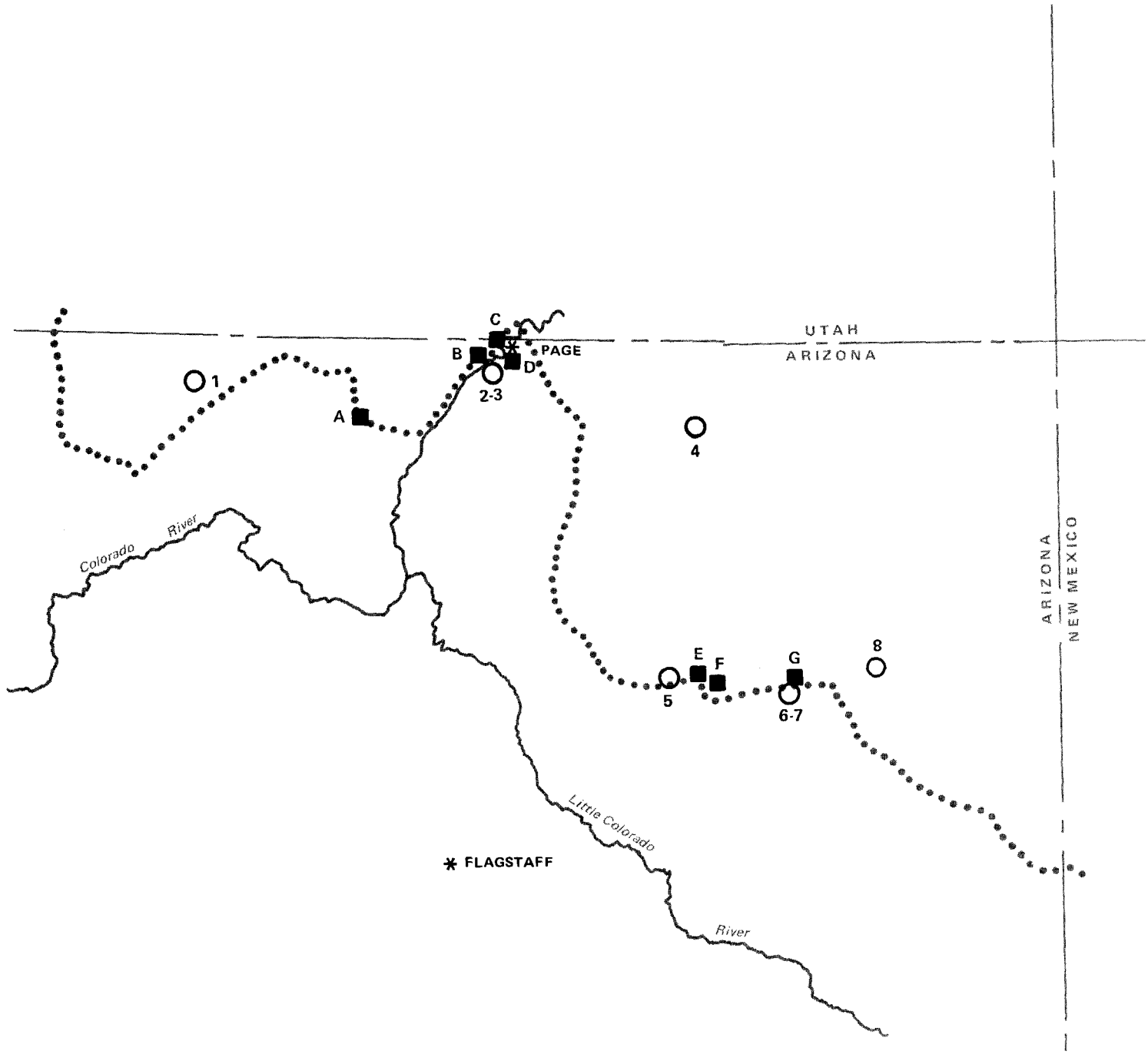
## RECREATION AREAS AND ACTIVITIES - ARIZONA

| Map Key Ltr. | Name of Area | Ownership | Camping | Swimming | Fishing | Boating | Hiking | Picnicking |
|---|---|---|---|---|---|---|---|---|
| A. | Kaibab National Forest | F | X | | | | | |
| B. | Wahweap Trailer Village | P | X | | | X | | |
| C. | Glen Canyon NRA | F | X | X | X | X | X | X |
| D. | Page KOA | P | X | | | X | | |
| E. | Hopi Indian Reservation (4 areas) | I | X | | | | | |
| F. | Second Mesa Campground and Trailer Park | P | X | | | | | |
| G. | Hopitue Campground and Trailer Court | P | X | | | | | |

Key to Ownership: F - Federal; S - State; P - Private; I - Indian

## NATIONAL HISTORIC PLACES - ARIZONA

| Map Key No. | Name of Site | County | Location |
|---|---|---|---|
| 1. | Pipe Spring National Monument | Mohave | Fredonia vicinity |
| 2. | Lee's Ferry Historic District | Coconino | Page vicinity |
| 3. | Lonley Dell Ranch Historic District | Coconino | Page vicinity |
| 4. | Navajo National Monument | Coconino | Kayenta vicinity |
| 5. | Old Oraibi (NHL) | Navajo | Oraibi vicinity |
| 6. | Awatovi Ruins (NHL) | Navajo | Keams Canyon vicinity |
| 7. | Inscription Rock | Navajo | Keams Canyon vicinity |
| 8. | Hubbell Trading Post National Historic Site | Apache | Sanado vicinity |




# NATIONAL HISTORIC SITES AND RECREATION AREAS–ARIZONA

## DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL

○ HISTORIC SITE

■ RECREATION AREA

0 10 20 30 MILES

NORTH 0 10 20 30 KILOMETERS

UNITED STATES DEPARTMENTOF THE INTERIOR/NATIONAL PARK SERVICE

| NHT/DE | 20012 |
|---|---|
| DSC | AUG 80 |

## APPENDIX E

## POPULATION AND PERCENT CHANGE OF COUNTIES

| | 1960 | 1970 | 1975 | Percent change 1970 - 1975 |
|---|---|---|---|---|
| **ARIZONA** | | | | |
| Apache | 30,438 | 32,304 | 40,372 | +25.0 |
| Coconino | 41,847 | 48,326 | 67,866 | +40.4 |
| Navajo | 37,994 | 47,559 | 59,649 | +25.4 |
| Mohave | 7,736 | 25,857 | 37,442 | +44.8 |
| **COLORADO** | | | | |
| Archuleta | 2,629 | 2,733 | 3,147 | +15.1 |
| Dolores | 2,196 | 1,641 | 1,682 | + 2.5 |
| La Plata | 19,225 | 19,199 | 23,242 | +21.1 |
| Montezuma | 14,024 | 12,952 | 14,950 | +15.4 |
| Delta | 15,602 | 15,286 | 17,484 | +14.4 |
| Montrose | 18,286 | 18,366 | 20,651 | +12.4 |
| Ouray | 1,601 | 1,546 | 1,810 | +17.1 |
| San Miguel | 2,944 | 1,949 | 2,194 | +12.6 |
| Garfield | 12,017 | 14,821 | 17,906 | +20.8 |
| Mesa | 50,715 | 54,374 | 62,474 | +14.9 |
| Rio Blanco | 5,150 | 4,872 | 5,349 | + 9.8 |
| **NEW MEXICO** | | | | |
| McKinley | 37,209 | 43,208 | 51,081 | +18.2 |
| Rio Arriba | 24,193 | 25,170 | 27,896 | +10.8 |
| Santa Fe | 44,970 | 54,774 | 62,420 | +14.0 |
| Bernalillo | 262,199 | 315,774 | 362,087 | +14.7 |
| Sandoval | 14,201 | 17,492 | 22,576 | +29.1 |
| Valencia | 39,085 | 40,576 | 46,141 | +13.7 |
| **UTAH** | | | | |
| Utah | 106,991 | 137,776 | 165,745 | +20.3 |
| Wasatch | 5,308 | 5,863 | 6,718 | +14.6 |
| Beaver | 4,331 | 3,800 | 4,086 | + 7.5 |
| Iron | 10,795 | 12,177 | 14,609 | +20.0 |
| Kane | 2,667 | 2,421 | 3,384 | +40.0 |
| Washington | 10,271 | 13,669 | 18,127 | +32.6 |
| Duchesne | 7,179 | 7,299 | 13,037 | +78.6 |
| Uintah | 11,582 | 12,684 | 17,637 | +39.0 |
| Juab | 4,597 | 4,574 | 4,947 | + 8.2 |
| Millard | 7,866 | 6,988 | 7,878 | +12.7 |

NOTE: The trail goes through all of the above counties.

SOURCE: U.S. Census of Population and County and City Data Book, 1977.

# APPENDIX F

## SECTION 106 COMPLIANCE ANALYSIS

Numerous properties included in the National Register of Historic Places are scattered along the route traveled by the Franciscan Fathers in 1776-1777. Some of these properties are directly related to the expedition while others have gained significance because of events completely unrelated to the travels of the two fathers.

Federal undertakings that affect any National Register property are subject to compliance with the requirements of section 106 of the National Historic Preservation Act. This national historic trail study would have "no effect" on these properties along the trail. However, federal actions involving development (alternatives C and D) affecting National Register properties would need to be preceded by compliance with section 106 and its implementing regulations (36 CFR 800).

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# INDEX

As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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