

APPENDICES



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APPENDIX A CULTURAL HISTORY

1. Early Times Site Occupation

The abundant natural resources at Anan have been attracting humans to this place for thousands of years. Fish traps and weirs in the area have been dated as 3,500 years old, and evidence indicates that human occupation may extend as far back as 10,000 years (*Demerjian*). The area's first documented occupants were Tlingit Indians, likely drawn to the area by the major run of pink salmon present here. These people used Anan Bay as their summer fishing camp. Gardens and smokehouses dotted the shores of the lagoon and bay. As Charles Borch, a Wrangell elder remembered, "There were lots of community houses at...Anan Creek" (16). Other Tlingit elders similarly recall a bustling village at Anan, supported by a rich harvest of vegetables and fish. The summer houses were relatively small and primitive, covered on the outside with bark or planking but often without any flooring. Archaeologists have come across what they believe to be house depressions, garden areas, and storage pits, but no formal excavation has yet been done (*Demerjian*).

The name Anan is said to mean "Sit Down Town" in the language of the Tlingit, a designation that spoke to the plenty



This view of a Tlingit summer village in Frontier Bay, taken in 1915, gives some clue to the way Anan's summer village might have looked.

and comfort enjoyed by these people here (*Demerjian*). However, Tlingit use of the area began to wane with the advent of commercial fishing. The devastation wrought on the salmon run by commercial fishing and the canneries they supported forced the eventual abandonment of the Tlingit camps. The 1907 proclamation designating the Tongass National Forest put under federal control all lands not in private hands, including Tlingit land that was communally owned. Because of the historical importance of Anan to the Tlingit clans, two land parcels have been deeded to Sealaska, the Southeast Regional Native Corporation, as a historical site (*Demerjian*). These include a portion of the peninsula in the lagoon and the peninsula and beach extending towards the salt chuck.

Previous Environmental Assessments (Anan Management Standards, Environmental Assessment Stikine Area. USDA Forest Service, Alaska Region, R1-MB-317, 1996) for projects at Anan have identified the importance of protecting potential cultural sites that include shell middens and evidence of fish traps below the high water line. Many of these sites lie within the intertidal zone, a fragile ecosystem that is impacted by the embarking and disembarking of passengers at Anan. A full archeological inventory of the Anan area is yet to be completed and should be considered in conjunction with the Master Plan proposed projects. All projects should include protection of cultural sites, being aware that there are many such sites in and around Anan, and that sites continue to be discovered. All these sites should be avoided. Consider integrating interpretive opportunities for educational value.

2. Modern Day Use

The first salmon canneries in Southeast Alaska were built by recently arrived Americans, drawn north in the late nineteenth century by the abundance of fish in Alaska's waters. The Alaska Packers Association had a trap in Anan stream and several other companies made use of the Anan Creek watershed and its run of pink salmon. The run of pinks, or "humpbacks," was so prolific that H.C. Moser of the U.S. Bureau of Fisheries named the area "Humpback Bay," a designation that appears in some Forest Service Records. While the name was soon changed back to Anan, its temporary designation makes clear that the ecological opportunities of the area, in particular its bounty of fish, was what drew many people to this place.



A weir across Anan Creek during the 1930s and 40s funneled returning salmon through a narrow opening. Above it sits a salmon counter from the U.S. Bureau of Fisheries. The counter is holding a "allywacker" or clicker to keep track of the number of fish passing up through the weir.

The nearest cannery, Point Warde, was built in a small, sheltered cove just around the corner west of Anan Bay. The cannery closed in 1929 and the site is now named Cannery Cove. Other sites of historic importance have also been discovered by Forest Service Archaeologists (3.22 *Environmental Assessment*). In 1992 a cultural resource survey done in advance of proposed projects discovered the remains of a historic trapping cabin and debris that appears to be the remains of an early "upper observatory." Given Anan's prolific 20th century use, the possible existence of other sites should be researched as part of future project planning.

The transition from traditional uses to modern day uses was hard, at first, on the ecological health of Anan. While the fishing practices of the Tlingit had allowed for "escapement," referring to salmon not caught and allowed upstream to spawn, the commercial fishermen and canneries that arrived at Anan in droves exercised no such restraint (*Demerjian*). It was not long before worries arose about the depletion of salmon stocks. The health of Southeast Alaska's fish stocks began to recover only in the aftermath of statehood in 1959, "when Alaskans began to actively care for the health of this resource" (*Demerjian*). **In 1942 the Alaska Packer's Association donated its holding at Anan, a homestead obtained in 1901, to the Forest Service as a public recreation site.**

Fishing at Anan Creek also helped popularize it as a destination for locals on day trips. As Demerjian writes, "Opening day provided the excuse for family vacations, too. It was, after all, the best show around. Tents filled with wives and children lined the sandy beach of Anan Bay. After the main event, there was always berry picking, swimming and snagging fish." Even after the heyday of commercial fishing here had passed, Anan Creek remained a popular destination for recreating locals. For generations, the nearby community of Wrangell used Anan for local outings, subsistence fishing and hunting, and even for an annual party on the white sandy beach. Consideration of local uses and these users' comments and recommendations are valuable in the planning of future Forest Service projects.

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This advertisement appeared in the Wrangell Sentinel on August 12, 1949.

Since the 1960s, under Forest Service management, various recreation developments have taken place at Anan. These include a well-developed trail, a decked observatory, and a public recreation cabin where visitors can stay overnight. Various improvements to cabin, trail, viewing facilities, and staff housing have been made over the years, called for by safety considerations and increased visitor usage. Impacts of increasing visitors, especially in July and August led the Forest Service, in 1996 to conduct the "Anan Management Standards, Environmental Assessment Stikine Area" and to implement a permit system for the seasonal period. In 2004, this management system was put into effect, issuing 60 permits per day, at \$10 a permit, which could be reserved up to 180 days in advance. This limited number of visitors, and the restrictions on when/where people can visit, have been deemed best for both bear security and quality of visitor experience.

ANAN TIMELINE

Time Period	Recreation Facilities and Trails	Management	Visitor #'s
Pre late Nineteenth	Anan an important summer fishing camp for various Tlingit clans for thousands of years		
Late Nineteenth	Anan becomes an important site to the regional commercial salmon fishery	Fish warden stationed on site in summer to apprehend salmon thieves	
	Cannery at nearby Point Warde to process Anan salmon		
	Original Trail constructed (1901)		
1921-1963	Cannery closed and equipment dismantled (1929)	Federal government assumes maintenance of area (1942)	
	Log cabin built on west shore of Anan Bay	Anan watershed closed to black bear hunting (1937)	
	Tent platform erected on eastern shore, Trail maintained by the Forest Service, possibly with two Observation Shelters		
1964-1970	Original Anan Bay Public Recreation Cabin built (1964)		
	Observatory Shelter (no decking) constructed (1967)		
	Fish pass tunnel constructed by ADF&G (1967)		
1971 – 1980	Fish pass renovated (1977)		
1981 – 1990	Administrative Cabin and Outhouse constructed near Public Recreation Cabin (1990)	Forest Service personnel on site due to increased visitation, a two week season to begin, expanded in subsequently (1990)	
	Portions of trail undergo reconstruction, some between Anan Bay Public Cabin and access point (1990)		
1991 - 1995	Viewing deck at Lower Falls Observatory completed (1991)	Upper Falls Trail has closures due to negative encounters with brown bears in consecutive years	1991: 1,405 1992: 1,803 1993: 1,525 1994: 2,036 1995: 3,832
	Administrative Cabin and Outhouse moved closer to trailhead, original Cabin becomes cook space (1992)	Staff begin collecting detailed data on visitor numbers and bear activity (1991)	
	Observatory undergoes reconstruction, involving completion of the two-tiered viewing deck (1993)	Forest Order to restrict dogs put into effect (1993)	
	Gun cabinet built at Observatory (1993)	ADF&G radio collars 13 bears for research purposes (1993)	
	Observatory deck redesigned so visitors would be "funneled" from boardwalk straight onto viewing deck (1993)	Partnership established with Utah State University to begin a three year study on bears (1993)	
	Photo blind constructed for fish pass (1994)	Anan workshop discusses wildlife, cultural resources, bear ecology, and birds (1993)	
	Natural vegetation used for screening at Observatory (1994)	District establishes an Anan-specific policy that allows staff to carry pepper spray instead of firearms (1995)	
	Blowdown requires emergency trail maintenance (1992, 1993); "routine maintenance performed (1994, 1995)	Management of group size, guides, and permits continues to be discussed	
1996 - 2000	Blowdown requires emergency trail maintenance (1998); routine maintenance (1996, 1997)	Anan Management Environmental Assessment continues moratorium on guides, but no restrictions on independent visitors (1996)	1996: 2,204 1997: 2,504 1998: 2,412
	Gate installed at Observatory entrance as deterrent to bears (1997)	New Forest Order restricts camping, food, and wandering from trail from June 15th to September 15th (1996)	1999: 2,506 2000: 2,679

	Gun rack installed at Observatory (1997)	Upper Falls opened to limited viewing, accompanied by a Forest Service employee (1996), but has closures following	
	Observatory and deck are stained (1998)	Commercial use regulated (1996), regulations revised later	
	Stairway linking deck to photoblind at fish pass constructed and stained (1999)	Hunting closure amended to include brown bears, the beach, and reduce overall closure area to 1 mile each side of creek, not entire watershed (1997)	
	Walkway to photoblind screened with PVC arches and camouflauge netting to decrease visitor impact on bears (1999)	Various management adaptatons (1999)	
	Extensive trail brushing initiated to extend lines of sight (1999)	Anan Management Review initiated to review other bear viewing sites across Alaska for training (1999)	
	Door built at entrance to photoblind to stop bears (2000)		
2001 - 2005	Gun rack removed and lockers installed (2001)	Floathouse used by crew for first time (2003)	2001: 2,655
	Tar paper added to slick portions of trail (2001)	Current management strategy of permits and fees (2004)	2002: 2,634
	Grey water line removed from cook cabin, carried in buckets and dumped at high tide instead (2001)		2003: 3,987
	Shelter installed at trailhead, with bear proof locker for food/gear (2002)		2004: 2,461
	Bear proof locker and box at Recreation Cabin (2002)		2005: 2,427
	Trail reconstruction for some boardwalk and stairs between Trailhead and Observatory (2002, 2005)		
	Repair of fish pass, a ADF&G mitigation project (2003)		
2006 - 2010	Floathouse for crew received winter damage, requiring staff to live on old land cabin while repairs were done (2006)	District silviculturalist identifies hazard trees (2006)	2006: 2,583
	Hazard tree removal for high priority trees (2007, 2008, 2010)		2007: 2,494
	Major repairs to floathouse (2006), minor ones (2007, 2010)		2008: 2,742
	First use of galvanized hardware cloth for grip (2007)		2009: 2,532
	Cleaned out and burned down old cook cabin, previously the administrative cabin (2010)		2010: 2,645
	Hardware cloth replaces tar paper on more trail (2010)		
	Old A-frame Recreation Cabin replaced with new pan abode style cabin (2010)		
	Photoblind staircase undergoes repair (2010)		
2011 - 2015	Major blowdown on trail to Observatory requires repair, in addition to damage caused by landslide (2011); repairs continue into following year (2012)	Bear viewing site Facilitated Learning Analysis conducted (2013)	2011: 2,607
	Stairway netting and minor repairs to observatory deck (2012)	Anan Dock Environmental Assessment approved and put out to contracting (2015)	2012: 2,698
	Trail maintenance due to blowdown (2014)		2013: 2,873
	Gravel trail installed for 900 final feet of trail leading to Observatory (2014)		2014: 2,682
	Landslide between Bear Cove and Observatory requires major maintenance (2015)		2015: 2615

APPENDIX B COMPARABLE BEAR VIEWING AREAS AND RECOMMENDATIONS

Anan is one of six designated recreation, wildlife and bear viewing areas on the Tongass National Forest. Each area has a distinct character and design, with different viewing and access opportunities. It is useful to review the character and management of each site in relation to determining the most appropriate future for Anan.

- **Steep Creek** is located at the Mendenhall Glacier Visitor Center and is the most visited Forest Service site in the Alaska Region with 400,000 visitors per year. It is located on the road system in Juneau, with a bear viewing platform right off the parking lot. Visitors must pay a fee.
- **Fish Creek** is adjacent to the Salmon River Highway in Hyder with a bear viewing platform right off the parking lot. The number of visitors is, on average, 12,000 per year and a fee is required. The area's proximity to the road makes it easily accessible, although remote from the rest of SE Alaska. While both brown and black bears can be seen here, brown bears are much more common. Visitors must pay a fee.
- **Dog Salmon** is located on Prince of Wales Island. Access is by road and then a quarter mile trail to a viewing platform. A commercial guide out of Ketchikan holds a special use permit to bring cruise ship visitors to the site. It receives about 1,500 visitors per year.
- **Margaret Creek**, 25 miles north of Ketchikan receives about 2,000 visitors per year. It can only be accessed via floatplane or boat and has a short trail and viewing platform.
- **Pack Creek**, on Admiralty Island, is remote and is the only designated viewing area located within a federally designated Wilderness Area. With a viewing platform and trail, and a gravel bar used as a viewing area, it offers a wild and remote experience to about 1,300 visitors per year. It is jointly managed with the Alaska Department of Fish and Game and passes are required. Visitors must pay a fee.
- **Anan** is remote, being accessible only by boat or floatplane. Home to one of the largest pink salmon runs in Southeast Alaska, wildlife at this location abounds. The seasonal daily cap on visitors and remote location contribute to the wild character. It lies within a congressionally designated LUD II area and is managed for an uncrowded wildlife viewing experience. There are capacity limits with seasonal fee passes required. Anan is the only bear viewing area where both brown and black bears are frequently seen in close proximity. There is a 0.6 mile trail, observatory structure and a photo blind that allows for close-up viewing and photographing of bears. Between 2,500 and 3,000 people visit Anan per season. Visitors must pay a fee.

In addition, the National Park Service and Alaska Department of Fish and Game oversee bear viewing areas in Alaska that offer guidance for management and development.

- **Brooks Camp** in Katmai National Park is a highly developed site with a concessionaire. It accommodates both day visitors and overnight guests. Visitor behavior is highly regulated. There are three constructed viewing platforms within a mile of the entrance. There are no capacity limits except for duration of stay at the falls viewing platform.
- The **McNeil River Game Sanctuary** is operated by the Alaska Department of Fish and Game and was designated a wildlife sanctuary in 1967. It has a wild and remote character with limited visitors during the season. Thirteen permits are provided per day from June 7 to August 25. There is a campground with a cook cabin, but no other amenities are provided. A four-mile round trip to the viewing falls involves some bushwhacking and slogging across mud flats. Once there, visitors spend most of their day on a 10 square foot gravel viewing pad.

The following are considerations related to the management and development of facilities at Anan.

- Co-existence of people and bears at special sites like Anan has existed for thousands of years. Bear viewing sites pose unique challenges, however, because those who visit these areas often have no knowledge of the behavior that has allowed for such cohabitation. **Educating people about proper human etiquette in bear country prior to their entering a bear viewing site is thus imperative for its successful operation and the safety of all, bears and humans alike.**

Wildlife/Bear Observatories Comparison Chart:

This is a comparison of the six wildlife/bear observatories located in the Tongass National Forest, South East Alaska.

	Steep Creek	Fish Creek	Margaret Creek	Pack Creek	Dog Salmon	Anan
Location	Mendenhall Glacier Visitor Center, 12 miles from downtown Juneau	45 miles from the Cassiar Highway, 3 miles north of Hyder	25 miles north of Ketchikan	Kootznoowoo Wilderness on Admiralty Island	Near Hydaburg, 30 miles from Klawock on Prince of Wales Island	30 miles south east of Wrangell, 60 miles north east of Ketchikan on Cleveland Peninsula
Access via	Road	Road	Boat or plane	Boat or plane	Road	Boat or plane
Size			1 square mile	115 square miles (Pack Creek Management Area and Zoological Area combined)		38,313 acres (Anan LUD II, as designated under 1980 Tongass Timber Reform Act)
# of visitors	400,000/year (up to 5000/day in summer)	avg. visitation past 5 years of 13,000; 19 years previous avg. visitation of 20,000	1,700-2,100/year	1,200-1,300/season (avg.) 1,348 in 2014 season	1,450/year (2012)	2,500-3,000/year
Permits required or not	No	Yes, no limit on number, \$5/permit. Walk-up permits available	No, except for guided visitors authorized by special use permit	Yes, 24 per day in peak season, cost differs based on season and age (range: \$10-\$50)	No, except a special use permit holder who brings visitors from cruise ships	Yes, 60 per day (+4 for cabin occupants), \$10/permit in season
Type of experience	Developed feel due to paved roads and high number of visitors	Minimally developed facilities, but area being adjacent to highway brings more visitors	Remote feel due to location and light visitor usage	Wild, due to location in remote wilderness setting and permit system	Remote feel due to location (often requires a float plane ride and car transport)	LUD II designation, wilderness character with minimal development and permit system
Facilities	Viewing area off parking lot overlooks a stream; 1 mile ecology trail	600 ft. boardwalk running parallel to the highway	Viewing platform with blind overlooking fish pass, ¼ mile gravel trail, and 1 mile gravel road	Nearby staffed viewing pit on Pack Creek Flats; 1 mile trail to viewing tower	½ mile gravel path from parking lot to a viewing platform	½ mile trail leads from trailhead to observatory structure overlooking a falls
Managed viewing season	Year-round (except for April)	July 1 st to September 15 th	summer	June 1 st to September 10 th , 9 am to 9 pm	Mid-July to August 31 st	July 5 th to August 25 th
Staff Facilities	Forest Service bunkhouse short drive away and Visitor Center		Forest Service Administrative cabin ~ 1 mile from site			Overnight self-sufficient float house, observatory shelter, and welcome shelter
Toilet Facilities	Yes, at Visitor Center	Yes	Yes, at trailhead	No	No	Yes, on float house, at trailhead, observatory and cabin

- Bear viewing areas should be developed and managed with the safety of both bears and visitors in mind. Scientific research and years of observation have revealed that bears can come to tolerate the presence of people, a learned trait known as “habituation.” That “both bear species are intelligent animals, capable of learning and modifying their behavior” has been corroborated by numerous sources and studies (quotation from *National Risk Reduction Strategy*, supporting sources: *Facilitated Learning Analysis, 1996 Environmental Assessment*). The goal of management plans and interpretive guides at bear viewing sites should capitalize on this knowledge of bear biology, reinforcing bear – and human – behavior that shows bears regard humans as a neutral presence – “neither a positive (food possessing) nor negative (cub endangering or food stealing) force” (*Demerjian*). Such well-habituated bears are often healthier bears, as they are able to focus on food and interactions with other bears without perceiving humans as a stimulus for stress. However, it should be noted that some bears are less susceptible to neutral conditioning. **The success of bear viewing sites is thus also contingent on the careful oversight and self-policing of human behavior.**
- **Ensuring bear security and enhancing visitor experience thus often go hand-in-hand, and should be pursued through proper education, clear site regulations, and safely designed and maintained facilities. Experienced employees are essential.**
- **The design, infrastructure, and signage of a site are critical in enforcing predictable human behavior and helping to habituate bears.** Design should take into account the habits and habitats of the area’s bears (*National Risk Reduction Strategy*).

APPENDIX C RELATED PLANNING EFFORTS AND OTHER IMPORTANT DOCUMENTS

Related planning efforts and important documents that include previous studies for Anan and are important references for this document are:

- 1990 Tongass Timber Reform Act
- 1996 Anan Management Environmental Assessment, Wrangell Ranger District
- 1998 Anan Creek Recreation Facilities Master Plan
- 2003 administrative decision to apply a daily site capacity and require reservations and the collection of fees
- *Tongass Forest Plan*, 2008. Sections: “Land Use Designation,” “Wild River,” “Scenic River,” and “Recreation and Tourism”
- 2014-2015 Anan Floating Dock and Trail Safety Improvement Environmental Assessment and Decision Notice and Finding of No Significant Impact (FONSI)
- 2015- Ongoing Environmental Assessment for the Anan Management Plan Update
- Other ongoing planning efforts regarding Anan site administration:
 - reservation website development through NRRS
 - region-wide effort to raise recreation user fees at Forest Service recreation sites
 - current draft document for change in permitting

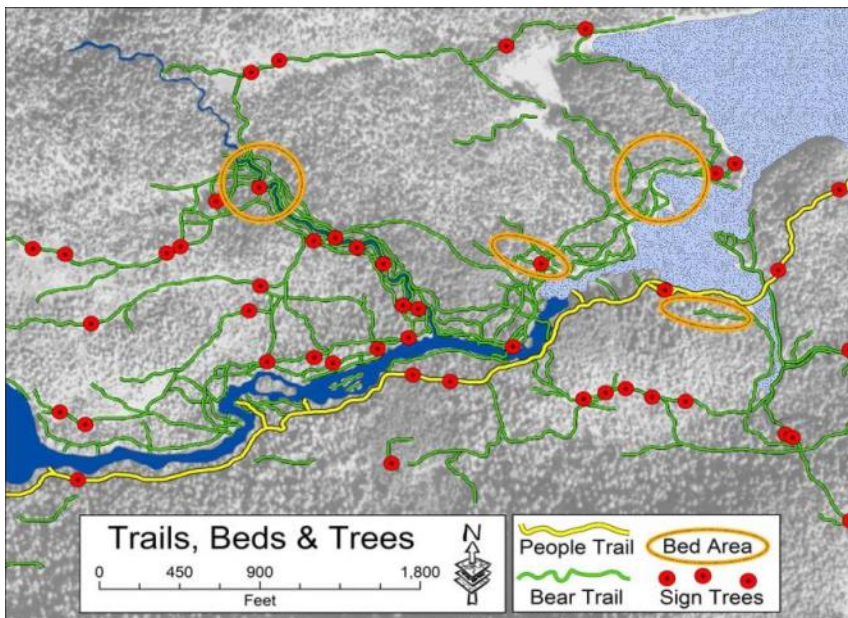
APPENDIX D RESOURCE INVENTORY PROJECTS

Anan Wildlife Observatory is lacking in recent research and inventory of its rich and valuable resources. It is time to update or prepare resource inventories for the area as part of the next immediate planning phase. This will maximize resource values during project design and construction, provide an updated baseline for monitoring and research and inform interpretive programs. These inventories may also serve to provide public education opportunities and increase interest in conserving Anan and its resources. Recommended resource inventories include:

1. Anan Wildlife Observatory Bear Habitat Use Survey

Issues and Needs: There is little current documented information available on bear habitat use in the area of the Anan Wildlife Observatory. Thus, there is no current baseline for ongoing research and no mapped data to help guide future facilities improvements projects.

Project Description:



A brown bear habitat use survey will provide better understanding of how bears use the Anan area at and around the wildlife Observatory. The focus area would encompass at least 350 acres of the Anan developed area, with additional reconnaissance surveys in the greater watershed area. Descriptive information on the character and quality of the habitat mosaic and signs of use by bears and other key wildlife species will be gathered and documented. The work will involve mapping plant and stream characteristics, mapping perennial bear sign and surveying for ephemeral bear sign.

Example map identifying brown bear habitat including trails, beds and tree locations. Source: Brown Bears in the Lower Lake Eva Watershed Habitat Use Survey. 2002.

Potential expansion of the study could include human-bear interaction components and understanding how hunting affects bears.

There are existing data collectors at Anan including water temperature and water pressure sensors. A program for installation and use of remote cameras and data collectors for studying watershed and other resource conditions over time will be included.

Public Needs Met: A bear habitat use survey will update earlier observations to provide ecological context for a bear/human interaction study. The latter is site intensive information that can inform State and Federal Management considerations and future projects. A bear survey thus will lay the groundwork for a number of needs that should be met. It will improve public safety as human-bear conflicts will be further reduced. It will inform the best placement of a videocam to record and broadcast information on bear activity in the vicinity of the Upper Falls, thereby providing an opportunity for further public education. It will provide data for interpretive materials and for guided talks. Importantly, this study will provide baseline data for ongoing research and monitoring of bears at Anan Wildlife Observatory.

The more comprehensive study could be a pilot for the other Tongass wildlife/bear observatories.

Planning and Design: The product would be a report with maps, photographs, and written text and data tables. Forest Service staff would participate in providing background information and coordination.

Agencies and Funding: The U.S. Forest Service would be the lead agency and Client for the study. The Alaska Department of Fish & Game might be a participant in the project and assist with funding. Grants from other potential funding sources might be pursued including: Alaska Conservation Foundation, Alaska Discovery, Sitka Conservation Society or other non-profits or private foundations.

2. Comprehensive Cultural Resources Survey

Issues and Needs: Anan Bay is a culturally sensitive area. Some areas in the vicinity of the Anan Wildlife Observatory are in need of cultural resource inventory. Identified cultural resources should be evaluated and delineated to ensure proper protection of this sensitive and non-renewable resource.

Project Description: A cultural resource field survey, literature search and public knowledge study will identify site locations. The survey area would encompass terrain within and adjacent to the developed recreation site and would involve both visual reconnaissance and subsurface testing. A literature search of published materials and interviews of knowledgeable locals will assist in site identification and past land use. Information on known or newly identified cultural resources would be gathered and reported to the Alaska State Historic Preservation Officer (SHPO).

A second component would include additional background for educational/interpretive materials or talks regarding the cultural identity of Anan Bay as it relates to Native Alaskan use and early Euro-American endeavors, namely the commercial fishing industry.

Public Needs Met: Identification of cultural resources will ensure avoidance and that protective measures are considered when planning future projects in the area. It will also provide data for interpretive materials and for guided talks.

Planning and Design: The survey portion of the project would be undertaken by Forest Service Heritage staff archaeologists in consultation with the SHPO and other interested parties, including the Wrangell Cooperative Association and Sealaska. The educational/interpretive component would be undertaken by the appropriate Forest Service staff group.

Agencies and Funding: The U.S. Forest Service would be the lead agency and funding would be associated with project compliance with the National Historic Preservation Act. Other funding sources might be considered for the educational/interpretive component.

APPENDIX E

INTERPRETIVE AND SIGN PROGRAM FOR ANAN WILDLIFE OBSERVATORY

Issues and Needs: The existing signs at Anan Wildlife Observatory are of different styles and materials and convey different messages. There is also information available in a variety of handout or small sheet formats. The lack of consistency detracts from the quality of visitor experience, and some of the signs have text too small to read. The signage needs to be brought up to current readability standards. Because visitors often do not realize who manages the site, emphasize the role of the Forest Service in bringing this experience to the public in order to promote the Forest Service's role as land stewards. This is an opportunity to present a coordinated visual and other sensory interpretive program to visitors.

Project Description: The use of too many signs adds clutter to the landscape, detracting from the visitor's wilderness experience and their direct contact with nature. Interpretive materials will be minimized and placed in limited locations. The Trailhead shelter area and the Observatory are two locations where there is protection for the signs and where people linger. A third location is the Salt Chuck Overlook where the metal signs are currently placed. The guides and Forest Service interpreters present oral information to visitors in this area.

The intent of the sign program is to replace/update the current site interpretive signs with a coordinated sign system and also to provide limited coordinated directional and regulatory signs. Other components of the sign program will be in the form of handouts, information updates on the Anan Wildlife Observatory website, and technical data distributed to guides for their use.

Regulatory signs will be placed at the Trailhead, Recreation Cabin and Wildlife Observatory.

Planning and Design: There is a wealth of information available on different aspects of the site from the wildlife to the cultural history to guidelines for appropriate behavior and directional signage. A coordinated sign program throughout Anan will have consistency of materials, colors, fonts, sizes and mounting of panels, especially if new facilities are added. High Pressure Digital Laminate may be considered as an appropriate material since it provide great flexibility for the sign design, shape of the sign and mounting options. Consider shaping the signs to irregular forms and using creative mounting systems that blend in well with the natural environment. Consider whether the signs will be mounted in place year round or stored during the winter months.

Materials for the themes of culture, wildlife, bears and behavior will be developed. Smaller materials like binders and flashcards will be designed in a consistent style. The existing information collected about the bears is very valuable and should be archived, as well as be made available to the public in an accessible manner. Along with presenting images and words, art can be used to subtly illustrate information. For example, cast footprints of the two types of bears may be set in concrete at the Trailhead. Simple wood carvings of wildlife may be incorporated in the primary structures. Natural locations or trees where bears scratch and gnaw near the trail might be identified for viewing purposes.

With the addition of the dock and the trailhead enhancements, a limited amount of directional signage will be required. Directional signage will always be constructed in the same way. The mounting post will be a 7-inch diameter peeled cedar log, 60 inches high above the ground to the bottom of the sign board, with a chamfered top protruding 6" above the sign board. The sign will be carved into a 5-inch high cedar board. The name of the destination and an arrow pointing in the direction should be all that's included. Directional signage should only be provided where essential.

Agencies and Funding: The U.S. Forest Service would be the lead agency for the study. Grants from other potential funding sources might be pursued including: Alaska Conservation Foundation, Alaska Discovery, Sitka Conservation Society, Sealaska and private foundations. Wrangell and Petersburg High Schools may make the signs through existing grants and agreements.

APPENDIX F MATERIALS SELECTION

Technology has produced a variety of new materials in recent years. As part of the Recreation Site Master Plan, both traditional and newer materials were reviewed for suitability of use at Anan Wildlife Observatory. Most of the construction requirements are to provide surfaces to stand or walk on in this area of undulating and steep terrain. Secondary construction would be structural supports, railings, and walls or roofs. For walking surfaces, traction, stability, perviousness (to allow water to drain through back into the ground), and minimal impacts on surrounding slopes, soils and drainages are important considerations. Historically, there have been times when the forces of nature and natural events have overcome manmade structures; therefore it is important to consider sturdiness and the ease of reconstruction and replacement.

Achieving consistency of construction materials and detailing is critical to an outcome of successful and maintainable facilities. The current facilities are constructed in a consistent manner; however the requirements for improved accessibility, functionality and durability require a level of modification. Details such as handrail design may be reconsidered for improved safety and resilience to bear behavior.

Criteria for performance of materials include the following:

- conformance with criteria for LUD II and a high visual sensitivity area (low visual impact) as well as compatibility with existing facilities
- functionality
- durability/longevity
- ease of replacement
- cost effectiveness to obtain, install and maintain over time
- practicality and low impact nature of construction
- ease of transportation
- environmentally friendly production, local availability and origin

Materials derived from timber and boulders score the highest when measured against others, based on the above criteria. These natural materials are cost effective, relatively easy to obtain, transport and use in construction, are consistent with current facilities and have the highest likelihood of being replaceable. In addition, the use of lumber and stone is a suitable response to historic and cultural use of the site, traditional building methods, and Forest Service methods as described in the Built Environment Image Guide. For the required uses, these materials are as or more durable than the others that were evaluated, especially when appropriately prepared. Both these materials are malleable and may be used in many forms. They are suitable for construction at a similar scale to that which currently exists.

Should larger structures be required, for example wider or longer spanning bridges, or should there be particularly demanding conditions, for example construction in a zone that is beneath the high tide level, additional suitable materials have been identified and are listed. Generally, these materials are manmade as opposed to derived from natural sources, and they are more expensive to obtain and install.

The following materials are those identified to be used for construction at Anan Wildlife Observatory:

1. LUMBER

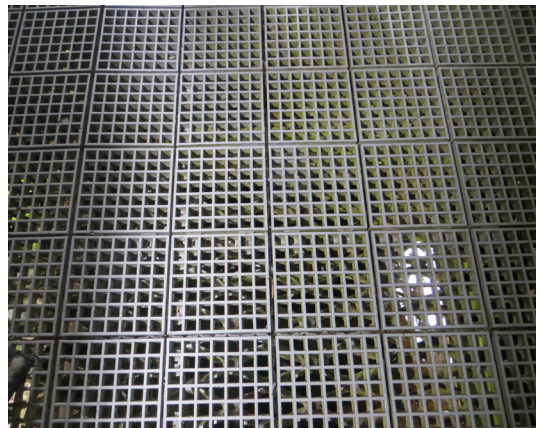
Lumber is recommended for use for boardwalks in areas where gravel trail is not suitable. It is a good material to span drainages or tree roots. It is recommended for bridges, staircase, deck surfaces, wood post supports, handrail and guardrail supports and should be the primary material for structural support, walls and roof interiors.

To increase longevity, lumber should be pressure treated, and thus should hold up for 20 to 25 years.

One of the disadvantages of wood surfaces is that they get slippery when wet. The surface can be scored to improve slip-resistance. Trail improvements at Anan include the installation of hardware cloth onto wooden boardwalk. Hardware cloth consists of two sets of steel wires placed perpendicular to each other and welded together.



EXAMPLES OF SIMILAR STRUCTURES



**EXAMPLES OF SIMILAR MATERIALS
RAILINGS, DECKS, STONE WALLS AND STEPS**

The result is a pattern of equal squares that after welding is hot-dipped galvanized. When placed, the upward facing side of the mesh should have the top-most wires running at right angles to the direction of travel. The malleability of wood allows it to be used in different forms. Where tops of posts project, or lumber is used for handrails, edges should be chamfered or beveled smooth.

2. STONE

Stones that match the existing boulders on site are recommended for providing retaining walls and edging to trails or overlooks. Boulders may serve as seats. Small to medium sized flat faced stones may provide trail surfacing or “pitching”.

Crushed rock is the preferred material for trails as it provides traction and stability. Crushed rock is easily replaced and locally available. It blends well when it has been in place long enough for vegetation to grow in on the edges and forest debris has fallen on it. Crushed rock trails require a firm bedding surface and/or base course and may require excavation up to 24 inches deep. Crushed rock trails need to be designed to resolve drainage issues by using culverts, dips, stone edged drainages, and/or ditching above the trail. Construction on steep slopes is not always practical for crushed rock trails although stones make great steps where a crushed rock trail has to head uphill.

3. METAL

Metal is appropriate for structurally supporting larger structures or serving as small connectors. It provides a useful material serving as a fill for guardrails since it is durable, can be formed to be semi-transparent and bears are not inclined to eat it. Since stainless steel is expensive, it may best be used for connectors. Galvanized steel is recommended for durability. For larger structures, newer methods of creating metal footings, such as helical piers, provide advantages of being less visually impactful and requiring less construction disturbance. Metal gratings are used in nautical environments as they are excellent for providing secure footing. The silvery finish of galvanized metal will wear to a dull gray; however, metal should be used sparingly as it is not consistent with LUD II character. Where roofs are required, standing seam brown metal roofs to match the Anan Bay Recreation Cabin’s roof are recommended.

4. CONCRETE

Concrete provides the stability needed for footings. It is also a sturdy ground surface. When it is used in combination with crushed rock, for example finished with exposed aggregate, seeded with small river cobble, or combined with boulders, it blends better into the landscape. Concrete can be used below the high water line. Concrete is an expensive material and has specific installation requirements, but it provides a durable option in certain more extreme situations. It should be appropriately colored and/or textured.

5. TENSILE AND CANVAS CONSTRUCTION

Tensioned membrane structures are easy to install and securely anchor to any surface, making them a highly portable alternative to traditional structures. They are made of composite fabrics and sturdy metal arch-style frames engineered for safe use and long life in extreme climates. They may be suitable for seasonal use at Anan as they can be easily installed and taken down. The structures use anchoring systems including spikes for earth or lag bolts for wood platforms. Yurt structures are preferred.

APPENDIX G CONSTRUCTION CONSIDERATIONS

It is important to consider the method of construction at the same time as the proposed design improvements as this may be a large factor in determining the feasibility of a new proposal. The recommendations in the preceding section on “Materials Selection” take into consideration the following challenges of construction for land designated as LUD II in a remote location.

- Construction methods should not cause impacts that would result in long term damage to the sensitive ecosystems at Anan. Any impacts need to be remediated immediately at time of completion of the construction projects.
- The construction season will occur outside of the bear and salmon season at Anan. It is identified as mid-September through mid-May.
- The location of access points for construction is challenging given the extreme tidal fluctuations. It is likely that access points will only be available during certain tidal periods, e.g. mid to high tide. Currently, three construction access locations are identified:
 - the Trailhead area
 - the small cove in front of Anan Bay Recreation Cabin
 - the lagoon access next to the spit that was used for constructing the gravel trail.

A fourth access may be located at the Bear Cove drainage inlet to the lagoon. The lagoon access points should be carefully evaluated and monitored for impacts on wildlife.

- The method of construction should be economically competitive while limiting long term environmental impacts.
 - Hand work is usually the least impactful, but it generally requires more people working on site and can extend the time period of construction.
 - Small machinery can be brought to the site via barge and used to build trail in areas that are accessible by trail, five feet maximum width.
 - Materials will be transported to site via barge or boat and offloaded to shore.
 - Helicopter construction has the advantage of completing work in a shorter time period, although it is expensive on a daily basis. This method can also be less impactful to the environment than using small machinery.
- The overall costs of equipment, people and time should be evaluated prior to selecting a method or combination of methods of construction.
- The costs of new facilities and their construction should be evaluated against long term maintenance or simple upgrades of existing facilities.
- The staging area should be located on the water in the bay (not in the lagoon) to the extent possible, especially if living quarters are required.