Appendix J. Scenic Character Descriptions

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Introduction

The plan area covers a broad variety of ecological regions. This area is further divided into a series of distinctive “island” mountain ranges. These individual mountain ranges were identified and labeled as GAs.

Scenery is important to visitors overall experience when visiting the Forest. Research has shown (Ryan 2005) that people prefer natural settings when visiting public lands. Statistics from the National Visitor Use Monitoring (NVUM) project show that the second highest activity visitors participate in nationally is viewing scenery, with 25 percent of visitors participating in this activity. This high percentage emphasizes the importance of maintaining natural appearing landscapes so the expectations of these visitors can be met.

Scenic Character

Scenic character is defined as a combination of the physical, biological, and cultural images that give an area its scenic identity and contribute to its sense of place. It provides a frame of reference from which to determine the scenic attractiveness of a landscape and to measure changes to the scenic integrity of the scenery described. Scenic character for the plan area was assessed by individual GAs and includes the encompassing view sheds of both NFS forested and nonforested lands. Ecoregion descriptions describe the biophysical aspects of the scenic character of the forest landscape. These ecoregion descriptions served as the frame of reference for assessing scenic character and the scenery attributes within these landscapes.

The Scenery Management System is a systematic approach to inventory, analyze, and monitor the scenic resources. This system recognizes natural disturbance processes such as fire, insects, and disease to be part of the natural landscape that is dynamic and also important in maintaining healthy, sustainable, and scenic landscapes. The primary components of the Scenery Management System are: scenic character, scenic attractiveness, landscape visibility, existing scenic integrity, and scenic classes. This system for managing scenery is used in the context of ecosystem management to determine the relative value, stability, resiliency and importance of scenery; assist in establishing overall resource objectives; and ensure high-quality scenery for future generations.

The scenic character for each individual GA is described below. Maps of the desired scenic integrity objectives for each GA can be found in appendix B.

Big Belts Geographic Area

Figure 1. Looking east at Mount Baldy from the Missouri River valley

Location

The Big Belt Mountains are an island range primarily in Broadwater, Lewis and Clark, and Meagher Counties with small portions in Gallatin and Cascade Counties. This includes the Gates of the Mountains Wilderness, the outlying Dry Range, and the small communities of York and Nelson. The nearest population center is Helena. Many other smaller communities also have intimate relationships with the GA such as Lakeside, Canyon Ferry, Townsend, Toston, and White Sulphur Springs. The range is located between the predominantly treeless Smith and Missouri river valleys.

Scenic Character

The Big Belts GA has a rich history of occupation beginning with prehistoric peoples. Many cliff faces and rock shelters bear their signature in the form of pictographs and petroglyphs. Artifacts such as projectile points and associated flakes are commonly encountered. The Flathead Trail, a historic travel corridor, traverses the southern Big Belt Mountains.

The presence of valuable minerals has endowed the Big Belts with a robust mining history. Relics of historic mining infrastructure and tools are frequent. Many small communities have come and gone, such as Whites City, Diamond City, Watson, Vista, Manger, Duck Creek, Blackwell, Cement Gulch City, and Trout Creek. Many of their structures have long disappeared but remnants still exist on the landscape.

Thompson Guard Station and Meriwether Guard Station stand as reminders of the US Forest Service history.

The Mann Gulch Smokejumper Memorial commemorates the tragedy of the Mann Gulch Fire, a sacred landscape for wildland firefighters. Many make pilgrimages here to pay their respects, strengthen internal relationships, and revisit lessons learned.

The Big Belt Mountains make up a long arc, approximately 75 miles long, on a northwest to southeast axis. Proportionally, it is narrow west to east, bulging wider in the north. The Missouri River clips the northwest boundary. This section of the river was named the Gates of the Mountains by the Lewis and Clark expedition because here the river is constricted through tall, picturesque limestone cliffs. An area of canyons adjacent to this stretch of river shares similar geology and has been designated wilderness. The tallest mountains are found in the south central part of the range, Mount Baldy at 9,472 and Mount Edith 9,507, just north of Deep Creek River Canyon. The lowest elevations are along the Missouri River and are around 3,600 feet. Many other mountains are also landmarks, such as Cap, Willow, Hogback, Hedges, and Grassy. Slopes are typically steep and rugged. Some of the highest elevations have evidence of localized glaciation, such as the cirque on Mount Edith.

The mountains are characterized by many steep sided gulches and canyons that drain the mountains to the west, with over 140 named. A few are very narrow at the entrance to the mountains and then open up into broader bottoms once within, such as Hellgate, Little Hellgate, and Avalanche gulches. Other prominent gulches are Magpie, Cave, White, Confederate, Duck Creek, Cabin, and Dry Creek. Another prominent local landform feature is the bar, which is a deposition of material by a stream body over time. It is similar to a sand bar or point bar in a stream, but on a larger scale. Many have been productive sources for valuable minerals for placer miners.

The Dry Range is a distinct geologic unit to the east of the Big Belt Mountains and is included in the Big Belts GA because of its close proximity. This landform can be described as foothills to low mountains with elevations ranging between 4500-6500 feet. Ellis Canyon is a prominent, branching drainage network that runs south to north through the range.

The geology of this GA is predominantly sedimentary limestone. There are some pockets of rock from metamorphic and volcanic activity in the Big Belt Mountains that are rich with minerals.

Most of the outlying Dry Range, northeast Big Belts, and area of the Big Belts along the Missouri River can be characterized as partially forested foothills with large grassland openings. The area of the Dry Range that borders the Smith River is more heavily forested.

The forest in the Big Belt Mountains is predominantly Douglas-fir and ponderosa pine at lower elevations, with subalpine fir at higher elevations. Whitebark pine is also encountered at higher elevations. Valley bottoms alongside drainages have narrow riparian areas with dogwood, willow, patches of cottonwood and other wet-loving plants. South and southwest aspects grow dry grassland. Fire is the primary sculptor of plant communities and occurs frequently. The majority of the Gates of the Mountains Wilderness burned in 2007 and the famous Mann Gulch fire, in the same vicinity, burned in 1949.

Both the Big Belts and the Dry Range lack much water and are characteristically dry. They are in the rain shadow of the continental divide to the west. The underlying geology is porous and many of the streams are intermittent. Most of the west-facing gulches and canyons have small constrained streams associated with them, such as Beaver Creek, Trout Creek, and Deep Creek. High elevation lakes are in basins east of Mount Baldy and Boulder Baldy. Discharge from these lakes flows east into the Smith River via Camas

and Big Birch Creek. Rock Creek also flows into the Smith and connects with Ellis Canyon in the Dry Range. Gipsy Lake, a manmade reservoir, is also on the east side.

Figure 2. Dry prairie, looking east towards Ellis Canyon in the Dry Range

Figure 3. Dry Range from the Lingshire Road

Figure 4. Avalanche Gulch

Figure 5. Hellgate Gulch

Figure 6. Glacial cirque on Mount Edith

Figure 7. High elevation ridge between Mount Baldy and Mount Edith

Figure 8. Meriwether Canyon in Gates of the Mountains Wilderness

Figure 9. Looking north at bluffs along a short, free-flowing section of the Missouri River between Hauser and Upper Holter Lakes

Castles Geographic Area

Figure 10. View of Whetstone Ridge from the south

Location

The Castles GA is an island mountain range east of White Sulphur Springs in Meagher County. The Castle's treed higher elevations are surrounded by lower elevations that are predominantly treeless, instilling an island appearance. The range has its own geologic story- unique from the other island ranges.

Scenic Character

This GA has a long history of occupation. Its mineral deposits were used as quarries for first people's needs such as projectile points and scrapers. They left behind cultural artifacts, many of which lay undisturbed. Euro-American settlement began with the discovery of some of the same mineral deposits, causing it to be one of the first areas in Montana to be settled. The small towns of Lennep and Checkerboard are remnants of this era, as are the ghost towns of Castletown and Blackhawk. Some remnants of their structures can still be found.

The Castles are a combination of landforms that appear as one. Western slopes culminate in a gentle rising, flat-topped dome of volcanic origin that is comprised of a group of mountains, of which the forested slopes of Beartrap Peak, Woodchuck Mountain, and Willow Peak are punctuated by castle-like outcrops of granite. Elk Peak is the highest point in the GA at 8,566 feet. Wapiti and Castle mountains are also prominent features. The eastern section is characterized by plateaus of sedimentary origin, such as the Limestone and Whetstone Ridges. Here, the lowest elevations are down to 5,100. Vantages throughout the GA provide impressive views of the Little Belts to the north, the Crazies to the south, the Big Belts to the west, the Bridgers to the southwest, and a vast expanse of prairie to the east.

North and northwestern aspects are cloaked with a dense canopy of conifers. At higher elevations and on sun exposed aspects, forest intergrades with grassland meadows, or *parks* such as Manger Park, Smith Meadows, and Elk Park. Aspen stands grow in moist areas. On the drier, eastern sections, plant communities are dominated by grassy parks interspersed with patches of Douglas-fir, Engelmann spruce, lodgepole, limber, and, ponderosa pine. The entire GA is surrounded by sagebrush grasslands. Historically, fire was the primary shaper of plant communities.

The Castles GA is surrounded in the lower grassland elevations by the North and South Forks of the Smith River on the west and the North and South Forks of the Musselshell River on the east. Many spring fed streams drain from the mountains into these forks, some cutting deep gorges and some sinking underground. Major drainages are Warm Springs, Checkerboard, Flagstaff, Beartrap, Fourmile, Richardson, Grasshopper, Bonanza, and Cottonwood creeks. Willow Creek is the municipal water source for White Sulphur Springs. The western slopes are wetter than the porous eastern limestone slopes.

Figure 11. View of the granite, castle-like outcrops that extend above a coniferous canopy, looking southeast towards Woodchuck Mountain

Figure 12. Granite outcrop

Crazies Geographic Area

Figure 13. Looking towards Virginia Peak, elevation 8,769 feet

Location

The Crazies GA encompasses the northern portion of the Crazy Mountains that is administered by the HLC NF. The southern portion is administered by the Gallatin National Forest. The GA is at the junction of Meagher, Wheatland, Sweet Grass, and Park Counties. White Sulphur Springs is the nearest population center with an estimated 970 inhabitants (United States Census Bureau 2013).

Scenic Character

The Crazy Mountains make up an island range that abruptly rises from the surrounding Shield, Musselshell, and Yellowstone River valleys. The rugged and awe-inspiring range has captivated people over time. The Mountain Crow visited its tall peaks and special areas for vision quests. Chief Many Coups had one of his most prophetic dreams here. Euro- American settlement has lightly affected the area with only a few signs of habitation, such as the Hereim Homestead on Comb Creek. Forest Lake Guard Station still stands as a sentry for Forest Service administration. Today, people still seek spiritual experiences through various recreational and other means.

This island range is a discrete geologic unit, unique from the adjacent ranges (Castles, Little Belts, Snowies, Beartooths, Absarokas, and Gallatins). The form of the Crazies is bold and craggy. They are of volcanic origin and enriched with granitic geology. Talus, scree, and boulder areas dot steep and moderate slopes. Broad valleys and long finger ridges radiate outward from its center. Many ridge tops and summits lack vegetation residing in the alpine area. Glaciation has imparted many of these landforms with sharp, scoured edges. The highest point in the GA is Loco Mountain at 9,242 feet. The summits of Target Rock,

Virginia Peak, Mt Elmo, and Lebo Peak are also distinctive landmarks. Lower elevations along stream bottoms are at roughly 6,100 feet.

All of the GAs streams drain into the Musselshell River on their way to the Gulf of Mexico via the Missouri River. The most prominent drainages are the American, Bozeman, Musselshell Forks, Cottonwood, and Little and Big Elk Creeks. Riparian forests of aspen, willow, dogwood and cottonwood grow along their courses. Grasslands occupy much of the lower elevations and intergrade with coniferous forest at higher elevations. Small patches of deciduous trees punctuate the dense canopy of evergreen trees. At the highest elevations, conifer forests give way to alpine habitats. Historically, fire would have been a major influence on plant communities.

Figure 14. Patterns of vegetation on a long ridge ascending to Loco Mountain

Figure 15. Foreground view showing encroachment of Douglas-fir into sagebrush grassland

Divide Geographic Area

Figure 16. Chessman Reservoir from the summit of Red Mountain

Location

This GA is the scenic backdrop and primary recreational resource for Montana's capital city, Helena, with a population of 29,596 (United States Census Bureau 2013). It also includes the smaller communities of Austin, Rimini, and Unionville. Portions of the GA are in the political geographies of Lewis and Clark, Powell, and Jefferson Counties. For ease of comprehension, the area has been broken out into four smaller subareas: northwest, southwest, northeast, and southeast. U.S. Highway 12 divides the subareas south to north and the Continental Divide separates them east to west. The spine of the divide is higher, cooler, wetter, and more exposed, imbuing it with a unique microclimate. The Continental Divide National Scenic Trail follows the crest of the divide.

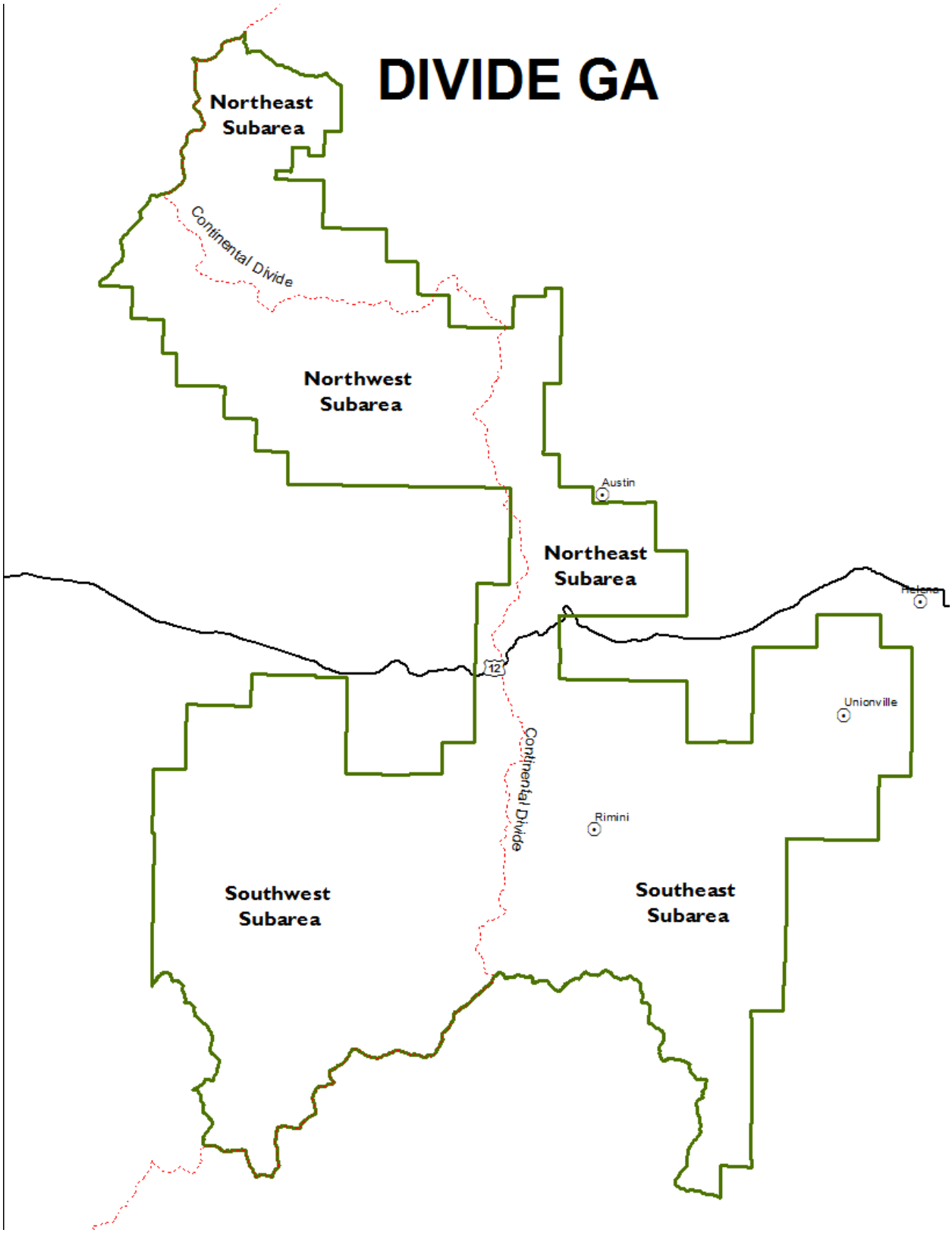

Figure 17. Divide GA and subarea context map

Figure 18. Wet bog along the Continental Divide

Figure 19. Granite boulder outcrop and fall color along the Continental Divide

Figure 20. Wet forest and fall color along the Continental Divide

Scenic Character

While the GA has a rich history of prehistoric occupation, its signature on the landscape is not obvious. A legacy of mining has left behind a suite of structures such as cabins and kilns, and over 139 named mines. Many former mining communities were settled and have since vacated, leaving behind clues of their heyday. Some riparian benches have been converted to pasture on private property, adding a rural setting in areas. A major west/ east railroad passes over the divide at Mullan Pass. Historically, fire was the primary disturbance throughout the GA and would determine composition and patterns of vegetation. Parks are distributed throughout, such as Bullion Parks, Blackfoot Meadows, and Thompson Flats.

Divide Northwest

This subarea is a combination of ecoregions and displays a diversity of characteristics. Mountains are mostly nonglaciated and therefore rounded in form, lacking jagged edges. Most ridges and peaks are heavily forested, obscuring high points. This subarea's highest peak is Black Mountain at 8,297 feet. Lower elevations go down to roughly 5,500 feet. Its geology is mainly composed of carbonate rich sedimentary rock.

Forests are characterized by Douglas-fir and ponderosa pine. Open grasslands occupy south and southwesterly aspects, especially at sun-exposed elevations. The ecoregion to the west is predominantly devoid of trees, creating a stark contrast. Water is scarce here with only small drainages, Dog Creek being the largest.

Divide Southwest

This subarea is exclusively in the Elkhorn Mountain-Boulder Batholith ecoregion. The landform is partially glaciated so there is some evidence of glacial activity (terrain features and soil). The geology is of

volcanic origin and rich in mineral deposits. Locally, boulder strewn areas of erosion-prone, granitic rocks occur. The highest point is Jack Mountain at 8,727 feet. Lower elevations are approximately 5,350 feet.

Landforms are heavily covered in forests of subalpine fir and Douglas-fir habitat types, mostly dominated by seral lodgepole at higher elevations. Talus slopes create openings in the closed canopy of coniferous trees. The most prominent drainage, the Little Blackfoot River, is the largest in the entire GA. It has carved a broad valley bottom and is buffered by robust willow complexes.

Figure 21. Pasture in the Little Blackfoot Valley (southwest subarea)

Figure 22. The Little Blackfoot River at base flow in August (southwest subarea)

Figure 23. Aspen and granite boulders create an opening in a closed canopy of conifers (southwest subarea)

Divide Northeast

This subarea is a combination of ecoregions and therefore shares attributes of all. Mountains have a rolling form and are heavily forested with grassy openings on sun-exposed ridgelines. Ponderosa pine and Douglas-fir are the dominant tree species. A mostly treeless ecoregion extends directly to the subarea's east, creating contrast.

The geology is composed of rocks of both volcanic and sedimentary origin. Highest points are along the Continental Divide, Meyer's Hill at 7,129 feet and Roundtop Mountain at 6,916 feet. The lowest elevations are roughly 5,160 feet. Water is scarce, and streams are infrequent. Little Prickly Pear Creek's headwaters and canyon begin here.

Figure 24. Historic structure (northeast subarea)

Figure 25. Looking at northeast subarea from foothills of Black Mountain in the southeast subarea

Divide Southeast

Divide southeast is a combination of ecoregions and characteristics. It is also the closest subarea to the population center of Helena and therefore most visited. Mountains are rolling and rounded with little evidence of glaciation. The geology is diverse with mineral rich deposits of volcanic origin and sedimentary rocks. Patches of granite boulders and talus slopes are intermittent.

Thick forests of subalpine fir and Douglas-fir climax habitat types, most of which are dominated by seral lodgepole pine, cloak higher elevations. An exception to this is the iconic Red Mountain, at 8,143 feet; its upper slopes are conspicuously barren, exposing red, rocky soil. A stunted forest of wind-swept whitebark pine clings to its round, flat ridge top. Forests are punctuated by wet, boggy habitat, such as Sure Thing Swamp, which harbors unique communities of wet-loving vegetation. Aspen stands are distributed throughout and give contrast to the expanses of conifers. Lower elevations, down to roughly 4,500 feet, have ponderosa pine that intergrade into grassland, mainly on south and southwesterly ridges.

Overall water is scarce, but Helena's primary water source, Tenmile Creek, is found here. Some waterways have been impounded to capture water for utility and recreation, such as Chessman Reservoir and Park Lake. Drainages are characterized as being heavily incised with constrained riparian areas such as Lump Gulch and Orofino Gulch. Some gulches have remnants of historic mining, such as kilns, that recall an era of fine craftsmanship.

Figure 26. Lime Kiln Remnants in Grizzly Gulch (southeast subarea)

Figure 27. Red Mountain from the Continental Divide (southeast subarea)

Elkhorns Geographic Area

Figure 28. Crow and Elkhorn Peaks from the Boulder River Valley, looking north

Location

The Elkhorns GA encompasses the Elkhorn Mountains in Broadwater and Jefferson Counties and includes the small mining town of Elkhorn. The nearest population center is Helena, Montana. Many smaller communities also have intimate relationships with the GA: Montana City, Clancy, Alhambra, Jefferson City, Boulder, Radersburg, Townsend, Winston, and East Helena. The Elkhorns are surrounded by the Divide Mountains and Boulder Batholith on the west, and the Missouri and Boulder River valleys on the north, east, and, south. Many other island ranges and Canyon Ferry Reservoir can be viewed from its vantages.

Scenic Character

The Elkhorn GA has been occupied by human inhabitants for thousands of years. Rock art and other subtle clues of their settlement can still be found on the landscape. However, prehistoric occupation is less evident than the more recent Euro-American settlement. After the discovery of valuable mineral deposits, mines and associated settlements sprang up in portions of the GA. The ghost town of Elkhorn is a good example of this era. Other communities have all but disappeared, such as Queen, Eagle City, Gold Dust, and Sourdough. Remnant tools and infrastructure of the mining era are found throughout the GA. Eagle and Tizer Guard stations are living reminders of Forest Service administration. Fire has historically has been a major influence to plant communities.

The form of the Elkhorn Mountains is rounded and furrowed from extensive weathering. From a bird's-eye view, the island range is oval shaped on a southwest-northeast axis. High points are prominent from background northwest, west, and southwest perspectives but cryptic from other vantages. Drainages have carved steep gulches and canyons.

The Elkhorn Mountains can be divided into west and east sections by the predominant underlying geology. The majority of the Elkhorns (north, west, southwest) is a part of a batholith, an igneous bulge that formed when magma upwelled from deep within the earth's crust and then cooled. This geologic history has left the area rich in minerals. Evidence of glaciation is localized as boulder strewn areas of granitic rocks. The GA's highest points are Crow Peak at 9,415 feet and Elkhorn Peak at 9,410 feet. Other prominent landmarks are High Peak, Casey Peak, and Strawberry Butte. The lowest elevations in the GA are roughly 4,500 feet in the northwest corner. The remaining approximate quarter (southwest) of the GA is underlain by sedimentary rock that lacks the same mineralization as the batholith but is rich in calcareous rock. The landforms are rugged, low mountains with hogback ridges and dry valleys. Prominent landforms are Glendale Butte and Giant Hill.

The plant communities on the batholith portion are mostly forested with ponderosa pine, subalpine fir, Douglas-fir, lodgepole pine, and whitebark pine at higher elevations. Aspen stands and water-loving plants take advantage of riparian areas and wet seeps. Parks, rich with grasses and forbs, are frequent at lower elevations and break up the forest in montane elevations. A large expanse of this GA burned in 1988. Its effects are still evident. The sedimentary geologic area in the east is a gradient of foothill prairie and partially forested low mountains. Grassland is a major component. Limber pine and juniper woodland ebb and flow with the prairie relative to disturbances. Douglas-fir is the predominant forest tree species.

The western side of the GA is generally wetter than the eastern side. The entire landmass is drained by many perennial and intermittent creeks. All flow to the Missouri River, some via the Boulder and Jefferson Rivers, such as Elkhorn and Dry Creeks. Other major creeks are McClellan, Prickly Pear, Warm Springs, Crow Indian, and Beaver. The basins around Elkhorn and Crow Peaks harbor high elevation lakes such as Hidden Lake, Tizer Lakes, Leslie Lake, and Glenwood Lake. The Crow Lakes are found in the upper headwaters of Crow Creek. Crow Creek plummets over an impressive falls. Springs are important water features in the more arid eastern sections.

Figure 29. Wet meadow emanating from a spring in the drier east sedimentary geologic area

Figure 30. Eagle Guard Station

Figure 31. Looking towards Crow and Elkhorn Peaks from the southeast

Figure 32. Boulder strewn area on the western batholith side

Figure 33. Bitterroot, *Lewisia rediviva*, a seasonally conspicuous component of grasslands

Figure 34. Grassland and sagebrush indicative of east side and lower elevations

Figure 35. Looking north down Weasel Creek towards Canyon Ferry Reservoir and Big Belt Mountains

Highwoods Geographic Area

Figure 36. Looking west from ridge on Windy Mountain, view of North Peak (left) and Highwood Baldy (right)

Location

The Highwoods GA is the smallest of all the GAs within the plan area and encompasses the Highwood Mountains. This isolated island range is located within Cascade, Chouteau, and Judith Basin Counties. This GA is the closest NFS land to Great Falls, population, 59,351 (United States Census Bureau 2013). The landmass rises up from the confluence of multiple grassland types: foothill grasslands, semi-arid prairie, Missouri Breaks, and unglaciated high plains. All of these types share basic common traits but are slightly different and collectively set the stage for the Highwood's unique setting.

Scenic Character

The Highwoods have a long history of grazing. This GA provides an abundance of grass and reliable sources of water. Historic Highwood and Shonkin Cow Camps are reminders of this heritage. Highwood Guard Station continues to greet visitors as they enter the forest at the North Fork of Highwood Creek.

Although small, the GA is diverse and robust in content. The mountain range is of volcanic origin and contains geologic formations that are a mix of igneous and sedimentary rocks. The mountains have been weathered over time by natural processes, rendering them rolling and furrowed in form. The high point and centerpiece of the range is Highwood Baldy at 7,657 feet. The mountains are bisected by Highwood Creek. Highwood Baldy, Pinewood, North, South and Middle Peaks are found to its west. Mount Kennon, Windy Mountain, East, Lava, Prospect, and Arrow Peaks are located to its east. Slopes are moderately steep.

North facing aspects are considerably wetter than less vegetated and rocky south facing aspects. Lowest elevations go down to 4300 feet.

Here, a characterizing landform is the coulee, which is from the French word meaning “to flow”. It is used interchangeably for various terrain features but all have a drainage element in common. Some are predominantly grassy and others harbor woody plants. Some are intermittent and others have perennial flows. Some examples in the Highwood GA are Grouse and Big Coulees.

A dense stream network has dissected the mountains, creating numerous folds in the topography. The most prominent drainages are Arrow, Shonkin, Highwood, and the North Fork of Little Belt Creeks. Riparian areas are rich with willow, dogwood, water birch, cottonwood, and other water-loving plants. Some headwaters provide for pure and geographically unique populations of westslope cutthroat trout.

The land cover of this GA is a mosaic of conifers, deciduous trees, grass, and rock. Large aspen stands intergrade with rich prairie and dense pine forest. Orderly stands of mature lodgepole pine contrast with more diverse plant assemblages. Open grown Douglas-fir and windswept limber pines add to the diverse character. Woodland, forest, and prairie ebb and flow into one another. Fire was historically the main determinant of vegetative cover.

Figure 37. Lodgepole pine stand

Figure 38. Windswept limber pine

Figure 39. Aspen intergrading with grass

Figure 40. Highwood Creek

Little Belts Geographic Area

Figure 41. Pierce Park as seen from the slopes of Daisy Mountain with Big Baldy in the background
(credit: Steve Wyatt)

Location

Portions of this sprawling range are located in the political geographies of Meagher, Judith Basin, Cascade, and Wheatland Counties. It is surrounded by predominantly treeless foothills of prairie and sagebrush steppe. The city of Great Falls is 50 miles to its northwest and the town of White Sulphur Springs is on its southern edge. The Little Belts GA is bisected north-south by the Kings Hill scenic byway (US Highway 89) along which the small communities of Niehart and Monarch reside. Most of the Little Belts can be described as remote but accessible by a well-distributed transportation network.

Scenic Character

First peoples used the area ever since immigrating into this part of North America. They utilized quarries for tools and weapons, such as projectile points. They created art on rock shelters and overhangs for cultural reasons. They left rings of rock used to secure tepees for shelter. Their signature is light on the land but can still be found.

The Little Belts GA was quickly inhabited by Euro-Americans after Missouri river travel was established and rich deposits of minerals were discovered. Approximately 144 named mines have been constructed within the area. Mining infrastructure and tools are frequently encountered throughout. Many communities also sprang up quickly and then disappeared. Some remnants of civic buildings and dwellings stand witnesses to their story. A few former community names are Galena, Summit, Silver Dyke, Carbonate, and Hughesville. Homesteading also occurred in the GA, mostly along the lower elevation fringes. A history of timber cutting is evident and relics such as splash dams and log chutes can be encountered. Forest Service guard stations and fire lookouts remain in various locations and conditions.

This is Charlie Russell country. The cowboy artist lived at times in these mountains and worked the neighboring ranches. Many spots were visited by him and became inspirations for his art. It is not uncommon for local families to recall first-hand accounts of the charismatic man.

The adjective “little” to describe this GA is misleading, as this range is the largest of the isolated island ranges in central Montana. It measures approximately 60 miles southeast to northeast and is 30 miles across. The landmass of the Little Belts Mountains generally has a rolling curvature that lacks much sharpness. Evidence of glaciation is infrequent and patchy, such as on the upper slopes of Big Baldy Mountain. The mountain range’s form and its fairly uniform cover of trees create geographic confusion. Visitors seldom realize the range’s immensity and spectrum of elevation. The highest points are Big Baldy at 9,175 feet and Yogo Peak at 8,812 feet. Elevations range as low as 4,000, in the Smith River Canyon. A few other prominent landmarks are Kings Hill pass, with nearby Porphyry Peak and Showdown ski area, Old Baldy Mountain, Black Butte, Monument Ridge and Peak, Wolf Butte, Granite Mountain, Peterson Mountain, Bandbox Mountain, Sand Point Mountain, Mount High, Lost Fork Ridge, Smoky Mountain, Daisy Peak, and Coxcombe Butte.

The geology of the Little Belts is rich in limestone with pockets of metamorphic and igneous rock. Bands of limestone bluffs break up uniform expanses of evergreen forest. Stream courses have carved beautiful exposed escarpments and palisades, such as on the Smith River, Tenderfoot Creek, Belt Creek, Haymaker Narrows Creek, Antelope Creek, and the Middle Fork of the Judith River.

The many streams of the Little Belts are picturesque and ecologically rich. Drainages typically flow outward, radially from the center of the range. Those in the west drain to the Smith River, such as the North Fork of the Smith, Newlan Creek, Sheep Creek, and Ming Coulee. Those to the south and southeast drain into the Musselshell River, such as the North Fork of the Musselshell, Haymaker Creek, both forks of Hopley Creek, and Roberts Creek. Those to the east drain to the Judith River, such as Lone Tree Creek, Willow Creek, Dry Wolf Creek, Running Wolf Creek, Surprise Creek, and Sage Creek. Those to the north drain into the Missouri, such as Sand Coulee Creek, Belt Creek, and Big Otter Creek.

The Little Belt’s vegetation reflects the gradient of moisture and elevation. Grasslands, sagebrush steppe and open woodland circle the outer fringes with trees clinging to drainage bottoms. Ponderosa pine stands are more common on the drier east side. Thick stands of Douglas-fir and lodgepole pine cloak the interior. Whitebark pine and subalpine fir are found in the higher elevations. Engelmann spruce and aspen occupy wet sites. Some mountain summits lack vegetation, revealing gentle sloping, broad ridges that appear to be composed of mostly dark loose rock. The GA is also characterized by its many parks that punctuate the forests. They are rich assemblages of predominantly herbaceous plants. Onion, Harley, O’Brien, Pierce, and Lucy parks are a select few.

Figure 42. Limestone outcrops (foreground) and Granite Mountain (background), a gentle sloping, broad ridge of exposed rock

Figure 43. Evidence of glaciation on the east side of Big Baldy Mountain

Figure 44. A dry park on the flat top of Green Mountain

Figure 45. Smith River Canyon on the northwest boundary

(credit: Lewis and Clark NF Little Belt Mountains Gallery Flikr.com)

Figure 46. South Fork of the Judith River

(credit: Lewis and Clark NF Little Belt Mountains Gallery Flikr.com)

Rocky Mountain Range Geographic Area

Figure 47. Looking north; west to east: North Fork of the Sun River valley, Gibson Reservoir and the Sun River *(wikipedia.com)*

Location

The Rocky Mountain Range GA is located in portions of Teton, Pondera, Glacier, and Lewis and Clark Counties. The closest communities are Augusta, Choteau, Bynum, Dupuyer, and Heart Butte. Great Falls is the nearest population center, about an hour drive to the southeast. The GA is bordered by U.S. Highway 2 and Glacier National Park to the north. The Blackfeet Nation lands are to the northeast. The east and southeast are bordered by state, private, and BLM lands. The Upper Blackfoot GA is to the south. The continental divide and Flathead National Forest are to the west. A large portion of the Rocky Mountain Range GA is designated wilderness and includes parts of the Scapegoat and Bob Marshall Wilderness Areas. These two wilderness areas are components of a greater wilderness complex that totals over 1.5 million acres, the 5th largest wilderness area in the lower 48 states. The GA's proximity to this wilderness complex, Glacier National Park, and adjacent wild areas of Canada make it a critical component of the North Continental Divide Ecosystem.

Scenic Character

This GA is a part of the larger Rocky Mountain front, which is the abrupt geologic uplift of the first range on the eastern edge of the Rocky Mountains. It is an area of stark contrast- the collision of the Northwest Glaciated Plains and the Canadian Rockies ecoregions, where the prairie meets the mountains.

The Northwest Glaciated Plains are characterized by large open expanses of what was historically short grass prairie. It has been predominantly converted to wheat and barley production or ranchland. Limber pine, woodland, and prairie occupy rocky and hilly areas that have not already been converted to agriculture. Kettle ponds seasonally dot the rolling foothills.

Here, the Canadian Rockies are represented by the Sawtooth and Lewis & Clark Ranges. The Sawtooth Range is the eastern edge that abuts the prairie. Large bands of exposed limestone are the essence of their visual character. An icon of this phenomenon is the Chinese Wall, a limestone escarpment that averages 1,000 feet high and extends for approximately 22 miles. The distinct ridges are locally known as reefs, recalling the geologic processes that created them. However, it was the mountain building processes that give them their current upthrust form. The range is the first north-south running chain of mountains in a series of parallel chains. The highest elevations are approximately in the 9,000 feet zone, a difference of over 5,000 feet from the eastward plains. The highest point in the Sawtooth Range is Rocky Mountain at 9,392 feet. The highest points in the Lewis & Clark Range inside the GA are Scapegoat Mountain at 9,202 feet and Flint Mountain at 9,079 feet (note: this mountain range spans multiple GAs).

Water drains from the mountains eastward cutting perpendicular through the parallel ridges. Roads follow stream corridors providing access to interior valleys. Many of the streams and rivers are noted for their ecological and scenic value, such as Badger Creek, Birch Creek, North and South Forks of the Sun River, Straight Creek, and the Dearborn River. While topographically constrained, their riparian areas are robust and their water is cold and clear. Upon exiting the forest boundary, the majority of water is quickly captured in reservoirs for agricultural use. Most precipitation comes in the form of snow. Fierce Chinook winds frequently create extremely windy days.

Vegetation is influenced by relatively natural processes. Recently, fire has been allowed to burn inside the wilderness areas for ecological benefits. Prairie, limber pine woodland, and aspens cover lower foothills. Prairie vegetation extends into the front ridges and gives way to western forests. Douglas-fir and lodgepole pine are the major tree species in montane areas. Engelmann spruce grow in wetter soils. Whitebark pine and subalpine fir occupy higher elevations. Much exposed rock, aspen stands, and open grassland break up forest.

The Rocky Mountain Range GA is a destination for Montanans as well as visitors from all over. People are drawn to the area because of its remoteness, stunning landscape, recreational opportunities, and because it is one of the few remaining wild places in the lower 48 states. Grizzly bears and the complete suite of native fauna, excluding free range bison, still roam here. Many intact large ranches occupy the foothill prairie to the east and function as vital parts of the GA's ecosystem. The region is a last true vestige of the American West and Old Montana. Many lodges, resorts, camps, cabins, and ranches have intimate relationships with the area. Guard stations, work centers, and lookouts help the Forest Service steward the vast country.

The GA is a distant backdrop for many locations. The inaccessibility of its western reaches dictates that the majority of visitors approach from the east through the ranches, limber pine woodland, and intact remnants of prairie. In places, it seems to undergo a magnification effect due to the mountains location on the horizon.

Portions of the Old North Trail, an ice free corridor for southward immigration of North America's first peoples, are found here. More recent indigenous cultures revere the area as a sacred landscape with religious importance such as a place for dream quests. The Badger-Two Medicine area is a Traditional Cultural District due to its cultural and spiritual resources. Archeological sites, such as pictographs, dot the entire GA.

Figure 48. Looking east; Over thrust of carbonate rocks (reef) Sawtooth Range in Blackleaf Canyon

Figure 49. Looking west; Vegetative patterns (prairie, woodland, forest), Ear Mountain area

Figure 50. Looking west; Rocky Mountain Range on horizon at sundown

Figure 51. Historic handprint pictographs

Figure 52. Looking east towards a vast expanse of prairie, Clary Coulee area

Snowies Geographic Area

Figure 53. Steep-walled, amphitheater-like basin

(credit: Drew Sovilla and Bailey Campbell)

Location

The Snowies is the farthest east GA within the HLC NFs plan area. It is primarily in the political geography of Fergus County with smaller portions in Golden Valley County. Lewistown is the largest nearby population center, with approximately 5,900 inhabitants (United States Census Bureau 2013). The GA includes both the Big and Little Snowy Mountain ranges. Both are mountain islands in close proximity to one another but are slightly different in character. The Little Snowies are directly east of the Big Snowies. Along with the Judith and Moccasin Mountains, the Snowies are prominent changes in elevation accentuated by surrounding grassland, high plains, and foothill savanna.

Scenic Character

Big Snowy Mountains

The Big Snowy Mountains have long been a unique and revered destination. Early first people visited its basins and summits for various reasons. Their artifacts and art still sporadically adorn the range. Lower slopes and foothills were homesteaded and have become large, iconic ranches. Unique, biophysical phenomena, such as ice caves, continue to attract intrepid visitors. Crystal Lake Guard station still actively facilitates Forest Service stewardship, whereas other structures are fading or completely disappeared, such as the Bercail School and Blake Creek Forest Station.

The Big Snowies are higher in elevation and larger in size than the Little Snowies range. The spine of the dominant landform runs east-west for approximately 25 miles, and 10 miles north-south. This orientation is unique for Montana mountain ranges east of the continental divide. The lowest elevations range to approximately 5,200 feet. Middle elevations are clad with coniferous trees, with Engelmann spruce and Douglas-fir being the dominant species. At the highest elevations the forest transitions into a tree-less plateau of alpine that is characterized by rock and tundra. Slopes vary from steep rocky canyons to gentle benches. The tops of Mt Harlow, Tepee Point, and Lost Peak are connected by a flat-topped ridge that culminates with the summit of Greathouse Peak at 8,655 feet and Old Baldy at 8,678 feet, which are separated by Half Moon Pass. In sections, the ridge constricts to a narrow edge, such as Knife Blade Ridge at 8,590 feet.

Streams flowing out of the north side of the Big Snowies, such as Ross Fork Creek, Big Rock Creek, Cottonwood Creek, and the East Fork of Big Spring Creek, flow into the Judith River. Those flowing out of the south side, such as Galloway Creek, Half Moon Creek, and Merrills Spring Creek, flow into the Musselshell River. Many streams, such as Careless Creek and Swimming Woman Creek, originate in steep-walled, amphitheater-like basins and emerge out through canyons. Most of the precipitation falls during winter in the form of snow, so streams are heavily dependent on snowmelt. The climate and porous limestone imbues a dry character to the range.

Crystal Lake is one of the Big Snowies' crown jewels. It is a shallow lake of natural origin, roughly 15 feet at its deepest and underlain by a bed of limestone. The GAs karst topography conceals many caves. Floristically, the Big Snowies are unique with many vegetation types compressed into the same area. Greathouse Peak and Old Baldy Research Natural Areas are recognized exemplary examples of dry, alpine plant communities that have been shaped without glaciation but through frost patterning. Fire was the historic driver of plant communities.

Figure 54. Looking west from the ridge of West Peak

Figure 55. Approaching the flat-topped range from the north

Figure 56. Limestone and wildflowers

(credit: Drew Sovilla and Bailey Campbell)

Figure 57. Upper slopes approaching ridgeline

Figure 58. Flat-topped ridge characterized by rock and alpine

(credit: Drew Sovilla and Bailey Campbell)

Figure 59. Fossil

(credit: Drew Sovilla and Bailey Campbell)

Figure 60. Ridge top

(credit: Drew Sovilla and Bailey Campbell)

Little Snowy Mountains

This smaller island range also has a rich cultural history, beginning with first peoples then homesteading. Today, large ranches maintain the open character of the area. Pine Grove Cemetery continues to be the final resting place for early Euro-American occupants.

The Little Snowies are separated from the Big Snowies by a subtle break in topography. It is entirely located in one ecoregion, which is characterized by foothills that are partially forested with mostly ponderosa pine. In general, the country is semi-arid and dominated by grassy vegetation. Landforms are rolling with slopes that are gentle to flat, except where creeks have dissected them. The area lacks prominent high points and is entirely vegetated. The highest elevation is 5,624 feet at Bold Butte.

Creeks within the Little Snowies are small and often run dry during the summer months. The major drainages are Willow Creek and the North Fork of Pole Creek, both of which drain south to the Musselshell River.

Upper Blackfoot Geographic Area

Figure 61. The Upper Blackfoot River

Location

The Upper Blackfoot GA spans Lewis and Clark and Powell Counties. The towns of Lincoln and Helmville are the nearest communities. The majority of the area is west of the continental divide. The Rocky Mountain Range GA and Flathead National Forest are directly north and the Divide GA is to the south. To the east, mountains become grassy foothills with isolated buttes. The city of Great Falls is approximately 70 miles away. MT Highway 200 cuts east-west through the center of the GA, crossing over Rogers Pass to follow the Blackfoot River. Missoula is approximately 70 miles to the west. The northwest corner of the GA is a part of the Scapegoat Wilderness and the greater Bob Marshall Wilderness complex. This GA is a critical component of the Southern Crown of the Continent ecosystem and greater Northern Continental Divide Ecosystem.

Scenic Character

Evidence of prehistoric settlement is present on the landscape but inconspicuous. Artifacts, such as tepee rings, can be encountered but are infrequent. Culturally modified trees, such as scars on ponderosa pine from the collection of inner bark, are to be expected. Many western Montana tribes used the Blackfoot GA as a corridor as they traveled over to the plains area to the east to hunt for buffalo. Faint travois tracks, all which remain of this prehistoric trail, can still be seen in some location in the Landers Fork and Alice Creek drainages.

Euro-American settlement is more apparent but many elements are also fading to time. Portions of the Lewis and Clark Trail traverse the Blackfoot River and Alice Creek. The trail passes over the Continental Divide at Lewis and Clark Pass. Remnant buildings of former communities are in various states of disrepair, if not gone completely, such as the post offices and dwellings of McClellan Gulch, Rochester, Gould, Stemple Pass, and Mike Horse to name a few. Relics of historic mining infrastructure and tools are frequent. Two historic buildings, Webb Lake Guard Station and Granite Butte Lookout, stand testament to the Forest Service's administration. Other sites, such as Alice Creek Ranger Station, have succumbed to time.

The Blackfoot River finds its headwaters here in the GA. The highly valued recreational and scenic river clips other portions of the GA, as well. The Continental Divide National Scenic Trail transects the GA, north to south.

The GA is predominantly in two ecoregions separated by the continental divide. The first, west of the divide, is characterized by mostly rolling hills and mountains that are underlain by various types of rock. High peaks are topped with volcanic rocks with areas of exposed rock. The effects of glaciation are present, such as glacial terrain features and soil types. The second is characterized by rounded mountains that are underlain by volcanic rocks and sedimentary rocks that have changed through geologic processes. Summits lack much exposed rock. The effects of glaciation are absent. The highest point in the GA and the Lewis & Clark Range is Red Mountain at 9,411 feet. The lowest points are at approximately 4,300 feet along the Blackfoot River. Some other prominent mountains are Ogden, Dalton, Stonewall, Olson, Crater, Nevada, Greer, and Lone Mountains.

Another characterizing landform that helps define the GA is the mountain pass. There are a few notable passes, some allowing for easy automotive travel over the continental divide: Roger, Stemple, Windy, and Flesher.

Most of the area is heavily forested with conifers. Ponderosa pine and Douglas-fir are the prominent components, with subalpine fir at higher elevations. Engelmann spruce grow in wet areas. Whitebark pine occurs at high elevations. Aspen stands are intermittent. Grasslands are frequent, especially along valley bottoms and sun exposed aspects, turning from verdant green to khaki brown throughout the growing season. Wetland complexes, fens, and other groundwater dependent ecosystems harbor rich assemblages of plants, such as Indian Meadows. Western and subalpine larches are found sporadically. These species are absent in other GAs. Fire is a major driver in the structure and composition of plant communities including lodgepole pine.

This GA has many important headwater streams emanating from the high country's snow melt. Some prominent streams north of the Blackfoot River are Stonewall Creek, Arrastra Creek, Snowbank Creek, Cadotte Creek, Alice Creek, and the Landers Fork. Some prominent streams to the south of the river are Poorman Creek, Washington Creek, Hogum Creek, and Nevada Creek. All streams west of the divide feed into the Blackfoot River on its way to the Clark Fork of the Columbia River. Major drainages east of the divide, flowing towards the Missouri River, are the Middle and South Forks of the Dearborn River and Canyon Creek. Cottonwoods and other riparian species mark the stream courses. Many natural lakes occur throughout. The quality and number of lakes help to differentiate this GA from others.

Figure 62. Beargrass blooms under a conifer canopy at Flesher Pass

Figure 63. Looking north into the Scapegoat Wilderness from the slopes of Red Mountain

Figure 64. Red Mountain

Figure 65. Large ponderosa pine

Figure 66. Looking north between Black and Nevada Mountains

Figure 67. Looking west near Granite Butte

Figure 68. Looking northwest near Snowbank Creek in a burned area

Literature

United States Census Bureau. 2013. Population estimate of Montana Cities, 2013. As found at <http://www.census.gov/popest/data/cities/totals/2013/files/SUB-EST2013_30.csv>

Woods, Alan J., J.M. Omernik, J.A. Nesser, J. Shelden, J.A. Comstock, and S.H. Azevedo. 2002. Ecoregions of Montana, 2nd edition (color poster with map, descriptive text, summary tables, and photographs). Map scale 1:1,500,000.

Weed and Pirsson, 1896. Geology of the Castle Mountain Mining District Montana. Washington Government Printing Office, Washington D.C.