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Wilderness Character Narrative



Caption: At 20,310 feet, the summit of Denali looms above the landscape.

A wilderness character narrative is a qualitative, affirming and holistic description of what is unique and special about a specific wilderness.

Purpose

The narrative is intended to capture the feelings and relationships of a wilderness. It can acknowledge, celebrate, honor and respect the intangible, experiential and inspirational aspects of a wilderness, including historic and current cultural connections to the landscape. It can also include a description of the major factors that are likely to influence each of the qualities of wilderness character into the future. The five qualities of wilderness

character provide a minimal structure to the narrative that grounds it in the statutory language of The Wilderness Act. *We need a wilderness character narrative because of its potential usefulness in complementing wilderness character monitoring.* The narrative is a tool to help local staff recognize the broader and holistic meanings of wilderness character for an area, in turn helping staff identify priorities for monitoring wilderness character.

Introduction

The Denali Wilderness is a land of paradox. It is inviting and it is terrifying; accessible and remote. It is an essentially undeveloped wilderness with a road corridor through the middle that brings millions of people to its edge. It is untrammeled, yet managed. Some of the land within its boundaries is well known and studied, but much of it is full of mystery. It is a natural and intact ecosystem celebrated by scientists, writers, hunters, adventurers and artists alike. Solitude is plentiful, especially in the winter.

From the challenge of climbing the rock and ice of the highest peaks, to striding alpine ridges, pushing through willow and dwarf birch, fording streams, running the glacier-fed rivers or urging a dog team forward across an unbroken trail, there are outstanding opportunities for a primitive and unconfined type of recreation.

Denali National Park and Preserve encompasses two million acres of wilderness designated in 1980 by the Alaska National Interest

Lands Conservation Act (ANILCA) and protected by The Wilderness Act of 1964. An additional four million acres of park and preserve are eligible wilderness lands that, by National Park Service policy, “will be managed to preserve their wilderness character” and thus will be included in this description.

Looking from within the wilderness, management boundaries are only lines drawn on a map and are non-existent to the animals, rivers, glaciers and intact ecosystems that span them. Beyond those mapped lines, the effects of humanity are sometimes abruptly apparent, but more often diffused over long distances or absent altogether. The Alaskan Interior is sparsely studded with the developments of highways and towns, but these are dwarfed by

the surrounding wildlands. The real boundaries in the landscape are defined by mountain ranges, watersheds, geologic contacts, rivers, glacier ice, lakes and ponds. The Denali Wilderness is just one link in a contiguous span of wild land that is broken only by northern oceans.

As our world is beginning to experience dramatic and widespread change, all wilderness is at a crossroads. Encroaching development and climate change threaten to dramatically alter these environments but also present a unique opportunity to preserve their exceptional wilderness character and linkages to other conservation units in Alaska and Canada.

Narrative



Caption: Denali’s geography encompasses a diversity of terrains and microclimates described by physiography, soils and vegetation.

Natural

Wilderness maintains ecological systems that are substantially free from the effects of modern civilization.

Like a vibrant, rumpled quilt, land tumbles from the flanks of the highest mountain in North America, nestles in the valleys chiseled by glaciers or incised by the flow of water, and rests on the slopes of tundra, boreal forest and riverine gravel plains. These strands of ecological influence are rooted in the spine of the Alaska Range. This elongated fortress of rock, snow and ice divides the terrain to the north – with its mass of drier, frigid air from the Arctic – from the terrain to the south – with its relatively warm and moist weather from the Gulf of Alaska. The north-south air masses on each side of the range are overlain with elevation-driven temperature and moisture gradients, resulting in a geography that

encompasses a diversity of terrains and microclimates described by physiography, soils and vegetation. This diverse habitat, which contains 758 known vascular species of plants and 900 species of mosses and lichen, is so unique and well-preserved that it was recognized as a UNESCO Biosphere Reserve in 1976. Here, plants weave the texture of the entire landscape into habitats that resonate and thrill with the wildlife therein. The vegetation delineates food, shelter, mating grounds and migration routes. Patterns of biodiversity are reflected in ridgelines, high slopes and the seams of great rivers. Subarctic plants survive due to adaptations to conditions that humans would call harsh or extreme, thriving with the rhythms and cycles of the seasons. Denali’s wilderness undergoes stunning seasonal changes that influence natural soundscapes, phenology, hydrology, migration and human travel patterns. Winter’s grasp locks up rivers, silencing them. The cold renews permafrost. Winter snow falls, avalanches and drifts in the wind, accumulating and adding mass to the glaciers and summer moisture to the rivers and the tundra. The dried, brown grasses and curled, dead leaves that cover the ground in spring give way to the full, green eruption of summer foliage. A whisper of wind over summer tundra is replaced with the fierce howl of a Chinook over uninterrupted planes of snow, with only the briefest display of vibrant fall colors in



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Caption: The Denali Caribou Herd inhabits most of the park east of the Foraker River and north of the Alaska Range throughout most of the year. Currently, there are approximately 1,760 caribou in Denali.

between. Coats of mammals, growth of antlers and flows of hormones all respond to day length or the cycles of cold and warmth.

Denali's high Central Alaska Range mountains, laden with huge glaciers, form a breathtaking skyline. The summit of Denali is almost 3,000 feet higher than neighboring Mt. Foraker and 6,000 feet higher than any other mountain in the range or lower 48 states. The main contributing factor to the mountain's massive size is a kink in the Denali Fault called a restraining bend. As the strike-slip Denali Fault in this area moves at an average rate of about a quarter of an inch per year, some of this horizontal slip is focused into a vertical component at the 18° kink. When the stored energy is released in an earthquake, this stress deforms rock intensely in a relatively small area. Because of its location immediately adjacent to the restraining bend and the focused stress there, Denali attains its immense size and lofty elevation. The right lateral strike-slip of the Denali fault causes the glaciers on the south side of the Range to flow to the east (right turn) rather than straight out of the Range – a unique feature found along this entire 1,200 mile fault line. Glaciers are

the nexus of sky and earth where snowfall accumulates and then turns to ice which flows, slides and cracks downslope. They are enigmatic sculptors of the mountains and serve as a sensitive indicator and powerful symbol of climate change. However, the highest-elevation glaciers that sit on the roof of North America are robust and not losing as much mass as many lower-elevation glaciers in Alaska and the world. Denali provides some of the best habitat for glaciers because the high mountains are a cold and snowy refuge. Rock glaciers – slower, denser cousins of ice glaciers – can also be found on some mountain slopes in the Denali Wilderness. Denali provides the right conditions for a high percentage of surge-type glaciers in the Alaska Range. The Peters and Straightaway Glaciers have surged in recent decades and the giant Muldrow Glacier, whose last surging was in 1957, could surge again at any time.

Because of its extreme elevation, this rugged terrain also preserves one of the quietest natural soundscapes in the world, interrupted only by the howling of the wind, the mighty acoustics of snow avalanches, and the less frequent rumble

of earthquakes and rock avalanches.

Much of Denali's lower elevation topography is covered in animal tracks. From the high mountain passes that connect the headwaters of Alaska Range rivers to their silty gravel bars thousands of feet below and everywhere in between – wildlife abounds. Thirty-nine species of mammals thrive in the Denali Wilderness. Dall sheep populations gather in the rugged high country, affirming the legacy upon which the park was designated. They traverse rocky cliff bands, keeping out of reach of predators. Caribou prance one after the other across steep scree and tundra or congregate in herds at the toes of glaciers, the firm wind providing respite from parasitic flies. Wolves trot along heavily vegetated drainages choked with alder and black and white spruce, or patrol the edges of open bluffs looking for prey. Moose trudge through swampy lowlands and graze on abundant willows while beavers construct lodges and dams, transforming the landscape. Porcupines cling to forested areas, feeding on spruce cambium. Black bears

forage in the forested perimeters of the Denali Wilderness while grizzlies claim most of its sweeping tundra expanses as home. Even the elusive wolverine and lynx can be spotted in their respective habitats. A sole amphibian – the wood frog – makes its home here in shallow, tundra-encircled lakes. Sixteen species of fish thrive throughout Denali, mostly in the northwest and southwest preserves. Sockeye, Chinook, Coho and Dolly Varden prevail in drainages on the south side of the Alaska Range. On the north side, the Kantishna and Kuskokwim drainages provide important habitat for Chinook, Coho and Chum salmon and sheefish. Wolves in the northwestern part of the park have made salmon a part of their diet. In addition to the provision of food and subsistence is the importance of the delivery of marine-derived nutrients from the ocean to these areas in the northwest preserve. Within Denali, grayling abound in almost every major stream. The Sanctuary River provides habitat for some of the biggest specimens found in Denali. In addition to providing habitat for grayling, Moose Creek sustains populations

Caption: The Denali Wilderness is home to numerous predator species, including a fluctuating population of wolves.

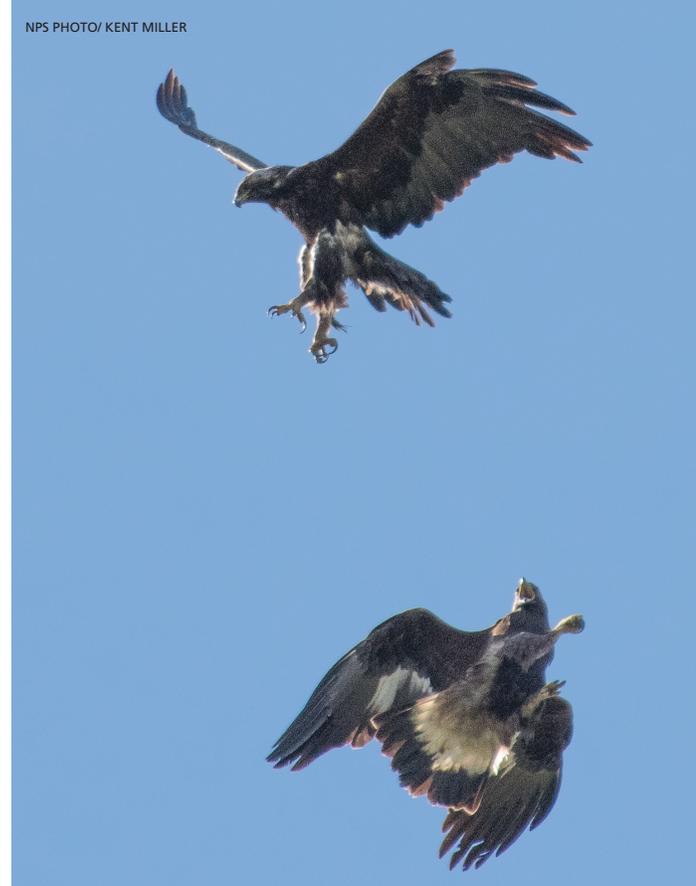
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of Dolly Varden, Arctic char and Chinook salmon. Wonder Lake is one of the only lakes in Denali with populations of lake trout. Most of the lakes in the northwest part of Denali are shallow and tend to shelter populations of northern pike.

The Denali Wilderness is home to a brilliant diversity of birdlife – 123 species of both migrants and residents. Hawk owls hunt in black spruce forests and burned areas. Three species of ptarmigan – rock, willow and white-tailed – occupy vegetated riparian habitats. Chickadees that make their home in the Denali Wilderness are well-suited to the extreme climate – they have a physiological adaptation that enlarges the section of their brain that aids them in remembering where they cache food. This helps them survive the long, brutally cold winters.

Denali's migrant bird population, of course, will be long gone by the time temperatures plunge and snows fall. Almost 80% of the bird species that spend a significant portion of their lives within the Denali Wilderness leave the park and Alaska during the winter. They come to Denali from six different continents, and thereby connect Denali to the rest of the world. Arctic warblers nest on the tundra, but rely on willows and other head-high vegetation for singing perches. Northern wheatears migrate here from the sub-Saharan African plains. Arctic terns make the longest-distance migration in the world to breed and nest in Denali's wilderness. A variety of thrushes – varied, Swainson's, grey-cheeked and hermit – migrate to Denali and pierce silent forests with their electric, complex songs. They share the dark spruce forests with Great Horned and boreal owls. Loons project their haunting calls across smooth, reflective ponds. Seabird migrants come inland to breed and nest on the tundra in places like Sable Pass and Turtle Hill (long-tailed jaegers) or on rocky river bars (mew gulls). The mystery of the surf bird migration was solved in the Denali Wilderness more than 100 years ago when biologist Olaus Murie stumbled upon a nesting site in the headwaters of the Savage River. Their calls can still be heard there today. Denali also is home to a long-distance migrant population of golden eagles. This unique group of predatory birds travels from Denali to the Rocky Mountains and back every year. Golden eagles and gyrfalcons share



Caption: Denali provides habitat for a long-distance migrant population of golden eagles.

habitat in high, rocky cliffs and will often take each other's nests. Far below, in the vast boreal wetlands of the western portion of Denali, multitudes of waterfowl congregate and nest. Thousands of Sand hill cranes squawk and forage. Trumpeter swans – the heaviest North American bird – float and roost. And tundra swans were recently documented nesting in Denali for the first time. This wild array of avifauna has garnered Denali recognition as a globally significant Important Bird Area by Birdlife International and Audubon.

Visitors to the Denali Wilderness have the opportunity to witness these plants, animals and birds in their natural habitats and in their natural states of abundance or rarity, depending on seasons and life cycles. The ready viewability of wildlife in Denali is an important result of ecological systems free from the effects of modern civilization.

The ecology of the Denali Wilderness is unique because people have been subsisting on the land by hunting and gathering for thousands of years and they continue to do so today. Humans are inextricably linked to Denali's lands and waters. This continuation of a traditional way

of life is considered with reverence and responsibility and creates a lasting connection with place.

Miki and Julie Collins live on Lake Minchumina and lead a subsistence lifestyle on lands within and surrounding Denali. Their words brightly illustrate a way of life that is protected here:

“The land surrounding Denali — the foothills and mountains, hidden valleys, lowlying scrub spruce flats, lakes, ponds and braided glacial rivers — has provided for its people for thousands of years. Although the area within the original Mt. McKinley National Park is closed to most forms of harvest, Congress recognized the intrinsic value of subsistence activities when it greatly increased the size of Denali National Park and Preserve with the 1980 additions. Unlike national parks outside of Alaska, here humans are recognized as being an innate part of the ecosystem. Because qualified local subsistence users carry on their traditional ways, even harvesting game and fur animals within the Park additions, a unique way of life and the extensive knowledge it facilitates has provided for a continuum from the previous thousands of years through today and into the future.

Those living with the land see it differently. The wild mountains and valleys tell stories of game and fur animals, of food sources and shelter, of home sites and traditional transportation routes. Trails running along mountain valleys may have been pounded out by caribou hooves, but those dropping down from one steep mountainside to cross a narrow valley and scale the mountain on the far side are made by the nimble Dall sheep.

The wilderness provides healthy local foods in an area where groceries are expensive and difficult to obtain. Salmon, sheefish, whitefish, burbot, pike and other fish; meat from moose, grouse, waterfowl, snowshoe hare, porcupine and other small game; and those fur animals which are edible, all provide sustainable natural nutrition. Many species are taken seasonally depending on game regulations (moose have a very short open season), seasonal abundance (salmon

arrive only for a few brief summer weeks) or quality (a tender snowshoe hare may be good eating in October, but after gnawing only barren willows all winter its meat assumes a bitter flavor). Storing the harvest by freezing, drying, smoking or other techniques extends its use throughout the year. But the land furnishes much more than what hunting and fishing provides. From spring greens to gallons of lowbush cranberries, harvest is opportunistic, wide-ranging and ongoing. Not all harvest is edible. Furs from marten, lynx, wolf, wolverine, fox and other furbearers yield material for -50° clothing, a cash crop, and value-added handcrafts. Timber provides cabin logs and fuel for heating, as well as wood for building projects and handcrafts, from fine handmade snowshoes to fish wheels for capturing salmon. Moss insulates cabins, whether used as chinking between logs or cut in mats for a living roof. Handcrafts for sale, barter or personal use may include animal teeth, bones, fur, antlers or horns, porcupine quills, birch bark, willow and other wood, unique stones, and countless other items generously provided by the munificent land.

Yet perhaps the land itself is most valued, for if its wildness was unprotected we would have nothing. From the mountains surrounding North America's highest peak to endless miles of stunted black spruce only a few hundred feet above sea level, each unique area of Denali National Park and Preserve has been traveled through, harvested, and known by generations. Where to find moose, or marten, or blueberries; which frozen streams serve as winter highways to the mountains and which have dangerous ice; the lake where the wind always blows harder; the area with the best cabin logs. Conservative harvest techniques predate modern game laws by thousands of years. Because of their invested interest and the amount of time subsistence users spend in the backcountry, they often have tremendous knowledge about local trends in animal populations, terrain and vegetation remodeling, climate impacts, and other changing aspects of their extended home areas.

The land feeds the soul and spirit as well as the body and the hungry wood furnace. It

provides a spiritual home that can't be forgotten. No matter how far one travels, those who spend their lives here will always belong to the anchoring Mountain and its surrounding homelands.”

Denali's vastness and grandeur mask the fragility of the link between the wildlife and the landscape. Factors that threaten the natural quality of wilderness character in Denali include the spread of airborne contaminants and thawing permafrost that results in the release of carbon, long sequestered in the frozen soils. Organic pollutants, climatic changes, habitat loss and

energy development may have long-lasting and far-reaching effects on migratory and resident birds in Denali, in addition to all plant and animal species here. Outside the park boundary, liberal hunting seasons and bag limits that impact predator populations may affect populations within the Denali Wilderness. Natural water flow and stream-flank vegetation are still recovering from the effects of past mining activities in some parts of Denali. Climate change threatens to alter natural fire regimes, melt glaciers and impact weather patterns that affect the phenology of the landscape.



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Caption: Denali's glacially fed, braided rivers flow freely across the landscape, providing travel corridors for wildlife and humans alike.

Untrammeled

Wilderness is essentially unhindered and free from the intentional actions of modern human control or manipulation.

The Denali Wilderness remains a landscape where the earth and its community of life are affected primarily by nature. The great elemental forces that shape the land—tectonic uplift, mass wasting, glacier and river erosion—likely never will be hindered by humans here. Wildlife and plants are allowed to carry out life processes freely. Many have developed specialized adaptations for the seasonal swing between the solstices—the howl and drift of subarctic winters and the midnight sun of summer’s brief growing season. Animals may shift their diet with the pattern of food availability. From low to high on the food chain, the battle for survival is constant. Migrations and evolution in populations of wild animals are not manipulated in the Denali Wilderness.

Wildland fires in the Denali Wilderness are allowed to burn across thousands of acres and are rarely suppressed. Most of them are triggered by lightning. The only human influences these fires face are occasional fuel reduction projects around cabins and localized suppression around those cabins. Still, Denali maintains natural fire intervals that have remained unchanged for centuries. After fires sweep through an area, life quickly returns.

With few exceptions, Denali’s rivers and streams flow unhindered across the landscape. The most powerful rivers emanate from the toes of glaciers, laying down braided river channels and creating travel routes for numerous wildlife. In high summer, their silty, seemingly inhospitable waters are sometimes used by fish as migration corridors to clearer streams for spawning. In spring and fall, their waters clarify. Almost the moment glaciers stop melting and rivers clear up, a big boom in algae and aquatic insect populations occurs, propelling an increase in biodiversity. This could prove to be an important time for fish as well, since aquatic insects are a necessary food source. This seasonal increase in biodiversity could disappear if climate change causes the glacial melting season to last until it starts to get dark, thereby minimizing opportunities for algae production.

Threats to the untrammeled quality of Denali’s rivers and streams include the use and development of infrastructure that interrupts the normal fluvial processes of wilderness waterways, such as the Toklat River bridge and nearby gravel extraction activities.

More threats to the untrammeled quality of the Denali Wilderness include poaching of wildlife—a rare occurrence—and the proliferation of research requests that call for the capturing and collaring of wildlife. Scientific value is an integral purpose of the area and the knowledge gained from these studies can help improve wilderness stewardship, but research must be balanced for its effects to the other qualities of wilderness character.



Caption: A closer look at a one of Denali’s inhabitant coral mushrooms reveals textures of the finest grain.

Undeveloped

Wilderness retains its primeval character and influence, and is essentially without permanent improvement or modern human occupation.

The Denali Wilderness is largely undeveloped, with only concentrated nodes of permanent structures and improvements. Most developments exist in the Denali Park Road corridor, which borders wilderness but does not lie within the wilderness boundary. Though these developments – such as the park road, visitor centers, bus stops, private lodges, gravel pits, and landing strips – lie outside wilderness, their proximity impacts the undeveloped quality of wilderness character in Denali. These developments also concentrate a large amount of motorized use, the impacts of which go beyond the borders of the road corridor. However, the vast majority of the Denali Wilderness has no such amenities.

Outside of the road corridor, large tracts of Denali's wilderness bear little evidence of modern human occupation. A few inholdings, cabins and air strips punctuate the land, but in

relation to its vastness they are hardly noticeable. Due to their remoteness, some of these tracts are most easily accessed by air. These motorized access methods are used by commercial tour businesses, private recreational users, subsistence users and National Park Service personnel alike.

Installations such as telecommunications equipment, weather stations, research stations and radio collars exist on Denali's landscape with increased frequency. Managers are faced with the challenge of balancing their desire to answer scientific questions about the Denali Wilderness with their mandate of preserving its wilderness character and its wildness. Increasing technological dependence and growing visitation could drive requests for more development and infrastructure within the Denali Wilderness.



Caption: The Denali Wilderness provides some of the best habitat for glaciers because its high mountains are a cold and snowy refuge.

Opportunities for Solitude or Primitive and Unconfined Recreation

Wilderness provides outstanding opportunities for solitude or primitive and unconfined type of recreation.

Denali's wilderness is a year-round testing ground for human endurance, adaptability and spirit. As it was for 18th-, 19th- and 20th-century explorers, pioneers, miners and entrepreneurs, this landscape can be a cold, callous backdrop for personal challenge and discovery. A sense of mystery is preserved here, and even current topographic maps use coarser-than-usual scale to capture the vast geographies they represent. It is a place where the freedom to explore is consciously protected by Denali's Backcountry Management Plan, which states, except as otherwise specified, that "backcountry access and travel in Denali would continue without designated routes or constructed trails to allow for freedom to explore and to minimize signs of human presence." Denali provides the opportunity for every person who sets foot here to have a personal response to the land. Cross country travel here demands respect and commands alertness. Lack of amenities requires self-sufficiency and allows visitors to be vulnerable. Here, people may discover what they are at the core and can find reunion between their spirits and the rhythms of the land. They have the opportunity to reconnect to a home from which they have wandered. Most of the time they harness the endurance and passion that the landscape demands. In rare

instances, they disappear or die.

Some areas have few restrictions, while others have rules against fires, dogs, camping location and quotas for backcountry use, helping to disperse footfalls and camping impacts. Some of these restrictions are double-edged swords for wilderness users—they regulate and therefore confine recreation to certain spaces at certain times, yet their goal is to provide for increased opportunities for solitude and primitive experiences. Most wilderness travelers in Denali rarely encounter park rangers or other backpackers. People are encouraged to move across this landscape like wild animals—crossing rivers, scrambling over steep scree slopes, weaving through tussocks and alders, stepping carefully onto glacial ice and climbing flowered tundra ridges. They can encounter the so-called uncivilized world on its terms. Wildlife seem to come out of nowhere or everywhere, providing visitors with an encounter in the wild rarely experienced in the world today. Large rivers present barriers to some backcountry travelers and exhilarated challenge or inspiration to others. Hikers and overnight backpackers may experience a sense of satisfaction that often comes at great physical and emotional expense. Interminable



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Caption: Grizzly bears forage roots and berries in anticipation of the coming winter months.

meandering through steep alder thickets can bring the reward of an expansive view. Hiker-travelers find a new way of stepping on springy Sphagnum or tracking wildlife through mud on a river's edge. After struggling for a week through black spruce bogs, backpackers might be surprised to stumble upon a spring-green leafy forest rife with poplars, cottonwoods and ferns. The payoff for pausing in soggy wetlands may be a two-toned symphony of low-humming soil flies and whirring, whining mosquitoes—heard on the other side of a head net—while eating a sandwich inside a bug shirt.

Mountaineers on the vast snow- and ice-mantled escarpments, which tower above all else, are unlikely to hear running water, birdsong or rustling vegetation. At these heights, the silence of winter is preserved even in summer, with the exception of creaking glaciers or thunderous, booming avalanches or the random knock of falling rocks or ice. Climbers on the high peaks may experience a range of soundscapes on their ascent. The upper reaches of Denali preserve absolutely minimum measurements of sound pressure, where great altitudes predispose the soundscape to a lack of natural energy. But because of that extremely low natural level of sound, acoustic noise events such as overflights are set against a stark backdrop and their disruption of the natural soundscape is magnified. At soaring elevations, mountaineers peer over an expansive visual space that both humbles and invigorates. Countless undeveloped climbing routes to hundreds of peaks are available to the intrepid.

In some parts of Denali, the sound of combustion engines is a rarity – sometimes less than one aircraft can be heard per day. That lack of human infringement on the natural soundscape is unique in the world. In other parts, aircraft and other motorized sound can be heard up to a third of each day, superseding desired levels set in the park's Backcountry Management Plan.

In the winter months, the wilderness appears to take a deep breath and expand, although the acreage and features remain the same. Unlike other nearby areas, Denali's designated wilderness does not allow motorized ground transport in the winter even on the park road, forcing those who recreate here to return to the old ways of traveling before the combustion engine.

Opportunities for solitude and primitive recreation are at their peak. Visitors and park staff travel by snowshoes, skis and dog team into areas where they are unlikely to encounter another group of humans by sight or sound. Due to the closure of the park road with the first significant snowfall in fall, travel times increase greatly in the designated wilderness. What was a three-hour bus ride surrounded by strangers in summer can become a two-week adventure in January on the runners of a dog sled, where the only sign of other people is the faint outline of a mushing trail on hard-packed, windswept snow. Winter preserves a night sky that is finely detailed to an almost incomprehensible level. Visitors can look upward and marvel at the dazzling luminosity of Arcturus or swoon as swirling northern lights coruscate in sheets and waves. A saying of Alaska Natives is that if one whistles, the auroras come closer. Modern-day visitors to the Denali Wilderness have the opportunity to experience that generations-old connection to nature.

Despite these opportunities, increasing visitation to Denali will test management restraint. It may spur requests for the development of more trails and campgrounds, decreasing self-reliance. Changes in the backcountry management plan could see an increase in quotas for backcountry units in wilderness, lessening opportunities for solitude. Unrestrained use of aircraft in Denali could further decrease opportunities to be free from the sights and sounds of modern human civilization. A limit placed on the number of Denali-bound climbers should assist future managers when reached, but there are no limits on aircraft at the glacier landing portals. The hum of aircraft is a daily occurrence on nice days in the areas popularly traveled by summer backpackers and climbers, including the summit of Denali. Recreational use of snowmachines in the winter and early spring that bears little resemblance to traditional use has become established in some southern areas of eligible wilderness. Every winter the adjacent southern designated wilderness is over-run by at least one snow-machine. This use directly impacts the Park's solitude qualities. Plowing of the Denali Park Road from mile 3 to 12 in winter and the ensuing motorized use of the road during winter months also degrades the "Solitude" quality of the northeastern corner of the Denali Wilderness.

Other Features of Value

Wilderness may also contain other features of scientific, educational, scenic or historical value.

The Denali Wilderness preserves many features of scientific, paleontological, historical and cultural value. Here, the land contains memories. Imprints of time are recorded on the surface as stories and beneath the surface in layers of sediment and rock, layers of ice, and layers of cultural history.

Fossils provide a rare view of a 70 million-year-old intact temperate ecosystem dominated by dinosaurs. The first dinosaur track fossil was discovered in Denali in 2005, and continued searches have identified hundreds of sites with thousands of trace fossils of dinosaur types. The Denali Wilderness preserves evidence of theropods, hadrosaurs and ceratopsians, as well as pterosaurs, flying reptiles and a rich assemblage of birds.

The Denali Wilderness contains a record of 13,000 years of human habitation. An estimated 99 percent of Denali's archaeological resources remain undiscovered, and out in that vast primordial place one can

stumble upon prehistoric hunting blinds, lithic scatters and stone tools used to kill large mammals, some of which are now extinct. Generations of native populations built shelters and tools using sphagnum, birch bark, rhyolite, obsidian and chert. Geoarchaeological and lithic investigations suggest subarctic foragers with ties to the north colonized the Susitna River lowlands by following major rivers south through mountain passes.

The Denali Wilderness preserves a sense of wonder and a connection to the past by providing the setting for modern-day visitors to discover, buried or etched into the landscape, remnants of some of the oldest human civilizations in the region. The charitable berries that have fed indigenous people for centuries still ripen on blueberry bushes today. The caribou that pranced along game trails above Riley and Jenny Creeks still pass by the hunting blinds built to aid in their harvest thousands of years ago. The mighty southern glaciers and their rivers retain the Dena'ina

Caption: The ecology of the Denali Wilderness is unique because people have been subsisting on the land by hunting and gathering for thousands of years and they continue to do so today. Humans are inextricably linked to Denali's lands and waters.

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NPS PHOTO/ JENNIFER RAFFAELI

Caption: Denali's historical connections continue on into the present with the use of dogteams for winter travel.

place names such as the Kichatna (K'its'atnu), Yentna (Yentnu), Kahiltna (Kagheltnu), Kanikula (K'enik'ela) and Tokositna (Tuqashitnu).

The Denali Wilderness also preserves an important cache of historical resources, including 184 sites on the National Register of Historic Places. These structures, camps and artifacts tell the stories of the pioneers who hunted, trapped, mushed, homesteaded and mined for gold and antimony in the present-day Denali Wilderness. They preserve the history of Mt. McKinley National Park's first rangers and superintendents. They illustrate the trials and triumphs of the first mountaineers and surveyors to scale Denali's great heights. The spirit of those early pioneers still infuses the park, and today maps honor them with names like Mt. Sheldon, Karstens Ridge, Wickersham Wall, McGonagall Pass, Harper Glacier, Mt. Brooks and Quigley Ridge.

Denali's historical connections continue on

into the present with the use of dogteams for winter travel. The working sled dog kennel staffed by Denali is the only one in the National Park Service, and rangers continue to patrol the wilderness as their predecessors did, encountering the same challenges of the trail and preserving an important tradition. The trail itself may be similar, but never exactly the same, especially as climate change makes the historic routes unusable as they clog with thick alders and increasing spruce trees.

Effects from climate change also pose a significant threat to paleontological, cultural and historical artifacts as erosion, thawing permafrost and flooding manipulates sites. Looting and trespass activities may also threaten these resources. Research that calls for the removal of paleontological, cultural and historical resources from the landscape may proliferate as more discoveries are made. Managers will have to balance their desire to remove artifacts from the Denali Wilderness with their mandate of preserving its wilderness character.

Conclusion

The Denali Wilderness safeguards a certain ineffable wonder that can't be measured or quantified. The surprise of arctic poppies flaunting electric-yellow skirts through a summer snow squall; the visceral drama of the predator-prey relationship; the emotional evocation of the marbled, swirling colors of geology matched so finely with a polychromatic carpet of autumn tundra; the satisfying connectedness of walking in our ancestors' footsteps. In addition to preserving the tangible qualities of wilderness character, Denali has a responsibility to protect these equally important intangible qualities in perpetuity.

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Caption: Autumn arrives in Denali with an explosion of colors.

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