

Interpretive Plan for the Kenai NWR Visitor Center



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Interpretive Plan

for the

Kenai NWR Visitor Center

Submitted by:

Alaska Geographic

Prepared for Alaska Geographic by:

BUCY Associates

2921 NW Hayes

Corvallis, OR 97330

(541) 758-3502

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USFWS Regional Office

Mitch Ellis, Refuge Chief
Polly Wheeler, Deputy Refuge Chief
Mary Beth Coyne, Project Manager
Tracey McDonnell, Refuge Supervisor
Debbie Steen, Regional Visitor Services Chief
Brian Anderson, Regional Wilderness Coordinator
Kevin Painter, Regional Interpretive Specialist
Debbie Corbett, Regional Archeologist

Kenai National Wildlife Refuge Staff

Andy Loranger, Refuge Manager
Steve Miller, Deputy Refuge Manager
John Morton, Supervisory Biologist
Janet Schmidt Supervisory Park Ranger
Clif Peterson, Facilities Manager
Dianne MacLean, Assistant Fire Management Officer
Mark Laker, Ecologist/Data Manager
Candace Ward, Park Ranger
Michelle Ostrowski, Education Specialist
Leah Eskelin, Park Ranger
Toby Burke - Biological Technician

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Introduction

Due to increasing visitation, the current Visitor Center at the Kenai National Wildlife Refuge is inadequate. Consequently, the US Fish and Wildlife Service is developing plans for a new visitor center adjacent to the existing structure. This Interpretive Plan was developed to guide the design of the interpretive opportunities within the new building and on the site.

To that end it includes the following:

- Goals and the desired outcomes from a visitor experience with the interpretive network,
- Themes (messages) to be communicated within the network,
- Prescription of interpretive strategies for communicating those messages in a way to achieve the desired outcomes.

Although the goals and desired outcomes and the themes are essentially set, the prescription is intended to provide direction, but with flexibility to take advantage of the creativity of the designer, and to accommodate changes to the final budget allowed for the exhibits.

The prescription is presented to reflect the sequence of the desired visitor experience on the site. That experience is broken down into the following segments:

- Arrival/Departure Experience
- Building Experience: Lobby
- Building Experience: Multipurpose Room
- Building Experience: Exhibit Hall
- Back Terrace / Interpretive Trail Experience

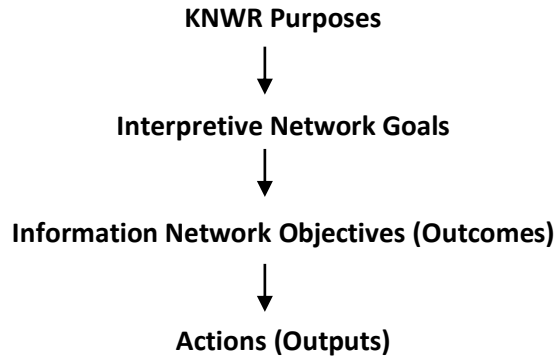
The sections include an overview of the visitor experience in those areas, the interpretive and informational opportunities recommended for that part of the experience, and a description and basic concept for each of the recommended strategies. Due to the fact that the building design and landscaping plans were still under development at the time the plan was being completed, the concepts for some of the exhibits will have to be finalized during the design process.

The Appendices of this document contain a brief description of the methodology used in developing the plan, the background information - audiences, parameters and interpretive opportunities - on which the plan was based, input from USFWS staff, and a list of the primary information sources used to develop the plan.

Goals and Outcomes

Introduction

The goal hierarchy contained in this section reflects the following structure:



The hierarchy is developed in this manner to clearly show the link between the purposes for which KNWR is managed and the recommended actions associated with developing a network of orientation and interpretive opportunities.

KNWR Purposes (Management Goals)

KNWR was set aside for the following purposes:

1. To conserve fish and wildlife populations and habitats in their natural diversity.
2. To fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats.
3. To ensure, to the maximum extent practicable and in a manner consistent with Goals 1 and 2, water quality and necessary water quantity within the refuge.
4. To provide in a manner consistent with Goals 1 and 2, opportunities for scientific research, interpretation, environmental education and land management training.
5. To provide, in a manner compatible with all the aforementioned purposes, opportunities for fish and wildlife-oriented recreation.

The Wilderness Act of 1964 (Public Law 88-577, U.S.C. 1131-1136) establishes additional purposes for the Kenai Wilderness Area, which shall be administered for the use and enjoyment of the American people in such a manner as will leave it unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of the area, the preservation of its wilderness character, and for the gathering and dissemination of information regarding its use and enjoyment as wilderness.

Every action taken by the USFWS at the Kenai NWR, including developing and maintaining a visitor center and associated interpretive network, should, in some way, help fulfill one or more of these purposes. Simply providing interpretation supports Purposes 4 and 5. However, interpretive opportunities can also contribute to Purposes 1 and 3, primarily through increasing the level of stewardship practiced by visitors to the refuge.

Interpretive Program Goals and Outcomes

Note: The term 'visitor' refers to anyone who visits the refuge whether he or she is a resident or not.

Introduction

An interpretive program can help achieve the Kenai NWR purposes by increasing a visitor's environmental literacy (their understanding and awareness of key concepts associated with the natural environment and how it functions), and through that increased understanding and awareness, cause impact on visitor behaviors associated with good stewardship. To increase the level of stewardship, the interpretive network needs to offer opportunities that lead to:

- A better understanding of personal impacts - both positive and negative - on the environment.
- A better understanding of the negative impacts of habituating wildlife and how to avoid doing so, such as by using bear proof containers for food storage while camping, and using bear proof garbage cans like those used at the Refuge.
- A better understanding of the linkages in an ecosystem and the consequent need to manage entire ecosystems in order to manage wildlife.
- A better understanding of the role of fire, beetles, predators and other seemingly negative factors in maintaining a healthy ecosystem with healthy populations of wildlife.
- A better understanding of the mission of the USFWS and how it differs from other wildlife and land management agencies.
- A better understanding of the importance of intact ecosystems and designated wilderness in the Kenai NWR.
- A better understanding of the key threats faced by the refuge and how those threats are being addressed.

People who have a better understanding of these key points should have a good understanding of ecosystems and how they function, which in turn will lead to a better understanding of USFWS management actions and philosophies.

Goals and Outcomes

The following Interpretive Program Goals and Outcomes were derived from the overall purposes of the refuge by determining potential changes in visitor behavior that would help achieve one or more of those purposes. Although the following goals are interrelated and could be combined, breaking them into specific goals helps provide clear focus for elements of the interpretive network.

Interpretive Goal 1: Through impacts on visitor behavior both on and off the refuge, contribute to the conservation of fish and wildlife populations and habitats in their natural diversity at Kenai NWR.

This is accomplished in part by making visitors aware of their impacts - both positive and negative - on the environment with the intent of reducing negative impacts and increasing positive ones.

Outcomes

Achieving the following outcomes will reflect progress toward this goal:

- 1-1: A per capita decrease in behaviors that lead to habituation of wildlife. In other words, people will not feed wildlife, will protect food from wildlife, and will properly dispose of fish parts and other garbage.
- 1-2: A per capita decrease in transgressions into and use of sensitive areas and an increase in appropriate behaviors, such as by using elevated walkways and designated trails, not using or making social trails, and avoiding walking on fragile stream banks or in areas of stream bank restoration.
- 1-3: An increase in the percentage of visitors engaging in behaviors that help maintain water quality, such as staying on trails to avoid trampling riparian vegetation, properly disposing of human waste, and cleaning watercraft before putting into lakes and rivers (to eliminate invasive species).
- 1-4: An increase in the percentage of visitors who plan for and carry out a "green" experience on the refuge.
- 1-5: A per capita decrease in the Defense of Life and Property (DLP) shootings of bears in and around the Refuge.

Interpretive Goal 2: Through impacts on visitor behavior both on and off the refuge, contribute to changes in lifestyles of residents and out-of area visitors that support conservation of natural resources.

This goal is accomplished by increasing the level of awareness and understanding of the impact of humans on the natural world and ways that impact can be reduced. It is also necessary to provide specific information regarding ways to reduce impact, such as by implementing energy conservation measures in their homes.

Outcomes

Achieving the following outcomes will reflect progress toward this goal:

- 2-1: An increase in the percentage of visitors who apply naturalistic landscaping and landscaping to attract wildlife.
- 2-2: An increase in the percentage of visitors who take measures to reduce their carbon footprint, such as by implementing energy conservation measures in their homes.

- 2-3: A per capita decrease in the number of residents who add pollutants to the system, such as by washing cars in driveways.
- 2-4: A per capita Increase the number of residents who understand and use sustainable building practices similar to the ones used at the visitor center.

Interpretive Goal 3: Increase in support of the USFWS National Wildlife Refuge System in general and Kenai NWR specifically, including support for management philosophy and actions.

Achieving this goal is accomplished by increasing understanding of the USFWS mission and how it differs from other public entities, understanding the complexity involved in managing a dynamic ecosystem, and by understanding the need for protected areas.

Outcomes

Achieving the following outcomes will reflect progress toward this goal:

- 3-1: An increase in the number of people volunteering time or donating money to the refuge to support preservation, restoration and interpretation of the natural resources (due to exposure to interpretive opportunities in the refuge).
- 3-2: A decrease in complaints about specific management actions that relate to the conservation of natural and cultural resources.
- 3-3: An increase in the percentage of respondents on survey forms reporting an understanding and approval of management actions that can cause controversy, including the decision not to feed moose during a harsh winter, policies regarding natural fire, the use of planned burns, the closing of areas for rehabilitation, and removal of non-native vegetation from the refuge.
- 3-4: An increase in the percentage of respondents indicating awareness and approval of the KNWR as the manager of the refuge resources and the associated recreational opportunities. (An increase can only be measured by doing a combination of pre-and post- intervention surveys.)
- 3-5: An increase in the number of and/or support from partnerships.
- 3-6: An increase in the number of people joining organizations that actively support the refuge and its mission.

Interpretive Goal 4: Enhance the quality of visitor experiences to the refuge.

Simply providing quality interpretive opportunities will, in itself, enhance the quality of experience for many visitors to the refuge because it is a recreational experience that many visitors value. Providing educational (interpretive) opportunities is also one of the refuge purposes identified in the enabling legislation. Interpretive opportunities can also contribute by reducing the frequency of behaviors that lead to negative environmental impacts in recreation areas.

Outcomes

Achieving the following outcomes will reflect progress toward this goal:

- 4-1: An increase in the degree to which visitors feel safe recreating in bear country.
- 4-2: A decrease in incidents involving humans and wildlife, especially moose and bear.
- 4-3: An increase in approval rating by visitors to the refuge specifically due to interpretation.
- 4-4: A decrease in complaints related to difficulties planning an experience in the refuge and navigating the environment.
- 4-5: An increase in the percentage of people engaging in no trace camping and in packing out garbage (which leaves a more pleasant environment for other users).

Interpretive Goal 5: Contribute to a good relationship with the community.

The USFWS on the KNWR already engages in a variety of actions that support good relations with the community, such as by facilitating recreation, providing environmental education opportunities, and providing space for meetings. Accommodating community functions in the multipurpose room and restrooms for use by people recreating will also help foster good relationships. Interpretation can contribute by achieving the following outcomes:

Outcomes

Achieving the following outcomes will reflect progress toward this goal:

- 5-1: An increase in the number of residents who apply firewise landscaping due in part to information supplied by the USFWS.
- 5-2: An increase in the number of local residents attending programs.
- 5-3: An increase in local support for the visitor center.
- 5-4: An increase in the number/frequency of collaborative programs involving local organizations.

Interpretive Goal 6: Reach more visitors to the refuge with key messages.

This goal directs the USFWS to choose and locate interpretive strategies to achieve a high probability of being used, which means in part tailoring them to the specific audiences they are trying to reach, and also locating opportunities in areas frequented by target audiences.

Outcomes

Achieving the following outcomes will reflect progress toward this goal:

- 6-1: An increase in the percentage of visitors participating in at least one interpretive opportunity.
- 6-2: An increase in the percentage of visitors participating in multiple interpretive opportunities.
- 6-3: An increase in the percentage of activity-oriented visitors, such snowshoers and boaters (non-motorized), participating in at least one interpretive opportunity at the refuge.
- 6-4: An increase in the number of visitors to the new visitor center.
- 6-5: An increase in the amount of return visitation for the purpose of engaging in interpretive opportunities.
- 6-6: An increase in the number of visitors who get current, seasonally appropriate information on key refuge messages

Themes (Messages)

Introduction

Themes (messages) and topics are not the same. A topic is a subject, such as “Managing Wildlife” A theme is a *statement* or *message* about the subject, such as “the key to managing wildlife is to manage their habitat.” Themes are the core of the stories that are told; stories are selected in order to communicate themes. Consequently, themes are determined before selecting and developing the interpretive strategies.

The elements in a theme hierarchy include:

Themes

These are the key ideas or concepts that should be communicated.

Sub-themes

These are the concepts that support a theme.

Supporting Stories

These are the stories that communicate a sub-theme or theme.

Note: The list of supporting stories included in the theme hierarchy is not meant to be represent every story that could be told. They are offered as examples to provide guidance for developing the exhibits and for determining additional stories that could be used effectively to communicate the themes.

Themes are derived from goals and objectives by determining the concept a visitor needs to understand in order for them to respond in a way that helps achieve the goals and objectives. For example, for visitors to support the action of not feeding moose during a harsh winter (or not being upset when they are not fed), they must understand the concept that "healthy populations of moose depend on maintaining a natural habitat, which includes the population cycles caused by harsh winters." The supporting stories then must support that concept.

Theme Hierarchy

Theme 1: Maintaining as close to a naturally functioning ecosystem as possible for moose, salmon and other fish and wildlife in the Kenai NWR is the key to healthy populations of those species, which is why all USFWS management actions at the Kenai NWR reflect its unique mandated mission - to sustain biological integrity, natural diversity, and environmental health on refuges.

Sub-theme 1-1: Everything in an ecosystem is linked. Impacting one component affects all other components in that system.

Examples of supporting stories

- The link between lynx and snowshoe hare populations
- The link between snowshoe hare populations and birch trees
- The link between predators such as wolves, and prey, such as moose populations.
- The impact of defoliators (green alder sawfly (exotic) or birch-leaf miner or geometrid moths) as invasive species
- The impact of climate change on a single species having an impact on other species

Sub-theme 1-2: Every part of an ecosystem, including the forces that shaped and continue to shape it, play an important role in nutrient cycling, which is a key to the health of that ecosystem and the subsequent conservation of healthy populations of fish and wildlife.

Examples of supporting stories

- The role of fire in nutrient cycling and creating habitat for species such as moose that need early successional hardwood forests
- The role of predators in nutrient cycling and maintaining healthy populations of prey species
- Salmon's contribution to the nutrient cycle within the Refuge ecosystems.

Sub-theme 1-3: USFWS management philosophy of conservation reflects that a constant state of change due to a variety of natural factors is the natural condition of the ecosystem in which moose and other wildlife in the Refuge thrive.

Examples of supporting stories

- Predator prey relationships, such as the one between snowshoe hares and lynx, are typically cyclical.
- Extreme weather conditions, such as severe winters with associated die-offs of fauna, are a natural part of the ecosystem.
- Periodic fire due to natural causes is a natural part of the ecosystem.

Sub-theme 1-4: Management strategies of the USFWS focus on protecting the intact ecosystem from the negative human impacts, and restoring and maintaining the natural ecosystems of the refuge both for healthy populations of wildlife and to ensure that the public can enjoy the resources and opportunities on the refuge without compromising the health of the ecosystem today or for future generations.

Examples of supporting stories:

- Prescribed burns to reduce the potential threat of natural fires burning into towns, subdivisions, and homes
- Allowing natural wildfire to burn
- Managing harvest of game, furbearer and fish species
- Restoring stream banks and other eroded areas
- Exotic invasive species management (vascular plants, Elodea, northern pike)
- Wildlife mitigation structures on the Sterling Highway
- Stewardship of the designated wilderness areas

Sub-theme 1-5: The action of humans, who are a natural part of the intact ecosystems on the Refuge, can either perpetuate those intact ecosystems or negatively impact them.

Examples of supporting stories

- The wildlife and Native Peoples coexisted for thousands of years prior to the arrival of EuroAmericans.
- Hunting at the turn of the 19th century threatened the ecosystem.
- The actions of conservation-minded hunters were instrumental in establishing the refuge.
- No Trace camping practices help perpetuate those intact ecosystems.
- Regulation of recreational, commercial and subsistence harvest are regulated to help maintain the intact ecosystems.
- Anglers can help maintain the intact ecosystems by taking actions to avoid introducing invasives.

Sub-theme 1-6: Impacts due to human actions both within and outside the refuge can be detrimental to the natural ecosystem so they must be managed, such as by the use of education, regulations, and measures to control of invasive species.

Examples of Supporting Stories

- The negative impacts of invasives
- Issues with people habituating brown bears to garbage and food sources
- The issue with stream bank erosion caused by anglers
- The importance of designated wilderness and management of human activities to minimize human impact on the landscape and natural processes.

Sub-theme 1-7: Many species of fish and wildlife require resources from several zones to survive and thrive. Some require resources from places not on the refuge.

Examples of Supporting Stories

- Bears using resources from the Mountain Tundra to the Boreal Forest to Rivers
- Moose using resources from different zones at key times of the year
- Fish requiring the perpetual source of cold, clean water from the Ice Fields and Glaciers
- Any story of a migratory species that occurs on the refuge

Theme 2. In a world of increasing human impact on natural resources throughout North America, the Kenai National Wildlife Refuge and the entire National Wildlife Refuge System are critical to the survival of migratory waterfowl, moose, other species of fish and wildlife that the public values.

Sub-theme 2-1: Humans have significantly reduced the amount of available wildlife habitat in the other 49 states and several areas in Alaska. This has caused declines in fish and wildlife populations and created a need for protecting remaining habitat in order to preserve species and the ecosystems they depend on to survive.

Sub-theme 2-2: Humans have impacted remaining habitat both directly and indirectly creating a need to protect intact ecosystems and actively manage other remaining habitat to mitigate for past and present use.

Theme 3: Wilderness is a critical component of the Kenai NWR.

Sub-theme 3-1: Wilderness provides our best laboratory for understanding natural systems so we can preserve and restore intact ecosystems.

Sub-theme 3-2: Public lands like the Kenai NWR contain most of the remaining wilderness and wild areas in the country, highly valued by many for both intrinsic and extrinsic qualities.

Theme 4. Individual actions can have a significant positive impact on wildlife populations.

Sub-theme 4-1: Individuals have and continue to contribute significantly to the protection of the fish and wildlife of the Kenai NWR.

Examples of Supporting stories

- The role of conservation minded hunters in establishing the Kenai NWR due to a decline in moose populations
- The Andrew Berg story and how concerned and conservation minded hunters were the early supporters of a protected area for wildlife on the Kenai Peninsula .
- Actions by local residents to conserve energy

Sub-theme 4-2: Because individual actions add up incrementally to significant impacts, you can play an important role in maintaining natural resources.

Theme 5: The resources of the Kenai Peninsula, especially fish and wildlife, have always been and continue to be highly valued by and integral to the lifestyle of those who live here and, increasingly, to people from out of the area.

Sub-theme 5-1: Native Alaskans depended and continue to depend heavily on salmon, caribou, Dall sheep, mountain goats and moose as food resources and as an integral part of their culture.

Examples of supporting stories:

- The importance of salmon as a food resource
- The use of other animal parts, such as for cordage, tools, etc.
- Use of those resources today in subsistence lifestyles

Sub-theme 5-2: Early pioneers and homesteaders also valued the resources of the Kenai Peninsula for the same reasons as Native Alaskans.

Examples of supporting stories

- Use of spruce to build houses
- Importance of salmon in diet
- Importance of moose and other large mammals in diet

Sub-theme 5-3: Recreationists, including hunters and anglers, highly valued and continue to value the fish and wildlife and other resources of the Kenai Peninsula and Refuge.

Examples of supporting stories:

- Hunters from local communities as well as from around the world attracted to the Kenai Peninsula and Refuge because of moose, Dall sheep, caribou, spruce grouse, and snowshoe hares
- Hunters valuing the moose so highly that conservation was instituted in part through their efforts
- Anglers from local communities as well as from around the world attracted to the Kenai Peninsula and Refuge because of the fish, especially sockeye salmon, king salmon, and rainbow trout
- Wilderness seekers who come to canoe the Swan Lakes and Swanson River Canoe System

Sub-theme 5-4: Many commercial enterprises from the past and currently depend on the fish and wildlife of the Kenai Refuge.

Examples of supporting stories

- Guides, businesses selling angling gear, lodging establishments and eating establishments on the Kenai Peninsula depend on the fish and wildlife to attract business.
- Commercial fishermen depend on the salmon produced on the Kenai Refuge to support their livelihood.

Sub-theme 5-5: People from outside the area are connected to and affected by the Kenai Refuge and the fish and wildlife that thrive there.

Examples of Supporting Stories

- People who buy salmon from Alaska
- People who hunt waterfowl in the lower 48 that depend on the refuges in Alaska
- People on four continents who enjoy birds that are connected through migration to Alaska's refuges.

Information / Interpretive Network

Overview

The flow of information in the information network to support visitor experiences reflects the typical sequence of information desired by visitors. For example, finding the visitor center requires wayfinding information, as does parking in the correct lot and accessing the building. Once inside, first-time visitors still need site-specific orientation and wayfinding information to locate the restrooms and plan their visit. Many will also be seeking orientation and wayfinding information for exploring the Kenai Refuge and will want to obtain a map of the area and get answers to basic trip planning questions - "What is there to do around here?" "Where can I see wildlife?" "Is it safe to hike with bears around?" and, "Is this the Conservation Center?"

Since orientation and wayfinding information is a need, it has priority over interpretive opportunities, which for most travelers are options for spending time. Consequently, to facilitate a good interpretive experience, the orientation and wayfinding information is available at the beginning of the visitor experience, in the lobby, in the form of visitor center staff, maps and other publications, a topographic model, and answers to basic questions. Because safety is so important, guidelines for recreating in the Kenai Refuge are offered in the same location to increase the probability of visitors encountering that information. Basic orientation and wayfinding information is also available just outside the facility to serve visitors who come at times when the facility is not open.

The interpretive experience is layered, reflecting the need to serve different audiences with different time constraints. The layers are designed to stand alone, but also to pique interest in other interpretive opportunities on site that offer more detail. Visitors with only a few minutes of time can get the basic story by watching the short video or other type of audiovisual program offered in the multi-purpose room. It provides a brief overview of the story, emphasizing the key themes (messages) to be communicated, while striving to pique the interest of viewers so they are motivated to get more detail on at least a few of the stories.

The exhibit elements in the Exhibit Hall visible from the lobby are also designed to pique interest and attract visitors with more time into the Exhibit Hall, where additional exhibits provide depth and detail to stories introduced in the audiovisual program. The experience in the Exhibit Hall piques interest in visiting the terrace, while the exhibits on the terrace pique interest in experiencing the short interpretive loop trail. As a whole the interpretive network inspires people to explore and discover the Kenai NWR while associated information provides the maps and other information to facilitate that experience. The interpretive experience also provides a different lens with which to view the refuge and the USFWS.

The information is organized into the following sections:

Arrival/Departure: This encompasses the visitor experience from the parking to the front door and from the front door back to their vehicle.

Building: This encompasses the lobby, the multipurpose room and the Exhibit Hall.

Outdoor: This encompasses the back terrace and interpretive trail associated with this facility.

Each section contains an overview of the experience and a summary of the interpretive strategies recommended for that area followed by a description of and design concepts for those strategies.

Note: *This plan was developed during the building design process so exact conditions, sizes and other factors relating to the infrastructure were not finalized. Consequently, the recommendations for this network and the strategies may have to be modified based on the final building configuration and dimensions and on the landscape surrounding the new building. .*

Arrival/Departure Experience

Overview

The purpose of the information network supporting the arrival experience is primarily to move visitors easily from where they have parked to the front entry of the Visitor Center and back to their vehicles, whether from the Visitor Center or from the Environmental Education Center (EEC) if they happen to exit the trail system to the existing parking area associated with that building.

Facilitating the arrival experience requires wayfinding information geared to pedestrians from each parking area to the front door. The initial goal is to facilitate the transition from vehicular travelers to pedestrians, which requires travelers knowing where they are going when they exit their vehicles. That can be accomplished by clear visual access to the building, or to signage that can be read from their parking slot, or to an obvious source of information that will tell them where to go next, such as a kiosk with orientation information.

Ideally, to facilitate the transition from and separation between the vehicular experience and the visitor center experience the Visitor Center would not be visible from parking areas. Also, access pathways would be curvilinear. Such a design can separate the facility and parking areas visually while also shifting focus from roads and straight line travel to a slower, meandering experience.

Given the planned circulation pattern, parking areas and access pathways, simple structures, such as kiosks, containing orientation information at the intersection with the access pathway that are visible as visitors drive into and/or park in a lot will immediately identify where a visitor goes first after exiting their vehicle. Additional directional signage at intersections along the pathway where the route is not obvious, will also be necessary. The kiosks will contain a Site Orientation Panel, with an appropriate "You Are Here," and a space for changeable time-sensitive information, such as hours of operation (which change by season), schedule of special events and flyers advertising those special events. The Site Orientation Panel, combined with directional signage when necessary, also needs to be located at key decision points (intersections) within the trail system.

Visitors will pass by the Staging Area and the retaining wall on their way to the front door. Both have opportunities that support the arrival/departure experience. The Staging Area contains a Northern Boreal Forest Interpretive Panel Cluster, a Site Orientation Panel, an Area Orientation Panel and a Recreating Safely Panel, all intended primarily to serve departing visitors and those who arrive when the facility is closed. Although arriving visitors can use these opportunities, they do not usually spend much time on interpretation during arrival. Typically they are on their way to the restrooms, have not really "arrived" yet and do not have the information necessary to orient and plan their stay. Consequently, they are usually not particularly receptive to interpretive information as they arrive.

The retaining wall contains a mural or other visual elements tied to the storyline and messages. Interpretive elements requiring a visitor to stop and spend some time are not recommended for this surface because stopping visitors in this area increases the potential for congestion.

The primary purpose of the information network outside the facility supporting the departure experience is primarily to move visitors easily back to their vehicles, while at the same time capitalizing on opportunities to provide additional interpretive experiences. (Information on other experiences is available within the facility and on the Area Orientation Panel in the Staging Area.) The basic departure

experience is facilitated by the same Site Orientation Panels coupled with directional signage focused on moving visitors to specific parking areas. Visitors who have a few more minutes or who need to wait for others in their party can take in the Northern Boreal Forest interpretive panel cluster at the edge of the Staging Area while they wait.

Summary of Strategies

In summary, the following strategies comprise the basic information/interpretive network to facilitate the Arrival/Departure experience:

- Directional Signage
- Site Orientation Panel
- Area Orientation Panel
- Northern Boreal Forest Interpretive Panel Cluster
- Recreating Safely Interpretive Panel

In addition, a structure such as a kiosk will be needed to accommodate Site Orientation Panels and time-sensitive information such as hours of operation and posters advertising special events.

Descriptions/Concepts

Directional Signage

Locations

At key decision points (intersections) potentially encountered by visitors during their on-site experience

Objectives

After encountering a directional signage visitors will

- Be able to quickly make a choice as to direction with confidence

Design Concept

To be determined by designer based on color schemes and style used in other elements of the information network.

Visitor Center Site Orientation Panel

Locations

As needed

Objectives

After viewing the panel visitors will:

- Be inspired, informed, and eager to proceed down the sidewalk to the visitor center
- Know where they are in relation to other locations at the site
- Know where to go next to continue their experience
- Be aware of key interpretive/recreational opportunities on-site, including the trails

- Be able to determine if they can find what they want in the Visitor Center or if they need to go to the Administrative Building
- Feel comfortable in their ability to navigate the site
- Be aware of the opportunities that are fully accessible

Design Concept

The following are key aspects of the design and placement of the Site Orientation Panels that will increase the effectiveness of the sign and the orientation network:

1. Limit information to that which helps with its function, and avoid putting symbols and information that does not help, especially on the map. Adding unnecessary information clutters the sign and increases the difficulty in getting the desired information, which usually focuses on answering the questions, "Where am I?," "What is there to do here?," and, "How do I get where I want to go?" At a minimum the Site Orientation Panel should contain the following:
 - Simple map of the site including roads, parking areas, trails, structures and key features
 - Mileages and times for walking the trails
 - A "You Are Here"
 - Visuals of key interpretive and recreational opportunities tied to location
 - List of services available in the Visitor Center and in the Administrative Building
 - North arrow
 - Legend scale i.e., 1inch = 100yds
2. Orient the panel in the direction that the visitor is facing when looking at the sign instead of north. People expect information at the top of a map to be in front of them. This requires determining location and orientation for panels prior to fabrication.
3. Viewing the same map on a panel as is used in an associated brochure helps visitors move back and forth between the two, so consider adopting the map for this panel for the brochure when it is re-designed in the future.
4. Use a 3-dimensional look to the map to help visitors recognize features. This is not always possible, especially if you are trying to match maps used elsewhere, but studies show it is significantly easier for many people to use a map with 3-dimensional orientation rather than a flat map.

One possible concept is to use a stylized oblique aerial perspective graphic of the site as the major orientation element and as a backdrop for all the basic orientation information. Arrange images of recreational opportunities, such as walking a trail, cross-country skiing, viewing exhibits, viewing the lake and reading outdoor interpretive panels, around the perimeter of the map, with a graphic element (line) connecting the image to the appropriate location on the map.

Northern Boreal Forest Interpretive Panel Cluster

Location

Edge of Staging Area oriented toward the boreal forest

Objectives

After visitors interact with this opportunity they will:

- Be inspired to learn more about the Northern Boreal Forest

Note: Other objectives depend on the themes selected to guide the design of these panels, which in turn depends on the elements in line-of-sight from the final location of the cluster.

Key Themes and sub-themes

Sub-theme 1-1: Everything in an ecosystem is linked. Impacting one component affects all other components in that system.

Design Concept

The panels are low-angled to facilitate focus on the environment/features being interpreted rather than preventing visual access to those features. The basic concept is to use elements of the landscape (flora) as focal points for focusing on connections between flora and the fauna that might be found there, or on the importance of a particular species of vegetation for migratory birds. This plan is being developed prior to finalizing the plans for the building and site. Consequently, the landscape visible from these signs is not yet known, which precludes identifying specific elements of that landscape that can be used as focal points.

Area Orientation Panel

Location

At the edge of the Staging Area, near the Northern Boreal Forest Interpretive Panel Cluster

Objectives

After interacting with this opportunity, visitors will:

- Be inspired to visit other parts of the refuge
- Know where they are in relation to major roads and towns in the area
- Be aware that the KNWR offers a large variety of recreational opportunities as well as providing home to a wide variety of fish and wildlife
- Be aware that different wildlife are associated with different zones within the refuge

Design Concept

The same keys to effective Site Orientation Panels also apply to Area Orientation Panels - limit information to that which is useful; orient it in the direction people are facing when reading the map (if possible); use the same map as used in the area orientation brochure (if possible); and use a 3-dimensional perspective.

At a minimum the Area Orientation Panel should contain the following:

- Map of the site with basic features of importance to the traveler, such as roads and communities
- Mileages and travel times to destinations in the area, including Anchorage and Homer
- A "You Are Here"
- Visuals of key recreational opportunities on the refuge linked to specific locations
- North arrow
- Information presented visually reflecting key aspects of the refuge, notably the wilderness, different zones, and array of wildlife

One possible approach is to use a stylized three-dimensional representation of the area from an oblique aerial perspective as the basis for the map. Key locations and features would be enlarged to reflect significance and make it easy for users to find key locations. Different types of habitats would be obvious if the visual reflected the vegetation/key features in the refuge. Key species from each zone would be included in the graphic to support the fact that the refuge contains a wide variety of wildlife. The intent is not to show every species in every location, but rather to provide a consistent image of the refuge as a place with 'wild' and with wildlife.

Images of key recreational opportunities on the refuge would be arranged around the perimeter with graphic elements (lines) connecting the image to the appropriate location on the map. The images could include, but are not limited to, staying at a Public Use Cabin, viewing exhibits in the Visitor Center (to motivate people who come after hours to return), hiking the trails on-site, using the canoe system, camping along the Skilak Loop Road, angling at the Russian River, cross country skiing one of the trails, backpacking, birdwatching, and boating on Lake Tustumena. The intent is not to provide people with all the information to visit those places and engage in the recreational opportunities, but rather to communicate the fact that the refuge has a large array of opportunities for recreating.

Recreating Safely in Bear Country

Location

At the edge of the Staging Area, near the Northern Boreal Forest Interpretive Panel Cluster

Objectives

After interacting with this opportunity, visitors will:

- Be aware of the hazards related to bear and moose associated with recreating in this area, and also the low probability of encountering a problem, especially when practicing appropriate behaviors;
- Be aware that thousands of people engage in recreational activities on the Kenai Peninsula without experiencing any problems with wildlife;
- Be more comfortable engaging in recreational opportunities on the refuge and therefore more likely to engage in outdoor recreational activities;
- Know how to minimize the potential for encounters;
- Know how to recognize warning signs of moose and bear and act accordingly

Design Concept

***Note:** Although panels focusing on bear and moose safety already exist, it is important to create and use a single style for the interpretive and orientation panels at the visitor center to avoid a "hodgepodge" look.*

The key to a panel accomplishing the goals of encouraging visitors to engage in outdoor recreational activities while at the same time educating them about how to do so safely is a challenge. The danger involved when encountering a bear or moose should not be minimized, but visitors should also not be frightened away from recreational opportunities.

One possible design concept is to use images of people recreating in the area amidst wildlife accompanied by the question "Is This Safe?" For example, an angler with a bear fishing up or downstream; a hiker passing by a moose; a boater (canoe) passing by a moose; etc. The point is to communicate that recreationists and wildlife can co-exist. The other images should focus on guidelines for avoiding encounters, recognizing warning behaviors and what to do when they occur. These would be accompanied by the answer, "Yes. With a Few Precautions."

Building Experience: Lobby

Overview

The purposes of the information network in this part of the experience are to satisfy basic needs, motivate visitors to engage in interpretive opportunities in the Visitor Center and on the site, and facilitate safe exciting experiences here and elsewhere on the refuge. Given the planned layout for this space, a visitor entering the facility will have immediate be able to see the Information Desk, the Topographic Model, the Self-Serve Orientation Area, the Recreating Safely Exhibit, the entry to the multipurpose room, the exit to the back terrace and the entry to the Exhibit Hall, Directional signage in line-of-sight indicating the location of the restrooms will be required since they are not clearly visible in forward line-of-sight.

Information Desk

The Information Desk provides the opportunity to gather information from and ask questions of the staff. It is a critical part of the experience in part because some people prefer to get information personally, and in part because it sends the message that the USFWS thinks that serving the public is important enough to dedicate staff to that function.

Self Serve Orientation Area

This area allows visitors to get all the orientation and wayfinding information they need without having to go to the Information Desk. Availability of the information eases pressure on the Information Desk when the facility is crowded and serves visitors who prefer to gather information this way rather than engage in personal contact. Key information needs include answers to basic questions (Where can I see wildlife? What is there to do here?) and orientation and wayfinding information facilitating a visit to other parts of the refuge. Visitors at the station should be able to select an activity, such as hiking, canoeing, birdwatching, etc., and easily find information to facilitate their desired experience, such as maps and other publications.

Recreating Safely Exhibit

This exhibit, located next to the Self Serve Orientation Area to maximize the potential for visitors to encounter the opportunity, focuses on providing the guidelines for avoiding negative encounters with wildlife and how to behave if an encounter occurs. At the same time it has to send the message that "You can recreate safely in bear and moose country with a few precautions." Exhibit elements would be designed in part to attract a visitor's attention and identify the focus of the exhibit. Associated publications will be available at the exhibit.

Topographic Model

The function of this element is primarily as an orientation, wayfinding and trip planning strategy rather than an interpretive strategy, but should be designed so it can be used for ranger talks. Visitors will use it to orient themselves to the area in terms of where they are, where they have been and where they can go. They will also use it to determine physical location / relative location of opportunities, such as good places to see wildlife, places to hike, places to camp and to engage in other activities on the refuge.

Discovery Guide

This publication is designed to facilitate discovering the Kenai Refuge, especially as a "Detective of the Landscape."

Summary of Strategies

The lobby will contain the Information Desk and the following information / interpretive strategies:

- Self-Serve Orientation Area
- Recreating Safely Exhibit
- Topographic Map
- Discovery Guide

The relative locations of the fixed elements are depicted on Figure 1.

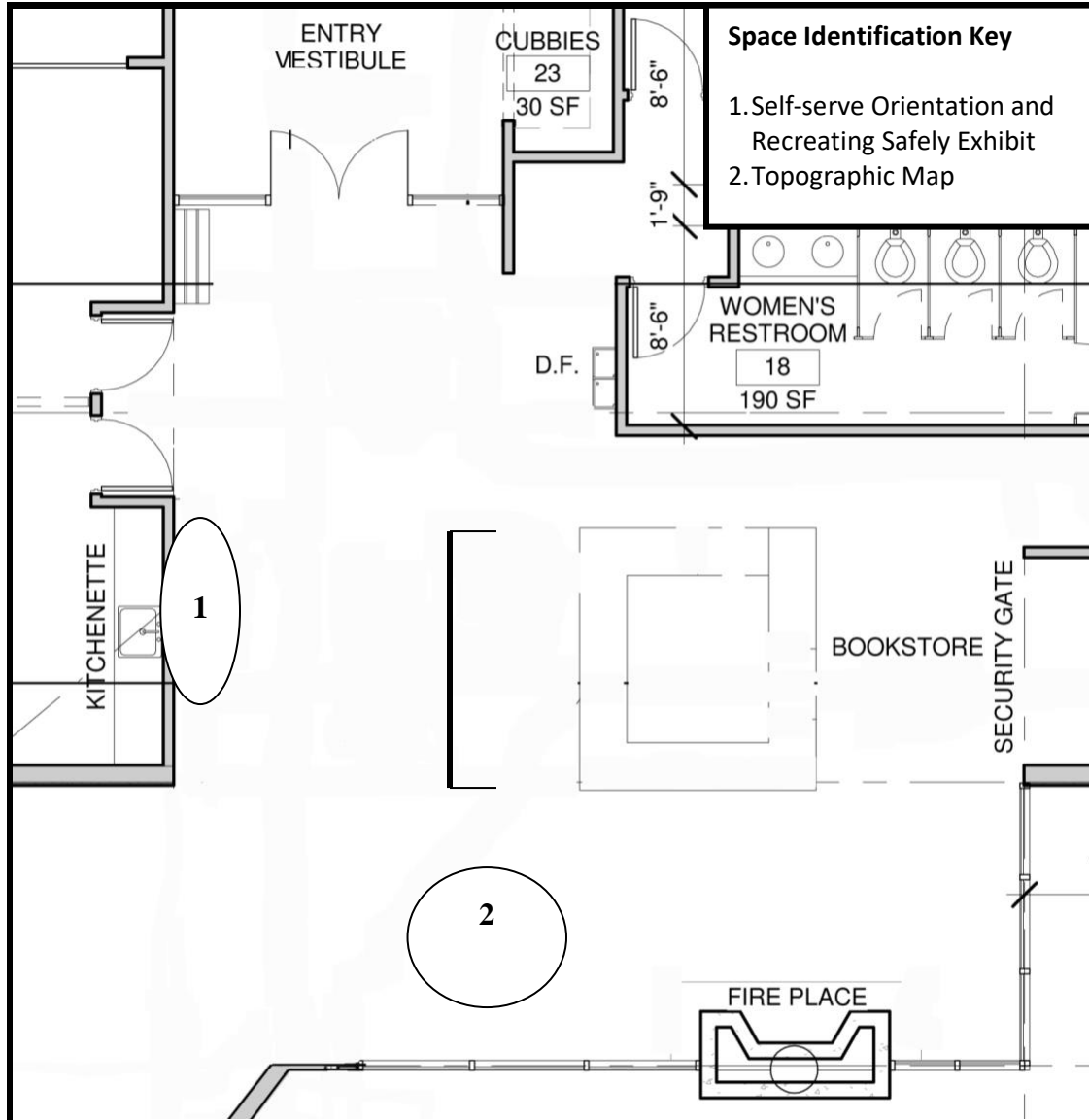


Figure 1: Relative Location of Interpretive Elements in Lobby

Note: The line to the right of exhibit area 1 is not meant to depict the exact location of the edge of the information desk, but rather to indicate that the information desk is going to extend further into the lobby space than depicted on this floor plan.

Descriptions/Concepts

Self Serve Orientation Area

Location

See Figure 1

Objectives

After interacting with the opportunities in this area visitors will:

- Have had most if not all of their orientation and wayfinding questions answered, especially, "What is there to do here?" and "Where can I see wildlife?"
- Be excited about exploring the site and the Refuge
- Have all the information they need for their desired experience

Design Concept

To function effectively, visitors entering the facility must be able to quickly identify the type of information offered at this station. One possibility for a basic exhibit is to use a large title and visual element, such as "What is there to do here?" and/or "Where can I see wildlife?," accompanied by a stylized three-dimensional representation of the area from an oblique aerial perspective as an organizer for large images of people engaging in a variety of recreational activities on the Kenai NWR. Those images would be linked to specific sites on the refuge using a graphic device such as a line. The intent is not to show all locations for all activities, but rather to convey the idea that the KNWR offers a large array of opportunities and that visitors can find information about all of those activities at this station. A map of the Refuge and publications relating to each activity would be available at the station. Depending on money and the likelihood of easily repairing technology, the exhibit could include an interactive element that allows a visitor to push a button corresponding to a specific location (Engineer Lake, Skilak Loop, Russian River, etc.), prompting the display of a short video or series of images of that area.

Recreating Safely in Bear Country Exhibit

Location

Next to the Self-Serve Orientation Area

Objectives

After interacting with this opportunity, visitors will:

- Be aware of the hazards related to bears and moose associated with recreating in this area, and also the low probability of encountering a problem, especially when practicing appropriate behaviors
- Be aware that thousands of people engage in recreational activities on the Kenai Peninsula without experiencing any problems with wildlife
- Be more comfortable engaging in recreational opportunities on the refuge and therefore more likely to engage in outdoor recreational activities
- Know how to minimize the potential for encounters
- Know how to recognize warning signs of moose and bear and act accordingly

Design Concept

The information can be presented in a variety of ways, but it is important to use visuals to depict key pieces of information, including signs to watch for in terms of the behavior of moose and bear, how to react to such behavior and how to avoid negative encounters with wildlife. One possibility is to use an LCD screen to play a looped sequence of video clips, possibly from the interagency bear safety video, depicting that information. Another possibility is to create the opportunity to select the specific topic, such as "Warning signs from Moose." The clips would be captioned rather than have an audio to make it accessible to the hearing impaired. Another reason to have it captioned, with no audio, is that it would be hard to hear if the lobby area was noisy and because the repetitive dialogue would likely irritate staff working at the nearby information desk.

Although the information presented is likely to be the same in the existing publications on recreating safely, watching someone engaging in proper behavior will help clarify exactly what a person should do. Also, this prominent display in the lobby will reach more people, including those who are not specifically seeking out this information because they are not aware of the need to be informed on the subject.

Topographic Model

Location

See Figure 1

Objectives

After interacting with the model, visitors will:

- Be aware that the refuge contains a lot of hiking trails, canoe trails and campgrounds
- Be aware that the refuge is large and covers a lot of different life zones
- Be aware that much of the refuge is also Designated Wilderness
- Be inspired to visit other parts of the refuge
- Be confident in their location, the location of places they want to visit, and the general layout of the refuge and the Kenai Peninsula
- Be aware that the refuge encompasses area from the top of the mountains to the ocean

Design Concept

The extent of the area shown on the topographic map will be determined during design development, but it should be limited to ensure that the refuge is large enough to function effectively for locating key recreational opportunities and attractions. The Refuge boundaries and the Designated Wilderness would be clearly delineated. Circular or oblong shapes work better for topographic models of this kind than square or rectangular models because they are better at facilitating social interaction - a prime activity for visitors engaging in such an experience - and they do not have sharp corners as hazards. Touchable and durable models are also preferable.

The model can be simple, with touching different areas the only opportunity for interaction, or it can be more complex, such as including a system where visitors can push buttons to obtain different information. One way to facilitate use as a trip planning strategy is for visitors to be able to push buttons that trigger lights corresponding to the information of interest. For example, a visitor could push a button labeled "campgrounds" and the campgrounds would light up. Buttons for hiking trails and canoe trails could also be included. Additional incentive for exploration can be provided by locating

images around the perimeter of people recreating. Corresponding buttons could be pressed to show the locations for these activities. This basic system must be relatively easy to update as trails and campgrounds are added or closed and so it can be modified quickly to reflect a temporary closure.

Since this is an orientation, wayfinding and trip planning strategy, the Kenai NWR map/brochure should be available nearby. Ideally, the map in that brochure would be similar to the topographic model so users can easily move intellectually between the two.

Ideally, presenters would be able to address a group in this area with the aid of a microphone and speakers if necessary. This will be important if this is one of the locations used when splitting large groups into small groups so they can be pulsed through the facility.

Discovery Guide (Sense-ational Discovery Guide)

Objectives

The intent of this guide is to motivate visitors to:

- Experience key features of the Kenai Refuge using all of their senses
- Explore the natural and cultural environment both within and outside the visitor center

Themes

All major themes could be covered in this publication, but the emphasis would be on the following:

Design Concept

This publication focuses on helping visitors connect with nature and the cultural history of the refuge by making them 'detectives of the landscape.' Clues addressing all senses help visitors discover evidence of the past, of the forces that shaped and continue to shape the Kenai Refuge and of the flora and fauna that live here.

The actual device can be anything easily carried and used as an identification guide and check-off list, such as a small booklet or set of cards with pictures on a ring. Whatever is used, it should contain descriptions and images of features to look for and check off. Each item has two columns to check – one for experiencing the feature in an exhibit or learning about it on a sign, and one for experiencing the actual feature. For example, if the user learned about cone scales in the visitor center and then found a pile of them while on the interpretive trail he or she could put a mark in each column. Experiences should involve all senses, such as smelling bark, hearing a bird call, identifying a tree by the feel of the bark, etc.

Two versions of this strategy could be developed. The simpler one would be available free of charge. A more detailed version, perhaps with information on where to find different items on the list, could be an item for sale in the Bookstore. Explorer's Kits sold in the Bookstore could have a copy of the publication.

Building Experience: Multipurpose Room

Overview

The primary interpretive strategy in this space is the audiovisual program (such as a video). The intent of the program is to provide a big picture overview of the key stories of the refuge and within that framework, to communicate the key themes (messages). Ideally the program would be viewed prior to experiencing the Exhibit Hall, but some visitors will arrive in the middle of the program and choose to visit the exhibits first. The program should be designed to work either way.

Additionally the room will be used for interpretive presentations and special events, which will be an important strategy for serving the local residents by offering new opportunities.

Summary of Strategies

- Audiovisual program (such as a video)
- Presentations

Descriptions/Concepts

Audiovisual Program

Location

Multipurpose room

Objectives

After viewing the program visitors will:

- Know all the major themes that guide the interpretive network
- Feel inspired to view the exhibits and experience the outdoor exhibits and interpretive trail
- Feel inspired to explore the refuge
- Understand the need for intact ecosystems and wilderness
- Understand the issue with invasives
- Understand the threat of global warming
- Understand the importance of natural processes and systems, which include fire and predators
- Know that humans have long been and will continue to be a part of the system
- Know that everything in the system is linked
- Know that the glaciers and other geomorphologic forces play a large part in what is here now, both in terms of topography and in terms of the flora and fauna due to impact on substrate.

Design Concept

A variety of treatments can be used to present the desired picture of the refuge and its importance. One possibility is to start with the era when the land was being shaped by glaciers and carry it forward, through different eras of human history and use, to the present before focusing on the refuge of today. The core of the program explores "Alaska in Miniature," introducing viewers to the zones, the wildlife, the salmon, the activities and the importance of the refuge to fish, birds, wildlife and people. It includes a focus on Wilderness and on intact ecosystems - one of the few left on the planet - the importance of such systems, and the threats from human activities, including urban encroachment and all that it

brings, oil and gas exploration, and global climate change. The presentation must not present a gloom and doom, but rather focus on making people aware of the issues, what is being done, and ways they can help. The end should be one of hope, but also one that conveys the quest for knowledge of what is going to happen in the future, particularly in relation to global climate change.

Note: *It is likely that the existing video will be used initially as the audiovisual program.*

Building Experience: Exhibit Hall

Overview

This space contains the core of the interpretive experience at the Visitor Center. Its purpose is to communicate and reinforce the themes identified for the interpretive network to as many visitors as possible. To that end it will provide a variety of different access paths to the key messages in the form of different topics and media with the intent of providing a large enough array of opportunities so that everyone will find something that captures their attention and imagination. The intent is also to provide the opportunity to dig deeper into the stories that are presented in the audiovisual program (such as a video).

Key aspects of approach to developing the concept for the exhibits include the following:

- An emphasis on connections and interrelationships, which is the reason the *Zones of the Kenai Refuge Exhibit* contains elements relating to all parts of the story presented in Interpretive Network.
- An emphasis on 'discovery' of an awe inspiring place, the Kenai National Wildlife Refuge.
- An emphasis on exciting and inspiring visitors to explore the Kenai NWR in person as 'detectives of the landscape,' which focuses on being able to 'read' the landscape to find connections, signs of wildlife and other aspects of the land and its inhabitants.
- An emphasis in providing an interactive, multi-sensory experience.

As depicted on Figure 2, visitors enter on the right side of the exhibit hall and immediately encounter two exhibits designed to provide an introduction and overview. The first, *People and the Wildlife of the Kenai Refuge*, focuses on the fact that the wildlife and resources of the Kenai NWR have always been and continue to be an integral part of the lifestyle of those who live here, and increasingly for many people from outside the area. The second exhibit, *What Is So Special Here?*, focuses on the intact ecosystems and vast wilderness within the refuge and what it means to have those areas. Visitors continue in a counterclockwise flow dictated by a central exhibit island stretching down the middle of the room. This exhibit island contains the *Zones of the Kenai Refuge* exhibit - a continuous three-dimensional structure with exhibit elements reflecting the "Ice Fields to Oceans" sequencing of the zones found in the refuge. The structure includes three-dimensional elements representing landforms to create an irregular boundary with the walking space.

Exhibit elements within each zone include drawers, doors, flip plates and other means of 'discovering' different aspects of the refuge using all senses. All aspects of the refuge - plants, wildlife, fish, birds, humans, and the natural forces that continue to shape the land - can be found in the array of strategies to emphasize that all occur in the same place at the same time and that they are connected, and to emphasize that humans are integrally connected to the refuge. The issues facing the refuge and potential impacts can also be found in the array of strategies.

The integration of a variety of elements into a single exhibit reflects the holistic quality of nature and avoids the compartmentalization of information, which tends to be an obstacle in communicating interactions and connections. To avoid giving the impression of a vast quantity of information to digest, while at the same time motivating visitors to engage, much of the information will be hidden in drawers, recesses, flip plates and other reveals (strategies involving manipulation to find additional information) waiting to be 'discovered' as visitors 'discover' the Kenai NWR.

As reflected in Figure 2, visitors pass by the Ice Fields and Glaciers, Mountain Tundra with the start of the River Zone and beginning of the Northern Boreal Forest Zone in the *Zones of the Kenai Refuge* exhibit as they move toward the prow of the exhibit hall. The River Zone begins at the edge of the Ice Fields and Glaciers and runs through all the other zones to emphasize its central role in connecting all parts of the Kenai Refuge. Associated with the Mountain Tundra Zone section they encounter the beginning of the *Follow the Salmon Trail* exhibit, which continues through all the rest of the zones and out to the 'ocean.' On their right they encounter the *Intact Ecosystem Puzzle*, which focuses on reinforcing the concept of connections and the importance and role of intact ecosystems. As they approach the prow with its windows and glass door looking out to the forest surrounding the headquarters, the exhibits on the right shift focus to elements of the Northern Boreal Forest Zone that can be experienced around the headquarters.

After taking in the view on the prow, visitors continue to experience the Northern Boreal Forest and the Lakes and Wetlands sections of the *Zones of the Kenai Refuge* exhibit on the inside along with a continuation of the River Zone. The Northern Boreal Forest Zone ends about halfway along the exhibit island, but the exhibit elements continue with a focus on connections between the refuge and areas outside its boundaries, such as a component of the *Follow the Salmon Trail* exhibit that focuses on what happens at sea. The exhibits on the exhibit island conclude with the end of the *Follow the Salmon Trail*, which is an exhibit focusing on all the ways salmon returning to the Kenai Refuge support the ecosystem and the people who live there.

On the right visitors encounter the *Where Am I?* exhibit, which emphasizes the importance of different zones at different times of the year for some species of birds and wildlife. They also encounter the *Are You Connected to the Kenai Refuge?* exhibit where they can discover if they are connected in some way to the Kenai NWR or one of the other Alaska refuges. The final major exhibit, *Worth Protecting*, focuses on threats to the Kenai Refuge and the progress towards meeting those threats to ensure that the ecosystem stays intact and continues to support the fish and wildlife that everyone values so much. At the end of the Exhibit Hall experience, visitors encounter an up-to-date list of what has been sighted recently on the trails around the headquarters, which inspires them to turn right when they exit the Exhibit Hall to reach the Back Terrace and trailhead for the Interpretive Trail.

Summary of Strategies

The exhibits and opportunities in the Exhibit Hall included in this plan include the following:

- People and the Wildlife of the Kenai Refuge
- What is So Special Here?
- Intact Ecosystem Puzzle
- Northern Boreal Forest exhibits
- Life Zones of the Kenai Refuge
- Follow the Salmon Trail
- Are You Connected to the Kenai Refuge?
- Worth Protecting

Note: *It is possible that not all the exhibits identified will fit, nor that they will be organized as depicted on the floor plan.*

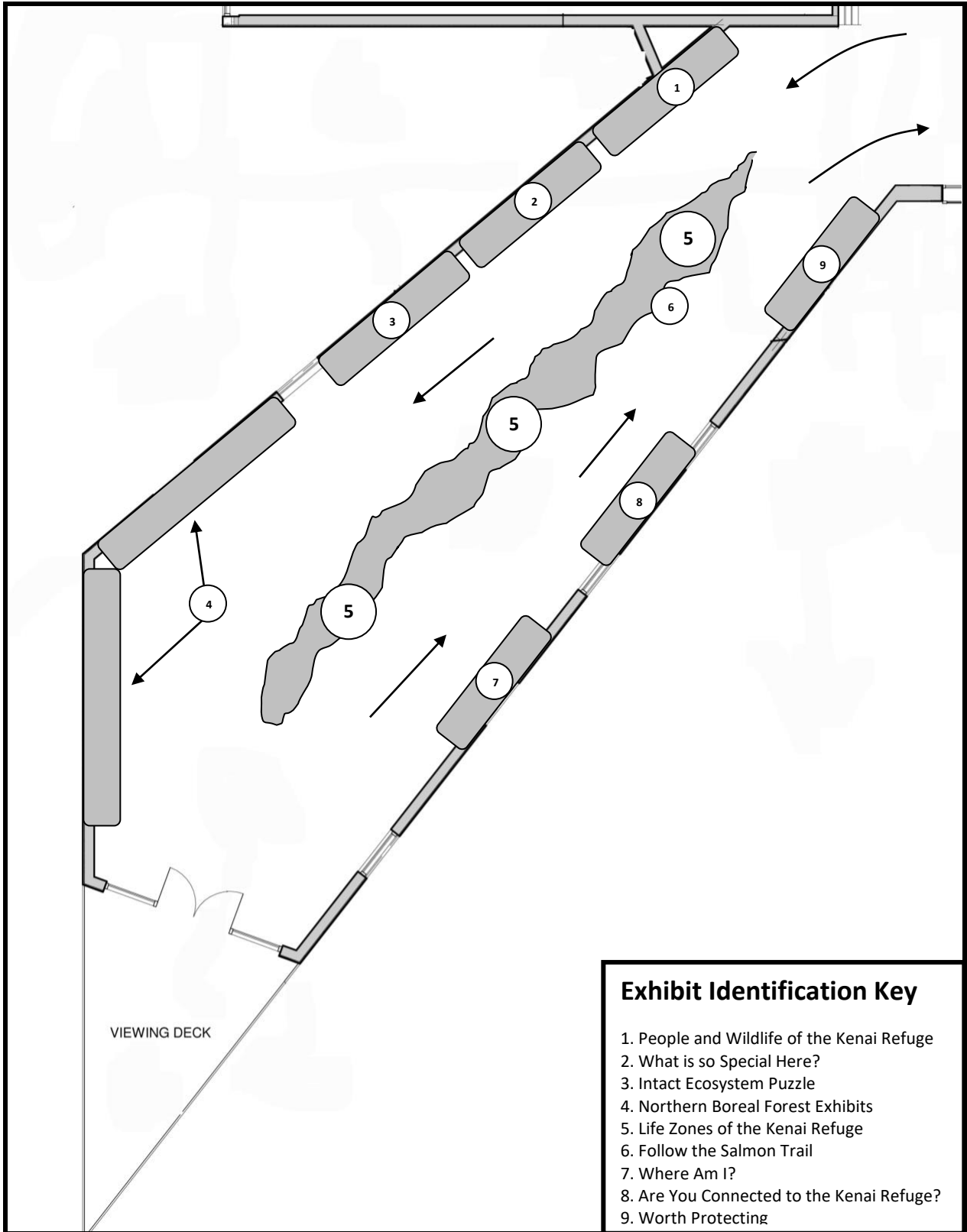


Figure 2: Exhibit Area General Floor Plan

Descriptions/Concepts

Although the general concept for the Exhibit Hall has been developed, at this point in the process the array of variables make it difficult to be highly specific about where certain pieces of information or exhibit components should be located within that framework, or how large they should be relative to other exhibit elements. For example, the exhibit component focusing on the ways in which Native Alaskans used the spruce tree, which is currently in the *Zones of the Kenai Refuge* exhibit, could be expanded into a separate exhibit, or could be discarded in favor of another story that communicates the messages more effectively. That decision is based on other decisions that will be made during the design process about locations of other elements and final selection of stories to be presented. Consequently, the design concepts in this plan focus on providing a menu of *suggestions* for stories to be included, location of those stories and presentation strategies as a starting point for the designer to work with USFWS personnel to develop and refine the designs. Several thumbnail (rough) sketches are included to help clarify design concepts.

People and the Wildlife of the Kenai Refuge

Location

See Figure 2

Objectives

When people finish interacting with this exhibit, they will:

- Understand the past and continuing importance of and value for the fish and wildlife to the people who live here.
- Understand the importance and value of the fish and wildlife of the Kenai Refuge today to people all over the world.

Key Themes

Theme 5: The resources of the Kenai Peninsula, especially fish and wildlife, have always been and continue to be highly valued by and integral to the lifestyle of those who live here and, increasingly, to people from out of the area.

Sub-theme 5-1: Native Alaskans depended and continue to depend heavily on salmon, caribou, Dall sheep, mountain goats and moose as food resources and for fashioning other objects important to their lifestyle.

Sub-theme 5-2: Early pioneers and homesteaders also valued the resources of the Kenai for the same reasons as Native Alaskans.

Sub-theme 5-3: Recreationists, including hunters and anglers, highly valued and continue to value the fish and wildlife and other resources of the Kenai Refuge.

Sub-theme 5-4: Many commercial enterprises from the past and currently depend on the fish and wildlife of the Kenai Refuge.

Sub-theme 5-5: People from outside the area are connected to and affected by the Kenai NWR and the fish and wildlife that thrive there.

Design Concept

This exhibit uses the continuum of human history to establish that the fish and wildlife of the Kenai Refuge have always been and continue to be an integral part of the lifestyle of those who live here, and increasingly, of people from the rest of the world. Understanding the history also helps visitors understand the relationships today between themselves, local communities and the refuge, and issues that stem from those relationships.

One possible approach, as depicted in Figure 3, is to use a time line across the top to put the different eras of human use into context. The exhibit should include pre-contact and post-contact Native Alaskans, Russians, gold miners, early hunters, conservationists, and the people of today. Information associated with each era focuses on presenting an overview of the cultural story of that era, emphasizing the integral relationship between people and the land and resources of the refuge rather than providing an in-depth look at any group. The story of each cultural era could be communicated by focusing on one individual or a family, such as using the story of Andrew Berg as an early homesteader and conservation advocate. Communicating the value for an importance of the fish and wildlife can be accomplished with the use of replica artifacts made from animal parts, historic images showing use of resources, native crafts reflecting wildlife or fish motifs, oral histories, quotes, personal testimonies and other strategies that reflect the importance of the resources. When possible, objects that can be touched should be used, such as furs, tools made from animal parts, clothing made from hides, etc.

Note: *It is important to make the human history, especially the older, traditional aspects of cultures integral to the story so they do not seem quaint, distant and irrelevant. It is also important to present the Native Alaskan culture as thriving today to avoid making it seem like something of the past.*

The timeline can be accompanied by graphs or other graphic strategies with text that identify some of the key changes that occurred over time. Those could include the decline and recovery of the moose population, the growth of human population in the area, the recent decline of the size of the ice sheet, the disappearance of intact ecosystems and other changes that introduce concepts that will be included in other exhibits.

The exhibit should culminate in a summary statement that emphasizes first that the wildlife of the Kenai Refuge have always been and continue to be important to the people of the area, of Alaska, and increasingly, the rest of the world. Now they are more important than ever. That should segue into the next exhibit - *What Makes Us Special?*

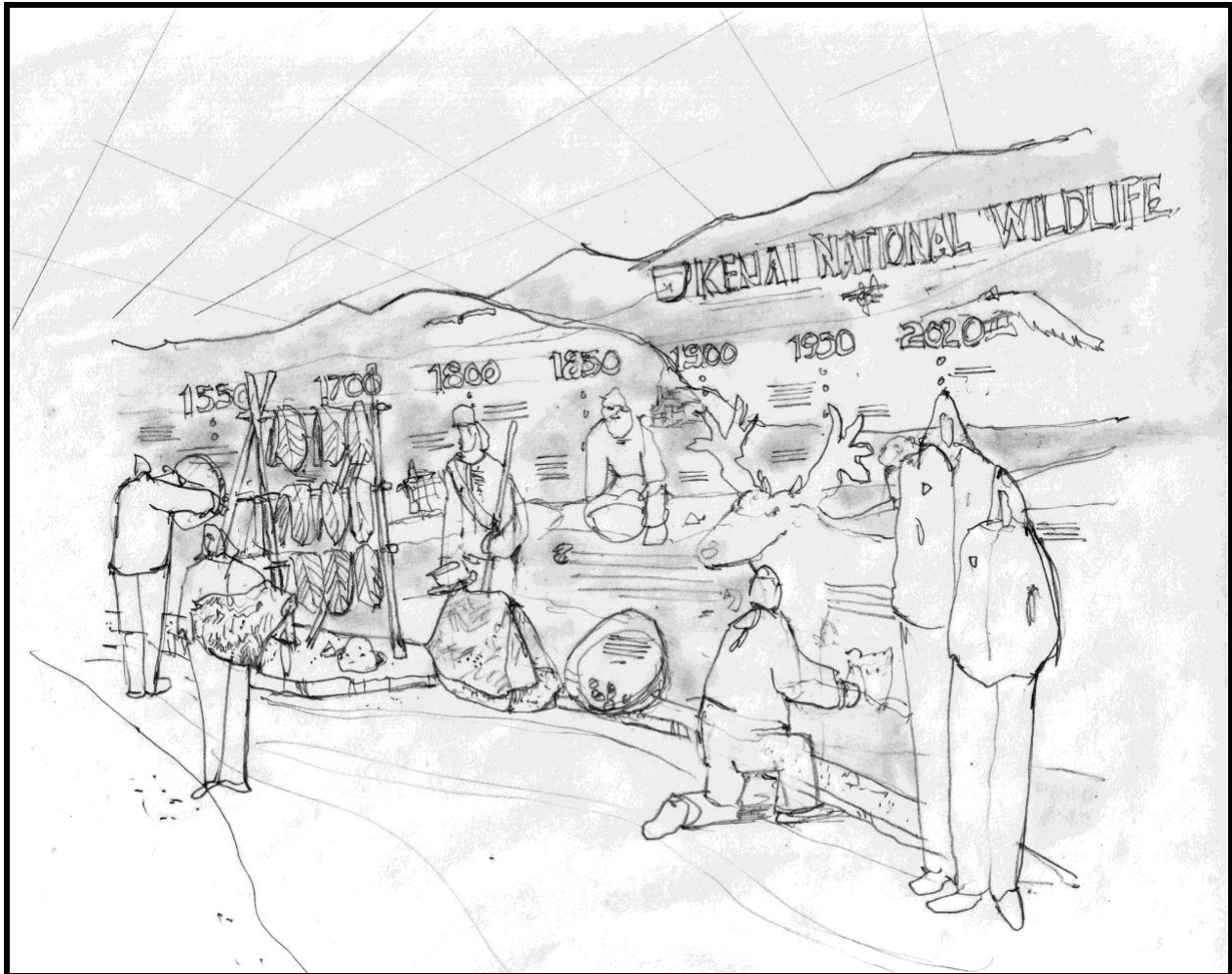


Figure 3: Concept for People of the Kenai Refuge exhibit

What is So Special Here?

Location

See Figure 2

Objectives

When visitors finish interacting with this exhibit, they will:

- Be able to define and explain the importance of intact ecosystems, especially in this day and age.
- Be able to explain the value of wilderness to the purposes of the refuge.
- Be thinking about how they value intact ecosystems and wilderness areas.
- Be conscious of the fact that once you lose an intact ecosystem it is either very time consuming and expensive to repair or is lost forever.
- Know that Alaska contains most of the last remaining intact ecosystems in the United States.

Key Themes

This exhibit should reflect all the sub-themes for the following themes:

Theme 1: Maintaining as close to a naturally functioning ecosystem as possible for moose, salmon and other fish and wildlife in the Kenai NWR is the key to healthy populations of those species, which is why all USFWS management actions at the Kenai NWR reflect its unique mandated mission - to conserve fish and wildlife populations and habitats in their natural diversity.

Theme 2. In a world of increasing human impact on natural resources, the Kenai National Wildlife Refuge and the entire refuge system are critical to the survival of migratory waterfowl, moose, other species of fish and wildlife that the public values.

Theme 3: Wilderness is a critical component of the Kenai NWR.

Design Concept

The answer to the question posed in the title "Why Are We So Special?" focuses on the vast amount of intact ecosystem - a scarce resource - and all that goes with that ecosystem, such as the fact that it supports one of the most productive salmon ecosystems in the world, and that it offers a rare opportunity for critical research. It also includes the implications in terms of management philosophy. However, intact ecosystems, as a concept, has to first be defined. Although it may seem obvious, it is not a concept that many visitors will be familiar with, and not at the scale of the ecosystem protected in the Kenai NWR. Within that definition people must understand that it includes not only all the biotic components, but also all the physical components and the forces that shaped and continue to affect the system. Finally, they need to understand the relationship of humans to such ecosystems.

The definition of intact ecosystems to be used in the exhibits will be developed by the USFWS during the design development process, but it will include the following key concepts that will need to come across in the exhibit:

- Natural forces that shaped and continue to impact those systems are a part of an intact ecosystem so they must be allowed to occur to maintain that system
- All parts of the system play a role to keep it intact and functioning, including wolves and other predators play important roles
- Humans are a part of the intact system as long as their impact does not exceed certain levels

A number of approaches can be used to get these ideas across. The following are possible elements or approaches that can be used as starting points for design development:

- Use the analogy of a computer, engine or some other 'system' people are familiar with to communicate the idea that if you take away one part it won't work.
- Use the same analogy to communicate the idea that if a part in an engine or computer is missing or doesn't work you can get someone to repair it because they know how it works. We don't know how intact ecosystems work so we can't fix the ones we have already broken. The ones we have left give us a rare and critical opportunity to find out how we might be able to address problems, bearing in mind that the idea of humans being able to 'fix' nature (the "technological fix-all" approach) conflicts with the statement that "we must keep this intact because once it is lost it is lost.." For that reason the word 'fix' in this context should be avoided.
- Use an image of the entire ecosystem as a backdrop for focusing on what does and does not belong in an intact ecosystem. This can be as simple as a graphic with text or more complex,

such as by using drag and drop technology or something similar to place items in the system to see if they are or are not a part. In each case information would be available explaining why a part was important or why it did not fit.

- Use the same type of technology to show the ripple effect if you change the system, such as by removing wolves or putting out fires. It has to show that by affecting one part of the system all parts suffer.

Defining intact ecosystems is the core of the exhibit. If people don't understand what they are, all the information on their value and how they must be left alone and protected will not make sense. After defining the concept of intact ecosystems the exhibit can move on to answering such questions as, "Why are they important?," "Why is the designated wilderness important?," and "How are they managed differently?" One possible approach is to use a device to ask those questions with a strategy for revealing the answer, such as a flip plate (simple) or a computer interface (complex). The level of complexity will depend in part on budget and in part on components of other exhibits.

The section of the exhibit that focuses on wilderness must get across the idea that the designated wilderness is a critical part of the refuge, in part because management of wilderness is consistent with management of intact ecosystems. Both involve essentially a hands-off approach while protecting from human impacts. It should also emphasize the size of the wilderness as being important to protecting intact ecosystems and the wilderness is large enough to cover most of the ecosystem. Comparing a non-wilderness forest to a wilderness forest would be one approach to defining wilderness as it pertains to the Northern Boreal Forest.

In terms of value, it is important to get across:

- Intact ecosystems are very scarce.
- Intact ecosystems and wilderness areas are rare natural laboratories that hold knowledge vital to the future of society. In a sense they hold the key to making the most of our last chance to get resource management right. It allows us to see how things function without the direct impact of humans as compared to places that have undergone direct human impacts. This natural laboratory shows us the formulas for productive ecosystems and helps us understand how the pieces fit together.
- A large number of species of fish and wildlife that we value depend on these ecosystems for survival, including salmon and migratory waterfowl, such as swans. The intact ecosystem on the Kenai Refuge, in particular, is important because it supports one of the greatest salmon fisheries in the world.

It is likely that value for such systems, in the minds of most people, will be integrally linked to value for the fish and wildlife they protect, such as for migratory waterfowl, moose and salmon. Consequently, the focus on value should emphasize what they provide in terms of quality of life *as defined by the visitor*, and then show that such systems are very rare and threatened. Because people value wilderness for different reasons, using the words of local residents and visitors to describe what wilderness means to them could be effective in establishing the array of ways people value wilderness.

Note: *Many people value intact ecosystems, wildlife and wilderness areas for intrinsic values, but those people are likely to value them regardless. It is perhaps more important to reach people who do not understand that these intact ecosystems are important to their personal quality of life.*

Intact Ecosystem Puzzle

Location

See Figure 2

Objectives

When visitors finish interacting with this exhibit, they will:

- Know that humans are a part of the system, and are welcomed and encouraged to visit and enjoy the ecosystems in ways that do not impair them.
- Understand that all the pieces of the system are necessary for it to function

Key themes

Sub-theme 1-1: Everything in an ecosystem is linked. Impacting one component affects all other components in that system.

Sub-theme 1-2: Every part of an ecosystem, including the forces that shaped and continue to shape it, play an important role in nutrient cycling, which is a key to the health of that ecosystem and the subsequent conservation of healthy populations of fish and wildlife.

Sub-theme 1-5: The action of humans, who are a natural part of the intact ecosystems on the Refuge, can either perpetuate those intact ecosystems or negatively impact them.

Design Concept

This strategy, geared to children, also focuses on intact ecosystems. It is meant to be located adjacent to the "Why are We So Special?" exhibit so different members of a family can be involved in learning about the same topic at the same time and place. One approach is to use a puzzle with pieces reflecting different parts of the system. However, some pieces will be interchangeable with other pieces that reflect human impacts, such as oil and gas drilling, a pipeline, a settlement, etc. Putting all the pieces in their proper places triggers a response symbolizing that the system is working, such as moving lights or a flashing message. Putting one of the human impact related pieces in the puzzle will not trigger the response. Depending on the level of technology and sophistication the exhibit could be designed so that putting in a piece that doesn't belong triggers a message pointing out why that piece doesn't fit.

Northern Boreal Forest Exhibits

Location

Grouped at the prow end of the Exhibit Hall where windows and the deck provide the opportunity to view the Northern Boreal Forest. (See Figure 2.)

Objectives

After visitors finish interacting with the exhibits in this area they will:

- Be inspired to explore the Northern Boreal Forest, beginning with the interpretive trail
- Be inspired to go out on the refuge to see wildlife or signs of wildlife

Themes

Sub-theme 1-1: Everything in an ecosystem is linked. Impacting one component affects all other components in that system.

Sub-theme 1-2: Every part of an ecosystem, including the forces that shaped and continue to shape it, play an important role in nutrient cycling, which is a key to the health of that ecosystem and the subsequent conservation of healthy populations of fish and wildlife.

Sub-theme 1-7: Many species of fish and wildlife require resources from several zones to survive and thrive. Some require resources from places not on the refuge.

Design Concepts

Ideally, exhibits near windows would use features visible through the windows, either an exterior element as it is now or one that involves manipulating the environment to create a natural exhibit, to emphasize key concepts. For example, the use of vegetation by migratory birds could be used to illustrate connections outside the refuge. The connection between specific resident species of wildlife and the vegetation could be used for the same purpose. From the elevated deck, visitors will be looking directly into the tree branches. To focus attention, an inside exhibit could focus on the vertical habitats that trees in the boreal forest can provide and who uses them.

Since the building has not been constructed it is difficult to know at this time what features of the Northern Boreal Forest will be visible from the windows, and consequently, what species of vegetation will be best for use as focal points. Therefore, the following ideas need to be evaluated as the options become more apparent.

It's for the birds!

This involves planting the area outside the windows with species that attract wildlife, particularly migratory birds. The associated exhibit would focus on the species that could be seen and, if not residents, where they go in the winter. An up-to-date list of recent sightings should be located in this area.

***Note:** Good moose habitat could be created and maintained outside the windows to use as a visual for interpretive information offered within the building. However, there was concern about maintaining any manipulated environment and a safety issue regarding attracting moose to areas where visitors will be gathering..*

What's the Difference?

This exhibit focuses attention on comparing the young forest growing outside the windows to the south with the mature forest visible from the prow and from the window in the prow wall. It should include the projected succession to reinforce the concept that the ecosystem is dynamic, changing due to a variety of forces. It should also emphasize how the wildlife changes with changes in the vegetation to reinforce the concept of connections and how needs of wildlife are based on specific species and types of vegetation.

***Note:** This exhibit depends on the area being allowed to revert back to boreal forest after being disturbed during construction.*

What's The Connection?

This exhibit focuses on the mid-story visible from the deck and prow windows by connecting that specific habitat to birds and wildlife in the area that use that specific part of the forest environment. This should include visuals of the species and - if applicable - evidence of the species to support the "Detectives of the Landscape" concept.

Who's Around?

In the past, USFWS biology staff have used a trail cam to take footage at specific sites in the refuge hoping to capture footage of a reported mountain lion. The same type of strategy can be used on a weekly basis to capture footage along animal trails, especially in the area of the headquarters. The information associated with the footage would focus on the connections of that species to specific components in the Northern Boreal Forest.

Note: Although this requires the weekly task of placing the video camera, editing the footage, putting up the new footage and changing the associated information, it would be a good way to motivate people to return to see something new.

Home to Eagles

This exhibit uses a web cam in the eagle nest to focus on habitat requirements of eagles and the role they play in this ecosystem. It should include the importance of cottonwoods along rivers as nesting sites.

Web cams for ???

One issue at this time is the difficulty with capturing feeds from web cams from a distance. When this is not an issue, additional web cams could be placed at a variety of locations frequented by birds, fish and wildlife. Feeds from those webcams would be the focal point for an exhibit focusing on *What's Happening on the Refuge*. Note that these feeds could also be posted on the website, and visitors could access them on smart phones. An additional component could be developed that allowed visitors to ask questions and provide comments based on what they see on the feed (citizen science).

Life Zones of the Kenai Refuge

Location

See Figure 2.

Objectives

When visitors finish interacting with this exhibit, they will:

- Know all the themes
- Be inspired to go out and explore the refuge
- Be inspired to learn more
- Be amazed at the variety of wildlife supported by the refuge
- Understand the interconnectivity of all elements of the system, both biotic and physical

Key Themes

All themes and sub-themes should be included. When possible, themes for specific exhibit elements are included.

Design Concept

The exhibit is essentially a long narrow 'island' occupying the center of the exhibit space and effectively dividing it to create a unidirectional traffic flow pattern. The continuous exhibit island could be broken up by a passageway to the other side to avoid the feeling of a tunnel from the long narrow spaces along each side of the exhibit hall. The passageway could have interpretive elements focusing on stories to be discovered under the surface, such as the geomorphology, but that might necessitate making a passage so wide that it takes away from the intent of showing that the zones are connected. To that end, if a passageway is created, the "land" should continue over the top to emphasize the continuous nature of the landscape.

The concept for this exhibit, as depicted in the thumbnail sketch of the Ice Fields and Glaciers Zone (Figure 4) is to use a continuous backdrop on the exhibit island with flat images and three-dimensional elements reflecting the sequence of zones to present information focused on communicating the themes and sub-themes.

Information will be presented using a variety of strategies and media, and with the opportunity to use multiple senses, with emphasis on 'discovering' the Kenai Refuge. This includes a significant number of opportunities to 'discover' information using 'reveals' (doors and drawers to open, flip plates, sliding windows, things to look into, etc.). Emphasis, as with all the exhibits, will be on providing information and then posing questions to stimulate thought rather than offering conclusions. The development of this exhibit in particular will require working closely with USFWS, particularly those at the refuge, to continue gathering and assessing additional potential stories and information that could be included. The drivers for selecting and presenting stories and other information are the themes and sub-themes; every story should reflect one of those messages.

As a whole, the components in every zone should establish that the zone is critical to the refuge ecosystem due to a web of connections, that the zone is threatened from human caused impacts such as oil and gas drilling, invasives, and global climate change, and that management is focused on keeping the system intact by not interfering with natural processes and events and protecting it from human impacts through managing use.

For the ease of understanding the exhibit the information has been organized by 'zone,' but that does not mean that distinct separation between zones will be an element of the exhibit. On the contrary, the exhibit seeks to depict the Kenai Refuge as having a vast array of components that are all connected to the system, and through that system, to each other.

The description of each zone in this exhibit includes a list of potential images, a list of potential sensory stimuli to be included, and a list of potential exhibit components. As a whole, the images have to convey the sense that each zone is highly active with wildlife and that every one includes humans. The following are typical components of all the zones:

'Didjacksons'

A fun fact.

'What If?,' Why?, and 'Why not?'

These are questions posed on the outside of a door or other type of reveal, such as "What will happen if the ice fields melt?". The answer is on the inside. The answer should be visual if possible, but if text is required, it should be brief.

Who lives here?

These questions are posed on the outside of a door that is located on an image associated with fish, birds, or wildlife, such as a woodpecker hole, bear scat, and cone scales. The identity of the organism is revealed upon opening the door, along with a tidbit of information about that particular piece of evidence.

The list of possibilities for each zone is not meant to be complete nor set in stone, but rather reflects the input to date on supporting stories and reflects the concept for the exhibit as a collection of opportunities to 'discover' the refuge.

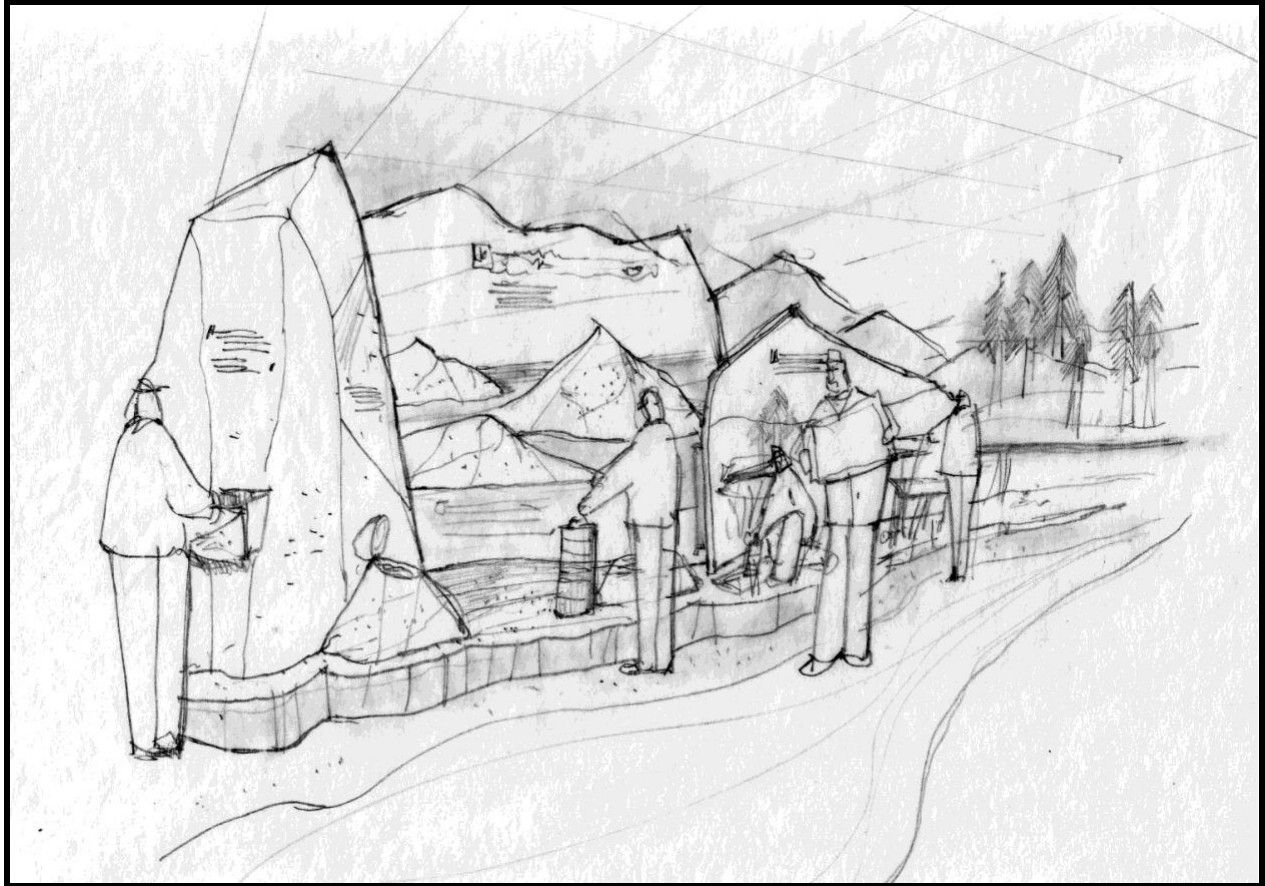


Figure 4: The Ice Fields and Glaciers Zone of the Life Zones of the Kenai Refuge

Ice Fields and Glaciers Zone

Potential Images/features

- Nunatak
- Snow bunting
- Mountain goat
- Research scientist
- Monitoring station

Potential Sensory Stimuli

In addition to the visuals on the exhibit, the following are elements that could engage the other senses:

- Feel the chill air coming off a glacier
- Hear the call of a snow bunting
- Hear the drip of melting water (associate with components focused on the impact of global climate change)
- Hear the sound of running water (associated with birth of a river at the transition from this zone to the Mountain Alpine Zone)

Potential Exhibit Components

Didjknows

Did you know that the Harding Ice Field was formed more than 23,000 years ago? It is a remnant of the vast ice sheet that covered much of North America.

The Nunatak Exhibit

Visitors explore a nunatak, 'discovering' its inhabitants, such as lichen, and learning how they are adapted to the harsh conditions. They open a "what if" door related to climate change to learn the fate of the nunatak habitat if it is no longer isolated from other habitats by glacial ice.

What Can We Learn?

One image on the backdrop is a USFWS scientist taking a core sample of the ice. Visitors are prompted to open the door underneath the image with the question, "What are we learning?" Inside the door the layers are portrayed on one side, with the corer passing through, and the time periods and geomorphologic events associated with each layer on the other. The answer to the question focuses on the amount and rate of change due to global climate change and corresponding impacts on the fisheries and ecosystems. It could also include how the data is used. If applicable the Long Term Ecological Monitoring Program (LTEMP) could be used as an example of the kind of research being done.

Birthplace of the Rivers

The backdrop should include an image of water flowing out from underneath a glacier. Open a door to see a map showing all the rivers that originate in the ice fields and glaciers. An associated didjknow focuses on the total amount of water that comes from the ice fields and glaciers that feeds into the rivers and lakes of the refuge's ecosystem. Open another door and see how those rivers have carved and continue to carve the land.

What's the Connection?

An image of a salmon fisherman in the ocean with the question "What's the Connection?" prompts visitors to open the door to find out that the rivers coming out of the ice fields and glaciers support one of the most productive salmon fisheries in the world. Water resources from glaciers provide cold temperatures and nutrients necessary for the survival of spawning and nursery areas for salmon and trout. Glaciers also provide necessary water volume during summers when there is low precipitation and higher temperatures. An associated "what if" asks about the impact on the fisheries if the glaciers and ice fields change due to global climate change.

The Shapers

Visitors walk into a cleft where they can discover the geomorphologic events that shaped and continue to shape the land, especially the glaciers and flowing water. This exhibit element could also include reveals with questions on the outside related to the formation of different features. The answers would highlight freezing and thawing, uplift, wind and other forces of change.

Mountain Tundra Zone

Note: The River Zone should begin in this zone at the margin with the Ice Fields and Glaciers and continue through the rest of the zones. Elements associated with the River Zone are included in the suggestions for this zone.

Potential Images/Features

- Bear
- Moose
- Caribou
- Mountain Goats
- Ptarmigans (all 3 at different elevations)
- Backpacker using a stove (not a fire)
- Plants that occur only in this zone
- Migratory bird nesting in this zone
- Marmot hiding in rocks
- Young trees invading the Mountain Tundra (creeping tree line)
- Wildlife crossing between the zones (to reinforce the connections)
- Streams moving from the Tundra to the Northern Boreal Forest

Potential Sensory Stimuli

In addition to the visuals on the exhibit, the following are elements that could engage the other senses:

- Call of a ptarmigan
- Call of a caribou
- Sound of the wind (associated with the Krumholz exhibit)
- Whistle of a marmot
- Any scents associated with specific species of plants

Potential Exhibit Components

Where am I going?

Use an image of a young tree along the margin of the Mountain Tundra Zone and Northern Boreal Forest and a reveal to focus on the creeping tree line due to Global Climate Change.

Why Not?

Why won't you hear helicopters here? (It's designated wilderness)

Who Lives Here?

Upon opening a reveal, the question is answered by "Depends. Pick a season." Visitors can then push a button to choose a season and see what organisms use it in what season. For example, bear use it in the fall for berries; moose will move into the sub-alpine zone to avoid the biting insects of the low land and feed on foods that would be inaccessible in the winter; and migratory birds nest here in the spring and summer. The key concept to convey is that wildlife from other zones use this zone and vice versa.

Why am I this funny shape?

Open a door and find out about the wind with ice crystals causing the Krumholz effect. Include the birds and wildlife that use the leeward foliage. (Use the sound of the wind with this element and the sound of the birds that use the trees and shrubs as habitat.)

Why do I live here?

Use an image of a caribou and a reveal to focus on how it is adapted to the food resources, conditions and terrain. The zone provides lichens for food, safe places for raising their young and other resources. Note that it depends on this habitat, so a "What If?" could be used to focus on the impacts on caribou from climate change.

Note: Woodland caribou historically roamed on the Kenai Refuge. The caribou that were reintroduced in the 1960s and 1980s were Barrenland Caribou from the Nelchina Herd, but have adapted to both woodlands and tundra on the Kenai Peninsula.

What's the Connection?

Use an image of a Dena'ina with a caribou and this question on a reveal. Inside the visitor learns that prehistorically, mountain (Dall) sheep were a critical resource for the Dena'ina people. The most common remains of animals at the Russian River excavations were sheep and marmots. Could also use a "What Happened" to focus on the fact that before big game hunters came, the hills were full of sheep. They may have been more important than caribou to the native people. Include how they used other parts of the sheep.

Where am I going?

Use an image and associated reveal to focus on a plant or organism that occurs only in the Tundra and whose range is shifting to focus on the impact of global climate change on the range of this organism.

What's the Difference

Use stacked images of the 3 different species of ptarmigan (associated with different elevations) and a reveal to focus on the unique adaptations of the different species to the different elevations. The key concept to communicate is that some species are adapted to very specific habitats, which sets up asking questions regarding impacts of climate change.

- White-tailed – highest elevation from alpine tundra to scree slopes
- Rock - in alpine tundra between scree and subalpine shrub
- Willow - lowest elevation - subalpine shrub to alpine tundra

What's the Connection?

Use an image of a migratory bird nesting in this Zone along with an image of its habitat in the winter with this question and a reveal to focus on the importance of the zone and refuge to migratory species.

Should I be a part of this scene?

Use an image of a backpacker and this question with a reveal to focus on the fact that humans are a part of an intact ecosystem at a certain level of impact and use that introduction to highlight no-trace camping. Can also use it to highlight wilderness status and recreation management necessary to protect fragile alpine tundra from impacts and to limit disturbance to species like wolverine, caribou and sheep.

Who Lives Here?

Use an image of a den with this question and a reveal to highlight bears from the lowland zones making their dens high on the south facing alpine tundra areas, especially mother's with cubs. There are several reasons why they choose these areas (seclusion and away from disturbance, safety away from predatory male bears, proximity to the new plant growth on the southern exposed tundra in the spring.)

Where am I going?

Use an image of a mammal such as a moose or bear that is leaving the zone and a reveal to focus on where the species is going and why to emphasize the importance of different zones at different times of the year for different resources. If any species of wildlife is being tracked electronically the actual route could be the focal point of this exhibit component.

Where Am I Now?

This exhibit depends on whether a species of wildlife is being tracked electronically. If so, it creates an attractive exhibit opportunity for the following reasons:

- It changes naturally due to a change in the animals location;
- It demonstrates over the course of the year that some species travel a long way, using resources from a variety of zones;
- It provides an opportunity to tell people what the animal is doing in that zone;
- It provides an opportunity to highlight research.

Are there fish here?

Use a question and a reveal in the image of a stream to answer the question and emphasize the importance of cold clear water for salmon and trout.

Other Suggestions

The following are supporting stories that could be used in addition to or instead of the ones already identified.

- One possible impact of climate change is that warmer winters are increasing thawing and freezing, which in turn causes more avalanches. Avalanches have taken out large numbers of caribou and the carnage brings in wolves, brown bear, and wolverines. In 2002 and 2003 an avalanche took out 200 caribou – one event alone killed 130 and there is only a total of 1000 caribou.

Northern Boreal Forest Zone

Note: *The Lakes and Wetlands Zone will be woven into the Northern Boreal Forest, but for ease of presenting potential stories and other exhibit elements it has been separated out in this document. Instead of integrating elements associated with the River Zone as was done in the Mountain Tundra Zone, the River Zone is separated out because of the number and type of potential elements associated with the river within this zone.*

Potential Images / Features

- Cabin on a lake with people (no text - the point is to always show people as part of zones)
- Anglers on a river alongside bears
- Moose Hunter
- Homestead cabin
- USFWS scientist taking a core sample in a peat bog
- Pack of wolves
- Bear (Black and Brown Bears)
- Recent burn with moose feeding on new growth
- Stand of trees killed by bark beetles
- Scat from different animals - bear, moose, raccoon
- Pile of cone scales
- Hunter with moose
- Other evidence of the presence of wildlife
- Lightening causing a wildfire

Potential Sensory Stimuli

In addition to the visuals on the exhibit, the following are elements that could engage the other senses:

- Bugle of a moose
- Call of the cow moose
- Bark of different species of trees to touch
- Any scents associated with specific species of plants
- Cry of an eagle
- Varied Thrush song

Potential Exhibit Components

Nature's Rhythm

Use images of a snowshoe hare feeding on birch, a lynx, and a reveal with a question to prompt visitors to open it to focus on natural cycles. High numbers of snowshoe hares result in an increase in the lynx population. The other cycle to include involves the birch and hare. During high snowshoe hare cycles birch are heavily browsed. In response, birch build up bitter chemicals in their buds and bark and taste bad, becoming indigestible to hares.

What am I doing here??

Use an image of a migratory bird in a tropical setting to focus on the importance of the refuge and other Alaska refuges in providing nesting and rearing habitat for migratory waterfowl.

Who Lives Here?

The question is answered by "depends. Pick a season." Visitors can then choose a season and see what organisms use it in what season and why. The emphasis should be on the fact that different zones are important at different times of the year, and therefore on the need to have all zones in a continuous connection.

The Indispensable Spruce

Use either an image or replica of a spruce to focus on all the different ways that native peoples used the tree. The spruce is a good example of people's dependence on a single plant. The trees were used for housing, boats, tool handles, medicine, cordage, glue and many other uses. Spruce wood in various stages of decay had uses. For example soft punky wood was used to flavor smoked fish. Spruce branch tips made a tea, the sap was used to stop bleeding and treat TB, as well as for caulking and glue. Roots and the bark of roots was used to make cordage and thread, and for baskets.

Spruce Beetle

Use the image of the dead trees to focus on the fact that longer warmer summers, due to climate change, allowed the beetle to complete its life cycle with devastating impact on the spruce forests.

Who made this?

Look in a woodpecker hole to see what kind of woodpecker was responsible. If possible, include information on how to recognize what woodpeckers might have made a hole by the shape.

You can tell us apart with your fingers

Use replica bark of spruce, birch, aspens, alders, and cottonwood to provide an opportunity for visitors to learn how to identify different trees by both feel of the bark and appearance. Add in information on birds and wildlife that depend on each species. Key species include woodpeckers, chickadees, spruce grouse, and owls.

What's the Connection?

Use an image of a moose browsing on new growth in a recently burned area to focus on the role of natural wild fires in changing the habitat from mature boreal forest to shrubs that provide year-round food supply for moose. Note that the Refuge has a fire management plan to promote the creation of shrub-young deciduous tree habitat, which is the ideal food source for moose. Add in a "what if?" focusing on the impact of putting out all fires.

You Need Me

Use an image of a wolf pack with a question and a reveal to focus on the importance of predation by wolves to keep populations of moose healthy.

Is this okay?

Use an image of lightning causing a fire with a question and a reveal to focus on the role of natural fire in creating a mosaic or patchwork pattern through the boreal forest resulting in a diverse habitat that provides an array of foods for a larger diversity of wildlife. It can also be used to highlight the no-interference management approach necessary to maintain intact ecosystems.

Matching prints, scat and other evidence

Use a cluster of images to focus on evidence of different species of wildlife. This could be an interactive with visitors matching scat, tracks and species.

Have you seen this? Do you know what it means?

This question can accompany a visual or feature reflecting evidence of a particular species of wildlife, such as scratch marks on trees for bears, and a pile of cone scales for a squirrel. The information should include an explanation of the behavior.

Other Suggestions

The following are supporting stories that could be used in addition to or instead of the ones already identified.

- Migration corridors for resident wildlife such as moose, caribou, wolves, bears, wolverines, etc.
- Other cycles: Fire cycle (80 years), lynx cycle (10-14 yrs), red-backed voles (3-4 yrs), snowshoe hare (10-14 yrs), spruce bark beetle (50 yrs)
- Marten story – sparse until 2002 then spread over the Kenai lowlands
- Parts of the refuge are opened specifically to cut Christmas trees
- 175-mile urban interface and pressures of a growing human population on the Kenai Peninsula. On average 1,000 people move to the Kenai Peninsula every year. Anchorage is growing by 3,000 people each year. Both populations create challenges in keeping the ecosystems intact and naturally functioning.

Lakes and Wetlands Zone

This zone will be included within the Northern Boreal Zone using images of lakes and wetlands, including Chickaloon Flats at the boundary between this zone and the ocean to complete the "Ice to Oceans" concept.

Potential Images/Features

- Loon
- Trumpeter Swan
- Sandhill Cranes
- Moose (in a bog)
- Flock of waterfowl
- Float plane
- Canoeists on the lake canoe system

Potential Sensory Stimuli

- Cry of a loon
- Bugle of a Moose
- Bird calls
- Call of migrating Sandhill Cranes
- Cry of a Bald Eagle
- Sound of a flock of waterfowl (associated with Chickaloon Flats)
- Touching peat

Didjknows

Trumpeter swans are the largest existing species of waterfowl on earth.

What's the connection? (lakes and wetlands and fishing for sockeye salmon off shore)

Use an offshore salmon fisherman and the lake with the question to lead into an explanation about the fact that Sockeye "Red" salmon are only found in river drainages that have a lake in them, and that the lakes and wetlands of the Kenai are a nursery for tens of millions of sockeye.

What's the connection? (lakes and flooding)

Use an image of a lake and a mild downstream flood with a question and a reveal to focus on the role of lakes in moderating floods.

Can you find the salmon?

Use the question near a kettle lake or wetland, but not at it and a reveal with an image of Silver Salmon in a subterranean stream to focus on the story of the importance of wetlands, kettle lakes and the underground connections.

What's the connection? (Wetlands and tap water)

Use an image of a person getting water out of a tap to highlight the role of wetlands and lakes in cleaning up water.

What am I looking for?

Use an image of a USFWS scientist taking a core sample of a peat bog with a question to prompt visitors to open the door below to see the layers of that bog on one side, and images and text reflecting what was happening in the area at that time to create that specific layer.

Killer Grass!

Use an image of reed canary grass, a question and a reveal to focus on the negative impacts of that particular species and successful programs to eliminate the species through efforts by both the public and the USFWS. This could include a "what if?" focusing on the impact if the species proliferates.

A long way to go for a meal!

Use images of a flock of migratory Golden Plovers in Hawaii and on a wetland and a reveal to focus on the distance waterfowl travel to breed in AK and why they do it, which should highlight the importance of Alaska refuges.

What's the Connection? (Float planes and Trumpeter Swans)

Use images of these two at a lake to focus on the need by the swans for undisturbed isolated lakes for raising young and how the USFWS monitors those lakes and closes them to float planes when there are active nests or broods present. The need for remote areas can be emphasized with a map showing that most nesting sites are in the Dave Spencer unit of the Kenai Wilderness. **Note:** *The Trumpeter Swan story could also be introduced with the question "Where can I see this?" and with the answer focusing on the fact that they prefer remote lakes away from human activity.*

What happened to me?

Use image of deformed wood frog and a reveal to focus on human impacts.

Who Lives Here?

The question is answered by "depends. Pick a season." Visitors can then choose a season and see what organisms use it in what season and why. This could include a loon (with the call), that uses the lakes in the summer and winters on the ocean, and it could include what happens when the lake freezes. The emphasis is on the fact that different zones are important at different times of the year to some species, and therefore on the need to have all zones in a continuous connection.

Other Suggestions

The following are supporting stories that could be used in addition to or instead of the ones already identified.

- Large glacial lakes (Skilak and Tustumena) act as naturally occurring dams providing a constant source of water to the rivers that discharge from them and a moderating influence that controls flooding (impacts of lakes).
- Char are colored differently based on geography and distribution (adaptation).
- Pike and Elodea as invasive species
- Type of basin (closed or open) determines types of fish that will be found, fish migration, and other species that depend on fish (loons, mergansers, terns, etc.) (need for specific habitats and connections between species)

River Zone: Northern Boreal Forest

***Note:** The information associated with the River Zone in the Northern Boreal Forest and Mountain Tundra Zones has to convey the sense of importance of this zone. It is what ties everything together. As the Refuge Manager put it, "It is the ocean artery that feeds the life-blood, salmon, into the refuge and peninsula.*

Potential Images/Features

Eagle on banks
Osprey fishing
Merganser
Anglers at Russian River
Fishing bear
Underwater photo of migrating salmon

Potential Sensory Stimuli

In addition to the visuals on the exhibit, the following are elements that could engage the other senses:

Cry of an eagle
Sound of flowing water
Cry of an osprey

Didjacks

Kenai and Alaska's refuges protect more salmon spawning habitat than any other land management agency in Alaska, North America, or the world.

Travelers through the ages

Use an image of someone traveling on the river as a focal point for a reveal that depicts use of the river as a travel corridor through the ages - for pre-contact Native Alaskans, explorers, homesteaders, gold seekers, etc.

What's running?

Open a reveal to find a web cam (or underwater video) showing what is running at that time of the year (this one has to be changed periodically if not a web cam. Associated information in chart form depicts the timing of each of the major runs of salmon in the Kenai.

Who lived here?

Use an image of a site near the Kenai - Russian River confluence, a question and a reveal so visitors can open a door and see the layering of archaeological evidence on one side and images of how the site might have looked when inhabited by different groups of people, such as by native Alaskans and homesteaders. Focus on the primary attractions for settling along the river - a source of salmon and the river as a major transportation corridor. It could include use of fish wheels and traps. It could also include brief oral histories focusing on the importance of the resources from the Kenai. Figure 5 depicts one possible design approach for this exhibit.

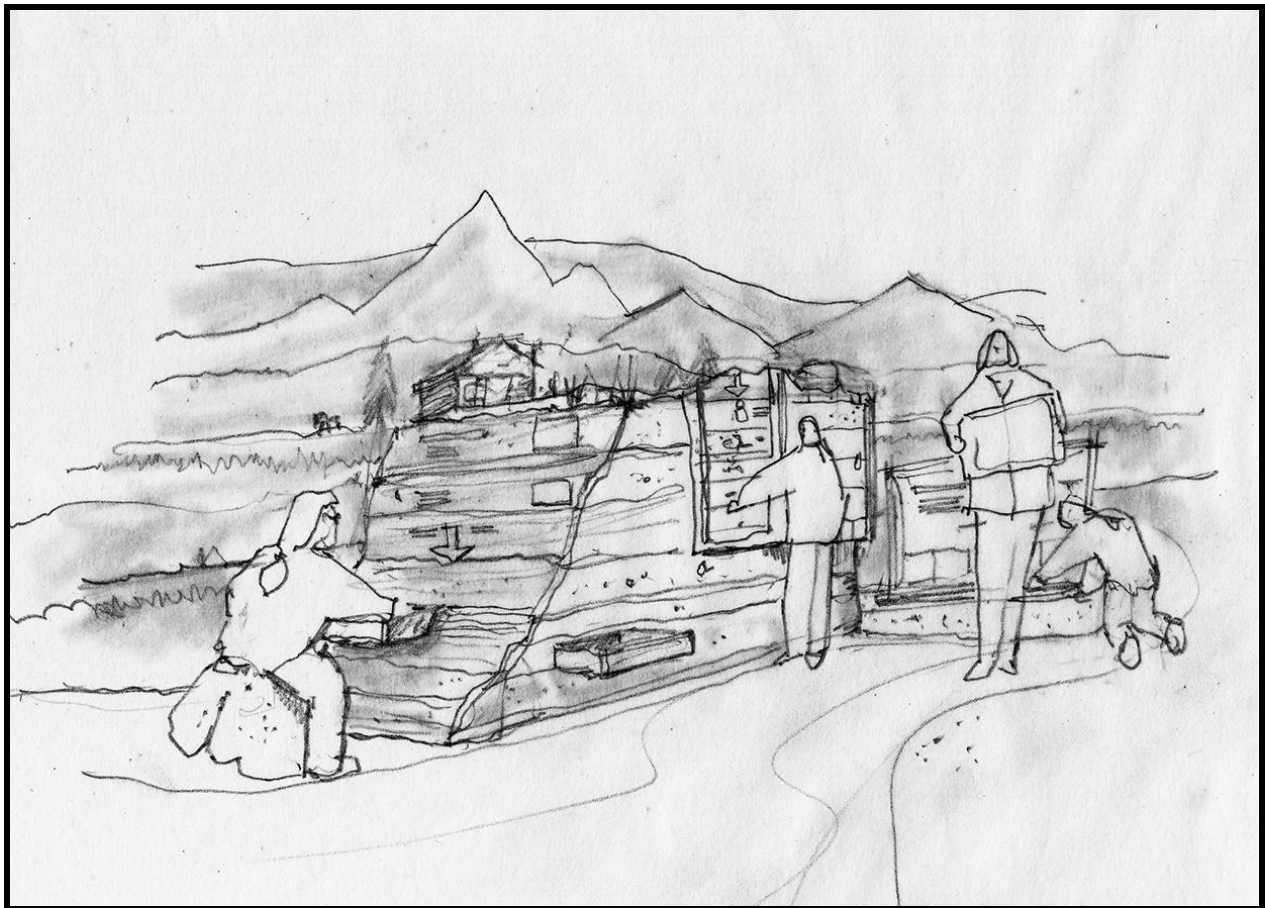


Figure 5: Who Lived Here? exhibit element in the River Zone

Is this a problem?

Use images of water from the Upper Kenai and the Russian River to highlight the different colors due to glacial silt. Use it as a segue into the importance of glacial rivers keeping the water temperature lower and more oxygenated for salmon, trout, and invertebrates. Note also that extreme glacial melting can produce high amounts of glacial silt reducing sunlight for plankton productivity which reduces food for salmon smolts. This could include a "what if?" or another question focusing on the potential impacts of climate change.

What's the Difference?

Use an image of a farm raised salmon and wild salmon as a lead-in to focus on the differences and the importance of wild genetic stock for providing resilience in a world with rapid climate change. Include a "what if?" relating to losing wild genetic stock.

Other Suggestions

The following are supporting stories that could be used in addition to or instead of the ones already identified.

- Use of the rivers has changed over time. Riverine Kachemak people lived on the Kenai (and probably Kasilof) and probably used drift nets in quiet backwaters for fishing. Dena'ina lived on main stems at mouths of side streams and used weirs and traps. They also fished through holes in the ice for rainbow trout which, seem to have been more important at the mouth of the Skilak river than salmon.
- The health of Kenai rivers and streams are linked with the health of Cook Inlet and the ocean.
- Non glacial rivers are the most threatened due rising water temperatures due to warming climate.
- Stephanka was a stronghold of traditional Dena'ina values well into the 20th century and still retains enduring symbolic value in traditions and cultural beliefs of the Dena'ina. The site establishes a tangible link between traditional legends and stories pertaining to Skilak Lake, and it symbolizes a former lifeway no longer practiced.
- The USFWS has a hand-drawn homesteaders map showing a "cultural landscape" with stories around Skilak Lake.
- Chickaloon Flats serves as a harbor seal haulout, beluga whale habitat, and migratory bird habitat. It is the only place the refuge connects with the ocean. It appears desolate but in actuality is rich.
- The following is from the National Register of Historic Places nomination for Stephanka, which is at the outlet of Skilak Lake on the lower Kenai River.

*The most important local subsistence resource is the salmon (*Onchorhynchus* spp.). The Kenai River supports two annual runs each of king, silver and red salmon. Rainbow trout and other resident fish were also important in the past. Several factors of river geography concentrate resources in the Stephanka area. Salmon spawn in shallow waters and are most accessible to humans at the mouths of clear water tributaries, like the Killey River at KEN-036, and in other areas with sand bars and shallow riffles. One of the largest such areas is just downstream of the outlet of Skilak Lake. This area is also an important waterfowl nesting and feeding area.*

Follow the Salmon Trail

Location

Associated with the *Zones of the Kenai* exhibit beginning in the Mountain Tundra Zone and continuing around the exhibit island to culminate in an exhibit element on the inside wall near the exit.

Objectives

After finishing interacting with this exhibit, visitors will:

- Be able to name at least 4 species of wildlife that use salmon as a food source
- Understand the concept 'salmon grow trees' by understanding the critical role of salmon in nutrient cycling
- Understand that salmon is and always has been a key to the vitality of the Kenai and the lifestyle of those who live here.

Key themes

Sub-theme 1-1: Everything in an ecosystem is linked. Impacting one component affects all other components in that system.

Sub-theme 1-2: Every part of an ecosystem, including the forces that shaped and continue to shape it, play an important role in nutrient cycling, which is a key to the health of that ecosystem and the subsequent conservation of healthy populations of fish and wildlife.

Design Concept

This exhibit is designed to:

- Portray all stages of the salmon life cycle
- Highlight humans, wildlife and birds that depend on the salmon
- Highlight the role the salmon plays in nutrient cycling.

The 'trail,' which could be a trail of salmon on the floor and/or in the River Zone, or some other visual element designed so children can locate and follow it. The trail would begin in a location adjacent to or on the *Zones of the Kenai* reflecting the highest elevation that salmon spawn, and continue through all the zones to a final exhibit component near the exit from the Exhibit Hall. Using the same approach of using questions with images associated with a reveal to 'discover' information, the components of the exhibit would be used to depict salmon at each stage of their life cycle and what feeds on them. The components could also include human impacts, such as bank trampling and the use of power boats, which affect the water quality of the Kenai/Kasilof watersheds. Information about a specific impact should include a focus on positive measures being taken, such as the interagency partnerships protecting riparian areas at Moose Range Meadows and the confluence of the Kenai and Russian Rivers, and the switch of boat motors from 2-cycle to 4-cycle engines. The behaviors depicted should not be dominated by the negative ones, but should include people engaging responsibly in activities on the refuge.

At the end of the Northern Boreal Forest Zone the salmon leave the refuge and enter the 'ocean,' depicted in some way within the exhibits and/or Exhibit Hall, such as by changing the color of the floor and changing the backdrop on the exhibit island to one with offshore rocks and a coastline. The salmon trail continues so visitors can 'discover' what happens out in the ocean, including being harvested.

The exhibit culminates in a major component, located on the island near the exit, which focuses on the importance of salmon when they return to land. That component could use the same approach as used for the *Zones of the Kenai* exhibit with a combination of images and three-dimensional elements to reflect the River Zone within the Northern Boreal Forest Zone and extending to the highest point that salmon spawn. The trail continues to that point with exhibit elements along the way highlighting the use by humans as a source of food, recreation, and income from sport fishing. Personal testimonies by different people could be used to emphasize the importance of salmon in their lifestyles.

Wildlife that use salmon as part of their diet, whether predators or scavengers, will be a major part of this exhibit component. Visuals and text will focus on the concept that 'salmon grow trees' by tracking nutrients from the ocean, through the various predators and scavengers, and on through the ecosystem, where they nourish vegetation.

The event of salmon returning should come across as a key to the rhythm of the Kenai. The millions of salmon that return every year have provided and continue to provide a major source of food for many residents and a rich supply of ocean nutrients critical to the health of the system.

Where Am I?

Location

See Figure 2

Objectives

After visitors finish interacting with this exhibit they will:

- Be able to name several species of wildlife that use different zones at different times of the year
- Be inspired to go out on the refuge to see wildlife or signs of wildlife

Key Themes

Sub-theme 1-7: Many species of fish and wildlife require resources from several zones to survive and thrive. Some require resources from places not on the refuge.

This exhibit, designed for children, focuses on species moving to different zones at different times of the year because of the need for different resources at different times of the year. This supports the concept that all parts of the refuge are necessary for a species to survive.

One approach is to use a "Where's Waldo" type of opportunity where visitors have to search an image depicting different zones to find different species or signs of species (identified in a key) that are somewhere on the image. The wildlife should be engaged in an activity reflecting whatever brought them to that zone. Ideally the scene could be changed to reflect different times of the year, which would change the zone in which many of the species are present so in searching for the same species a participant would realize that different species are in different zones at different times of the year. The ability to change the scene is likely to require an electronic element. The exhibit can be made more elaborate by creating the option of using some type of trigger (such as a button) to find out why a species is in a particular zone.

Are You Connected to the Kenai Refuge?

Location

See Figure 2

Objectives

After finishing interacting with this exhibit, visitors will:

- Know if they are connected in some way to the Kenai NWR or one of the other refuges in Alaska
- Value the Kenai more because they feel more connected

Key themes

Sub-theme 5-5: People from outside the area are connected to and affected by the Kenai NWR and the fish and wildlife that thrive there.

Design Concept

The focus of the exhibit is to move visitors intellectually outside the refuge boundaries and to create links to their lives and lifestyle. This can be as simple as noting that the water they drink in Soldotna or the salmon they eat in a local restaurant comes from the Kenai, to buying salmon in their home town that comes from Alaska or being in a place that is connected through migratory birds.

One possible approach is to use a map of the world as a backdrop for highlighting the many ways that people are connected. It could include the system of National Wildlife Refuges and the routes and stops of species of migratory birds that use those refuges. The connections should include salmon ending up in supermarkets in places around the US, hunters harvesting migratory birds, bird watchers, people simply enjoying migratory passerines in their back yard and any other ways in which people are connected.

In addition to being able to see, visually, if they are connected, Visitors can punch in where they are from and a computer will tell them what species of birds from any of the AK refuges pass through or spend time in that area. This exhibit could also show all the stops of the migratory birds, from the Alaska refuges that provide the large, undisturbed nesting and staging areas that are vital for hundreds of species of birds, to the wintering grounds, with all the stops along the way, especially the wildlife refuges. This would highlight the National Wildlife Refuge System and the importance of having a system of refuges to support migratory birds.

Worth Protecting!

Location

See Figure 2

Note: *This exhibit should probably be located near the end of the exhibit sequence to reflect the sequence of focusing first on making people value the resource before presenting the threats to that resource. If they don't value it, the 'threatened' message won't have much impact.*

Objectives

After visitors finish interacting with this exhibit, they will:

- Be able to name at least 3 specific threats to the intact ecosystem other than global climate change
- Feel that the situation is not hopeless
- Feel empowered to engage in behaviors that make a difference
- Understand that impacts from urban encroachment are one of the major threats to the refuge

Key themes

Sub-theme 1-6: Impacts due to human actions both within and outside the refuge can be detrimental to the natural ecosystem so they must be managed and mitigated.

Sub-theme 4-1: Individuals have and continue to contribute significantly to the protection of the fish and wildlife of the Kenai NWR.

Sub-theme 4-2: Because individual actions add up incrementally to significant impacts, you can play an important role in maintaining natural resources.

Design Concept

The concept is to depict the threats to the intact ecosystems and the rest of the refuge, but without giving the impression that the situation is hopeless. To do so it needs to include the positive and successful efforts to deal with threats. It also needs to get across that individuals and the public in general in addition to the USFWS are already engaging in actions to deal with the threats.

One possible approach is to use an image of the refuge in the center, surrounded by two rings of images. The outer ring of images would reflect the different threats. The inner ring of images, corresponding to each of the threats, would reflect what is being done to counteract those threats. The idea is to depict those actions as standing between the threat and the refuge as a line of defense. For example, between the refuge and an image of an invasive aquatic could be a person washing their boat. The efforts could include cooperative partnerships between agencies, partnerships with communities, education programs, research and other actions. Each threat and strategy for meeting that threat will have a short explanation. "What if?" questions can be included that reflect the impact on the refuge and its inhabitants if the threat materializes. Publications related to actions that can be taken by an individual to prevent invasives and help meet other threats should be available at this exhibit.

The primary text block should note that the Kenai stands out among refuges in Alaska due to accessibility, thus it presents the greatest challenges to maintain the intact ecosystems in the face of urban growth and other factors associated with accessibility, and the greatest opportunity to educate people about those threats and what they can do to help protect the intact ecosystems. Care must be exercised in choosing which threats to present because most are politically charged. Ideally, those that focus on specific actions that visitors can take, such as wearing the right kind of waders and washing your boat before using it on the refuge, would be included. Care must also be exercised in describing those potential threats for the same reasons. The approach should attempt to be informational rather than confrontational and focus on the negative impact of the action, what is being done and what people can do.

The following is a list of possible combinations of images reflecting threats and possible strategies for meeting that threat could be included. The final determination of what to include will be made during design development by the USFWS as well as the images to portray the threat and actions being taken to counteract the threat.

Image and/or threat represented	Possible associated image reflecting what is being done to counteract the threat
Oil and gas exploration	
Boat (aquatic invasives)	someone washing their boat
Anglers in felt soled waders (aquatic invasives)	angler wearing an acceptable wader
Dogs of local residents killing a young moose	
A resident shooting a bear (DLP shooting)	(The information associated with this combination should make people aware that the range of many species of fish and wildlife extend beyond refuge boundaries and the protection it affords.)
Noise pollution, such as from a jet	
A truck (invasives - insects, seeds, etc.)	
Global climate change	Image representing research
Run off from local lawns, driveways, and parking lots	Images of people engaging in behaviors that prevent such runoff
Fires due to carelessness	Education programs
A mass of hunters	A lesser number of hunters and/or working relationships between agencies (The intent is to reflect the conflict between demands of users and managers, but also that not all hunters are in favor of more harvest.)
A collision between a moose and a vehicle	(The information associated with this combination should make people aware that the range of many species of fish and wildlife extend beyond refuge boundaries and the protection it affords.)
Commercial harvest of salmon at sea	Rules and regulations

'What You Can Do' opportunities

Note: *This includes the strategies for interpreting the conservation measures implemented in the design and construction of the building.*

Rather than creating an exhibit containing all this information, it is spread out through the exhibits and condensed within publications available in several locations. This approach was used because of the worry that only those who were highly motivated would spend time on an exhibit of this type. However, the design process could lead to the conclusion that a dedicated exhibit is preferable.

We envision the following as opportunities that would be available:

- Specific exhibit components within all the exhibits highlighting people engaging in appropriate behaviors.
- Individual actions included in the "We Are Under Siege!" exhibit
- Didjacks at appropriate locations around the facility highlighting the conservation measures used in the design and construction of the building, with emphasis on those that can be adapted for use by homeowners. The components focusing on energy saving and conservation strategies associated with the building should, if possible, be built into the building.
- A publication or series of publications focusing on what people can do. These could be separate publications as is the case now with a publication on invasives, one on No Trace Camping and so on, or the information can be combined into a single publication. Key topics would include invasives, how to conserve energy in your home, No Trace, living in bear country (which would include proper disposal of trash and how to avoid situations that would result in a DLP killing of a bear), and other publications addressing specific topics.

Back Terrace / Interpretive Trail Experience

Overview

Visitors exiting through the terrace doors will find themselves on a terrace area that connects with the beginning of the interpretive trail and the trail system. An exhibit on firewise landscaping will be located somewhere in this area, but in such a way as not to interfere with the view from the interior of the building. The interpretive trail will be a short loop designed to minimize elevation gain and loss to avoid a focus on physical exertion rather than on the interpretive opportunities.

Summary of Strategies

- Firewise exhibit
- Interpretive Trail

Descriptions/Concepts

Firewise Exhibit

Location

TBD - depends on the final design and layout of the terrace

Objectives

After interacting with this exhibit, visitors will:

- Use firewise strategies at their home

Design Concept

This opportunity is based on firewise measures that can be demonstrated in this area through manipulation of the vegetation and landscape. The actual strategies to be depicted will be identified during the design development process as the actual location of the building and the associated modifications to the surrounding landscape become clear.

An interpretive panel would provide overview of the strategies for "Living with Forest Fire." An associated publication would contain the specific information necessary to apply the strategies.

Note: We recommend this as an outdoor exhibit because of the opportunity to show firewise landscaping. Although we have that same opportunity if we use windows within the exhibit area, the subject does not fit well in the flow of interpretive information.

Northern Boreal Forest Interpretive Trail

Location

TBD

Objectives

After interacting with the interpretive opportunities on the trail, visitors will:

- Be inspired to hike other trails on the site and in the refuge
- Be motivated to continue to apply information learned in the visitor center and on the trail to being a 'Detective of the Landscape.'
- Want to return at other times of the year to see what has changed

Themes

Sub-theme 1-1: Everything in an ecosystem is linked. Impacting one component affects all other components in that system.

Sub-theme 1-2: Every part of an ecosystem, including the forces that shaped and continue to shape it, play an important role in nutrient cycling, which is a key to the health of that ecosystem and the subsequent conservation of healthy populations of fish and wildlife.

Design Concept

Specific interpretive opportunities along the trail will depend on the features available for use as focal points, but the focus will be on reading the landscape to discern connections, especially between flora and fauna. Ideally the trail would pass by evidence of wildlife, such as claw marks on trees, cone stalks and scales, woodpecker holes and other such features that could be used to emphasize that the area is filled with wildlife even if it can't always be seen. The interpretation would be offered by an introductory overview panel located at the trailhead and visible from the terrace. The panel would highlight the route and what could be discovered along the way. Additional interpretation would be provided by an associated trail brochure.

Appendix A: Methodology

The planning process began with a grant to Alaska Geographic on May 20, 2012 and concluded with the submittal of the Final Plan on October 31, 2012. The time frame was shorter than is typical due to time constraints and other circumstances affecting the process.

The process for developing the Plan occurred in two major phases:

Phase I focused on establishing the foundation information on which the planning decisions were based. Foundation information included goals and desired outcomes, profiles of target audiences, parameters affecting the development and functioning of interpretive opportunities, and identification of the key messages (themes) to communicate.

Phase II focused on identifying the interpretive strategies to be included and developing the design concepts for those strategies.

Phase I began with research and review of information related to goals, themes, parameters, target audiences and interpretive opportunities. This included work sheets on desired outcomes and themes filled out by USFWS staff on the refuge and in the regional office. The information was developed into a preliminary draft of goals and themes along with key foundation information that would affect the plan (audiences, parameters and opportunities).

Following review of the preliminary draft, the contractor met with USFWS personnel from the refuge and regional office, at the Kenai NWR headquarters, to review and discuss the information. The work session included a trip to visit and assess the Islands and Oceans Visitor Center in Homer, and an in-depth discussion of goals, themes and the spatial relationships of the visitor areas within the new facility.

The work session was followed by revisions to and consequent approval of the themes and sub-themes, extensive information gathering and evaluation of potential stories by USFWS staff, and preparation and submittal of a draft plan, which included the prescription of the interpretive opportunities included in the interpretive network, and the concept for and description of each of those opportunities. The potential stories identified by the staff were incorporated into the theme hierarchy as examples of supporting stories for specific themes and sub-themes.

The draft plan was reviewed again by field and regional office staff members. The feedback was compiled and edited by the Project Manager and sent to the contractor to incorporate into the final document. The draft was modified as requested and submitted.

Appendix B: Background Information

Target Audiences

Introduction

Information is a commodity; people have to buy it with their time, a highly valued personal resource. Since different people "buy" different communication experiences, it is important to identify and then profile the specific target audience(s) you want to reach.

Based on the goals, input from the work sessions, research on comparable sites, and on experience with other interpretive planning projects in general and in Alaska specifically, the following appear to be the key audiences for the interpretive network. Although overlap exists, such as a resident who is also activity-oriented, each audience has distinct characteristics that help guide development of an effective network. Just because a group is not identified does not mean that they will not be served. It just means that no additional information related to that group was necessary to help develop the plan.

Key Target Audiences

Local Residents. From an interpretive perspective, local residents will typically have more extensive knowledge about Alaska in general and the area specifically, a more extensive knowledge of the impact of the USFWS on lifestyles in the state, a higher potential for repeat visitation, a higher level of awareness of the Kenai NWR specifically, and are more likely to be affected by actions of the USFWS .

Alaska residents: not local. This refers to all other leisure-oriented travelers from Alaska, such as vacationers and day-trippers, and also other travelers with some discretionary time to spend, such as business travelers and people visiting friends or relatives in the area. Key characteristics include a more extensive knowledge of Alaska and of the impact of the USFWS on lifestyles in the state, but not necessarily a knowledge of the Kenai area.

Out-of-State visitors. The key characteristics of visitors in this category include a lack of familiarity with the unique aspects of the state and lack of experience around wild animals. These visitors are also not as likely to be as aware as residents of this state of refuges and the USFWS.

Activity-oriented visitors. This includes hikers, anglers, snowshoers and others who are focused on their activity. The key characteristic is the priority for an activity which consumes most if not all of their attention, thus rendering interpretation as a competing opportunity during the time periods when they can be engaged in their activity or preparing for that activity.

Tour groups. The key characteristic of this audience, which applies to most organized groups, is the number of people to be served at essentially the same time.

Note: Educational groups, such as field trips from the local schools, have not been included because the Kenai NWR already has an extensive high quality environmental education program developed for groups and schools in the area and facilities to serve this audience.

Universal Characteristics

Regardless of the target audience, it must be assumed that all preferred learning styles and all physical disabilities will be represented. It also must be assumed that children will be a part of any audience. Consequently the following characteristics must be considered.

Preferred Learning Styles

The suggested number of different learning styles depends on the model. The most common model has 3 - visual, auditory and kinesthetic; others have more. Since the audiences are voluntary, offering information in the preferred learning style of the participant is more likely to be successful; if they are uncomfortable it is likely they will choose not to participate. Since all learning styles are likely to be represented in any one group, optional learning environments should be created to accommodate each group. For example:

Hands-on. Set up an environment where visitors can work ideas and concepts out for themselves.

Observation: Set up an environment where visitors can collect, analyze and reflect on information to come up with a concept. That information can be presented in a myriad of forms, such as images, sounds, text, scents, and textures. It can also be presented in person, although interaction should not be forced.

Social: Most people visit in groups within which social interaction in relation to the information being presented will occur. Create opportunities for groups to discuss ideas. Also, if possible, create an environment with the option of asking someone questions.

Those with disabilities

The intent of ADA provisions is to promote equal access to the built environment, and to information, for those with impairments. Braille and audio supposedly address the needs of those with visual impairments; elevators, lifts, grade and surface of trails, and other modifications to the physical environment address the needs of those with mobility impairments; and visuals and text address the needs of those with auditory impairments.

Using a Universal Design Approach, which focuses on creating experiences that can be enjoyed by all parts of the target audience, including those with impairments, involves integration of multiple delivery strategies that include all senses. The result is an overall experience with opportunities that meet the needs of the few while enhancing the experience of everyone.

A Universal Design Approach also benefits our aging population because it is physical limitations, such as deteriorating eyesight, hearing and physical capabilities, that are the core of the issues that seniors have with interpretive and recreational experiences, not their age.

Children

Children are a challenge because they have limitations regarding learning in the same way adults. Whereas adults can learn by processing incoming verbal information based on past experience and existing knowledge, children up to around the age of 8 do not have a vast storehouse of existing experiences and knowledge. Consequently they are primarily focused on acquiring information firsthand. Since they have not completely mastered the symbol system we call “language,” they use a human’s primary information-gathering tools – their senses – to explore their environment. Therefore, opportunities to touch, smell, taste, see and hear are critical to an effective experience for children. This is an important point because we often focus on the need for activities to be interactive, and believe we have accomplished our goal if they can push buttons. Although the opportunity to interact in such a way increases the attraction power of an opportunity, if it is not an opportunity to discover information using senses, it is not nearly as effective in terms of gathering and processing information.

Profiles of key audiences

The following are key characteristics of the target audiences relevant to the interpretive network, and the implications with respect to the interpretive program for the Visitor Center.

Note: *Including an implication does not suggest that the Kenai NWR has not already addressed that potential issue. Rather it is to ensure that readers of the plan recognize that what the KNWR staff are already doing is important to the overall interpretive program.*

All Visitors

Key Characteristics

- All visitors will expect anyone associated with the refuge to answer basic questions regarding basic cultural and natural history of the refuge.
- Most visitors will expect to have good opportunities to see wildlife, especially mega-fauna (Where can I see bear? Moose?).
- Visitors from every audience will expect orientation information to interpretive and recreational opportunities in the surrounding area (what is there to do around here?), especially opportunities with a similar focus as the refuge (where else can I see wildlife?).
- A significant percentage of visitors can be reached using social media such as Twitter, Blogs and Facebook.
- A significant percentage of visitors are comfortable with and prefer using new technologies such as vodcasts, podcasts and GPS-based tour programs.
- Many travelers plan part of their trip, including general itinerary, prior to arriving. Many will use the INTERNET to access information in order to plan.
- People tend to visit in groups, typically family or friends. Families and other similar groups have a variety of educational levels within the group.
- Families tend to visit more often in summer months, when most schoolchildren are on summer vacation. Older visitors are better represented in the shoulder seasons.

Implications

The following are key implications of these characteristics:

- All on-site staff need to be able to answer basic questions and direct visitors to on-site locations where they can obtain additional information.
- New media should be used as part of the information delivery network when appropriate to the audience and situation.
- Orientation and wayfinding information is a priority.
- Interpretive opportunities such as signs and exhibits should be designed to accommodate at least small groups.
- The interpretive program should provide opportunities that allow all members of a family or group to be involved at the same time and place, despite having different educational or experiential backgrounds. This can be accomplished by providing several opportunities in one location, each catering to a different educational level, or a single strategy that is designed in such a way that everyone in the group has an intellectual entry point into that exhibit.
- Parts of the interpretive network should be able to be easily changed to take advantage of seasonal changes in audiences.

Out-of-State Visitors

In addition to the characteristics noted for all audiences, the following are key characteristics of many visitors from outside Alaska that have impact on developing the interpretive network.

Key Characteristics

- They may believe that Alaska is so full of wildlife that they will see moose, bear, caribou and other mega-fauna almost anywhere, but especially on a wildlife refuge. They may also expect to see concentrations of wildlife such as they might see at Yellowstone National Park.
- Many will have both an inflated fear of recreating in the outdoors in Alaska, and a naiveté regarding how to behave to avoid encounters and how to behave during encounters.
- Many may not have experience with wildlife refuges. In addition, those that do are likely to have experienced small refuges that have a distinct entry and have obvious features associated with their purpose (such as a marsh in a migratory waterfowl refuge). In other words, the Kenai NWR is not likely to be what they expect.
- Most will be driving rental cars and may be reluctant to take their vehicles on dirt or gravel roads due to restrictions imposed by rental car agencies.
- Many will not be prepared for the remoteness of the area and distance between towns/cities and services.
- Many will not be as aware of the USFWS and Alaska refuges as residents of AK.

Implications

The following are key implications of these characteristics:

- Information on recreating safely in bear and moose country is a high priority.
- Pre-trip information focused on traveling and recreating in AK is a high priority.
- The interpretive network should not assume an awareness of the size and characteristics of wildlife refuges in AK.
- To the extent possible, the interpretive network should try to connect out-of-state visitors to refuges near where they live.

Residents

Key Characteristics

In addition to the characteristics noted for all audiences, the following are key characteristics of residents in general that probably apply to residents of the surrounding area and should be considered in developing the interpretive network.

- Residents often have specific times when they could participate in interpretive opportunities, such as in the evening and during weekends. They are also present year-round.
- Residents have a higher potential to be repeat visitors.
- Residents often prefer more in-depth material if about the area, and/or can handle more in-depth material because of familiarity with an area and local issues.
- Residents are often interested in local issues, such as problems with invasives and issues with watersheds, because of direct impact on their lifestyle.
- Many will be coming to the Visitor Center for other reasons, such as to obtain permits.
- Residents are more likely than people from outside AK to be aware of and have a connection with the USFWS and the Kenai NWR because of impact on their preferred lifestyle.

Implications

The following are key implications of these characteristics:

- Serving residents effectively may require programs specifically designed for this audience or a segment of this audience, and scheduled at times they can attend.
- New material and programs need to be developed continuously to take advantage of the opportunity for repeat visitation from this group and to address issues that come up.
- Off-site and on-site outreach to specific visitor groups might be considered in a variety of formats if the delivery of targeted interpretive and resource management messages is a priority.

Activity-Oriented Visitors

Activity-oriented visitors are those engaged in activities that occupy most, if not all, of their attention on a relatively constant basis, such as angling. Although many other visitors are oriented toward specific activities in the refuge, such as bird watching, camping, nature study and photography, interpretive opportunities are more compatible with those activities because they are complementary rather than competing for time and attention. In contrast, anglers and other activity-oriented visitors are more likely to view interpretive opportunities as taking time away from their desired activity.

Despite the apparent lack of compatibility of interpretation to the desired experience of this group, it is an important group because of the potential of members to have negative impacts on the resources.

Key Characteristics

The following is a list of characteristics shared by many visitors who fall into this category that have impact on identifying and designing effective interpretive opportunities.

- Activity-oriented users often desire orientation information focused on their activity, such as a map of trails or photo points.

- Activity-oriented visitors typically have time available during periods when they cannot or are not likely to engage in their primary activity, and do not need to prepare for their activity, such as in the evenings.
- These users may have others in their group who are not engaged in the activity and are looking for other activities to occupy their time.

Implications

The following are key implications of these characteristics:

- Interpretive information coupled with activity-specific orientation information to reach specific users may be effective in capturing interest.
- Interpretive opportunities fitting the 'free' time of such visitors are likely to be more effective.

Tour Groups

Key Characteristics

The following are key characteristics of tour groups that should be considered in developing an interpretive program.

- They are often on a set time schedule and want to get as much out of a visit as possible.
- Group size often exceeds the capacity of any single interpretive opportunity, thus reducing the effectiveness of that opportunity.
- Groups need a staging area as a focal point for organizing and orienting members prior to a visit and for gathering at the end of a visit.
- Groups often arrive in buses.
- Specialty group tours are becoming more common and commercialized (photography workshops, birding trips, etc).
- Because they are organized, the potential to reach this audience prior to arrival is high.

Implications

The following are key implications of these characteristics. Many of the implications relate to the infrastructure necessary to serve this audience.

- Infrastructure needs/desires include staging areas; facilities with multiple fixtures; parking and turn-around space for large vehicles (buses); and covered or indoor areas for eating lunch. Large flat areas along interpretive trails (teaching stations) are also popular with educational groups.
- The interpretive program should, if possible, offer at least four opportunities of approximately the same length in the same general area to allow large groups to be split into several smaller groups and pulsed through the site.
- To be most effective, a visit by an organized group should be run on a well-organized schedule, with no waiting and with clear directions.
- Pre-visit materials may be effective in creating a user-friendly on-site experience and an interpretive experience focusing on the landscape through which the group passes to reach the Visitor Center.

Parameters

Introduction

Parameters are those conditions under which an interpretive program must be developed, such as monetary constraints, and under which it must function, such as climate. Identifying parameters ensures selection and development of interpretive and wayfinding strategies and infrastructure that are effective and realistic, not idealistic. The following section contains key parameters that could affect the interpretive program at the Kenai NWR Visitor Center. In reviewing the parameters, it is important to remember that they represent what is, not what should be or what is desired.

Key Parameters

Budget

B-1: Funding is likely to be adequate for ongoing operation and maintenance. Hi tech delivery options can be considered.

B-2: The USFWS enjoys a good relationship with Alaska Geographic, a non-profit organization with resources. Partnership opportunities are a possibility if funding for a specific project is limited.

Staffing

S-1: Staffing for interpretation and orientation is available year round. Personal interpretation should be a key part of the program.

Vandalism and Theft

V-1: Vandalism and theft are potential issues. Outdoor signage, kiosks, brochure racks and other structures should be constructed of vandal-resistant materials.

Environmental Conditions

E-1: Weather can be harsh. Outdoor signs and structures must be constructed of materials resistant to the weather conditions.

E-2: Daylight lasts longer than the VC will be open during the primary tourist season. Information for basic trip planning and thematic overview needs to be available when the center is closed.

Physical Infrastructure and Layout

PI-1: An obvious entrance to the refuge does not exist. Other strategies must be used to make the refuge "visible" to visitors as they pass through and next to the refuge.

PI-2: The existing environmental education building will continue to be used for that purpose.

PI-3: The existing contact station will no longer be used for that purpose.

PI-4: The interior setting will allow use of specimens, artifacts, technology, and other exhibits that are not appropriate in an outdoor setting.

PI-5: A trail will connect the new Visitor Center to Headquarters Lake and to the existing interpretive trail.

PI-6: The new Visitor Center will have a bookstore operated by Alaska Geographic.

Location and Access

LA-1: The new Visitor Center is on the west end of the refuge while most people will enter the refuge from the east. To the extent possible, visitors have to be contacted prior to reaching the west end of the refuge.

LA-2: Only one highway accesses the part of the Kenai Peninsula in which the Visitor Center is located. It can be assumed that most visitors will experience with the landscapes between Anchorage and Soldotna both prior to and after a visit to the Center.

LA-3: Most visitors will arrive by car or RV. Interpretive strategies effective while traveling in a car, such as an auto tour, could be effective.

LA-4: Access to the Visitor Center is on a dirt/gravel road, which is an issue for people renting cars.

Policy and Legal Issues

PL-1: All operations must comply with ADA rules and regulations. All information presented within the interpretive network will be accessible in some way for those with disabilities.

PI-2: USFWS has policies and regulations (plans) governing the use of Flickr, YouTube, Facebook and Twitter.

Safety Issues

SI-1: People are at some degree of risk regarding encounters with bear and moose. Education about safety will continue to be a high priority.

Surrounding Attractions and Opportunities

SA-1: The Islands and Oceans Visitor Center is located in Homer. The interpretive opportunities in the new center should attempt to complement, not duplicate what is in that Visitor Center.

SA-2: Soldotna and Kenai both have visitor centers. It is possible that a partnership could be developed to provide an opportunity to increase visibility of the Center and the refuge through exhibits or other materials located at these centers.

Other

O-1: The new Visitor Center has cell phone reception. Opportunities requiring cell phone technology should be considered.

O-2: The refuge is very large with most of it in Wilderness and relatively inaccessible.

O-3: Most of the refuges in AK are not as accessible as the Kenai (it is the most visited USFWS refuge in AK). Interpreting the story of all USFWS refuges in Alaska may be an important focus.

O-4: The obvious focal point of interest (wildlife) is not easily viewed.

O-5: It is not obvious why this is a set-aside (unlike a National Park or a refuge with a marsh, etc.).

Interpretive Opportunity/Story Inventory

Introduction

The inventory and selection of primary stories is based on two key factors - the presence of evidence to support a story, especially visual evidence that occurs in the surrounding environment, and the goals of the USFWS. In reference to interpretation, people generally become more interested in a subject when they can *see* something related to it, and they are more likely to believe what they see than what they only hear or read. Therefore, the more an interpretive opportunity connects with and uses actual artifacts, specimens or features in conveying information, the more effective the opportunity will be. The inventory of interpretive opportunities within the context of Interpretive Planning focuses primarily on inventorying features available for use as supporting visuals for interpretive opportunities in order to develop themes and storylines based on what visitors can *see* or *experience*. We assume that artifacts or specimens, if necessary, can be obtained for the Visitor Center so this inventory focuses on the stories that can be reinforced after visitors leave the new facility.

In reference to supporting the goals of the USFWS, the key focus is on visitor behaviors that lead to conservation. For people to conserve a resource, and/or support an agency engaged in managing an area to conserve resources, typically requires the following:

1. They must value the resource
2. They must recognize that it is threatened
3. They must understand what is required to save that resource
4. They must believe that you [the agency] is doing everything it can but that it needs help.
5. They must know how they can help coupled with the belief that their efforts will contribute.

The themes and primary stories both reflect the need to provide information that moves a visitor through this sequence.

Primary Stories

Based on the themes, prominent visuals, human history, current situation, and the focus of the USFWS on conserving fish and wildlife in their native habitat, the interpretive network should focus on the following stories. They are not the only stories, but they are the major ones.

The importance of intact ecosystems (and the designated Wilderness) in maintaining healthy populations of fish and wildlife.

This includes the following key sub-stories:

The critical role of habitat in the survival of wildlife

The link between a species and its habitat is a basic biological concept that people must understand in order to understand the importance and management of refuges. It is the basis for explaining management actions such as not feeding moose during a harsh winter. (This story focuses on communicating what must be done to save wildlife.)

Predators as an important part of intact ecosystems

Predators, like every component of an intact ecosystem, play a role in maintaining the health of that ecosystem and all its inhabitants.

Fire as natural and important part of the ecosystem

It is difficult for many people to see fire as a force that contributes significantly to the environment that they see and enjoy, which often leads to criticism regarding fire management. Telling this story effectively could lead to increased understanding of, and consequently, support for, the fire management policy of the agency. As with invasives, although this is an important story, it is secondary to the understanding of the link between wildlife and habitat because if they do not understand that concept, they will not understand the role and importance of fire.

The critical role of wildlife refuges in maintaining healthy populations of fauna

Understanding that wildlife is threatened due to loss of habitat combined with human impact (harvest) will set the stage for telling the story of the role and importance of refuges in species survival. (This story focuses on what the USFWS is doing to save wildlife.)

Human relationship with the fish and wildlife of the Kenai

This story encompasses the cultural history of the area from the perspective of the importance of fish and wildlife in the lifestyle of different cultures, and the increasing impact directly on wildlife through harvest and indirectly through degradation of habitat. One key to telling this story is to avoid the "doomsday" approach popular with the media. That approach leaves people feeling as if no solution exists and nothing they do can help the situation. Consequently, they do not make changes in behavior that could help the situation. (This story focuses on establishing personal value and making visitors aware of the threats to wildlife.)

Invasives

The issue with invasives, or exotic flora and fauna, is not new, but rather an ongoing concern that started decades ago. The USFWS has aggressive campaigns in place for eliminating invasives because if they were allowed to flourish, wildlife habitat and native ecosystems would be degraded significantly. The problem can be exacerbated by visitors because they can carry seed on their clothing, pets, cars, boats and other recreational equipment. Consequently, it is an important story to tell in itself. But it is also important from the perspective that taking care of the problem involves individual actions that visitors can easily engage in and that can be shown to have positive impact.

The role of the public in maintaining healthy populations of fauna

This is the "call to action" part of the presentation. It focuses on what people can do, on an individual basis, to help.

Recreating safely in Alaska (bear country, moose country, etc.)

This is not really a "story," but rather one of the key focal points for the interpretive opportunities within the new Visitor Center.

Existing Features and Stories

A key issue in telling the primary stories at this refuge is that they are difficult to "see" in the landscape. The typical visitor - especially one from the lower 48 - will have a hard time seeing loss of habitat from driving through what appears to be untouched, natural landscape with forests, lakes, and rivers. This situation is not helped by reference to Alaska as the 'last frontier,' which implies a much more natural state than other parts of the U.S. It is also difficult for them to "see" reductions in wildlife populations, impacts of invasives and impact of humans for the same reasons. Effectively communicating these stories requires either seeing an area change over time, which is difficult to see in the landscape unless a person has been visiting the same area for many years, and/or seeing the area within the context of the region or a larger area. For these reasons, the Visitor Center is much more important as a focal point of the interpretive network than in places where the story is clearly visible in the landscape, such as at Arches NP, Crater Lake NP and even refuges with key habitat that is clearly visible and identifiable, such as a marsh. That does not mean the story should not be told outside the Center; it just means that the exhibits and interpretive opportunities within the Center must take on more of the load of communicating with visitors so they can "see" these stories.

The situation is exacerbated by the fact that most of the refuge is not easily accessible and will not be visited by most visitors to the area. The best location for pointing out evidence to support the key points is along the highway from Anchorage to Homer. In terms of percentage of visitors, the next most visited site on the refuge is likely to be the Visitor Center. A much smaller percentage will visit Skilak Lake Recreation Area, which probably has the best, easily accessible features (such as burn scars) available for communicating many of the stories. This is not to say that features off the refuge, such as those visible along the highway not in the refuge, cannot be used to communicate key concepts. However, care must be taken when directing people to off-refuge locations.

The following table reflects the key locations within the refuge that have been identified by USFWS personnel where visitors can, with help, "see" parts of the story, and the stories most appropriate for that location.

Note: Although visitors can be shown relationship of habitat to wildlife in almost any location, the locations listed are ones that people already visit.

Note: The table does not include what could be brought in to the refuge and displayed outdoors or indoors in the Visitor Center.

Site	Key features	Key stories
Skilak Lake Loop Road	Burn scars	Moose habitat Fire as important part of ecosystem Variety of ecosystems
	Lake	Importance of 'edge' in an ecosystem Relationship of habitat to wildlife Watersheds and water quality Issues with aquatic invasives
	Cabins	Value of undisturbed landscape with wildlife
	Progression of ecosystems	Relationship of habitat to wildlife
	Signs of wildlife	Relationship of habitat to wildlife

Russian River Ferry	Combat fishing	Impact of humans on ecosystem Safety in bear country Watersheds and water quality
Visitor Center site	Headquarters Lake	Importance of an 'edge' in an ecosystem Relationship of habitat to wildlife
	Signs of wildlife	Relationship of habitat to wildlife Importance for migratory birds

Appendix C: Message (Theme) Input

The following input was gathered during a workshop on May 8, 2012 by asking USFWS associated with the project to fill in the blanks in the following question:

After learning about _____ (topic) _____, I want visitors to know that _____ (theme) _____. To help them understand I would take them to _____ and point out _____.

Topic	I would want them to know that . . .	I would take them to . . . and point out
Kenai watershed	The water connection story is linked to all ecosystems on the Kenai Peninsula	Hidden Creek Overlook and point out how the ice field feeds the river and lake that in turn flows to the area
Wetlands	Wetlands are essential to a variety of wildlife and are under threat from climate change	HQ wetland off Keen Eye Trail and point out which species can be found there, including migratory birds
KNWR	The lands protected by the USFWS are important because of the species who live there and the habitats they call home	Skilak Loop Rd. and point out the variety of landscapes visible in this area alone
Bears	There are ways to recreate safely in bear country, but that bears are wild, not like ones in zoos	Russian River and point out bear habitat, signs and appropriate human behaviors
Moose	Moose can be dangerous	Keen-Eye Trail and point out moose habitat, signs and safe hiking practices
Moose	The Refuge was created for them	
Invasive plants	We are trying to eradicate them and prevent introduction	
Animals - specific to Kenai Peninsula	Our refuge provides protected habitats for these species	
Wildflowers	Proper identification, pollinator importance	
Careers	Different ways to get foot in door with USFWS entry level jobs	
Leave no trace	Tie into importance to Kenai NWR trails, campgrounds, wildlife habitats, etc.	
KNWR watershed	Ways to safely enjoy water recreation	
Wilderness areas	Importance of these areas within the refuge	
Habitats	Kenai refute contains many types	Skilak Overlook (Hidden Creek Overlook)
Wilderness	Most of the refuge is wilderness	Skilak Lake
Kenai - Russian River	Not just for fishing, but rich cultural history as well	Russian River Ferry Area

confluence		
Climate change	There are things they can do to make a difference	New VC - show sustainable aspects
Salmon habitat	Salmon habitat is affected by human impacts . . . indicate impacts of erosion, etc.	The Russian River Salmon spawning areas
Habitat diversity at Kenai NWR	Creates homes for a wide range of Alaska wildlife, both residential and migratory	Hidden Creek Overlook, Hidden Creek Trail, Most would be photos of wildlife, dioramas, habitat areas; discover wildlife through learning their signs
Same	Supported abundant and diverse wildlife that has attracted people to Kenai Peninsula for 10,000 years	The Russian River confluence where overlapping archaeological sites document diverse cultures through time
Changing habitats	Actual and human caused changes have influenced the way people have interacted with landscapes and wildlife. Human set fires; commercial fishing; urban development, bit game hunting, highway through the area; habitat managed ??? by refuge	Russian River Historic refuge cabins scattered around Skilak Lake
Value of wildlife to culture/ people	Different cultures through time used same wildlife in different, culturally appropriate/valued ways	Russian River - it all happened at Russian River
Changing value of wildlife and nature	Wildlife in life and culture, to profit commodity to symbol of lifestyle, to spiritual value	Sterling Hwy Corridor, Cooper landing to Homer
Leave no trace	Is important for the health of the KNWR	VC and show them proper techniques
Predators	Predators (wolves, bears) play an important role in health of refuge	VC and point out positive impact predators have
Habitat	KNWR has all 5 of those habitats that is home for an array of wildlife	Skilak Loop - mountains, rivers, forest
NWR	System of refuges set aside for America's wildlife and people	
Herbivores	They shape/affect the vegetative community - also biofeedback	Area browsed by moose, beaver, hares, etc.
Predator/Prey relationships	They each affect each other	Kill site
Wildfire	Superficially destructive (in the short term), but productive in long term	Various seral stages after a fire event
Wildlife	The <u>diversity of wildlife</u> and habitats make Kenai NWR unique – “Alaska in miniature.”	I would take them to the Harding Ice Field and follow the melt water to the river, past the mountains (mountain goats, Dall Sheep), through the forest (moose, porcupine, lynx, salmon smolt among the riverbank), wetland (migratory birds, kettle ponds) etc out to the Cook Inlet, pointing out the different habitats,

		wildlife and recreational opportunities available as they travel through the exhibit.
Wildlife refuges	Our national wildlife refuges represent & conserve the greatest variety of wildlife species and habitats in our country. The Kenai Peninsula hosts multiple land management agencies with different missions. Orienting the visitor to the NWRS and other federal and state agency locations and missions is vital.	A 3-d map of the Refuge including surrounding agency lands (Chugach NF including parts of Prince William Sound and across the Cook Inlet to show Lake Clark NP, Kenai Fjords NP and Alaska Maritime NWR on the Peninsula) so a sense of place is developed at the beginning of their visit. I would point out the breadth of habitat types the Kenai Refuge encompasses, which would then be further revealed as they travel through the “Ice Field to Ocean” themed exhibit.
Kenai NWR	The major purposes of Kenai NWR are to conserve all wildlife and their habitats in a state of natural diversity, to protect water quality and quantity, and to preserve 1.35 million acres of federally designated wilderness within Kenai NWR. (The Refuge is 1.92 million acres in size, so designated wilderness is over 70% of Refuge lands.)	Supported by the 3-d map
Wildlife management	The Refuge’s primary wildlife management objective is to conserve all wildlife and their habitats in a state of natural diversity.	To the top of Skyline Trail where you can see across the mountains from a peak inside wilderness, north to the Chickaloon Flats, west across kettle ponds to the Inlet and south to the Skilak Wildlife Recreation Area. From the skree at the top of this trail you also get an understanding of the alpine areas, above treeline, where snows last longest and climate change impacts are more extreme.
Managing moose	Moose populations fluctuate for <u>more than one reason</u> - habitat change due natural succession of plants after wildfire, loss of habitat due to human actions, mortality due to vehicle collisions and natural predation by bears and wolves.	To a place in the northern part of the Refuge off Swanson River Road where the 1969 burn once provided excellent moose habitat, showing that it is now mature forest with little browse for ungulates. I would show them the moose mortality signs on the Highway that show ~300 moose a year lost to vehicle accidents, and stress the benefits of having a mix of predator and prey species on the Refuge, touching on what would happen if one or the other species disappeared. This is where I would teach the benefits of Fire Wise residential management along the Refuge borders.

Wildlife viewing opportunities	A variety of wildlife viewing opportunities exist on the Refuge from hiking in the Skilak Wildlife Recreation Area to paddling the Swan Lake and Swanson River Canoe Routes.	-Hidden Creek Trail terminus on Skilak Lake and show them spawning salmon, bear sign – poop and tracks, and maybe a black or brown bear in the lake catching salmon. -Swan Lake on the Swan Lake Canoe Routes and show them a loon/grebe/swan family.
Fishing opportunities	A wide range of fishing experiences occur on the Refuge from social fishing at Russian River to the quiet solitude of a wilderness lake	-Russian River to fish for red salmon during the peak of the run when you can land a beautiful 5 lb. silvery fish every 20 minutes. -Gene Lake on the Swanson River canoe system to cast for rainbow trout peacefully among the lily pads from your canoe
Hiking opportunities	A diversity of hiking opportunities is available from scenic day hikes to challenging wilderness routes.	-Vista Trail and on a clear, sunny day point out Skilak Lake and its surrounding mountains, the volcanoes across Cook Inlet – Spur, Redoubt & Iliamna, and to the north Denali and Foraker. -Lake Emma Trail and point out Tustumena Lake, its surrounding mountains, and glacial flood plain.
Boating Opportunities	An extensive array of boating opportunities goes on including canoeing, kayaking, rafting, and motorized boating.	-canoeing Swanson River to fish for rainbow trout and silver salmon -kayak from the Lower Skilak Campground to the outlet of Skilak Lake in the spring to observe newly arriving migratory birds – ducks, geese, cranes, and trumpeter swans. -raft the Kenai River Canyon in the summer and see brown bear mother and cubs catching salmon. -with a motorized inflatable boat travel on Tustumena Lake in late July/early August to Clear Creek to observe up 10+ brown bears fish for red salmon
Camping Opportunities	From the backcountry to larger campgrounds and on to Refuge public use cabins, the Refuge provides special overnight experiences for all.	-backcountry camping at Pepper Lake on the Swanson River Canoe Route watching a mother moose and her calf drive for lily pad roots -camping at Lower Ohmer Campground observing a black bear mother and cub on the opposite shore napping in the sun -an evening at Pipe Creek cabin watching the a rainstorm across on the south side of the lake with a beautiful double rainbow
EE & Interpretation	Through EE and interpretation programs lead by Refuge staff and volunteers, visitors enjoy learning about wildlife and the natural world	-I would take them on a program at least once each season from snowshoe walks in winter, to spring bird watching, to a summer wildflower walk, and to a fall changing

	and are intrigued to learn more on their own and increasingly value the existence of the Refuge in their lives.	seasons/wildlife preparing for winter nature walk. I would encourage them to get out on the Refuge at least once a month have their own special friends and family experiences and develop their own special places.
Climate Change	Each of the distinct habitats found on the Kenai Refuge are under pressure from a warmer, drier climate. Species that cannot adapt are at risk of extirpation. Traditional recreation and subsistence uses by humans are also at risk as salmon populations fail, leading to great economic uncertainty for the area.	A dried kettle pond which once provided sanctuary for migratory birds and calving moose. The invasive grasses that have overtaken the pond and turned it into a grassland are examples of species benefiting where others have failed. I would also show the visitor a mature spruce forest under attack from spruce bark beetles and share the findings of our biology department (showing other aspects of land management through research).
Wildlife	Predator/Prey relationships are important.	Displays of lynx/snowshoe hare, wolves, bears, marten
Wildlife refuges	Are for the American people, as well as for wildlife.	Some displays of enabling legislation alongside photos or holographic images of president signing legislation, as well as success stories of endangered species mgt.
Kenai NWR	Is responsive to the needs of a dynamic ecosystem.	Examples of projects to enhance wildlife habitat, especially in light of increasing human populations on the Peninsula.
Wildlife management	Wildfire is an important component of this ecosystem.	Visuals of past fires and the recovery of the burned areas. Visual descriptions of the effects of human-caused fire, vs. the effects of natural fire. Excerpts from the 1904 narrative by Langille describing the condition of the Peninsula, and his recommendations to Sec. of Agriculture for a reserve located pretty much where the refuge is now.
Managing moose	That moose ARE an important purpose of this refuge.	Projects structured for the benefit of moose (Imagine if the Kodiak Refuge had the attitude toward Brown Bear that the Kenai Refuge has toward moose!)

Appendix D: Outcomes and Impacts Input

The following input was gathered during a workshop on May 8, 2012 by asking USFWS associated with the project to fill in the blanks in the following question:

As a result of participating in your interpretive opportunities, (target audience) will/will not behavior.
 The result will be _____.

Audience	Will/Will Not	Result (impacts on resources)
ATV users	Will recognize negative impacts on refuge resources	Will not trespass on refuge
Snow machiners	Will recognize negative impacts on refuge resources	Minimize impact on refuge resources (not damage vegetation)
Airplane operators	Will recognize negative impacts on refuge resources	Will not load in inappropriate places
Dog mushers and horse packers	Use weed free or no hay on refuge	Minimize introduction/spread of invasives
General public (local residents)	Appreciate the role/value of wildfire in sustaining productive ecosystem and benefits to them	Support wildfires burning on refuge
Oil/gas leases	Minimize footprint on refuge - seismic lines, pads, roads, utility corridors	Reduce negative impacts to vegetation and wildlife
Backcountry campers	Practice no-trace camping	
Campers	Throw less trash in the fire rings	
Russian River anglers	Be able to point out refuge lands	
50% of visitors	Will visit the Skilak Loop Wildlife Area	
50,000 visitors	Will visit the Visitor Center annually	
Visitors	Higher percentage will plan for a green visit	
Visitors to VC	Will be able to identify 2 activities they can do on the refuge	
Visitors and locals	Will be able to describe the benefit of practices in the refuge ecosystem	
Visitors	More will be able to explain the role of fire in the ecosystem	
VC visitors	Will view changing and traveling exhibits	
VC visitors	Will have more [engage in more] self-guided experiences in the VC area	
More VC visitors	Will understand bear safety and feel comfortable recreating in bear country	
More VC visitors	Will be able to identify that Kenai is part of a National system	

Campers	Will not cut green trees	Protection of forest resource
Anglers	Will travel safely in bear country	Reduction in bear incidents
Hikers	Will stay on trails	Protection of land
Local community	Will know where refuge is	Agency awareness leading to protection of the land
Campers	Will reduce litter in recreation areas	Improve appearance of refuge (avoid attracting bears)
Local community	Will bring family/visitors to VC	Recognition of NWRS and status in community
Anglers	Will understand where they can fish on refuge	Protect watershed; reduce bank damage
Young families	Will visit VC and recreation areas	Awareness of refuge; exposure to program opportunities
Wildlife viewers	Will keep a safe distance from wildlife	Reduction wildlife - human interactions; increase visitor safety
Wildlife viewers	Will recognize the dangers of moose	Reduce moose-human interactions; safety of public
Summer campers	Will be excited/interested in learning more about the refuge	Enrollment rollover into the next camp
Parents	Will want to take their children to the refuge	Returning visitors
Disabled visitors	Will participate in available recreation	Positive experience and ability to experience
Public	Will not be confused on who refuge is	Agency identity
Public	Will understand different ecosystems	Value ecosystems
Hikers/campers	Will not destroy habitat while recreating	Natural habitat restoration - ethical behaviors
Anglers	Will not fish irresponsibly (over fish)	Conservation of salmon and trout in river
Alaskans (and general public)	See examples of sustainable building methods that may be applied to their own homes	More sustainable buildings - smaller urban footprint
Hikers	Will stay on trails and leave no trace	Habitat will be preserved
General visitors	Will understand the interconnectedness of the various components of the refuge ecosystem	More responsible - thoughtful use/interaction with the refuge and wilderness in general
General visitors	Will understand the interconnectedness of the refuge and other ecosystems - looking at wildlife corridors	More responsible - thoughtful use/interaction with the refuge and wilderness in general
General visitors	Will see the migration patterns of refuge birds	Be able to connect with their own ??? if out of state residents
Alaskans / local communities	Will see the building as a dynamic living place - a potential laboratory	Increase the frequency of visitation Create a space for dialogue - community interaction
Alaskans, General visitors	Will get educated about fire wise landscaping through the building siting	Fire prevention

Local Kenai Peninsula residents	Learn the role of the refuge in their lifestyle	Sense of ownership /stewardship for refuge
Russian River anglers	Learn proper way to clean, filet fish and dispose of remains	Respect the fish, bears and river; stewardship; less deaths from bears; less waste of fish
Visitors to Kenai Peninsula	Learn the human history of the refuge / peninsula	Understand the role of people in the preservation of the ecosystem
AK residents	Learn something about ecosystems	Understand the role of refuges in managing natural diversity (oppose predator control for political reasons)
Visitors	Human history, native history, uses, lifeways	Native people's history and use - understand natives still here and have different understanding of the world
Everyone	Human role in ecosystem - impact on environment	This is a managed ecosystem - not functioning naturally and understand role of refuge in maintaining function.
Everyone	Be exposed to bear safety information	Relieve stress for some individuals - more open to outdoor experiences, less bear - human conflict, fewer bear deaths.
Gen. Public	Will appreciate the relationships between wildlife and this dynamic ecosystem, influenced by fire, and managed by man.	
Gen. Public	Will be more likely to believe that the Refuge intends to manage for a healthy ecosystem, one that meets <i>all</i> of the legislatively described purposes of the refuge, and not just the one rather vague purpose of "natural diversity".	
Visitors & community members	Will understand low impact recreation practices and how to properly dispose of trash and human waste through Leave No Trace Programs and associated media products.	Decreased human impact on Refuge lands and negative effects on wildlife.
Visitors & community members	Will understand correct human behavior in bear country through "Being Bear Aware" Programs and appropriate media products.	Reduction of negative bear/human encounters.
Visitors & community members	Will learn about how predators are key in maintaining healthy prey populations and long term vibrant ecosystems through "The Importance of Predators in the Refuge" Programs and associated media products.	Long term negative bias regarding predators will be decreased.
Visitors & community	Will understand the effects of long term temperature rise on the Kenai Peninsula	People will explore how the Peninsula and Refuge can adjust to these

members	which is responsible for glacier retreat, rising water temperatures, drying wetlands, increased numbers of wild fire events, and increased outbreaks of forest pests/diseases that in turn impact Refuge wildlife and habitats through “Changing Landscape” Programs and associated media products.	challenges and possibly change the outcome to help wildlife and themselves.
Visitors & community members	Will experience “hands on,” outdoor activities through “Connecting People with Nature” Programs and associated media products.	Create positive experiences and memories that will inspire them to continue outdoor nature activities on the Refuge.
Visitors & community members	Will learn the importance of natural, wild fires in healthy ecosystems through “The Role of Fire in the Ecosystem” & “Fire Wise” Programs and associated media products.	Understand the importance of natural, wild fires and how to be “fire wise” to help prevent unnecessary, destructive human caused fires.
Visitors & community members	Will understand the difference between wilderness and non-wilderness areas on the Refuge.	Negative impacts to wilderness will decrease and proper behavior in front country recreational areas will increase.

Appendix E: Information Sources

Numerous websites and other sources of information were used during the development of this plan, but the following were the primary sources of information:

Kenai National Wildlife Refuge Staff

Andy Loranger, Refuge Manager
Steve Miller, Deputy Refuge Manager
John Morton, Supervisory Biologist
Janet Schmidt Supervisory Park Ranger
Clif Peterson, Facilities Manager
Dianne MacLean, Assistant Fire Management Officer
Mark Laker, Ecologist/Data Manager
Candace Ward, Park Ranger
Michelle Ostrowski, Education Specialist
Leah Eskelin, Park Ranger
Toby Burke - Biological Technician

USFWS Regional Office

Mitch Ellis, Refuge Chief
Polly Wheeler, Deputy Refuge Chief
Mary Beth Coyne, Project Manager
Tracey McDonnell, Refuge Supervisor
Debbie Steen, Regional Visitor Services Chief
Brian Anderson, Regional Wilderness Coordinator
Kevin Painter, Regional Interpretive Specialist
Debbie Corbett, Regional Archeologist

Documents

Kenai National Wildlife Refuge Comprehensive Conservation Plan
Kenai National Wildlife Refuge Visitor Center Vision
Kenai National Wildlife Refuge map/brochure
Refuge Reflections
Flying Wild over the Kenai Peninsula: Bird Checklist
Bear Facts: The Essentials for Traveling in Bear Country
Fishing in Bear Country
Russian-Kenai River Visitor Guide
Protecting Your Home or Cabin from Wildland Fires
Be a Junior Biologist: Earn Your Patch (USFWS)
Alaska's Kenai Peninsula Wildlife Viewing Trail Map

Websites

Travel Alaska.com Official State of Alaska Vacation and Travel Information
Kenai National Wildlife Refuge
Alaska Outdoor Journal: Goldpanning on the Kenai Peninsula