Appendix G

Research natural areas

Introduction

During the summers of 1995 and 1996, the White River National Forest commissioned the Colorado Natural Heritage Program to conduct field surveys of potential research natural areas (RNAs) and prepare an ecological evaluation for each area. These reports included detailed descriptions, distinguishing features, and acreages by vegetation cover type.

Short summaries for each of the proposed RNAs are presented here. Descriptions of each area were validated by forest personnel familiar with the conditions of each area. These summaries are grouped by ecological section (see Appendix E for descriptions). The proposed RNAs within the *North-Central Highlands and Rocky Mountain Section* are particularly significant because this section is largely confined to the forest. The other section (*Northern Parks and Ranges*) is shared with portions of the Medicine Bow-Routt, Arapaho-Roosevelt, and Pike-San Isabel national forests.

Table A-75, which follows these summaries, reports the number of important plant associations found within each area.

RNA allocations vary by forest management alternative. For information about alternatives, see the management area maps and Chapter 2 of the Final Environmental Impact Statement. Research natural areas will be managed according to the direction provided for Management Area 2.2 (see 2002 Forest Plan). For those RNAs designated in the record of decision for the FEIS, establishment records will be prepared after the forest plan is approved.

North-Central Highlands and Rocky Mountain Section (M331H)

ASSIGNATION CREEK

Location	On the Sopris Ranger District about seven miles south of Carbondale, west of the Crystal River
Size	4,000 acres
Elevation	6,660-9,600 feet
Landforms	Narrow mountain and ridge tops with moderate-to-steep slopes; creek bottoms
Vegetation	Piñon-juniper woodlands; Gambel oak shrublands; Douglas fir and aspen forest types; cottonwood riparian
Geology	Sedimentary rock (Maroon, Dakota, and Burro Canyon formations), primarily sandstone
Watershed	Complete watersheds of Assignation and Perham Creeks
Land allocation	Non-wilderness
Range	Closed allotment (There is some cattle use of the upper riparian portion of the area from an adjoining allotment. If this area is designated, fencing will be installed to eliminate the impact on the riparian vegetation.)
Timber	Limited tentatively suitable timber exists on south end of area
Minerals	Low potential
Oil and gas	No surface occupancy stipulation
Motorized use	None; closed to motorized use; no roads
Non-motorized use	One system trail traverses area. As an exception to the management area prescription prohibiting mechanized uses, mountain bike use will continue to be allowed on Trail #1949. In some alternatives, this area is recommended for wilderness designation. In those alternatives, the more restrictive wilderness prescription will prohibit mountain bike use of trail #1949.
Summary	This proposed RNA is in good ecological condition and provides excellent representation for many of the low-elevation ecosystem types on the forest, particularly pinyon-juniper woodlands and Gambel oak shrublands. The cottonwood riparian vegetation also is very well developed and in excellent condition. The area provides major representation for many plant associations not found within other possible RNA candidates in the section. There are two globally rare plant associations in the area.

DEEP CREEK

Location	On the Eagle Ranger District about 13 miles north-northeast of Glenwood Springs
Size	4,600 acres
Elevation	7,440-10,400 feet
Landforms	Deep canyons with moderate-to-steep slopes; broad creek bottom with grasslands and aspen; narrow canyon and limestone caves
Vegetation	Aspen, Douglas fir, spruce-fir forest types; Thurber fescue grassland; Gambel oak shrubland; cottonwood and blue spruce riparian
Geology	Sedimentary rock—limestone
Watershed	Middle portion of the watershed of Deep Creek
Land allocation	Non-wilderness
Range	Most of the area is within non-capable portions of active allotments, small area on western end is included in actively grazed portion of Heart Lake S&G allotment. Boundary adjustment to RNA will be necessary if designated.
Timber	Some tentatively suitable timber exists
Minerals	Low potential
Oil and gas	Low potential
Motorized use	No roads; closed to motorized use except for a half-mile portion of trail 1852 that is open to motorized use. This trail dead ends in the proposed RNA and is less than two miles long in its entirety. It receives some horseback use, but no evidence of past motorized use was observed during the summer of 1997. The trail disappears entirely in places.
Non-motorized use	Primarily hunting; there is a half-mile of system trail in the area.
Summary	This proposed RNA is in excellent ecological condition and provides excellent representation for many of the mid-elevation ecosystem types on the forest, including Douglas fir and aspen forests, montane grasslands, and riparian ecosystems. The area provides major representation for several plant associations not found within other possible RNA candidates in the section. The area also includes an extensive system of limestone caves and several rare plant species. If the area is designated as an RNA, the portion of Trail #1852 within the RNA will be closed to motorized use.

GIFT AND CLINE CREEKS

Location	On the Sopris Ranger District about two miles southeast of Redstone in the Maroon Bells-Snowmass Wilderness
Size	11,100 acres
Elevation	9,860-12,793 feet
Landforms	High mountains; cirque basins; moderate-to-steep slopes
Vegetation	Alpine; spruce-fir, aspen and Douglas fir forest types; Thurber fescue and tufted hairgrass grasslands; wetland and riparian communities
Geology	Sedimentary rock (Maroon Formation)—sandstone
Watershed	Complete watersheds of upper Big Kline, Little Kline, Hawk, and Gift Creeks
Land allocation	Wilderness
Range	Mainly vacant allotment; one small area in southwest corner may be recommended for restocking. Boundary adjustment will be made to RNA if designated.
Timber	Unsuitable
Minerals	Withdrawn from entry
Oil and gas	Withdrawn from entry
Motorized use	No roads; closed to motorized and mechanized use
Non-motorized use	Two system trails within the area receive low-to-moderate amounts of hiking, backpacking, horseback riding, and hunting use
Summary	This proposed RNA is in excellent ecological condition and provides excellent representation for many of the high-elevation ecosystem types on the forest, including alpine, spruce-fir, Douglas fir and aspen forests, subalpine grasslands, and riparian and wetland ecosystems. The area provides major representation for a large number of plant associations not found within other possible RNA candidates in the section and was found to have the highest diversity of plant associations of any potential RNA evaluated.

LOWER BATTLEMENT MESA

Location	On the Rifle Ranger District about seven miles southeast of DeBeque at the far-western end of Battlement Mesa. About half of the area is located on the Collbran District of the Grand Mesa, Uncompahgre, and Gunnison (GMUG) national forests.
Size	24,400 acres
Elevation	5,540-9,280 feet
Landforms	Narrow mountain and ridge tops with moderate-to-steep slopes; creek bottoms; badlands
Vegetation	Piñon-juniper woodlands; Gambel oak and greasewood shrublands; Douglas fir forest; cottonwood riparian
Geology	Sedimentary rock (Green River and Wasatch formations)—shale, sandstone, limestone, and siltstone
Watershed	Complete watersheds of upper Horsethief, Alkali, and Little Alkali Creeks, as well as the upper basins of several other intermittent streams
Land allocation	Non-wilderness
Range	Vacant allotment; some trespass grazing on the GMUG side
Timber	Unsuitable
Minerals	Low potential
Oil and gas	No surface occupation stipulation
Motorized use	None; closed to motorized use; no roads
Non-motorized use	Very little. No trails present.
Summary	This proposed RNA is in excellent ecological condition and provides very good representation for many of the low-elevation ecosystem types on the White River and Grand Mesa, Uncompahgre, and Gunnison national forests, particularly piñon-juniper woodlands and Gambel oak and greasewood shrublands. The plant communities are typical of those found on the Green River and Wasatch formation shales and sandstones of the region. The area provides major representation for many plant associations not found within other possible RNA candidates in the section. Significant populations of several rare plant species are within the area, including one federal Category 1 Candidate plant species. Prescribed fires that previously have been used for wildlife habitat enhancement may be continued in the future as part of an overall ecosystem management plan. Often the wildlife funds available for such burns are the only or best mechanism available for reintroducing fire into fire-dependent ecosystems that have previously experienced fire suppression.

MAIN ELK CREEK

Location	On the Rifle Ranger District about nine miles north of New Castle
Size	2,800 acres
Elevation	6,200-9,400 feet
Landforms	Deep canyons with moderate-to-steep slopes; creek bottoms
Vegetation	Douglas fir and aspen forest types; Gambel oak shrublands; cottonwood and blue spruce riparian
Wildlife	A population of bighorn sheep has been reintroduced into the area. Prescribed fires have been burned in some of the shrub stands.
Geology	Sedimentary rock—limestone
Watershed	Middle portion of the watersheds of Main Elk Creek and Deep Creek
Land allocation	Non-wilderness
Range	Vacant allotment
Timber	Unsuitable
Minerals	Low potential
Oil and gas	No surface occupancy stipulation
Motorized use	None; closed to motorized use; no roads
Non-motorized use	Primarily hunting use on non-system trails along creeks
Summary	This proposed RNA is in good ecological condition and provides excellent representation for many of the mid-elevation ecosystem types on the forest, including Douglas fir and aspen forests and riparian ecosystems. The area provides major representation for several plant associations not found within other possible RNA candidates in the section. Prescribed fires that have been previously used for wildlife habitat enhancement may be continued in the future as part of an overall ecosystem management plan. Often the wildlife funds available for such burns are the only or best mechanism available for reintroducing fire into fire-dependent ecosystems that have previously experienced fire suppression.

NO NAME RIDGE

Location	On the Rifle Ranger District about three miles east of Glenwood Springs, just north of Glenwood Canyon
Size	2,800 acres
Elevation	6,000-9,454 feet
Landforms	Narrow ridgetop; sloping plateau with steep slopes
Vegetation	Douglas fir and aspen forest types; piñon-juniper woodland; Gambel oak shrubland
Geology	Sedimentary rock—limestone
Watershed	None represented
Land allocation	Non-wilderness
Range	Closed allotment
Timber	Unsuitable
Minerals	Some potential exists
Oil and gas	Low potential
Motorized use	No roads; closed to motorized use
Non-motorized use	None; no trails; very steep terrain
Summary	This proposed RNA is in good ecological condition and provides excellent representation for some of the low-elevation ecosystem types of the forest, including Douglas fir forest, piñon-juniper woodland and Gambel oak shrubland. The area provides minor representation for several plant associations not found within other possible RNA candidates in the section. A small area along Interstate 70 will be deleted from this proposed RNA because of exotic plant species.

OYSTER LAKE

Location	On the Blanco Ranger District about eight miles southeast of Buford in the Flat Tops Wilderness
Size	14,100 acres
Elevation	9,000-11,425 feet
Landforms	Rolling high-elevation plateau with myriad kettle ponds
Vegetation	Spruce-fir forest; tufted hairgrass grassland; wetland and riparian communities
Geology	Sedimentary rock—limestone
Watershed	Complete upper watersheds of Ute Creek and West Marvine Creek
Land allocation	Wilderness
Range	Vacant allotment
Timber	Unsuitable
Minerals	Withdrawn from entry
Oil and gas	Withdrawn from entry
Motorized use	No roads; closed to motorized and mechanized use
Non-motorized use	Two system trails within the area receive low-to-moderate amounts of hiking, backpacking, horseback riding, and hunting use
Summary	This proposed RNA is in excellent ecological condition and provides excellent representation for many of the high-elevation ecosystem types in the Flat Tops region of the forest, including spruce-fir forest, subalpine grasslands, and riparian and extensive wetland ecosystems. The area provides major representation for several plant associations not found within other possible RNA candidates in the section and is considered to provide the best representation of Flat Tops ecosystems of any potential RNA evaluated.

W MOUNTAIN

Location	On the Eagle Ranger District about 24 miles northeast of Glenwood Springs in the Flat Tops Wilderness
Size	9,900 acres
Elevation	10,400-11,890 feet
Landforms	Rolling high-elevation plateau
Vegetation	Spruce-fir forest; alpine; tufted hairgrass grassland; subalpine willow carrs
Geology	Sedimentary rock—limestone
Watershed	None represented
Land allocation	Wilderness
Range	Mainly vacant allotment; one small area in northwest corner is in active cattle allotment. Boundary adjustment of RNA will be made if designated.
Timber	Unsuitable
Minerals	Withdrawn from entry
Oil and gas	Withdrawn from entry
Motorized use	No roads; closed to motorized and mechanized use
Non-motorized use	Two system trails within the area receive low-to-moderate amounts of hiking, backpacking, horseback riding, and hunting use
Summary	This proposed RNA is in excellent ecological condition and provides excellent representation for some of the high-elevation ecosystem types of the forest, including spruce-fir forest, alpine, subalpine grassland and willow carr communities. The area provides major representation for several plant associations not found within other possible RNA candidates in the section.

Northern Parks and Ranges Section (M331I)

BLACK CREEK

Location	On the Dillon Ranger District about 20 miles south of Kremmling in the Eagles Nest Wilderness
Size	11,100 acres
Elevation	9,000-13,448 feet
Landforms	High mountains; cirque basins; alpine lakes; high-elevation alpine plateau
Vegetation	Spruce-fir forest; alpine; subalpine willow carrs
Geology	Metamorphic and igneous—gneiss, schist, and granite
Watershed	The complete watershed of upper Black Creek and its three branches
Land allocation	Wilderness
Range	Vacant allotment
Timber	Unsuitable
Minerals	Withdrawn from entry
Oil and gas	Withdrawn from entry
Motorized use	None; no roads; closed to motorized and mechanized use
Non-motorized use	Minor; there are no system trails in the area
Summary	This proposed RNA is in excellent ecological condition and provides excellent representation for some of the high-elevation ecosystem types of the forest, including spruce-fir forest, subalpine grassland, alpine, and willow carr communities. The Dora Plateau is a large, gently sloping alpine plateau within this proposed RNA that was not glaciated during the last glacial epochs and contains well-developed alpine communities. The area provides major representation for several plant associations not found within other possible RNA candidates in the section.

DIFFICULT CREEK

Location	On the Aspen Ranger District about four miles southeast of Aspen in the Collegiate Peaks Wilderness
Size	11,400 acres
Elevation	8,600-12,938 feet
Landforms	High mountains with moderate-to-steep slopes; large cirque basins
Vegetation	Spruce-fir and lodgepole pine forest types; alpine; tufted hairgrass grasslands; subalpine willow carrs and wetlands
Geology	Metamorphic and igneous—gneiss, schist, and granite
Watershed	The complete watershed of Difficult Creek
Land allocation	Wilderness
Range	Vacant allotment
Timber	Unsuitable
Minerals	Withdrawn from entry
Oil and gas	Withdrawn from entry
Motorized use	None; no roads; closed to motorized and mechanized use
Non-motorized use	Minimal; there are no system trails within the area
Summary	This proposed RNA is in excellent ecological condition and provides excellent representation for some of the high-elevation ecosystem types of the forest, including spruce-fir and lodgepole pine forest, alpine, subalpine grasslands, and willow carr and wetland communities. The area provides major representation for several plant associations not found within other possible RNA candidates in the section.

EAST LAKE AND WEST CROSS CREEKS

Location	On the Eagle and Holy Cross Ranger Districts about 10 miles south of Edwards in the Holy Cross Wilderness
Size	10,800 acres
Elevation	9,840-13,670 feet
Landforms	High mountains with moderate-to-steep slopes; large cirque basins; numerous lakes
Vegetation	Spruce-fir and lodgepole pine forest types; alpine; tufted hairgrass grasslands; subalpine willow carrs and wetlands
Wildlife	The area contains one of the highest-ranked (A+ for genetic purity) populations of Colorado River cutthroat trout in the state
Geology	Metamorphic and igneous—gneiss, schist, and granite
Watershed	The complete watersheds of West Cross Creek and upper East Lake Creek
Land allocation	Wilderness
Range	Vacant allotment
Timber	Unsuitable
Minerals	Withdrawn from entry
Oil and gas	Withdrawn from entry
Motorized use	None; no roads; closed to motorized and mechanized use
Non-motorized use	There is one system trail within the area that gets a moderate amount of hiking, horseback riding, backpacking, hunting, and fishing use.
Summary	This proposed RNA is in excellent ecological condition and provides excellent representation for some of the high-elevation ecosystem types of the forest, including spruce-fir and lodgepole pine forest, alpine, subalpine grasslands, and willow carr and wetland communities. The area provides major representation for several plant associations not found within other possible RNA candidates in the section, as well as a population of Colorado cutthroat trout of high genetic purity.

MARTEN CREEK

Location	On the Sopris Ranger District about 35 miles southwest of Basalt in the Hunter-Fryingpan Wilderness
Size	6,000 acres
Elevation	10,200-13,284 feet
Landforms	High mountains with moderate to steep slopes; broad valley bottom
Vegetation	Alpine; spruce-fir forest; tufted hairgrass grassland; willow carrs and wetlands
Geology	Metamorphic granitic and glacial till
Watershed	The complete watershed of upper Marten Creek
Land allocation	Wilderness
Range	Vacant allotment
Timber	Unsuitable
Minerals	Withdrawn from entry
Oil and gas	Withdrawn from entry
Motorized use	None; no roads; closed to motorized and mechanized use
Non-motorized use	There is a non-system trail along the length of Marten Creek that receives moderate hiking, backpacking, horseback riding, fishing, and hunting use. Impacts of horsepacking and associated camps were observed.
Summary	This proposed RNA is in moderate-to-good ecological condition. Populations of exotic plant species were seen along the non-system trail and riparian corridor. The area provides good representation for some of the high elevation ecosystem types of the forest, including alpine, spruce-fir forest, subalpine grasslands, willow carr, and wetland communities.

PORCUPINE GULCH

Location	On the Dillon Ranger District west of the Continental Divide just west of Loveland Pass
Size	6,500 acres
Elevation	9,700-12,752 feet
Landforms	High mountains; cirque basins; moderate-to-steep slopes
Vegetation	Spruce-fir and lodgepole pine forest types; alpine; subalpine willow carrs and wetlands
Geology	Metamorphic and igneous—gneiss, schist, and granite
Watershed	The complete watershed of Porcupine Gulch
Land allocation	Non-wilderness
Range	Vacant allotment
Timber	Unsuitable
Minerals	Some potential exists
Oil and gas	Low potential
Motorized use	No roads; closed to motorized use
Non-motorized use	There are no system trails within the area. Some winter backcountry skiing use occurs.
Summary	This proposed RNA is in excellent ecological condition and provides excellent representation for some of the high elevation ecosystem types of the forest, including spruce-fir and lodgepole pine forest, alpine, and willow carr and wetland communities. The area provides major representation for several plant associations not found within other possible RNA candidates in the section.

TAYLOR-WILLARD

Location	On the Aspen Ranger District about 12 miles south of Aspen. Part of this area is located on the Gunnison National Forest.
Size	1,400 acres
Elevation	11,000-13,000 feet
Landforms	High mountains with moderate-to-steep slopes; cirque basins
Vegetation	Alpine; spruce-fir forest; willow carrs and wetlands
Geology	Metamorphic granitic and glacial till
Watershed	No watersheds
Land allocation	Non-wilderness
Range	Vacant allotment
Timber	Unsuitable
Minerals	Some potential exists and the area contains unpatented mining claims
Oil and gas	Low potential
Motorized use	No roads; closed to motorized use
Non-motorized use	Low; there are no system trails within the area
Summary	This proposed RNA is in excellent ecological condition and provides good representation for some of the high-elevation ecosystem types of the forest, including alpine, and willow carr and wetland communities. The area contains significant populations of a large number of state and globally rare plant species.

WARREN PEAK

Location	On the Aspen Ranger District about three miles south of Aspen in the Hunter-Fryingpan Wilderness
Size	8,700 acres
Elevation	9,000-12,721 feet
Landforms	High mountains with gentle-to-moderate slopes; rolling forested upland
Vegetation	Spruce-fir and lodgepole pine forest types; alpine; tufted hairgrass grasslands; subalpine willow carrs and wetlands
Geology	Metamorphic and igneous—gneiss, schist, and granite
Watershed	The complete watershed of No Name Creek
Land allocation	Wilderness
Range	Vacant allotment
Timber	Unsuitable
Minerals	Withdrawn from entry
Oil and gas	Withdrawn from entry
Motorized use	None; no roads; closed to motorized and mechanized use
Non-motorized use	Minimal; there are no system trails in the area
Summary	This proposed RNA is in excellent ecological condition and provides excellent representation for some of the high-elevation ecosystem types of the forest, including spruce-fir and lodgepole pine forest, alpine, subalpine grasslands, and willow carr and wetland communities. The area is notable for its gentle forested terrain interspersed with large subalpine grassland and wetland parks. It provides major representation for several plant associations not found within other possible RNA candidates in the section.

Plant associations

The number of new plant associations represented within a proposed RNA is an important consideration in evaluating its ecological contribution to the national and regional RNA system. **Table A-75** displays the number of plant associations that are unique to each proposed RNA, and the number of plant associations that are shared by more than one proposed RNA on the forest but are not currently found anywhere else within the ecological section. When individual RNAs are considered for potential establishment, it is important to look at both columns to understand how many plant associations would be included if that particular RNA is established. Due to the complexity of the plant association data, specific lists of plant associations are not included here. Further information on plant associations found within the proposed RNAs is available at the Supervisor's Office.

Table A-75
Plant association representation in proposed RNAs

Research natural area	Plant associations unique to this proposed RNA	Plant associations shared by this and at least one other proposed RNA on the forest, but not found elsewhere in the Ecological Section
North Central Highlands and Rocky Mountain Section		
Assignation Ridge	4	8
Deep Creek	11	6
Gift and Kline Creeks	28	12
Lower Battlement Mesa	11	6
Main Elk Creek	5	7
No Name Ridge	3	8
Oyster Lakes	5	3
W Mountain	7	5
Northern Parks and Ranges Section		
Black Creek	3	7
Difficult Creek	0	8
East Lake Creek / West Cross Creek	10	13
Marten Creek	1	12
Porcupine Gulch	3	4
Taylor-Willard	1	1
Warren Peak	1	8
Hoosier Ridge	5	0