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Individual Analysis of Wrangell–St. Elias National Park and Preserve

I. Introduction to Wrangell–St. Elias National Park and Preserve

Among all the national parks in the world, the Wrangell-St. Elias National Park and Preserve is absolutely impressive. Wrangell–St. Elias National Park and Preserve is a United States national park and national preserve managed by the National Park Service in south central Alaska. The park and preserve was established in 1980 by the Alaska National Interest Lands Conservation Act. The park and preserve form the largest area managed by the National Park Service in the United States by area with a total of 13,175,799 acres. The park includes a large portion of the Saint Elias Mountains, which include most of the highest peaks in the United States and Canada, yet are within 10 miles (16 km) of tidewater, one of the highest reliefs in the world. [1]

The history of Wrangell-St. Elias National Park and Preserve is long but meaningful. It includes many steps towards the current national park and it can be traced back to thousands years ago. Archeological evidence indicates that humans entered the Wrangell Mountains about 1000 AD. Later in history, there were valuable minerals founded around the park area in 1800s. It was not just about gold digging but also copper and there were a lots of it. Soon in 1900s there was a railroad connected Kennicott (park area) to Cordova (a city in Alaska which is convenient to sell minerals). [2] By the Great Depression in 1930-1940s in US, the rich copper deposits were depleted and the mines of Kennicott as well as the railroad, ceased operations. For a while things were pretty quiet though there were always some people living in the area. During the 1970s

tourism began to develop in the region and has continued to grow steadily to the present day. The first person discovered this Kennicott area has potential to be a great national park was Ernest Gruening, Director of U.S. Territories. [3] He made recommendations to suggest national park and monuments in this region. It wasn't until 1978 that the area was designated as a National Monument and 1979 when it was designated as a World Heritage Site. The following year, 1980 President Jimmy Carter designated 13.2 million acres as Wrangell-St. Elias National Park and Preserve.

Compare to its meaningful history, Wrangell-St. Elias National Park and Preserve are more attractive in its geological features. In general, the southern part of Alaska is composed of a series of terranes that have been pushed against the North American landmass by the action of plate tectonics. Six terranes and one sedimentary belt have been documented in Wrangell–St. Elias. The major Wrangellian rocks include fossiliferous sedimentary rocks interspersed with volcanic rocks. Wrangell–St. Elias is a region with gentle volcanic activities. The majority of the volcanoes in the Wrangell volcanic field lie at the western end of the Wrangell Mountains. [4] The majority of the volcanoes are unusually large shield volcanoes that built to their present size quickly from voluminous flows of andesite lavas which erupted from multiple centers. Mount Wrangell is the only Wrangell volcano considered active. There is also some “cold” things. The mountain ranges of Wrangell–St. Elias account for 60 percent of glacial ice in Alaska, covering more than 1,700 square miles (4,400 km²). [5] The glaciers have advanced and retreated repeatedly, reaching the sea and filling the valley of the Copper River (a huge river in the park zone). Glaciers in Wrangell–St. Elias are mostly in retreat because of the climate issue (global warming). In the history part it mentioned Wrangell-St. Elias region has many minerals and most of them are valuable. Five major mining districts were developed in Wrangell–St. Elias during

the heyday of mining between the 1890s and 1960. Gold was found in the Bremner district in 1901, and in the Nizina area near Kennecott. Most of the gold from these areas was placer gold, obtained through hydraulic mining. Copper nuggets were found with the gold and were usually discarded as uneconomical to ship until roads were improved to the area.

II. Legal Protection and Management

Alaska has been described as the last frontier of the United States. The largest state in the country, Alaska has a land area of 375 million acres and one-third of the coastal shoreline of the Nation. It is a huge state with a tremendous value. Within its borders lie significant natural, scenic, historical, archeological, geological, scientific, wilderness, cultural, recreational, and wildlife resources. American people faced a grand challenge when they and their government tried to find a balance between preservation and development of those resources. To solve these problems, the National Park System became one of those several solutions available in Alaska. In 1980, President Jimmy Carter announced the formation of Wrangell-St. Elias National Park and Preserve. In the same year, the central legislation which protect and manage this park also was born--- the Alaska National Interest Lands Conservation Act (ANILCA). The Alaska National Interest Lands Conservation Act (ANILCA) is a United States federal law passed on November 12, 1980 by the U.S. Congress and signed into law by President Jimmy Carter on December 2 of that year. ANILCA provided varying degrees of special protection to over 157,000,000 acres of land, including national parks, national wildlife refuges, national monuments, wild and scenic rivers, recreational areas, national forests, and conservation areas. [6] ANILCA made a great contribution in managing this huge national park. In order to keep the balance between visitors and local people and wilderness. ANILCA and NPS made several protections to keep wildlife in charge. Large mammals include the black bears, wolves, brown

bears, and caribou. Mountain goats and Dall sheep are found in mountainous areas. Approximately 13,000 Dall sheep inhabit Wrangell–St. Elias, one of the highest concentrations of the species in North America. Moose, though unusual, may sometimes be found in areas with willow growth. The smaller mammals include wolverines, beavers, lynxes, porcupines, martens, river otters, red foxes, coyotes, ground and flying squirrels, hoary marmots, weasels, snowshoe hares, several species of voles and mice, and collared pikas.[7] Currently wildlife development and balance were kept very well under the management and protection of ANILCA.

Despite protecting millions of acres of wilderness, this act provided for the numerous groups of people affected by the establishment of this law. Stipulations regarding the use of protected lands by private landowners were made. People living inside the park lands were guaranteed the right to subsistence hunting and fishing, as well as the guaranteed access to their lands. This right of access is the main concern for this argument, as it is a major management issue for park officials and land owners alike. The access to park lands is promised and protected by the Federal Reserved Statute 2477. [8] Many of the proponents of RS 2477 claims are residents of McCarthy, Alaska, a town located within the boundaries of Wrangell-St. Elias National Park. A group known as the Coalition for Access to McCarthy or simply CAM is arguing and petitioning that their legal rights are being impeded on by park managers and conservationist groups alike. [9] They think get into the nature is beneficial for indigenous people and visitors. Although most of people are accepting this law, there still exists another voice. Opponents of this policy, attempt to argue that these RS 2477 rights-of-ways will interfere with nature's natural order, and in some cases even claim that these so-called "highways" are really non-existent roadways. Most opponents are members of environmental conservation & preservation groups like Sierra Club. In general, access through RS 2477 claims provide for the

access to the more than one million acres of non-feral land within Wrangell-St. Elias National Park and Preserve, and enable the resource management and extraction that is the property of all Americans.

III. Climate Change Effects and Current Management Plan

“Earth’s climate is changing, with global temperature now rising at a rate unprecedented in the experience of modern human society.” [10] ---The words from National Park Service proved that climate is really changing not just some fallacies. Many national parks in the United States have already experienced "extreme" climate change over the past few decades, and the trend is likely to accelerate unless bold steps are taken, government scientists warn in a new study. Those changes are likely to disrupt visitor experiences and damage natural and cultural resources. Parks in Alaska experienced several evidences that may cause the loss of visitors and funds. Many areas in Alaska are already showing signs of climate change. Scientists have reported observations of wetland drying, glacial and polar sea ice recession, spruce-bark beetle infestations, and an increase in fire frequency and intensity throughout the state. Wildlife habitat will also be affected because of extreme weathers and wildland fire. Wildland fire managers in Alaska national parks are stewards of a land mass a bit larger than Austria. Since 1950, 1,072 fires in the parks have burned nearly three million acres. And 82 percent of the fires were caused by lightning and burned in the boreal forest or tundra where fire is a natural process that restores ecosystem health and wildlife habitat. [11]

Precipitation is predicted to increase across the park area. Despite this area-wide increase, conditions are expected to become substantially drier in the summer and fall and potentially icier in winter. Although summer rainfall is expected to rise by 9%, this increase is unlikely to be enough to offset an increase in evapotranspiration caused by warmer temperatures and a longer

growing season. Winter precipitation may also increase by as much as 10% and could fall in the form of snow, ice, or rain, depending on the temperature. Ultimately, the timing and intensity of precipitation will determine how these changes affect the landscape and hydrology of the Preserve. [12]

Overall, Wrangell-St. Elias National Park & Preserve is projected to become warmer and drier over the next century. Warmer temperatures and a longer growing season are expected to increase evapotranspiration enough to outweigh a regional increase in precipitation. Seasonal changes in climate will have profound impacts on the condition and health of wildlife habitat, lead to increased fire risk, and contribute to the likelihood of wetlands, streams, and lakes drying.

To reduce and restore the conditions caused by climate change, the Alaska national park managers started to find solutions. With over 50 million acres of parklands to administer, Alaska park managers need to better understand possible climate change trends in order to better manage arctic, subarctic, and coastal ecosystems and human uses of these areas. A plan called “Rehearsing the Future” was made together by park managers and several stakeholders from different fields under the control of Alaska government. This three-year project will help Alaska managers and communities develop a range of plausible climate change scenarios for parks and adjacent areas throughout Alaska. NPS personnel, together with their stakeholders, completed climate change scenario planning exercises and reports for the all NPS units in the Region, organized around each of the Inventory & Monitoring networks in Alaska. [13] The process of the plan is based on workshops and webinars, which is efficient and acceptable. Managers and different stakeholders will discuss about how to manage climate change issues in Alaska national parks. They will develop plausible future narratives for parks based on a wide range of possible ecosystem and societal response to climate change. These various future climate scenarios will

inform park managers with respect to environmental and social trends affecting park cultural and natural resources, visitation patterns, subsistence resources and uses, and facilities development and maintenance.

IV. Key Players and Connections in Current Management Plan about Climate Change Issues

It is better for citizens if their government and authorities are democratic or in other way—transparent. Government of State of Alaska works well with National Park Service and local communities in order to solve those climate change problems. In order to connect new management plan to more and more indigenous people, officers from State of Alaska and staffs from NPS stopped by different towns in park regions to communicate and explain new policies those will have effect to those people. Luckily, most of the local people support the new management plan and want to contribute some in solving climate change issues in Alaska's national parks. Under the regular management of Alaska National Interest Lands Conservation Act (ANILCA) and helps from different environmental groups, those lost habitats by effects of climate change have been restored or reconstructed. The amount of total wildlife animals and plants in Wrangell-St. Elias National Parks and Preserve became more stable and balanced. Government of State of Alaska and United States worked together to increase the attention and funds to W-S region and national park recourses. From 2007-2014, the funds every year for Wrangell-St. Elias National Park and Preserves increased overtime because the management plan needs more assistance.

Indigenous people in Wrangell-St. Elias region also found their own ways to support the management plan. The cooperation between local Indian tribes and NPS is a necessary help to park management. The National Park Service has a unique political relationship with American

Indian tribes which is based in the U.S. Constitution and hundreds of treaties, statutes, regulations, and policies, and strengthened by a shared commitment to stewardship of the land and resources. The Service will honor its trust responsibilities to American Indian tribes, in part, through government to government consultation on Service actions that may have a direct substantial impact to the interests of the 229 federally recognized tribes in Alaska. [14] After communicate to NPS and State of Alaska, local Indian tribes made new policies in their groups. The limitation of hunting, the precaution of wildlife and habitat and several different changes made the park management easier because the cooperation of local Indian tribes. Local Americans started to walk into downtown to listen some public educations about climate change issues. They started to change their mind about climate change and put it into caution lists in their life. NPS and State of Alaska also announced some useful tips for people to learn and utilize in their daily life. Like recycling bottles and batteries, monitoring the usage of water, etc. Those easy tips really reduced the heavy work of park and government staffs and made Alaska people work together to reduce the effect of climate change.

V. Potential Problems

As the information mentioned above, the Wrangell-St. Elias region will be warmer and drier in next decade. In order to prevent potential harms from the increasing temperature, park managers should change or revise the management plan. Unfortunately, the three-year management plan only described and explained why the climate change will happen and how to we solve current issues. People should start to think what to do in the future to face a warmer Alaska. Global warming should let us pay attention to it not only just solve current problems.

Moreover, children in W-S park regions should grow their crisis awareness towards changes in climate and habitat. Alaska in the frontier of US and people should teach those

specialties to their next generation in order to improve their abilities in predicting what will happen in the future. Children should learn national parks and local environmental features in order to develop and preserve their hometown.

VI. Conclusion

In general, Wrangell-St. Elias National Park and Preserve can be modeled as a laboratory in experimenting climate change solutions. Although there exists disagreements and drawbacks, the three-year management plan worked well in this region. Today the world is working together towards climate change issues and people should do their best in order to reduce its effect. Wrangell-St. Elias National Park and Preserve should keep moving on the steps of sustainability and preservation in order to show the best of the largest national park in US to the world.

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