

Santa Ana NWR



Visitor Interpretive Experience Plan

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Preface

Definitions

The following are brief definitions for terms used in this plan. More detailed definitions can be found in Appendix A.

Visitor Interpretive Experience Plan: A plan that uses a visitor experience approach to determine the interpretive opportunities to develop. The approach also helps identify orientation and wayfinding information needs, and other actions necessary to develop a high-quality visitor interpretive experience.

Visitor: A person who visits the refuge physically or virtually through a website or other channel.

Urban Wildlife Refuges: Refuges established or designated because of the higher probability of reaching urban audiences. If established, as is the case with Santa Ana NWR, a primary goal for the refuge is to develop a Connected Conservation Community.

Stepping Stones of Engagement: An array of opportunities that afford visitors a myriad of pathways to move from their current connection with nature, to a strong connection with native flora and fauna.

Native Nature: Biota that evolved in an area and therefore are native to that location. This term avoids being forced to label different types of nature as ‘good’ or ‘bad.’

Transition Zones in Refuges: Areas within refuges designed to create a transition from land that is more managed to land that is more natural, and is the focus of the refuge’s mission at that site. This zone typically is small, and includes such features as parking areas and visitor centers.

Information Network Approach: People commit time conditionally and typically in increments. Consequently, the interpretive network uses an array of interconnected interpretive opportunities to convey the messages.

Developing the VIEP

This Visitor Interpretive Experience Plan (VIEP) focuses on identifying and conceptualizing the network of orientation, wayfinding and interpretive opportunities to create and facilitate visitor *interpretive* experiences associated with Valle de Oro National Wildlife Refuge (NWR), which are visitor experiences with a significant interpretive component. All visitor interpretive experiences do not have to occur on the refuge itself. For example, people encountering Pollinator Gardens or Butterfly Gardens in public areas planted through partnerships between the USFWS and others are considered visitors and could have a complete visitor interpretive experience associated with that feature.

The Continuums Used to Develop the Plan

Developing the VIEP for Valle de Oro NWR was based on the framework described in the previous section, and on moving people along two continuums – the Continuum of Active Involvement in Conservation, and the Continuum of Experiences in Native Nature, which moves from an urban

environment where a built environment dominates to a natural environment where Native Nature dominates.

Continuum of Active Involvement in Conservation

One of the goals for the refuge is for visitors to experience nature in ways that make them more aware of and comfortable with (less afraid of) Native Nature, motivates them to actively support the refuge, and inspires them to engage in other acts of stewardship regarding natural resources both individually and as part of a Connected Conservation Community. Consequently, the interpretive opportunities selected help move people along a continuum of valuing Native Nature in urban (and non-urban) environments as part of their quality of life, and also motivates them to take actions reflecting stewardship, such as by developing natural landscapes.

Continuum of Experiences in Native Nature

Ultimately, the desire is for visitors to have interpretive experiences associated with Valle de Oro NWR that lead to a never-ending string of experiences in natural areas, helping to establish Native Nature as a valued part of a visitor's lifestyle. Not all visitors will venture all the way along the continuum of experiences, but they should always have the opportunity to go further. That goal dictates the following:

- Every interpretive experience should include marketing additional interpretive experiences;
- The Visitor Center should function as a portal into the more natural parts of the refuge;
- The sequence of experiences at the refuge should progress from environments dominated by built features with some Native Nature to environments dominated by Native Nature with minimal built elements;
- Valle de Oro NWR as a whole should function as a portal to other areas that provide experiences in Native Nature, including other local open space and public lands, and ultimately other refuges, which offer experiences more immersive in nature than can be had at the refuge because of the difficulty escaping stimuli originating in a built environment, such as views of buildings and the sounds of traffic and airplanes.

Introduction

The Refuge

Santa Ana NWR is a jewel in the NWR system. It was established in 1943 for the protection of migratory birds. Though small, the refuge offers visitors an opportunity to see birds, butterflies and many other species of wildlife not found anywhere else in the United States beyond deep South Texas, in part because of its location at the juncture of two major migratory routes, and in part due to the loss of most of the natural landscape in Texas. The wide variety of species attracts birders from around the world. In fact, it was featured in one book as one of the 50 places you should bird before you die.

Santa Ana NWR was one of the first designated Urban Wildlife Refuges in the NWR system. One major purpose of refuges designated as Urban Wildlife Refuges, is to work with community partners to reconnect urban residents to nature and build a Connected Conservation Community. Urban Wildlife Refuges have been designated because they are near population centers, creating a better opportunity to work with community partners attract non-traditional urban audiences with the intention of engaging them physically, intellectually and emotionally in ways that help reconnect them with nature and build a Connected Conservation Community.



Santa Ana NWR attracts birders from around the world

The Visitor Interpretive Experience Plan (VIEP)

People today buy *experiences*. In addition, interpretation is a value-added part of an experience – it is not critical for visitors to have a good experience. Consequently, interpretive opportunities must be designed to mesh with, complement and enrich visitor experiences. With that in mind, the best tool to guide development of an interpretive program is a Visitor Interpretive *Experience* Plan (VIEP), which uses desired audience experiences as the frameworks for determining the network of interpretive, outreach, orientation, wayfinding, and trip planning information to develop, and other actions to take to facilitate those experiences.

The VIEP provides a blueprint for developing a complete information network to support visitor interpretive experiences at (and associated with) Santa Ana National Wildlife Refuge. The recommended information network begins with reaching your target audiences where they are – physically, emotionally and intellectually – and taking them where you want them to go by using a linked combination of trip planning information, orientation, wayfinding and interpretive opportunities.

Because a visitor experience approach was used, other potential issues that negatively impact the visitor interpretive experiences, barriers to the desired experiences, such as facilities that aren't fully accessible, were identified, resulting in recommendations of other actions to take.

This Visitor Interpretive Experience Plan (VIEP) focuses on identifying and conceptualizing the network of orientation, wayfinding and interpretive opportunities to create and facilitate visitor *interpretive* experiences associated with Santa Ana NWR, which are visitor experiences with a significant interpretive component. All visitor interpretive experiences associated with the refuge do not have to occur on the refuge itself. For example, people encountering interpretation associated with pollinator gardens, butterfly gardens or Islands of Habitat in public areas, are considered visitors and could have a complete visitor interpretive experience associated with that feature.

What Interpretation can and cannot do

A major goal of Urban Wildlife Refuges is to create a Connected Conservation Community. It's not enough for residents to simply value the resource; they need to take actions to help restore and protect the resource, and/or to support the efforts of the USFWS. Motivating people to take action of this kind generally requires caring about whatever they are restoring or protecting, or caring about the USFWS, to the point that the personal benefit they derive from their actions is worth the time and effort they expend. Interpretation can help that effort by creating strong positive emotional, intellectual and physical connections with nature, the refuge and its inhabitants. It can also help facilitate the physical transition of residents from urban areas to natural areas by stirring curiosity and interest while removing some of the barriers that obstruct visitation, such as fear of nature.

It is not the interpretive opportunities by themselves that are going to attract visitors, but the actual experiences they can have that provide the attraction power. Interpretation can add value and create the desired connections through the course of that experience. For example:

- When an urban visitor hears a bird call and asks, "What bird is making that call?" it is interpretation that can provide the answer.
- Interpretation can reveal key concepts, such as the critical relationship between wildlife and habitat, which are crucial to achieving the goals of the refuge.

- Interpretation can reveal the relationship between a healthy ecosystem and quality of life while also revealing the interconnectedness between biological organisms in an ecosystem.
- Interpretation helps connect people's lived experiences with nature to other interrelated concepts, behaviors, and physical locations that motivate people to engage in stewardship of natural resources.

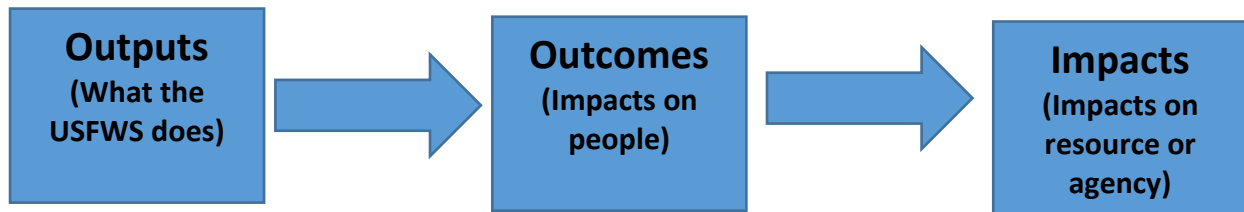
In sum, the role of interpretation is to help forge strong emotional and intellectual bonds between the natural world and people, and to attract people to the natural world where they can also form strong positive physical bonds through personal experience.

Although interpretation can be a key tool in helping achieve the goal of a Connected Conservation Community, it will not, *by itself* achieve significant progress on that front. As noted in the book, *Fostering Sustainable Behavior* by Douglas McKenzie-Mohr, numerous studies show that education *alone* has little or no effect on sustainable behavior. In other words, the interpretive and environmental education programs are important tools to cause the desired outcomes, but by themselves are unlikely to cause a significant shift in the level of conservation in the community unless barriers that increase the difficulty of engaging in the desired behaviors, such as lack of money to buy native plants for landscaping, lack of knowledge about how to plant and take care of plants, and lack of transportation to the refuge, are reduced or eliminated. That requires a different set of actions, noted in the Definitions Section under Urban Wildlife Refuges.

Vision / Goal Hierarchy

Introduction

This section focuses on the drivers of the Visitor Interpretive Experience Plan – the Vision and Goals for the project. The basic logic model used in developing the goal hierarchy for Santa Ana NWR has 3 primary elements – Outputs, Outcomes and Impacts. As shown below, **Outputs** (what the USFWS does) cause **Outcomes** (impacts on knowledge, attitude and/or behavior of the audience), which result in **Impacts** on the resource or agency. The Impacts on the resource or agency help achieve the overall Management Goals, and consequently, the overall Mission/Vision of the USFWS for Santa Ana NWR.



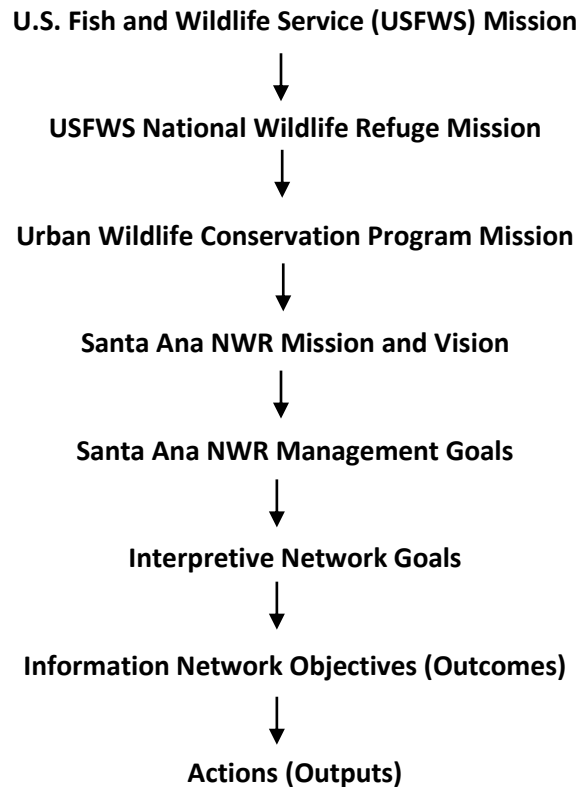
The purpose in using this model is to ensure that the Interpretive Program and all the visitor opportunities developed for that program make progress towards achieving the overall mission of the refuge, and by extension, the mission of the USFWS.

VIEP Goal Hierarchy Structure

The goal hierarchy for the VIEP reflects the South Texas Refuge Complex (STRC) Logic Model. The VIEP takes its direction (**Visitor Interpretive Experience Goals**) from the **Management Goals** for the refuge, which reflect how the USFWS intends to achieve the **Vision/Mission** for the refuge (**Impacts**). The **Visitor Experience Outcomes** reflect impacts on the behavior, knowledge and attitude of the target audience, which, if achieved, result in progress toward the **Visitor Interpretive Experience Goals**. The media prescription and associated actions in the Action Plan that are identified near the end of this planning process are the **Outputs** by the USFWS that are the tools for achieving the desired impacts on target audiences. All those elements have been captured in the hierarchical structure depicted on the following page.

The structure of the goal hierarchy reflects several significant points. First, everything stems from the USFWS mission. Second, the statements at each level, whether goals, missions or vision, are derived from the statements of the level above. Determining each set of statements requires asking the question, “how can this [goal, outcome, mission] help achieve the next level up?” For example, the specific Visitor Interpretive Experience Goals for Santa Ana NWR can be determined by asking, “How can a Visitor Interpretive Experiences and the associated Interpretive Program help achieve the USFWS Management Goals?” The connection between all levels provides the planner with tools for identifying each level of goals, and for defending those goals. Finally, the structure clearly shows the link between the purposes for which the refuge is managed, and the recommended actions associated with developing visitor interpretive experiences.

Goal Hierarchy Structure



The following are the elements, arranged in descending order, of the goal hierarchy that drives the development of visitor interpretive experiences.

U.S. Fish and Wildlife Service (USFWS) Mission

First, it is important not to forget that a National Wildlife Refuge is managed by the U.S. Fish and Wildlife Service, an entity with a mission:

The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

Every action the USFWS takes should in some way support and make progress towards that mission. Creating a Connected Conservation Community who value nature enough to take an active role in helping conserve and restore natural habitat supports and makes progress towards that mission.

USFWS National Wildlife Refuge System Goals

The National Wildlife Refuge System administered by the USFWS functions under the following set of goals:

- Conserve a diversity of fish, wildlife, and plants and their habitats, including species that are endangered or threatened with becoming endangered;
- Develop and maintain a network of habitats for migratory birds, anadromous and inter-jurisdictional fish, and marine mammal populations that is strategically distributed and carefully managed to meet important life history needs of these species across their ranges;
- Conserve those ecosystems, plant communities, wetlands of national or international significance, and landscapes and seascapes that are unique, rare, declining, or underrepresented in existing protection efforts;
- Provide and enhance opportunities to participate in compatible wildlife-dependent recreation (hunting, fishing, wildlife observation and photography, environmental education and interpretation);
- Foster understanding and instill appreciation of the diversity and interconnectedness of fish, wildlife, and plants and their habitats.

Santa Ana NWR Mission

Based on the USFWS Mission, National Wildlife Refuge System Goals and Urban Standards of Excellence, Santa Ana NWR will help achieve the USFWS mission by accomplishing the following:

1. Restoring, creating and maintaining native flora and fauna on the refuge, and at various locations within the south valley – with emphasis on the Pharr-San Juan- Alamo area – that reflects what the area may have looked like prior to extensive manipulation of the landscape by people.
2. Creating a Connected Conservation Community that actively supports the STRC, USFWS and the refuge system.

Santa Ana NWR Vision – Where you want to be in 20 years

The following characteristics of the refuge of the future were derived by reviewing the long-term outcomes articulated in the STRC Logic Model, assessing the input from the objectives work sheet passed out to participants in the planning process, and analyzing input from previous work sessions and from the initial submittal. Note that the wording for many of the long-term outcomes has been modified from the original list to help readers understand the overall vision.

The Refuge in 20 years

1. The refuge provides quality habitat for native species of flora and fauna that would have occurred prior to extensive alteration of the area by humans.
2. The refuge functions effectively as a valuable resting place for migratory birds. It also serves as a key in the continuum of habitats along the Rio Grande that support the migration needs of terrestrial fauna.
3. The diversity of the people who serve the public (staff and volunteers) at the refuge reflects the diversity in the population of residents of the surrounding communities.

Visitation and Use in 20 years

1. The diversity of visitors to Santa Ana NWR and the rest of the STRC approaches the diversity of residents in the local communities in general, in part because people of all cultural groups feel safe and welcome at all the refuges. (The diversity of visitors is not likely to ever match completely because Santa Ana NWR is a birding hotspot attracting visitors from around the world.)
2. People from all walks of life in the LRGV participate regularly in activities offered by this and other refuges, both on and off-site.
3. Despite multiple visits to the refuge, residents continue to visit on a regular basis and engage in interpretive experiences because such opportunities are constantly changing and are always relevant no matter the changes to the social environment.
4. People visit regularly to relax in nature, and/or socialize with friends in the ambience available at the refuge.
5. Local youth consistently engage in activities offered by Santa Ana NWR and the STRC, and many become outdoors people who support and visit refuges and other natural areas.
6. Because of effective partnerships and an outdoor classroom, the refuge enjoys heavy use from local schools for field trips, Environmental Education opportunities, research projects, Service Learning projects, Citizen Science projects, and intern programs where students from middle and high schools and local colleges serve as interns at the refuge.
7. Locals value the refuge highly because of the roles it plays in their quality of life, and are aware of the refuge's economic benefit to the community. They feel the refuge is a part of the community.
8. Local residents are aware of and support the larger network of USFWS refuges and other sites that engage in conservation of migratory and resident flora and fauna.
9. Local leaders understand the value of the refuge and the STRC in terms of increased tourism and the consequent boost to the economy, and the opportunities it offers residents, so they support the refuge and its activities. They also champion the refuge and refuge programs within the community in gaining congressional support.
10. An array of business and social organizations use the refuge for meetings and special events, which is made possible by a large multipurpose room in the new visitor center. *
11. Birders and nature tourists flock from near and far to visit what continues to be one of the premier destinations in the world for such activities.

**Note: Santa Ana NWR will be able to function more effectively as an Urban Wildlife Refuge with a new facility that contains spaces for public meetings and social events. If built in the area of Headquarters Lake, it would help support visitor activities in that area.*

The Refuge as part of the Community in 20 years

1. Santa Ana is an exemplary model of an Urban Wildlife Refuge, having met and exceeded the Urban Standards of Excellence.
2. Santa Ana and the rest of the STRC are known throughout the region and beyond for the opportunities afforded local youth to explore and gain entry-level employment in conservation, which they do on a regular basis.
3. The refuge offers a wide variety of innovative opportunities for the public to explore and enjoy the refuge without having a negative impact on wildlife, such as by birking, learning outdoor skills, taking kayak lessons and enjoying a nature-based playground for children.

Note: *Recreational opportunities outside of the Big 6 have not been an option on most refuges, but designated Urban Wildlife Refuges are different in that they are charged with creating a Connected Conservation Community in addition to conserving fish and wildlife through managing habitat. With that in mind, anything that motivates urban residents to enjoy nature, such as having their children play in a nature-based playground set in the context of nature, should be seriously considered. The more attractions SANWR has on-site that are attractive to urban audiences the better, because it increases the probability that they will visit, thus creating the opportunity to move them along the continuum of Stepping Stones of Engagement toward immersion in a natural environment. For example, a nature-based playground offers the opportunity for families to enjoy something they consider 'safe,' within the context of a natural setting. As a side note, it can also function as an interpretive opportunity designed so parents interact with their children in 'discovering' the natural world.*

4. The Visitor Services program is constantly evolving to sustain interest by repeat visitors, stay relevant to local audiences, and meet the ever-changing needs of local school children and residents while maintaining its status as a premier destination for birding and nature study. This is made possible in part by deep sustained partnerships that accomplish mutual goals. (In other words, it will continue to serve traditional users while also becoming a destination for non-traditional audiences.)
5. The deep, respectful relationship between the USFWS and residents is due in no small part to the fact that valuing visitors (and their heritage) has become the cultural norm of refuge staff.
6. Volunteers are in abundance, and the Friends of the Wildlife Corridor flourishes because the refuge is a place that highly values volunteers and shows it through setting aside space for them, honoring them and engaging in other actions that clearly demonstrate value.
7. The refuge supports:
 - A flourishing Citizen Science Program
 - An intern program for middle and high school students and college students focused on providing training in job skills
 - Well-attended community work projects focused on restoring and managing natural habitat within the community and on the refuge.

The Community as Part of the Refuge in 20 years

Note: *This is a vision that embodies the goals of the refuge, which the USFWS tries to create in the next 20 years.)*

1. 'Islands of Refuge,' which have been planted in every school yard, attract native birds, butterflies and wildlife while serving local teachers for teaching a variety of subjects associated with the natural world.
2. A high percentage of residences use native flora in their landscaping. The overall result is an increase in native fauna that depend on these plant communities.
3. An agreement with the local communities has led to planting parks, medians, open spaces and similar areas with native vegetation, creating more habitat for native species of birds and wildlife.

4. Local businesses, through the support of and guidance by the refuge, also favor landscaping using native plants.
5. Local businesses also support refuges and the associated Friends Group.
6. Nearby natural areas enjoy increased visitation due to information picked up at Santa Ana NWR or any of the refuges in south Texas (Laguna Atascosa NWR, Aransas NWR).
7. As part of a growing conservation community, residents' attitudes shift in the direction of being supportive of conserving nature, resulting in a higher percentage of residents engaging in a wide array of stewardship behaviors.

Midterm Vision Milestones/Indicators that you are going in the right direction

The vision reflects the long-term hopes for the refuge. The following are mid-term indicators that the USFWS is on the right track and making progress towards achieving the vision:

What is happening with the USFWS staff and refuge along the way?

1. Refuge/complex birding and nature programs continue to develop, which maintains SANWR's status as a premier birding destination.
2. The number of employment opportunities and information on wildlife conservation careers at the STRC increases, whether through the USFWS or youth employment opportunities such as YCC, SCA, AmeriCorps, and interns.
3. Innovative public use programs begin becoming the norm rather than the exception.
4. Although visitor services programs and facilities continue to expand, they do not interfere with the habitat and conservation mission of the USFWS.
5. Santa Ana NWR and STRC continue making significant progress on achieving Urban Standards of Excellence.
6. Santa Ana NWR and STRC continue to develop partners that support the work of the USFWS both within the community and within the refuge.
7. The refuges/complex staff take initiative on a regular basis for cross programmatic work and for enhancing the visitor experiences for all visitors, not just traditional visitors.

What is going on with the community along the way?

1. A significant increase in the local community's willingness to visit, engage and participate in refuge programs.
2. Youth are engaging in increasing numbers in activities on the refuges/complex, including in Environmental Education.
3. A significant increase in the degree to which all visitors feel welcome, due in part to an increase in materials that are bilingual, and increased understanding by the USFWS of what target audience segments consider of value in a visit.
4. A significant increase in Islands of Habitat and backyard habitat as a significant percentage of residents, businesses, city government and schools are using native plants in landscaping.
5. Community supports conservation projects and demand green spaces and green development/infrastructure.
6. An increase in % of residents who take action beneficial to nature.

Short term Indicators that the USFWS is on the right track

The following are short term indicators that the USFWS is on the right track and making progress towards achieving the Vision. They should be reviewed on a regular basis so the USFWS can make corrections before investing a lot of resources in actions that are making minimal or no progress.

What is going on in the community?

1. A significant increase in awareness on the part of the residents in the surrounding communities that Santa Ana NWR and the STRC and all associated units exist.
2. A significant increase in awareness on the part of the residents of the surrounding communities that conservation career opportunities exist.
3. A significant increase in awareness by local communities of activities on Santa Ana NWR or off-site sponsored by the refuges/complex that they consider desirable.
4. A significant increase in awareness of refuges by youth – they know why they are there and what is happening.

What is happening at the refuge?

1. Current status of birding and nature tourism programs is maintained at a minimum.
2. Service leadership recognizes the need for innovation in planning and operations of visitor services and actively supports such innovation.
3. Staff understands the relationship between conservation mission and visitor services activities.
4. The refuges/complex understands and actively supports Urban Standards of Excellence pertinent to Santa Ana NWR.
5. Santa Ana NWR values existing partnerships, and continues to work on new partnerships.
6. Staff understands the need to value visitors, which manifests itself in visitors feeling welcome.

The Pathway: Santa Ana NWR Strategic [Management] Goals

The following are management goals that would help make progress towards the Visitor Services functions at the refuge.

Management Goal 1: Through partnerships and close collaboration with schools, create interpretive, environmental education and other learning opportunities (programs, traveling trunks, Islands of Habitat, etc.) that are in high demand from schools, in part because they support school standards.

Management Goal 2: Create opportunities through infrastructure and policy for residents to use the refuge facilities for social and community events and social functions (achieving this part of the vision is likely to require a new visitor center, one more equipped to handle social events).

Note: *This is not likely to happen with current infrastructure. A new visitor center at Headquarters Lake could be designed to have a room that supported environmental education activities, school programs, and community events.*

Management Goal 3: Maintain a high approval rating from traditional audiences by improving/maintaining existing trails and other necessary supporting infrastructure to allow easy pedestrian access to the habitats in the refuge.

Management Goal 4: Achieve and maintain a high level of demand by interns, USFWS personnel, volunteers and others to work at the refuge due its positive working environment.

Management Goal 5: Increase visitation by residents and students who are attracted more by the opportunity to sit and chat or work, such as might happen with an area that had Wi-Fi and coffee, or by recreational experiences they value, such as biking and kayaking.

Management Goal 6: Work with local nurseries to make native plants readily available to residents and work with the community to facilitate planting of native vegetation within backyards and other urban areas with a goal of having a majority of residences using native plants for landscaping within 20 years. This might be helped by creating a set of demonstration backyard habitats in the community, along with a demonstration pollinator garden and butterfly garden, ideally with one or more of these areas designed to be good backdrops for wedding photos. Such habitats could also be developed at the refuge in the Headquarters Lake area if it is developed as a locus of visitor experiences.

Note: One of the actions suggested in the review comments was to start a seed collection program where seed is collected from existing native gardens, grown in the nursery at the refuge, and used for future plantings. They could also be given to residents for planting in their yards. Although this could be turned into an interpretive opportunity, it likely falls more under the heading of Plan for Managing an Urban Refuge in that it addresses the need to have the community view the refuge as an asset.

Management Goal 7: Through outreach, interpretation, education and other strategies, significantly increase the active participation of residents in stewardship of natural resources.

Visitor Interpretive Experience Program Goals

Introduction

A major goal for Urban Refuges is to create a Connected Conservation Community. It's not enough to simply value the resource; residents in nearby communities need to take actions to help restore and protect the resource, and/or to support the efforts of the USFWS. Motivating people to take action of this kind generally requires caring about whatever they are restoring or protecting, or caring about the USFWS, to the point that the personal benefit they derive from their actions is worth the time and effort they expend. Interpretation can help that effort by creating strong positive emotional, intellectual and physical connections with the refuge and its inhabitants. It can also help facilitate the transition of residents from urban areas to natural areas by stirring curiosity and interest while removing barriers, such as fear of nature. It is important to recognize that the goal of causing impact on behaviors is not likely to be attained by simply changing knowledge and attitudes. It also requires identifying barriers to the desired behaviors and minimizing or eliminating those barriers.

It is also important to understand that it is not the interpretive opportunities by themselves that are going to attract visitors, rather it is experiences. Interpretive opportunities can increase the attraction power by adding value to the experiences. Given that information is most likely to be used if offered at the time and place it is most useful to a person, when an urban visitor hears a bird call and asks, "What bird is making that call?" interpretation can add value to the experience by providing the answer, and then possibly drawing the connection between that bird and the habitat. It is interpretation that can reveal key concepts, such as the critical relationship between wildlife and habitat, which are crucial to

achieving the goals of the refuge. In sum, interpretation is a key to forging strong emotional and intellectual bonds between the natural world and people, but it needs to be meshed with experiences that visitors desire to be effective.

Visitor Interpretive Experience Program Goals and Objectives

Accomplishing the Interpretive Program goals listed below will help achieve Management Goals at Santa Ana NWR. Possible objectives (outcomes) have been included, but have not been refined to be measurable. That will occur after the goals have been approved.

Primary Overarching Visitor Interpretive Experience Goal

Create a Connected Conservation Community consisting of local residents of the LRGV that includes a significant percentage of people from non-traditional audiences, who actively practice and support conservation, and by extension, support Santa Ana NWR, the STRC, and the USFWS.

Because most visitors live in an urban area, this must start by valuing nature in an urban landscape, but must also build on that to valuing nature in general. Everything stems from seeing *nature in an urban area* as a key part of their quality of life rather than something that is 'nice' but not essential. Valuing nature is a critical precursor to supporting the USFWS as a manager and protector of nature, volunteering for nature restoration efforts, engaging in stewardship behaviors, etc. Although the residents could come to value the USFWS as a provider of services they value, if the residents don't value nature, they won't become a Connected Conservation Community, which means that Santa Ana NWR would fail in its mission as an Urban Wildlife Refuge.

The objective(s) for this goal would focus on the percentage of residents who consider nature in urban areas an important part of their quality of life rather than something that is simply nice to have around. A baseline should be established to accurately determine the amount of increase. However, it could also be assumed that most people do not consider urban nature essential, so an objective of 50% of the residents considering urban nature as an important part of their quality of life could be used. However, if a baseline isn't established, the actual effectiveness of the interpretive effort cannot be specifically established.

Achieving this objective will manifest itself in the following Outcomes:

- Residents use native plants for landscaping in combinations that create good habitat for native flora, fauna and other valuable organisms such as butterflies and pollinators;
- Residents volunteer at the refuge for work parties and/or other activities, such as BirdFest;
- Residents volunteer for projects in the community that are 'extensions' of the refuge, such as helping create and maintain Islands of Habitat in schoolyards, neighborhood natural areas and other public spaces;
- Residents living in communities with recycling programs engage in recycling (this indicates an increase in environmental literacy and stewardship behaviors);
- Residents support community measures focused on conversation, recycling and other actions consistent with the goals of the USFWS;

- Residents support the refuge through voting behavior, letters to community and government leaders and similar actions;
- Because of understanding the benefits of conservation, community leaders actively support passage and enforcement of environmental laws and policies, including developing green infrastructure and more green spaces;
- Cities adopt programs that lead to more green space and more Islands of Habitat through planting of native species of flora;
- Media advocates for conservation and green spaces;
- The medical community actively supports the refuge because it recognizes SANWR as a healthy destination for families to exercise and reduce stress.

Secondary Overarching Visitor Interpretive Experience Goal

This goal focuses on an attitude that is key to visitors engaging in behaviors that support the mission of the USFWS. If they don't value the refuge or its resources, they are not likely to take actions to support either:

A significant increase in awareness among visitors of the connection between the refuge and conservation of natural resources, and what they value in terms of quality of life, which will foster a positive personal intellectual, physical and emotional connection between the public and the refuge and the native flora and fauna it supports, and by extension, the National Wildlife Refuge System.

This will manifest itself in the following Outcomes:

- Residents visit the refuge regularly because they value the natural setting;
- Families use refuge facilities for picnics and outings with the extended family, in part because they are aware of the opportunities at the refuge and that the refuge is less than 30 minutes away;
- Local residents use refuge facilities for social events consistent with the refuge purpose;
- Residents attend and help with events at the refuge;
- College students and adults train as interpretive naturalists and bird guides, resulting in a large trained group of volunteers to help at events and functions at the refuge;
- Local businesses and organizations use the refuge facilities for meetings (only possible if a new visitor center is built with appropriate spaces);
- Students will view careers in conservation of natural resources as attainable through school training coops.

Intermediate Visitor Interpretive Experience Goals

Achieving these intermediate goals will help in reaching the primary and secondary overarching goals:

- *Reach more people - both visitors to the refuge and people outside the refuge - with key messages.*
- *Increase the residents' level of pride in the refuge and their community and the relationship between the two.*

Actions Associated with reaching the Intermediate Visitor Interpretive Experience Goals

- Enhance the quality of visitor experiences to the refuge as defined by the target audience. This suggests choosing and locating interpretive strategies on the refuge to achieve a high probability of being used, which means in part tailoring them to the

specific audiences they are trying to reach. It also suggests a significant investment in outreach opportunities, especially to those target audiences who can have significant impact on achieving the Interpretive Goals.

- Expand and fine-tune outreach opportunities and activities to increase the number of residents who engage.
- Work with schools to develop educational opportunities on and off the refuge that mesh with curriculum. This will manifest itself in the following outcomes:
 - Middle and high school students will engage in Citizen Science projects associated with the refuge (and ideally, share their results in a student-based international conservation forum);
 - Students will use the refuge for Service Learning projects;
 - Local youth will become student interns (junior nature guides) at the refuge;
 - Teachers will use the refuge as an outdoor classroom;
 - Students will engage in learning opportunities focused on nature;
 - K-12 students will participate in interactive, inquiry based, thematic interpretive learning experiences focused on one environmental issue (at a time) through a gateway animal, incorporating awareness, knowledge and action.

Note: *Santa Ana NWR has already worked extensively with a partner and the Pharr-San Juan-Alamo Independent School District to support creation of 20 schoolyard habitats that will be used by teachers for instruction in biology, ecology and related topics, and is working on creating more.*

Note: *Many of the actions listed above fall under the heading of Environmental Education. However, such opportunities raise awareness of and interest in the refuge. Inclusion simply indicates that they are valued in part because they foster interest in the refuge.*

Interpretive Program Goals

Attaining the following Interpretive Program goals and objectives will help attain the overarching visitor interpretive experience goals. The first two focus on actions by the USFWS while the remainder focus on desired outcomes focusing on what local residents do. They have been arranged, to the extent possible, in sequential order. For example, an increase in awareness and appreciation for the USFWS will lead to an increase in volunteers. After focusing on what the USFWS is going to do, the Interpretive Goals begin with valuing and feeling comfortable with Native Nature (in other words, creating a situation where local residents value nature as part of their quality of life). The sequence then focuses specifically on the refuge and the USFWS.

Note: *The objectives are not based in research because very little research has been conducted on the effect of interpretive programs.*

Interpretive Program Goal 1: Enhance the quality of visitor experiences on the refuge as defined by the target audience.

Although this is typically considered a 'given,' it is important to remember that people come to the refuge for an experience that may include interpretation, but typically as an optional part of that experience. Visitors are more likely to engage in an interpretive opportunity that integrates with and enhances the experience they want to have.

Measurable objectives would focus on increased visitation by local residents .

Interpretive Program Goal 2: Significantly increase the degree to which urban dwellers value nature in urban areas and nature native to the area.

This basically simply reflects the point that people are not likely to engage in any of the desired behaviors if they don't value nature, especially 'native' nature.

Interpretive Program Goal 3: Significantly increase confidence among urban dwellers in their ability to immerse themselves in a natural environment and enjoy the natural world safely.

This was included because fear of nature was also identified as a barrier to engagement. Reducing fear of nature is likely to require both increased knowledge of nature (reducing fear of the unknown) and gaining confidence related to exploring nature, which will come through repeated exposure.

This may be hard to measure without a survey, Objectives could involve using a Likert-type scale for visitors to rate their apprehension regarding nature.

Interpretive Program Goal 4: Increase local residents' awareness of Santa Ana NWR and what it offers.

Lack of awareness of Santa Ana NWR was cited as a significant issue in regards to visitation by local residents. Lack of awareness of refuges in general, along with lack of awareness that refuges offer visitor opportunities were noted as common barriers to engagement. Both can be addressed by an effective information network.

Note: *The recent focus on Santa Ana NWR as the first place designated for a border wall significantly increased the awareness of the refuge, although that doesn't necessarily include awareness of what the refuge offers.*

Objective 4-1: Awareness that Santa Ana NWR exists will increase by a minimum of 10% a year for the next 5 years.

Objective 4-2: Ability by residents to provide directions, at least general directions, to Santa Ana NWR will increase by 5% a year for the next 5 years.

Objective 4-3: Among residents who are aware of Santa Ana NWR, 50% will be able to name at least one visitor opportunity that is not traditional, and at least one visitor opportunity they consider appealing.

Note: Restrictions imposed by the Office of Management and Budget (OMB) make it very difficult to conduct surveys that would provide evidence of having achieved or not achieved objects. However, that does not negate the value of the objectives in terms of benchmarks to strive for.

Interpretive Program Goal 5: Increase awareness of and appreciation for the work of the USFWS in restoring and conserving nature within and outside urban areas.

This follows from the overarching interpretive program goal. If people value nature in urban areas, and they are aware of the role of the USFWS in restoring and conserving nature in their communities, it is more likely they will appreciate and support the USFWS.

Ideally this would manifest itself in a variety of ways linked to support for the USFWS, such as an increase in volunteers at the refuge, an increase in volunteers for work parties and similar actions. There may be some barriers to such actions in this case also, such as lack of transportation, so again, specific objectives would depend on whether barriers to such actions had been removed. The following objectives focus on attitudinal changes rather than specific behaviors for that reason.

Objective 5-1: One year after implementation of the first phase of development of the information network identified in this plan, 50% of local residents will be aware of the refuge, that it is a refuge and not a park, and will be able to name the USFWS as the agency managing the refuge. This will rise to 75% after two years and 90% after three years.

Potential Barriers that cannot be addressed by information: None that can't be addressed by the information network.

Objective 5-2: One year after implementation of the first phase of development of the information network identified in this plan, 35% of local residents will be able to explain what the USFWS does and how it differs from other agencies. This will rise to 50% after two years and 65% after three years.

Potential Barriers that cannot be addressed by information: None that can't be addressed by the information network.

Objective 5-3: One year after implementation of the first phase of development of the information network identified in this plan, 40% of local residents will be able to name at least 2 ways in which the USFWS has contributed to their quality of life. This will rise to 65% after two years and 75% after three years.

Potential Barriers that cannot be addressed by information: None that can't be addressed by the information network.

Objective 5-4: One year after implementation of the first phase of development of the information network identified in this plan, 30% of local residents will be aware that the USFWS manages a *network* of refuges that are important to migratory birds, and aware of Laguna Atascosa NWR and units of the Lower Rio Grande NWR and what they offer in terms of visitor experiences. This will rise to 50% after two years and 65% after three years.

Potential Barriers that cannot be addressed by information: None that can't be addressed by the information network.

Objective 5-5: One year after implementation of the first phase of development of the information network identified in this plan, 5% of local residents who have visited the refuge will visit Laguna Atascosa NWR or another wildlife refuge. This will rise to 15% after two years and 25% after three years.

Interpretive Program Goal 6: Increase participation in volunteer activities to support the refuge, both the refuge proper and the extension of the refuge into the community, such as increasing the number of volunteers who help create and manage Islands of Habitat.

This follows from Interpretive Program Goal 5. It could be reworded as an objective that indicates increased awareness and appreciation, but it seems better to separate it out into a goal because when behavior is involved in a goal it is likely that the actions taken to achieve that impact on behavior will require both education (through interpretation and/or environmental education) and eliminating barriers to such behavior, such as lack of transportation to the refuge or sites where work is being undertaken.

Objectives would depend on the types of volunteer opportunities available to visitors.

Interpretive Program Goal 7: Reach more people - both visitors to the refuge and people outside the refuge - with key messages.

This goal suggests choosing and locating interpretive strategies on and off the refuge to achieve a high probability of being used, which means in part tailoring them to specific target audiences. It also suggests a significant investment in outreach opportunities, especially to those target audiences who can have significant impact on achieving the Interpretive Program Goals.

The Objectives would focus on communication of the key messages rather than simply that people were more aware of the refuge.

Interpretive Program Goal 8: Increase the level of motivation in residents to engage in stewardship behaviors in their daily lives.

Although the goal is to increase stewardship behaviors, as noted previously, interpretation by itself is not likely to have a significant impact unless barriers to engaging in the desired behaviors are identified and minimized or removed. Therefore, the goal is worded to reflect what interpretation can do by itself.

Note that it is assumed that valuing nature is a necessary precursor to being motivated to engage in stewardship behaviors.

Objectives would depend on whether barriers to specific stewardship behaviors have been eliminated, in which case the increased motivation should be reflected in increased levels of stewardship behaviors. If not, the most that can realistically be hoped for would be a significant increase in motivation. The following objectives reflect the impact of interpretation, regardless of barriers being eliminated or not.

Objective 8-1: Motivation among residents to engage in stewardship activities increases significantly (15% a year for the next 5 years) as a result of engaging in interpretive opportunities offered by the refuge. (Measured using a Likert-type scale).

Objective 8-2: Assuming barriers to stewardship behaviors have been minimized, an increase of 15% of residents per year for the next 5 years will engage in at least one additional stewardship behavior, such as engaging in planting of Islands of Habitat, volunteering at the refuge, planting native vegetation in their yard, or significantly increasing the rate at which they recycle.

Theme Hierarchy (Messaging)

Introduction

Note: *These are the proposed themes (messages) for the Interpretive Program. They are the core of the stories presented about the cultural and natural history of the area. However, for the interpretive program to be successful, the USFWS must also communicate the message “The USFWS is an asset to the community” to residents of the area. That is accomplished by actions taken by the USFWS that the residents consider beneficial to their quality of life. Identification of those actions is not a part of this plan.*

Interpretive 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 in the interpretive opportunities; stories are selected to communicate themes. Consequently, themes are determined before selecting and developing the interpretive strategies.

The elements in the final theme hierarchy include:

Themes (Messages)

These are the key ideas or concepts to be communicated.

Sub-themes

These are concepts that support a theme.

Supporting Stories

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

At this point in the process we need to finalize themes and sub-themes, and fill in supporting stories to complete the theme hierarchy.

Themes are derived from goals and objectives by determining the concepts visitors need to understand that will motivate them to engage in behaviors that help achieve the goals and objectives of the USFWS. The following are key points to remember when reviewing and adding to the theme hierarchy:

1. Themes (messages) are tools for the communicator, not the headers for exhibits. Think of a theme as what you want people to be saying in their head after an interpretive experience at SANWR.
2. Most refuges need to communicate the same themes (messages) because they are trying to accomplish the same goals by reaching urban audiences because 80% of the population of the U.S. now lives in urban areas. For example, communicating the theme (message) that ‘nature is important to your (my) quality of life’ is a necessary first step in the quest to cause impact on visitor behavior because if people don’t value nature, they aren’t likely to engage in stewardship of our natural resources. Although the same basic set of themes is the same for many refuges, the supporting stories change because of differences in flora, fauna and local history.
3. With all audiences, but particularly with urban audiences, it cannot be assumed that they are cognizant of basic biological concepts. For example, they probably don’t understand that wildlife depends on habitat for survival. If people do not understand that concept, they don’t

understand that managing wildlife is all about managing habitat, and if they don't understand that concept, they won't understand what the USFWS does. As another example, they probably don't understand that everything in an ecosystem is linked. If they don't understand that concept, it is hard to understand that what they do in their yards and urban area ultimately affect the ecosystem that also supports wildlife, and they won't understand why they should change their behaviors. Consequently, those concepts are a part of the theme hierarchy.

4. It is important *not* to assume that people care about wildlife to the point that they would actively engage in conservation. That does not mean that they don't value or care about wildlife at all; just that you can't assume they care enough to become active stewards. Consequently, the theme hierarchy for Santa Ana NWR, and any other place trying to conserve nature, should include some version of the theme (message), "*Nature is important to my quality of life*" as an introductory theme. If people don't value nature, they won't become stewards of the natural resources.
5. Motivating people to engage in conservation involves communicating some version of the following sequence of themes:
 - **Value theme:** This resource is important to my quality of life. (People don't typically spend time and energy protecting something that offers no value in their life.)
 - **Endangered theme:** This resource is endangered (and therefore, my quality of life is in danger).
 - **Effort theme:** We (in this case the USFWS) are doing everything we can to help conserve this resource, but we need your help. (People generally aren't as motivated to help someone who isn't already working hard to accomplish a goal.)
 - **Concerted effort theme:** A lot of people are already engaging in actions to help. People like to be a part of the majority, so they are more inclined to help if others are doing so.
 - **Empowerment Theme:** You can make a positive impact. (The seemingly overwhelming problem of saving the environment makes some people simply give up. Also, many people in positions of influence support the 'Doomsday' stance, so it must be countered.)

Communicating those themes puts you in position to issue a **Call to Action** and get a response. The Call to Action takes the form of "here's what you can do . . ."

6. Although people only remember 1-3 overarching concepts a few weeks after reading information, the theme hierarchy has more than 3 major themes because different people will respond to different messages.
7. Supporting stories may appear under more than one sub-theme because they can be used to communicate multiple concepts.
8. Education alone will not cause the desired impacts on behavior. Barriers to engaging in desired behaviors must be identified and minimized. However, the impact on knowledge and attitude resulting from engaging with interpretive opportunities is still a key to achieving the desired outcomes.

Theme Hierarchy

The following recommended themes, sub-themes and supporting stories are based on the key points noted in the Introduction. The progression begins with valuing Native Nature, followed by the fact that Native Nature is endangered, the fact that the USFWS is focused on conserving and restoring Native Nature, and finally, that people can help.

Interpretive Theme 1: Nature, such as that found at Santa Ana NWR, including native plants, wildlife and other organisms, is important to your (my) quality of life, as it has been important to the quality of life of all who have lived here in the past.

The first part of this theme is the key point that must be communicated to motivate people to take action to conserve, protect and restore Native Nature. Although it is native plants and wildlife that you want people to conserve, it is important to begin by accepting the nature they already value, whether native or not, and working from that point. The second part of the theme creates an opportunity to connect with people whose families have lived here for generations.

Sub-theme 1-1: The population of pollinators that are critical for pollinating local crops is declining due to loss of the habitat they need to survive, which will affect the availability of foods.

Note: The focus is on connecting with audiences by the food they eat, so this would be a good theme for interpretive information associated with local bakeries and restaurants.

Examples of Supporting Stories

- Pollinators that are crucial for chili and nut crops are endangered due to human activities.

Note: During the design process, the designer needs to work with the USFWS to determine other key crops in the area that would be affected by the loss of pollinators.

Sub-theme 1-2: Ecotourism, which depends to a significant extent on the natural resources of Santa Ana NWR specifically and other refuges in south Texas, is important to maintaining quality of life.

Examples of Supporting Stories

- Santa Ana NWR, in combination with other refuges in South Texas, contain unique places like no other, which support unique populations of birds and wildlife that attract visitors from all over the world, who pump millions of dollars into the local economy – dollars that help pay for schools, medical facilities, and other services we value.
- Ecotourism, which depends on the native wildlife, creates a lot of jobs in south Texas.

Note: Simply tying ecotourism to the economy has not been successful. This supporting story ties the income from ecotourism directly to factors that affect quality of life, such as schools and medical care. Please let me know if this is correct.

Sub-theme 1-3: Native Nature, including that at Santa Ana NWR, provides opportunities for desirable recreational opportunities.

Examples of Supporting Stories

- The role of the refuge system, including Santa Ana NWR, in providing hunting, especially for waterfowl;
- The importance of clean water to support fish populations, the role of Santa Ana NWR and other refuges in south Texas containing wetlands that help filter out pollutants, and the resulting quality of opportunities for anglers;
- The importance of having natural areas to walk, hike and paddle.

Sub-theme 1-4: Nature is an important part of a healthy lifestyle.

Examples of Supporting Stories

- Research shows that the most effective reducers of stress are bird calls;
- Native Nature improves water and air quality;
- Research shows health benefits from being in nature;
- Native vegetation improves soil quality and stability which helps mitigate erosion and fugitive dust/particulate matter (air quality).

***Note:** Information on health issues related to nature, such as Nature Deficit Disorder, can be included, but those seem to be somewhat abstract. It might be more effective if we could come up with some more relevant examples, such as diabetes if possible, or more specific data points.*

***Note:** In a marketing study regarding the Florida Trail found that a major draw of the trail was the opportunity for walking to maintain health.*

Sub-theme 1-5: The natural world, including Santa Ana NWR, provides many other benefits we value.

Examples of Supporting Stories

- Native plants provide a diversity of food and medicine which have been used by people in this area for thousands of years (see the book Incredible Edibles of South Texas for examples that might be found at Santa Ana NWR);
- The % of medicines that come from native plants. It would be great if there was a specific medicine that came from a species that is endangered due to habitat destruction. As an example, in the Pacific Northwest the Pacific Yew was considered a trash tree until someone discovered that it was effective in combatting some forms of cancer;
- Native plants use less water, thereby reducing water bills when used for landscaping;
- Wetlands help mitigate floods as well as clean water.

As noted previously, if the audience doesn't think nature is important, the other messages are pointless in terms of achieving the desired outcomes. This could be expanded to public lands, or be a sub-theme under a theme about public lands being important to our quality of life, but spending time defending public lands in general could distract people from the key point that you want to make, which is that nature is an important component of quality of life. This is also an easier theme to communicate

because most people invite nature into their lives in some way, such as by house plants, landscaping, wall photos, walks in a natural area, and in a myriad of other ways that do not happen on public lands.

Other strategies for increasing residents' value of nature

It is not the purpose of this plan to focus on other than visitor interpretive experiences, but given how important it is for target audiences to value nature, I think the following ideas should be recorded and available somewhere in this plan:

1. Explore the role of nature in creating motifs and inspiring artworks of the cultural groups who have lived and continue to live in the area, and in many ways, dictating the way in which different groups lived on the land, including at Santa Ana NWR.
2. Explore ways in which the ancestors of cultural groups who live in the area used nature to support their lifestyle. This could be in the form of classes, talks, presentations, etc. Topics could include making and using natural dyes; basket making; medicinal plants; food plants (this is essentially the 'incredible edibles' idea in a different format).
3. Mobile photography contest on Instagram. This would have to be set up to be limited to 'natural' subjects. It could have an additional component requiring the person submitting the photo to explain why this part of nature inspired the photo, thus requiring the person to think about nature.

Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Comment: This is a key concept that underlies everything that the USFWS does, including the actions on the refuge and the selection of plants for Islands of Habitat and similar areas. The addition of ". . . *all other biological organisms* . . ." provides the opportunity to at least hint at the concept that nature is a part of human habitat, and is therefore essential for survival of the human species. The story of the decline of pollinators helps tell that story. The addition of ". . . *specific habitat* . . ." provides the opportunity to emphasize that some species are adapted to very specific habitats.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Examples of Supporting Stories

The following are some, but not all the stories that can support this theme based on the tangible features on the refuge or other features in the area.

- The relationship of Monarch butterflies to milkweed.
- Non-native species and their effects on native habitat and consequent effect on native wildlife.
- How different habitat types on the refuge attract different species.
- The increase in butterflies with the return of native vegetation.
- The increase in songbirds with the return of native vegetation.
- The increase in turtles with the return of wetlands.
- An increase in habitat diversity that leads to an increase in wildlife diversity.

Sub-theme 2-2: The habitat necessary to support migratory birds and wildlife extends the entire length of their migration routes.

Comment: Migratory waterfowl and other birds depend on a series of resting stops connecting their breeding grounds to their wintering grounds. Without them, they won't survive. That is why the USFWS protects key resting stops along the migratory pathway in addition to breeding and wintering grounds to ensure the survival of migratory birds. Ideally, we want visitors to support the entire system of refuges, not just Santa Ana NWR. Migratory birds and wildlife can be used to connect people to other refuges if people value a species that depends on other refuges.

Examples of Supporting Stories

The following are some, but not all the stories that can support this theme based on the tangible features on the refuge or other features in the area.

- The habitats needed by monarch and swallowtail butterflies and other over the course of a year along their migration route.
- The habitats needed by swallows over the course of a year along their migration route.
- The habitats needed by Swainson's hawk over the course of a year along their migration route.
- The habitats needed by ducks (green wing teal, cinnamon teal, pintail, northern shoveler) over the course of a year along their migration route.
- The habitats needed by warblers and other migratory songbirds over the course of a year.
- Habitat fragmentation due to development has brought about a need for wildlife corridors – even through urban areas – to provide safe passage for wildlife to move free of (urban) dangers.
- Santa Ana NWR provides key habitat for wintering and migrating birds.

Sub-theme 2-3: Native Nature has almost been wiped out in south Texas, and with it, much of the native wildlife that depends on Native Nature for habitat.

Note: *This sub-theme will only have impact if the audience now cares about Native Nature.*

Examples of Supporting Stories

The best supporting stories would be focused on loss of habitat that supports species that in some way or another affect human lifestyles significantly. For example, habitat that pollinators depend on.

- Only 3% of native habitat in Texas remains due to human activities, putting flora and fauna that depend on those habitats in danger of extinction.
Note: *The view from the top of the levee is one of the most compelling views on the refuge because the landscape tells this story all on its own. The vast amount of agricultural land on one side compared with the pocket of natural habitat on the other makes it clear that humans have taken over much of the landscape and developed it in some way, and that very little natural habitat remains, at least in the area that can be viewed from this vantage point.*
- Human activities, including development, have fragmented wildlife habitat, which has a negative effect on migratory species.
- The remaining natural habitat in the Rio Grande Valley needs conservation, mitigation, and protection because it is critical to native fauna, including migratory waterfowl.

Interpretive Theme 3: A lot of people, including the USFWS, are working to conserve and restore habitat to protect wildlife we value for the people today and for future generations.

Examples of Supporting Stories

- Santa Ana NWR is part of the wildlife corridor that provides endangered species the habitat they need to survive;
- The work of the USFWS and partners to create Islands of Habitat and pocket parks;
- The volunteers who help replant refuge lands with native vegetation.

Interpretive Theme 4: Santa Ana NWR is an important asset to the people of the area, providing a myriad of opportunities that support quality of life.

Examples of Supporting Stories

- Santa Ana NWR offers school children the opportunity to experience and learn about the local area as it used to be;
- Santa Ana NWR offers unique and very accessible recreational opportunities that aren't available elsewhere;
- Santa Ana NWR is one of the 50 places you should bird before you die, which is why a lot of people come from outside Texas and outside the US to visit, pumping millions into the local economy.

Interpretive Theme 5: The USFWS is an asset to the community.

Comment: This is a key message in motivating residents to support the USFWS and its actions.

Note: *This message will be communicated more effectively by visible actions rather than telling people how the refuge and the USFWS are assets. Consequently, the following are examples of supporting actions rather than stories. The actions will become stories told by residents to other residents.*

Examples of Supporting Actions

The following are some, but not all the actions that can support this theme:

- Providing educational opportunities for youth (particularly ones that they don't get in schools and ones that could lead to employment);
- Partnering with community to fight threats— poor air and water quality through citizen science projects;
- Recreational opportunities provided by the USFWS;
- Technical assistance provided by the USFWS;
- Support by the USFWS on projects within the community.

Interpretive Theme 6: Everything in an ecosystem is linked. Impact on any one component has a ripple effect that causes impact on the habitats it supports and on other components of that ecosystem, including humans.

Another version of this is “All parts of an ecosystem are necessary to keep the ecosystem healthy.” In a way, this is still the ‘wildlife depends on habitat’ story. However, humans have a hard time grasping the fact that when you talk about habitat for a species of wildlife, it is more than just what they eat, where they live, and materials they use to build nests. Everything in the ecosystem is a part of their habitat, joined together by a confusing array of interconnections. We can’t show all the interconnections, but we might be able to communicate the idea that causing impact on one part of an ecosystem affects everything else in that system in some way. The importance of sending this message is that it underlies why we want people to limit their impacts. As with the relationship of wildlife to habitat, there are any number of possible storylines to help prove this point. One of the more compelling and perhaps visible may be the impact of development along and on the river that interfered with the natural flooding cycles, and the resulting impacts.

Sub-theme 6-1: Native wildlife depend on native plants as part of their habitat.

Examples of Supporting Stories

The following are some, but not all the stories that can support this theme based on the tangible features on the refuge or other features in the area.

- The relationship of Monarch butterflies to milkweed.
- Non-native species and their effects on native habitat and native wildlife.
- How different habitat types on the refuge attract different species.
- The increase in butterflies with the return of native vegetation.
- The increase in songbirds with the return of native vegetation.
- The increase in turtles with the return of wetlands.

Sub-theme 6-2: All parts of an ecosystem, including the forces that shaped and continue to shape it, are necessary to keep the system healthy along with all the habitats it supports.

Comment: This is a concept that emphasizes the connections between different parts of an ecosystem, and reflects a strategy for motivating people to take care of all parts of an ecosystem. It is the approach used for discussing prey species and for discussing natural ‘disasters,’ such as flooding.

Examples of Supporting Stories

The following are some, but not all the stories that can support this theme based on the tangible features on the refuge or other features in the area.

- Healthy uplands are critical to healthy wetlands.
- The impact of climate change on a single species having an impact on other species.
- The impact of climate change on habitats, with a consequent change on species composition.
- The role of predators in nutrient cycling and maintaining healthy populations of prey species
- The role of flooding of the Rio Grande on the surrounding area and changes to the ecosystem due to human alterations that changed flood cycles and impacts.
- Food webs.

Sub-theme 6-3: Humans can determine what organisms live and what die by impact on habitat. Those impacts ultimately affect humans since humans are a part of the ecosystem.

Another way of stating this is that people are a part of ecosystems, so everything they do has impact on other parts of the system. They can be a positive force or negative force – the choice is theirs. Ideally, we want this to be taken to the individual level, so people feel that they can make a difference by planting native plants in their yards, recycling, conserving water, and engaging in other actions associated with a sustainable lifestyle.

Examples of Supporting Stories

The following are some, but not all the stories that can support this theme based on the tangible features on the refuge or other features in the area.

- The absence of many biological organisms in the area outside the refuge due to destruction of habitat by humans.
- The return of species as habitat is restored.
- The impact of invasives introduced by humans.
- Many pollinators that are crucial for sustaining many of the foods we enjoy are endangered due to human activities. Proving this story requires showing how pollinators affect foods we enjoy, which could involve any business or institution that sells food, and showing how human activities have both positively and negatively affected pollinators. This should be followed by a Call to Action to let people know what they can do on an individual basis.

Sub-theme 6-4: Because individual actions add up incrementally to significant impacts, you can play an important role in maintaining natural resources, and on conserving and recovering the wildlife in Santa Ana NWR and other refuges in South Texas.

There are myriad ways of saying this, including, “you are either a part of the solution or part of the problem.” I am more in favor of the first because it speaks specifically to the reader and is positive. Regardless, the key is to empower people so they have confidence that whatever small part they can play is still important in the grand scheme of things. This will be important when trying to motivate people to plant native plants in their yards and taking other small steps that help the environment. The Schoolyard Habitats are perhaps one of the key features in communicating this concept, but it may be one that you have to get people to take on faith, and then hope that faith is rewarded when they see a bird in a plant in their yard that they had never seen there before.

Examples of Supporting Stories

The following are some, but not all the stories that can support this theme based on the tangible features on the refuge or other features in the area.

- The story of the person in Alamo, TX, responsible for starting the Islands of Habitat in schoolyards.
- Small green spaces like schoolyard habitats and backyard habitats are valuable to wildlife.
- What you do on a daily basis impacts our environment. You can have a positive or negative impact – the choice is yours.
- Actions taken by residents to spare Santa Ana NWR from having a wall built on the levee.

Interpretive Theme 7: Water, because it is a critical component of habitats, has long determined patterns and quality of life in the Lower Rio Grande Valley.

Another way of saying this is, “Water is the lifeblood of the Lower Rio Grande Valley.” Regardless of the form, this storyline holds true for humans as well as other biological organisms, and ties the past to the present, and the present to the future of the area. It underlies the need for water conservation, and indirectly, supports the restoration of wetlands due to their function in cleansing water before it reaches rivers and streams.

The canal carrying water combined with the agricultural fields, the Rio Grande and its riparian area, the lakes and wetlands, and the irrigation systems seen in fields along every highway all speak to the importance of water. The gradual transition of habitats as you walk the trail toward Willow Lakes also is a story of water, as is the natural flooding of the Rio Grande to maintain some of the natural habitats in the area, as is the fact that Santa Ana NWR is an oasis for migratory and resident birds and wildlife. In essence, water controls life, which is always more easily seen in hotter drier areas than wetter climates. This is a key story as it is also tied to the importance of having a series of wildlife refuges along bird migration routes. The site also has cultural features that tie to the water story, including the foundations of the old resort, and perhaps aspects of the cemetery (the availability of water is why there was a Mexican land grant and why people settled along the Rio Grande, why major trade routes followed the course of the river, and a myriad of other facets of cultural history because water dictated cultural activity in the Lower Rio Grande Valley.

Although this concept is easily understood by local residents, it is important to reinforce it because it is also a key factor in how the refuge is managed, and how it has been affected by the impact of human activities on flooding of the Rio Grande.

Sub-Theme 7-1: Water in all its forms has and continues to dictate cultural activity in the Lower Rio Grande Valley.

Examples of Supporting Stories

The following are some, but not all the stories that can support this theme based on the tangible features on the refuge or other features in the area.

- The canal that brings water to grow crops.
- The presence of historic trade and travel routes along the Rio Grande. The waters of the Rio Grande and adjacent riparian areas provided for the needs of travelers – drinking water for humans and livestock, fish and game for food, wood for fires, and shelter from the sun.
- The location of Brownsville and other historic settlements near water sources, especially larger waterways as those were key trade and travel routes.
- The amount of farmland in the area. Farming was possible in part because of the availability of water from the Rio Grande.

Sub-Theme 7-2: Wetlands, including those on Santa Ana NWR, are important to our quality of life.

Examples of Supporting Stories

The following are some, but not all the stories that can support this theme based on the tangible features on the refuge or other features in the area.

- Wetlands do the work of many of the man-made structures on the river by soaking up flood waters, thus protecting people from flooding naturally.
- Wetlands filter and cleanse water, helping maintain water quality and consequently, fish and other aquatic life.
- Wetlands trap topsoil so it isn't lost through erosion, which also keeps it out of rivers and streams where it could destroy fish spawning habitat.
- Wetlands support many species of birds that people enjoy, such as herons, egrets and songbirds.

Visitor Interpretive Experiences

Introduction

This section contains the recommendations for Visitor Interpretive Experiences to develop for Santa Ana National Wildlife Refuge. Prior to presenting those recommendations, it is important to understand the impact of being a designated Urban Wildlife Refuge, the importance of developing non-traditional recreational opportunities, and to understand the current array of visitor interpretive experiences on the refuge since that is the starting point for developing the recommended array of experiences and the information network to support those experiences.

Impact of designation as an Urban Wildlife Refuge

Because Santa Ana NWR is an Urban Wildlife Refuge, it operates with the dual goals of managing habitat for wildlife and creating a Connected Conservation Community. Although the goal is for the local community to practice stewardship and support the refuge and the USFWS, the immediate goal in creating the Connected Conservation Community is for residents to value nature. In other words, the immediate desired destination for visitors who engage with the interpretive opportunities is not physical, but rather intellectual and attitudinal. With that in mind, the recommended array of Visitor Interpretive Experiences provides visitors the opportunity to have a complete interpretive experience *off-site*, without ever setting foot in the refuge. Such experiences can be physical, such as visiting an Island of Habitat, or virtual, such as by watching a film available on the website. Those opportunities still seek to attract visitors to the refuge, but should be designed and developed so such a visit is not critical to attain success. This reflects the concept of Stepping Stones of Engagement, which should begin where a visitor is both physically and intellectually, and offer numerous pathways that lead visitors to the desired valuing of nature, and ideally, the subsequent support of Santa Ana NWR, the refuge system and the USFWS.

Importance of offering non-traditional recreational opportunities

One of the key parameters that affects developing visitor interpretive experiences on-site for urban audiences is the distance between Santa Ana NWR and the primary urban areas it serves. People make decisions on what to do with their leisure time based on their perception of personal benefit balanced against perceived personal cost, with the most significant cost for most people being time. The higher the ratio of perceived personal benefit to perceived personal cost, the higher the probability that a person will choose to engage in a specific opportunity; the smaller the ratio, the less the probability. For traditional audiences, (which are bird watchers in Santa Ana NWR's case), the value of visiting far outweighs the cost of driving from the nearby urban areas to the refuge. In fact, the average distance traveled to visit the refuge is more than 1000 miles, suggesting that the array of current visitors includes a significant number from outside the United States. That is consistent with the fact that Santa Ana has been identified as one of the premier birding locations in the world. However, it also indicates that visitation from surrounding communities is relatively low.

According to USFWS staff, most residents of the nearby area don't know that Santa Ana NWR exists. For those who do know of the refuge, the motivation to drive up to 30 minutes each way for a visit is probably lacking for a number of possible reasons, including:

- Seeing a wildlife refuge as a 'scary' bit of nature;
- Thinking that visitors are not allowed or not welcome on wildlife refuges;

- Thinking that refuges do not offer experiences in which they would be interested;
- Inability to fully enjoy leisure activities in such proximity to a Border Patrol station.

Overcoming the reluctance to visit by local audiences requires increasing the perceived personal benefit as much as possible while reducing perceived personal cost. It is for that reason that we recommend continuing to offer a resident pass that allows residents to visit for free, and having fee-free days on Sunday, and providing clear directions and a downloadable and printable or printed map to the refuge, which helps reduce the perception of personal cost by eliminating the need to figure out how to get there.

Increasing the perception of benefit for making such a trip can be achieved using a combination of strategies. The first is to market the opportunities that currently exist to audiences that might value what the refuge offers but are not aware of the opportunities. A recent study focusing on users of the Florida National Scenic Trail separated them into four categories based primarily on the type of experience desired. The following three groups, if they exist in the surrounding community, could be attracted to the refuge with what is currently offered:

- **Easy goers:** Among other aspects of the trail, this group was attracted by opportunities to see birds and wildlife.
- **Family focused:** The 'family' typically using the trail consisted of a mother and her children. Among other factors, this group was most interested in natural areas within 30 miles of home.
- **Fitness enthusiasts:** This group was interested in having a healthy lifestyle, so they were attracted to use the trail because of the opportunity for exercise.

Even if not attracted to travel to and from the refuge for desired activities that are already available on the refuge, adding other opportunities they desire could increase the attraction power to the point where they would decide to visit. The best opportunities to add are those that are not readily available elsewhere. Such opportunities are not all going to fall in any of the Big 6 categories, but may be necessary for attracting local residents to the refuge, thereby creating the opportunity to engage them on-site and expose them to interpretive opportunities and experiences with nature that could establish an emotional connection with the resource, which in turn could motivate people to engage in activities that fall in the Big 6 categories and generate support for the USFWS. This will also help negate the perception that people are not allowed or welcome on wildlife refuges and that there is nothing of interest to do if you aren't a hunter, angler, birdwatcher or photographer. SANWR has had some success with this approach, notably, by offering opportunities to learn to kayak and engage in archery.

The following suggestions fall into the category of opportunities that are not interpretive, but could attract visitors to the refuge where participants would be exposed to interpretive opportunities. In addition, if the activities require a natural setting, it gives those who enjoy those activities a reason to value nature:

- Kayaking* (already offered during special events)
- Archery* (already offered during special events)
- Fishing (already offered during special events)
- Wilderness Survival skills*
- Outdoor skills*
- Virtual Earthcaching (or Earthcache challenge) *
- Culturally relevant events that don't conflict with agency policies (the example was doing a special tour of the cemetery on Dia de los Muertos (Day of the Dead)). As a side note, this could

make progress in several areas. It would attract a non-traditional audience to the refuge; it celebrates Latino culture; it helps show that the refuge is open to visitors and is not all about fish and wildlife; and it shows that the USFWS is sensitive to the local community.

- Nature Art Walk. Ideally this would be art inspired by nature, which is another reason for valuing nature.

***These could be grouped together in an Outdoor Adventure Series that could be offered as a series so participants would need to come more than once to take part in all the ‘adventures.’**

Note: *It is not within the scope of this planning effort to identify all such additional recreational opportunities, but rather to emphasize the importance of such opportunities in attracting visitors to the refuge to provide the opportunity to expose them to interpretive information, and to focus on the interpretive opportunities that could attract, hold and communicate with these visitors after they have arrived on site. However, the on-site interpretive opportunities are not going to be effective unless visitors can be attracted to the refuge.*

Visitor opportunities designed to attract non-traditional visitors that don’t fit within the Big 6 recreational opportunities should all be in the ‘Transition Zone’ located along the edge of the refuge. From there, more traditional experiences, including interpretation, would take over to entice visitors further into the refuge proper. The context for visitor experiences would follow a continuum of some development to no development with the area most developed being closest to the highway. As you move from developed to undeveloped, the information delivery strategies shift also from obtrusive (signs) to unobtrusive (cell phone tours, etc.). That continuum currently exists.

Note: *Increasing the offerings that would be attractive to non-traditional audiences from the surrounding communities is likely to increase the desire for alternative means of transport, which would help in the effort to get a grant to develop a scenic bike/tram route, getting an electric tram and getting public bus service to the refuge on weekends.*

Current and Future Visitor Interpretive Experiences

Introduction

The following is an overview of the Visitor Interpretive Experiences to develop, and the associated information network to develop to support those experiences. The flow of information in the information network to support any visitor experience reflects the typical sequence of information desired by visitors, which starts with trip planning, moves to orientation and wayfinding, and continues – ideally – through interpretation. For example, people typically initially want information on what to take, what the site offers in terms of visitor opportunities, what to be prepared for and other information that helps them plan a trip. They then need wayfinding information to get to the site. After arrival, first-time visitors will need site-specific orientation and wayfinding information to locate the restrooms and plan their visit. Most will want to obtain a map of the area and get answers to basic trip planning questions such as, "What is there to do around here?" "Where can I see wildlife?" and, "Is it safe?"

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, orientation and wayfinding information to the refuge should be available at the beginning of the visitor experience, before they start their trip, and throughout, whenever the visitor might want it. Site-specific orientation, wayfinding and visit planning information should be readily available immediately upon arrival. In addition to offering such information upon entry to the Visitor Center, it also means that it must be available outside the Visitor Center so visitors have access when the facility is closed. Interpretive information is also presented sequentially, beginning with thematic overview followed by detail. Not only does this increase the probability of visitors being exposed to the key messages, it is also easier for them to absorb and process the detailed information if they have an overview first.

Stages of Visitor Interpretive Experiences

Typical visitor experiences to this type of site all move through the following continuum of stages.

Choosing to Engage

The first challenge is to motivate visitors to engage with information about the refuge. One role of the off-site information network is to market experiences at the refuge and off-site locations (such as Islands of Habitat) so potential visitors are aware of Santa Ana NWR and associated off-site features, that the refuge welcomes visitors, and that it offers attractive opportunities for visitors. The network must use a variety of strategies, because members of the target audience differ on how they gather information. The following are examples (not an exhaustive list) of strategies to reach potential visitors and motivate them to visit:

- Impromptu interpretive programs at parks in the local area;
- A write-up of the refuge in a summer activity guide;
- Marketing the refuge in radio and TV spots, and in newspaper articles;
- Put out a newsletter periodically;

For some of the members of the target audiences, awareness of the refuge and the fact that it has intriguing visitor opportunities will not be enough – barriers must also be addressed.

Some may fear Native Nature, with little experience outside of nature found in a built environment. Although marketing information can probably make some progress in that regard, it will be important to market the experiences as ‘safe.’ Some members of the target audience may fear the uniform – mistaking it for Border Patrol. Overcoming that barrier is likely to take some time and repeated exposure outside the refuge to the uniform and logo coupled with a deliberate attempt to draw the distinction between the USFWS logo and others, particularly law enforcement.

***Note:** The presence of a Border Patrol Station at the refuge is likely to be a barrier for some potential visitors that cannot be overcome. That is one reason the off-site features, such as Islands of Habitat and Specialty Gardens, are important. They provide an opportunity to communicate key messages and gain some level of visibility without requiring a visit to the refuge.*

Pre-Visit Experience

Whether they follow up on the Internet, call the refuge, or pick up a brochure at an off-site location, people interested in visiting the refuge need information to plan their trip (Trip Planning Information).

Travel Experience

For those traveling on their own, wayfinding information is needed, again offered in a variety of strategies that stand alone but also serve to reinforce each other. For example, visitors can obtain a map from a distribution point or by printing it off from the Web, and use it alone to find the refuge. However, directional signage at key intersections and adequate signage at the entryway can reassure them that they are going in the right direction. Those traveling by means of bus or other public transit will simply need to know where to get off. (Ideally a specific bus stop for the refuge will be added.) However, attention must be paid to members of the target audience who cannot afford public transportation. That barrier can be addressed by reduced or no cost for bus passes (perhaps on specific days and/or times), or by the refuge providing transportation in the form of a van or mini-bus.

Arrival Experience

Upon arrival, visitors must have immediate access to restrooms and orientation, wayfinding and site-specific trip planning information because these are needs. Interpretation is an option. When they finish with this stage of their experience, they must be aware of the location of the restrooms (even if they don't use them on arrival), aware of sources of information regarding upcoming programs and events, aware that a person is available to answer questions, aware that the Visitor Center has a Nature Store, have a plan for their visit, and know how to begin the experience that attracted them to the refuge.

Primary Experience

Visitors then engage in the experience that attracted them to the refuge. Regardless of the experience / opportunity that attracted visitors, they should all be exposed to the interpretive network. In other words, all experiences should have interpretive components that motivate visitors to want to engage more fully in the interpretive opportunities. The interpretive network guides them intellectually and

physically through the refuge as it is and as it could be, all the while establishing emotional and intellectual connections critical to motivating the visitors to take action, not only to help the refuge, but to protect their natural heritage.

Departure Experience

After engaging in the Primary Experience, visitors must prepare to leave, which typically involves another trip to the restrooms and possibly a visit to the Nature Store. This is the part of the experience when they are most receptive to information on upcoming programs, events and other reasons for a repeat visit. The motivation to come again can be increased by adding incentives for repeat visitors. This is also a good time to offer information about the Friends Group and what it does to help the USFW at Santa Ana NWR.

Return Travel Experience

The last part of the experience associated with the refuge is the return home. To do so, visitors need orientation and wayfinding to guide them back to a major highway, the bus stop, or wherever they are headed.

Post Trip Experience

Unless visitors have requested information from the refuge, such as notices of upcoming programs and events sent via email, they don't have a need for continued contact. However, it is in the best interests of the USFWS that they have a communication channel so they can continue to market experiences and opportunities. This can be email and/or social media.

Strategies by Stage of Visitor Experience

Choosing to Engage: Overview

Most visitor experiences with the refuge are likely to begin off-site, typically within the context of a potential visitor's existing lifestyle, and not usually with a visit to the refuge's website. Potential visitors must first become aware of the refuge and that it has opportunities in which they might be interested to motivate them to visit the website. That necessitates extending the information / interpretive network into the urban areas and inserting elements of the network into places already frequented by the target audiences, whether physically or digitally. This will vary by target audience. For example, reaching seniors may involve putting information at retirement communities, community centers, doctor's offices, health centers and other locations frequented by this audience. Reaching families may mean using radio and TV (especially Spanish channels), reaching children in schools (who will take information to their families), and putting an exhibit in a community center, mall and similar places frequented by this audience. Good general locations include coffee shops, nurseries, social media, websites, newspapers, events, etc.

Regardless of the strategy, all should be trying to make people aware of Santa Ana NWR, that it is open to the public, that it offers visitor opportunities, that it welcomes visitors, and where a potential visitor can get additional information. Marketing strategies should also reassure potential visitors regarding the safety of a visit. For some, communicating the concept of 'safe' requires an understanding that the USFWS is not the Border Patrol (however, the Border Patrol does have a station at Santa Ana NWR, which is a significant parameter). That concept may be more difficult to communicate on publications, and may simply require a longer process involving the USFWS maintaining a high degree of visibility while engaging in projects the community deems valuable, which are not typical activities for Border Patrol or other law enforcement agencies. Ideally, the USFWS will eventually become part of the fabric of life in the community and word of mouth and/or repeated exposure will help make members of the community comfortable visiting the refuge.

Note: *Visibility of the USFWS can be achieved by non-interpretive activities in the community with the goals of creating visibility, building trust, and increasing perception that the USFWS is an asset to residents. That doesn't necessarily translate into awareness of the refuge. However, it does create opportunities for conversation, so residents can learn about the refuge and what it has to offer first hand from people associated with the refuge, whether staff, members of the Friends Group or others.*

Choosing to Engage: Strategies to Catch Attention

These are essentially outreach strategies rather than interpretation, but they are critical to the success of the interpretive network.

Table Teasers

Objectives

After interacting with and of these opportunities, visitors will:

- Know that Santa Ana NWR exists;
- Know that the refuge is not only open to the public, but offers visitor opportunities;
- Be motivated to check out the website for more information;
- Feel comfortable visiting the refuge;
- Have or know where to obtain trip planning information (directions, hours open to public, schedule of activities, etc.).

Description and Concept

Table Teasers, all in Spanish and English, are intended to grab a visitor's attention and interest so he or she is more likely to seek out more information about the refuge. Table Teasers can take the form of place mats, laminated cards, or booklets to name a few possibilities, and are typically found in restaurants where people browse them while waiting for food. Table Teasers focus on presenting interesting tidbits of information ('didjacks') associated with the stories covered by the interpretive network. They should contain directions to the site and contact information, such as phone numbers, so visitors can obtain more orientation and/or interpretive information. All restaurants and coffee shops in the area should have Table Teasers.

Note: *It is important that all entities developing Table Teasers use the same design guidelines (branding) to ensure a unified look and visual recognition that the Table Teasers are associated with the refuge.*

Note: *All a visitor needs to locate the web site is the name of the refuge.*

Traditional Mass Media Strategies – Radio, Television, Newspapers, etc.

Objectives

The specific objectives will vary depending on the information included, but all should be designed with the same objectives in mind as those used for the Table Teasers.

Description and Concept

No specific design concepts are included because the context for which the information must be designed is often already determined (radio spots, television spots, newspaper articles). However, all of these strategies must focus on opportunities that would be of interest to urban residents rather than traditional users, and all must provide information on where a visitor can get additional information, such as the website, by telephone, etc. In addition, information should be presented in Spanish and English.

Rack Cards and Flyers

Objectives

The specific objectives will vary depending on the information included, but all should be designed with the same objectives in mind as those used for the Table Teasers.

Description and Concept

These need to be colorful to catch a person's attention, and ideally should show visitors who could be from the local community enjoying an experience on the refuge to clearly communicate that visitors are welcome at the refuge and the site does have visitor opportunities. Ideally the focus would be on opportunities that would be of interest to urban residents rather than traditional users. Given the limited opportunities at present, showing people at an event might be the most effective. As with other strategies trying to market visitor experiences at the refuge, these must provide information on where a visitor can get additional information, such as the website, by telephone, etc. In addition, information should be presented in Spanish and English.

Islands of Habitat with Interpretation

This term 'Islands of Habitat' has been coined for planted pockets of native flora designed to reflect typical native plant communities. They are planted outside the refuge in locations frequented by the public, such as in school yards, parks, community centers, and backyards. These Islands of Habitat support native fauna, pollinators, and other native biota. They can be effective Stepping Stones of Engagement for urban audiences because they tend to be highly visible, easily accessible, and are likely to be considered 'safe.' A key to being effective as a stepping stone is the interpretation and/or environmental education associated with each Island of Habitat.

Development should be with a partner and the planning should be participatory, particularly in schools where The USFWS could help by supplying plants, overseeing planting, supplying information on why certain plants are associated and what wildlife they can expect, and working with teachers to develop curriculum materials and a discovery guide that youth can use with their parents to 'discover' nature in the Islands of Habitat in school yards.

Locations

These could be located in a variety of settings, including schools, parks and other public places. The best locations are places that they are likely to be used by more than one group of people. For example, in schoolyards they could be used by teachers for courses relating to natural history and could also be used by community members during hours the school is not in session.

Objectives for interpretive strategies

After encountering the interpretive information associated with Islands of Habitat, visitors will:

- Be aware of and motivated to visit other Islands of Habitat that have different vegetation;
- Be aware of and motivated to visit the refuge;
- Understand the concept – at some level – that wildlife depends on specific habitat for survival, therefore, managing wildlife is all about managing habitat;
- Be interested in planting native vegetation in their own yard (if they have one).

Themes

The following themes and sub-themes can all be communicated at Islands of Habitat:

Interpretive Theme 1: Nature, such as that found at Santa Ana NWR, including native plants, wildlife and other organisms, is important to your (my) quality of life, as it has been important to the quality of life of all who have lived here in the past.

Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Sub-theme 2-2: The habitat necessary to support migratory birds and wildlife extends the entire length of their migration routes.

Interpretive Theme 6: Everything in an ecosystem is linked. Impact on any one component has a ripple effect that causes impact on the habitats it supports and on other components of that ecosystem, including humans.

Sub-theme 6-3: Humans can determine what organisms live and what die by impact on habitat. Those impacts ultimately affect humans since humans are a part of the ecosystem.

Sub-theme 6-4: Because individual actions add up incrementally to significant impacts, you can play an important role in maintaining natural resources, and on conserving and recovering the wildlife in Santa Ana NWR and other refuges in South Texas.

Specialty Gardens with Interpretation

As with Islands of Habitat, these gardens are planted outside the refuge in locations that target audiences frequent. In a sense, these are simply Islands of Habitat focusing on very specific species rather than representing typical plant communities that form habitats in the area. A wide variety of Specialty Gardens could be planted, such as ones made up of native plants traditionally used as medicines, native plants traditionally used for food or in food preparation, pollinator gardens, and butterfly gardens.

Locations

As with Islands of Habitat, specialty gardens could be located in a variety of settings frequented by target audiences, including schools, parks and other public places. The best locations are places where they are likely to be used by more than one group of people. For example, in schoolyards they could be used by teachers for courses relating to natural history and could also be used by community members during hours the school is not in session. The choice of the type of garden in a particular location might depend on what else is in the area. For example, Pollinator Gardens might be a good choice for places

close to businesses associated with food, and gardens with native plants traditionally used for medicinal and/or health reasons might be appropriate for hospitals or senior living centers.

Objectives for interpretive strategies

After encountering the interpretive information associated with specialty gardens, visitors will:

- Be aware of and motivated to visit other Specialty Gardens;
- Be aware of and motivated to visit the refuge;
- Understand the concept – at some level – that wildlife depends on specific habitat for survival, therefore, managing wildlife is all about managing habitat;
- Feel empowered to make a difference by planting native plants;
- Be interested in planting their own Specialty Garden at home.

Themes

Different themes are likely to be more appropriate for different types of gardens. For example, themes about the relationship of wildlife to habitat would be appropriate for Butterfly Gardens and Pollinator Gardens, but not for some of the gardens where the focus is on the plants rather than what the plants attract. As another example, the concept that Native Nature contributes to our quality of life would be highly appropriate for Pollinator Gardens and ones that focus on plants related to health. As with Islands of Habitat, almost any of the themes could be used to drive the development of the associated interpretive opportunities, but the following are probably the key ones:

Theme 1: Nature, such as that found at Santa Ana NWR, including native plants, wildlife and other organisms, is important to your (my) quality of life, as it has been important to the quality of life of all who have lived here in the past.

Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Sub-theme 2-3: Native Nature has almost been wiped out in south Texas, and with it, much of the native wildlife that depends on Native Nature for habitat.

Interpretive Theme 6: Everything in an ecosystem is linked. Impact on any one component has a ripple effect that causes impact on the habitats it supports and on other components of that ecosystem, including humans.

Sub-theme 6-3: Humans can determine what organisms live and what die by impact on habitat. Those impacts ultimately affect humans since humans are a part of the ecosystem.

Sub-theme 6-4: Because individual actions add up incrementally to significant impacts, you can play an important role in maintaining natural resources, and on conserving and recovering the wildlife in Santa Ana NWR and other refuges in South Texas.

Description and Concept

The same strategies and design concepts noted for Islands of Habitat are appropriate for Specialty Gardens. In addition, if the Garden is associated with a business such as a restaurant, supplemental information could be developed that ties to the Garden. For example, Table Teasers in a restaurant with a Pollinator Garden could use information associated specifically with pollinators. The visitor center at the refuge could have more in-depth interpretive opportunities that are an extension of the information presented at these gardens to motivate visitors to these off-site opportunities to visit the refuge for more in-depth information.

***Note:** Backyard habitats were identified as one of the features that the USFWS could help develop. They should be considered both as one of the desired outcomes of a visitor's interpretive experience, and as something that the USFWS could help plant. However, although the planting could involve education regarding the value of native plants in landscaping, backyard habitats don't have an interpretive component because they are on private property. In contrast, Islands of Habitat, Pollinator Gardens, Pocket Parks, Butterfly Gardens and similar plantings in public areas can have an interpretive component, so they are included in the VIEP.*

Impromptu and Partner Event Interpretive Presentations

Location

Anywhere that people from target audiences gather in the target communities of Alamo, Pharr and San Juan, such as at parks, events, etc.

Objectives

Specific objectives will depend on the presentation, but regardless, all visitors after attending a presentation will:

- Be aware of Santa Ana NWR;
- Be motivated to visit the refuge;
- Be more comfortable with the USFWS;
- Be aware that the USFWS is not Border Patrol;
- Have information to help facilitate that visit (flyer, brochure, etc.);
- If appropriate, be more able to visit the refuge due to a decrease or elimination of barriers (such as having bus passes).

Key Themes and sub-themes

These will vary based on the presentation.

Description and Concept

There is no specific concept that provides a blueprint for presentations because the context will always be different. The key is to provide the interpreter with flexibility in choosing and delivering a program on the spot that caters to a specific crowd and setting. The more props and basic strategies available to the interpreter, the higher the probability of having something that fits the situation and audience. One possible tool is a vehicle outfitted with props and interpretive opportunities. An interpreter drives the vehicle to places where members of the target audience gather, such as events, parks, and Farmer's Markets, and presents programs. The vehicle could be painted to attract attention and help create visibility for the USFWS and the refuge.



Example of an InterpVan

Note: *Impromptu presentations are a good tool for creating opportunities to get into conversations with residents to find out what they would like to have help with from the USFWS.*

Traveling Exhibits (with accompanying literature)

Traveling Exhibits would require an initial investment of time and resources, but could then be used with minimal demands on staff time. If the Friends group managed the schedule and shipping of the exhibit, the demands on USFWS time would be even less.

Locations

They could be used at partner sites and anywhere a representative of the refuge was giving a presentation or staffing a booth.

Objectives

The specific objectives will depend on the content of the exhibit, which should be adjusted for the target audience. However, at a minimum, people interacting with this exhibit will:

- Know about Santa Ana National Wildlife Refuge;
- Know that Santa Ana NWR is one in a network of refuges;
- Know that the refuge is not only open to the public, but offers visitor opportunities;
- Be motivated to visit the refuge to take part in visitor opportunities;
- Feel comfortable visiting the refuge;
- Have or know where to obtain trip planning information (directions, hours open to public, schedule of activities, etc.).

Themes

The themes driving the content will depend on the topic, but exhibits should be developed that communicate all the themes and subthemes.

Description and Concept

Traveling exhibits come in many forms, but the one recommended for this network is one that can be set up easily and the components changed out quickly. One of the more common traveling exhibits is a set of surfaces covered with cloth to which a person can attach images, text, and even brochure holders using Velcro. They are commonly seen at conferences and trade shows. Specific exhibit layouts could be designed, and all the necessary information packaged together with instructions for assembly, so the exhibit could be used in a variety of settings and easily set up by anyone.

Pre-Visit Experience: Overview

After learning that the refuge exists and has intriguing visitor opportunities, the visitor's next need is for trip planning information. Even if visitors have the site brochure, they may want additional information. Many people will look on the Internet. For those without access to the Internet, the telephone is usually an option. Regardless of the source, potential visitors should be able to easily find out all they need to know to plan a trip, such as hours of operation, what to bring, how to get to the refuge, how long a visit might take, etc. If a fee is going to be charged, this must be made clear to potential visitors. A website can also have additional information that markets experiences at the refuge, while also communicating key messages, such as the Introductory Video, and the In-Depth Video Tour of the site. Note that the In-Depth Video Tour may be the primary experience for visitors who are unable to visit the refuge due to physical infirmity or other issues. For those who don't have access to the Internet, it will be important that they have access to the same information on the telephone.

Current Experience: As noted previously, it appears as if many of the residents in the surrounding area do not know that Santa Ana NWR exists. For many of those who are aware of the refuge and perceive that it offers opportunities of interest, the first step in considering a trip to the refuge involves gathering information from the refuge's website and other social media sites. Those that do might be somewhat confused as the information that appears on the general search page indicates that the refuge is open from 9-5 (noted on January 26), while information on the actual website indicates that people can join a bird tour at 8:30 AM in the winter months, that the visitor center is open from 8-4, and that the trails are open from sunrise to sunset.

Future Experience: Significantly more residents in the Pharr-Alamo-San Juan area, and in McAllen, are aware of the refuge and what it has to offer due to increased visibility and more effective marketing. They learn about the refuge from a variety of sources, including Spanish radio stations and newspapers, presentations by USFWS staff and volunteers to civic groups, from their children who experience Islands of Habitat at school, and from friends. The next step for many residents is calling up the website on the Internet. The site contains all the information they need to plan a visit, including more detail on recreational activities, such as beginning kayaking, archery, and photography, in addition to tram tours of the refuge, an aerial walkway and a hawk tower. They also find information on hours of operation, fees, what to bring and estimated drive time. The combination of attractive recreational opportunities and being able to purchase an annual family pass increases motivation to visit the refuge. The pass, plus a revolving set of intriguing recreational opportunities, increases motivation to visit more than once. A downloadable / printable map provides clear directions if the visitor does not use GPS. Potential visitors also find out that they can travel to the refuge on a bus on weekends and for special events.

Note: *The family pass will be much more effective at attracting visitors from the area if the potential visitor is aware that recreational opportunities change periodically.*

Pre-Visit Experience: Strategies to Help People Plan a Visit

Santa Ana NWR Website

Note: This site already exists. It is included simply because it is part of the Information Network necessary to support visitor interpretive experiences. Note that the USFWS websites are scheduled to be converted into a new format that will be more user-friendly for tourists.

Objectives

Ideally, when people finish interacting with the information on this website, they will:

- Be motivated to visit the refuge;
- Have the information necessary to plan a visit to the refuge (they should be able to print off a map/brochure);
- Be aware of upcoming projects in which they could be involved;
- Be aware of upcoming events;
- Be aware of USFWS projects in the community.

Description and Concept

As noted, this site already exists and currently has information on visiting and events. It does not currently have information on potential projects for volunteers or information on USFWS activities in the community.

Note: The template for the website is relatively rigid, so suggestions simply pertain to adding elements as they are developed, such as the Introductory Video, In-depth Video Tour and any Applications or information designed for use on cell phones or iPads.

Note: The current content and layout of the website needs to be more balanced between wildlife and visitors. It gives the overwhelming impression that visitors are of low importance. It also focuses on trying to educate viewers about the refuge and wildlife. The website should be thought of first as a marketing tool to motivate people to come to the refuge and a trip planning tool to help facilitate that visit by providing maps and directions. That doesn't mean it can't include the information it now offers, but rather to move that information into sections accessed by tabs and leave the home page for marketing and direction visitors to information they are seeking. (This may not be possible on the USFWS site.)

Note: When I looked at the site recently the camera feed pages are blank, and the map accessed is not particularly useful for visitors.

Friends of the Wildlife Corridor Website

Note: This site already exists. It is included simply because it is part of the Information Network necessary to support visitor interpretive experiences.

Objectives

Ideally, when people finish interacting with the information on this website, they will:

- Be motivated to join the Friends group and/or provide support in other ways;
- Have the information necessary to join the Friends group or provide support in some other way;
- Have the information necessary to plan a visit to the refuge (they should be able to print off a map/brochure);
- Be aware of upcoming projects in which they could be involved;
- Be aware of upcoming events;
- Be aware of USFWS projects in the community.

Description and Concept

This site already exists and currently has information on joining the Friends and on upcoming events. When the Introductory Video and the In-depth Video Tour are developed, they should be available on this site as well as on the USFWS website. As Applications (Apps) are developed and other information that can be downloaded onto smart phones are developed, they should also be available on this site.

In-depth Video Tour

Objectives

In addition to basic awareness of the refuge and what it offers in terms of visitor opportunities, after interacting with this opportunity, visitors will:

- Be motivated to visit;
- Be motivated to contribute in some way to the refuge and/or conservation of natural resources;
- Feel empowered that he/she can make a positive contribution.

Themes

All the key messages should be woven into the video.

Description and Concept

This tour is more extensive than the Introductory Video (see Primary Experience for description). One possibility is to offer the tour in a series of short programs focused on different areas/features (points of interest) of the refuge, such as Trails; Tram Tour, with Cemetery, Canopy Bridge and Hawk Tower; and Water (wetlands and the Rio Grande). The short segments avoid requiring the visitor to commit a long chunk of time to watching the entire video in one sitting. Although anyone can use the In-Depth Video Tour, it is especially useful for people who cannot come to the refuge and for 'armchair travelers.'

The intent of the video is not to tour the refuge, but rather to use such a tour to communicate the key messages. It can and should have historical information intertwined, but with the intent of answering likely visitor questions in such a way as to inspire viewers to visit.

Travel Experience: Overview

This is simply the part of the experience between when the visitor leaves home and when he or she arrives in the parking area. The key information needed during this part of the experience is wayfinding information. Although many visitors will likely use GPS on cell phones, many will still rely on directional signage.

Current Experience: Those who do come sometimes have trouble finding the refuge due to lack of effective highway signage and site markers.

Future Experience: Visitors traveling in private vehicles will have no trouble finding the refuge due to improved highway signage and site markers. Directional signage at intersections near the refuge along with highly visible entryway markers make it easy to find the access road.

Travel Experience: Strategies to Help Visitors Find the Refuge

Directional and Site Identification Signage

Locations

Directional signage at key decision points (intersections and lead time to slow down to turn) potentially encountered by visitors trying to find the refuge. Site identification signage needs to be bolstered so drivers coming from either direction can easily see the sign. Vegetation clean up may also be required to make the entrance to the refuge more prominent.

Objectives

After encountering directional and site identification signage visitors will:

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

Description and Concept

The design is dictated by existing standards – Texas Department of Transportation for directional signs and the USFWS for site identification signage. The information on directional signs should be limited to direction, and possibly distance if needed.

Arrival Experience: Overview

The arrival experience involves parking, accessing the restrooms, obtaining a map and any other orientation/wayfinding information for the refuge, and conducting some site-specific trip planning. Aside from making visitors feel welcome through clear welcome signage (at least in Spanish and English), the initial goal for the information network is to facilitate the transition from vehicular travelers to confident pedestrians, which requires travelers knowing where they are going when they exit their vehicles. The next goal is to move them quickly and with little mental effort on their part from where they parked to their desired destination (Visitor Center, restrooms, refuge proper), make them feel comfortable in their ability to find their way around, and guide them to facilities to meet their needs (restrooms, drinking water, place to get a map). At this time, the existing Visitor Center complex is the likely destination for most first-time visitors, and all necessary information can be obtained and needs

met within the complex when the buildings are open. When the new Visitor Center is built at Headquarters Lake, it will be the initial destination for most.

Note: *Arriving visitors do not usually spend much time on interpretation during the Arrival Experience. Typically, they are on their way to the restrooms, have not really "arrived" yet and do not have the information necessary to orient themselves and plan their visit.*

Current Experience

After arriving, visitors typically must walk through the parking area to access the open covered area (breezeway) between the existing Visitor Center and restrooms, which is the locus of the current visitor interpretive experiences and the most developed part of the refuge. The entry area is not particularly welcoming, and some visitors have difficulty finding the restrooms, which are not located in the Visitor Center as most of them probably assume, but rather in a building on the opposite side of the breezeway.

Virtually all the information offered in the open area between the main building and restrooms is oriented parallel to the visitor's line-of-sight, which lessens the attraction power. On the plus side, if visitors arrive when birds are using the feeding station adjacent to the breezeway their attention is likely to be attracted to that area, where they can sit on a bench and enjoy the birds.

Upon entering the Visitor Center, a glance around the space makes visitors aware that it contains a staffed information desk, an auditorium, exhibits, a 'touch table,' and a store. If they approach the counter, they are likely to become aware that the facility offers a place to view a feeding area out the glass windows and door on the south wall. The exhibits cover a variety of standard topics related to wildlife refuges, including an exhibit on ocelots, an e-bird tracker, a short film, and interactive opportunities, such as touching items related to nature. They can obtain the current map/brochure of the refuge here and be ready to begin their desired experience.

Note: *The interior of this space could function more effectively if the Nature Store was moved to the area on the right as visitors enter the facility, and the back part of the lobby space was dedicated to interpretive opportunities. Such an arrangement allows visitors to view exhibits without being interrupted by people in the store, and is likely to improve sales because the store would be the last part of the exit experience from the building, and would have the windows available to market products.*

Future Experience (before the new center is built)

After arriving, visitors walk in a pedestrian lane through the parking area with planters separating the lane from parking spots and traffic (a trail in the median was considered, but the cost would be more significant and it might wipe out too much of the vegetation). Some of the planters contain plants associated with natural medicines, pollinators, butterflies and birds. Interpretive opportunities in the form of 'didjacks' pique the visitors' interest, priming them to be more receptive to information on such gardens within the visitor center. They access the breezeway, where they first encounter directional arrows identifying which way to go for opportunities and services offered on the refuge. The restroom sign is clearly visible. They also encounter the schedule for the tram tour, places to sit and watch birds in the feeder, and tables where families can sit together to plan their visit or just relax. Children gravitate to the mural on the Visitor Center wall that depicts natural vegetation encountered out on the refuge, with birds and wildlife included in a 'Where's Waldo?' type of illustration.

Upon entering the Visitor Center, a glance around the space makes visitors aware that it contains a staffed information desk, an auditorium, exhibits, a 'touch table,' a store and what appears to be a viewing area oriented toward the windows at the back of the facility. The exhibits, located in the back of the center, cover a variety of standard topics related to wildlife refuges, including an exhibit on ocelots, an e-bird tracker, a short film, and interactive opportunities, such as touching items related to nature. They can obtain the current map/brochure of the refuge here and be ready to begin their desired experience. They stop at the Nature Store, located on the west wall adjacent to the entry/exit door, to pick up a Discovery Backpack for their daughter and son and head toward the tram tour staging area.

Note: The interior of this space will function more effectively if the Nature Store was moved to the area on the right as visitors enter the facility, and the back part of the lobby space was dedicated to interpretive opportunities. Such an arrangement allows visitors to view exhibits without being interrupted by people in the store, and is likely to improve sales because the store would be the last part of the exit experience from the building, and would have the windows available to market products.

Future Experience (after the new center is built)

The first stop will be at the entry station where a ranger greets visitors and provides them with a map of the refuge with visitor opportunities highlighted, a schedule of upcoming classes, events and other visitor opportunities, and the resident pass if necessary. They park near Headquarters Lake, exit the car, and head toward the new Visitor Center. Upon entering the Visitor Center they immediately see directional signage to the restrooms and note that the facility contains an information desk, a self-serve information area, exhibits, an auditorium where a video is shown, a small store and something that is called a 'Window to the Wild.' The latter has a sign indicating where it is located. After visiting the restrooms, and getting a drink of water, the visitors sit in the 'Plan Your Visit' area to look at the map they were given at the entry kiosk and plan their visit. This area includes a blackboard, sheet of paper or other device where other visitors and staff have recorded birds and wildlife sighted that day, a visual menu of visitor opportunities with the time required to access and take part in the opportunity, and what to bring (that information is also on the website). It also provides visitors the opportunity to download additional opportunities to gather interpretive and wayfinding information for their visit, such as podcasts, vodcasts and audio tours that use augmented reality and other tools to help communicate desired messages.

Arrival Experience: Strategies to Meet Visitor Needs

Site Orientation Panel (Exterior)

Locations

As needed. At the moment a Site Orientation Panel would go in the breezeway, at the trail hub in the refuge proper, the aerial walkway and hawk tower, Willow Lakes and at all major trail intersections. In the future it would also go on a kiosk or similar structure at Headquarters Lake.

Objectives

After viewing the panel visitors will:

- Be inspired, informed, and eager to explore the refuge;
- 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;
- Feel comfortable in their ability to navigate the site;
- Be aware of the opportunities that are fully accessible.

Description and Concept

The following are key aspects of the design and placement of the Site Orientation Panel that will increase its effectiveness:

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;" (This means a separate Site Orientation Panel for each location, which you would have to do anyway to make sure that all panels were oriented in the direction a visitor is facing.)
 - Visuals of key interpretive and recreational opportunities tied to location with information on which are fully accessible;
 - North arrow;
 - Legend scale, such as 1 inch = 100 yards (you might want to have the scale provided in a metric system also since Santa Ana gets so many visitors from other parts of the world).
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 on a panel to be in front of them. This requires determining location and orientation for panels prior to design and fabrication. It also means that you may have several versions of the Site Orientation Panel.
3. Use the same map on the sign that is used in the brochure and on the website. Viewing the same map on a panel as is used in an associated brochure helps visitors move back and forth between the two.
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 illustration of the site from an oblique aerial perspective 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, viewing exhibits, taking the tram tour, walking on the Aerial Walkway, viewing birds from the blind at Willow Lakes, and picnicking at Headquarters Lake, around the perimeter of the map, with a graphic element (line) connecting the image to the appropriate location on the map.

Recreating Safely Panel (Exterior)

Location

As needed. At the moment it would go in the breezeway, at the trail hub in the refuge proper, the aerial walkway and hawk tower, Willow Lakes and at all major trail intersections. In the future it would also go on a kiosk or similar structure at Headquarters Lake.

Objectives

After interacting with this opportunity, visitors will:

- Be aware of the hazards related to plants and wildlife associated with recreating in this area, and the low probability of encountering a problem, especially when practicing appropriate behaviors;
- Be aware how to avoid hazards;
- Be aware that thousands of people engage in recreational activities in this type of environment without experiencing any problems with native vegetation or wildlife;
- Be aware of the need for drinking water to avoid heat-related issues;
- Know that the Nature Store carries items such as insect repellent, sun screen, and other items that would help facilitate a safe trip;
- Feel comfortable engaging in recreational opportunities on the refuge.

Description and Concept

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 site has hazards, and they should not be minimized, but visitors should also not be frightened away from recreational opportunities.

The information can be presented in a variety of ways, but it is important to use visuals to depict key pieces of information, including depicting people behaving correctly, and what they wear and take with them on the trails. The key hazards to focus on include those related to heat and dehydration and any biological hazards, such as rattlesnakes, and how to avoid negative encounters.

***Note:** The store will sell items that a visitor should have on a trip into the refuge proper, such as sun block, hats, insect repellent, etc.*

Arrival Experience – Interior: Overview

This is a continuation of the Arrival Experience that visitors will have available to them whether in the existing Visitor Center or at the new one at Headquarters Lake. People will enter the facility into the building lobby. The purpose of the lobby in a Visitor Center of this type is to meet people's basic needs (restrooms, drinking water and orientation information), direct visitors to different locations in the Visitor Center if necessary, and facilitate all visitor experiences on the refuge.

Traffic flow in the entry area works most effectively when visitors entering the building can immediately identify the location of the restrooms, a source of site-specific orientation information (ideally both self-serve for those who prefer not to interact with anyone associated with the refuge yet and a staffed information counter for those who would prefer to talk to someone), and a sense of what else the building contains, such as an Exhibit Hall and Multi-Purpose Room, and in what direction those spaces

are located. This will be especially important if the new facility has a space where community meetings can be held, a learning center, and other spaces not typically associated with a Visitor Center. If the new facility has a Nature Store it should be visible as people enter so visitors know it exists, although most will not stop until the Departure Experience. Ideally, it will be located adjacent to the exit route. (Studies show that such stores located adjacent to exit routes show the greatest amount of purchases by visitors.)

The facility also contains Departure Experience strategies, the descriptions of which can be found in the section on Departure Experience.

Arrival Experience – Interior: Strategies to Meet Visitor Needs

Information Desk

Location

In lobby of Visitor Center.

Objectives

After interacting with the opportunities in this area visitors will:

- Have had most if not all their orientation and wayfinding questions answered, especially, "What is there to do here?" and "Where can I see wildlife?"
- Be excited about exploring the refuge;
- Have all the information they need for their desired experience (including a map);
- Know how to download and use the phone Applications (after they have been developed);
- Feel comfortable talking to USFWS personnel;
- Be aware that the refuge offers programs and stages events (and have a copy of the event and program schedule), and that they can receive information on upcoming events and programs via email if they supply their email address.

Description and Concept

The Information Desk provides the opportunity to gather information from and ask questions of the staff. It is a critical part of the experience because some people prefer to get information personally, and because it sends the message that the USFWS thinks serving the public is important enough to dedicate staff to that function. That is becoming more significant as society moves increasingly to non-personal strategies for conveying information to visitors. Information available at the Information Desk includes:

- Site Map/Brochure;
- Area map highlighting sites in the surrounding area (outside the refuge) with opportunities to explore nature;
- Information on upcoming and regular events and programs;
- All publications associated with the refuge and partner sites;
- An optional sign-in book that can be used to market events and programs (if people leave their email addresses), and used in any type of 'achievement' opportunity that involves getting credit for visiting the refuge more than once.

Note: This is essentially the same whether using the old facility or functioning in a new one.

Self-Serve Orientation Area

The Self-Serve Orientation 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.

Note: *Although the Self-Serve Orientation area contains much of the same information as outside, visitors are not likely to stop outside when the center is open. In addition, more detailed information can be available.*

Location

In lobby of Visitor Center.

Objectives

After interacting with the opportunities in this area visitors will:

- Have had most if not all their orientation and wayfinding questions answered, especially, "What is there to do here?" and "Where can I see wildlife?"
- Be excited about exploring the refuge;
- Feel comfortable in their ability to find their way around the site;
- Have all the information they need for their desired experience;
- Are aware that the refuge offers programs and stages events (and have a copy of the event and program schedule).

Description and Concept

To function effectively, visitors entering the facility must be able to quickly identify the type of information offered at this station. One possibility is to use a large title and visual element, such as the questions "What is there to do here?" and/or "Where can I see wildlife?" accompanied by a collage of people engaging in a variety of activities at the refuge. All the information available at the Information Desk would be available at this station.

Recreating Safely Exhibit

Note: *Although a panel with similar information will be located outside so it is accessible when the building is closed, a significant number of people coming from the parking area will bypass that information if the Visitor Center is open and come into the building instead.*

Location

Next to the Self-Serve Orientation Area.

Objectives

After interacting with this opportunity, visitors will:

- Be aware of the hazards related to plants and wildlife associated with recreating in this area, and the low probability of encountering a problem, especially when practicing appropriate behaviors;
- Be aware how to avoid hazards;
- Be aware that thousands of people engage in recreational activities in this type of environment without experiencing any problems with native vegetation or wildlife;
- Be aware of the need for drinking water to avoid heat-related issues;
- Know that the Nature Store carries items such as insect repellent, sun screen, and other items that would help facilitate a safe trip;
- Feel comfortable engaging in recreational opportunities on the refuge.

Description and Concept

Although this could be just a duplicate panel to the one outside, it would probably be more effective to present information in a video format to catch people's attention. A 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. One possibility is to use an LCD screen to play a looped sequence of video clips with captions depicting the necessary information. Aside from the information being accessible to people with hearing impairments, it would be hard to hear audio if the lobby area was noisy and because the repetitive dialogue would likely irritate staff working at the nearby Information Desk.

Santa Ana NWR Map/Brochure

Note: A map currently exists showing the trails and facilities, but eventually a more detailed map/brochure will need to be developed when significant changes in infrastructure occur.

Note: This strategy will be used off-site even if it is not distributed off-site because visitors may share the brochure with others when telling them about the refuge. For that reason, it needs to have directions to the refuge as well as on-site wayfinding information.

Objectives

After interacting with this opportunity visitors will:

- Have had most if not all their orientation and wayfinding questions answered, especially, "What is there to do here?" and "Where can I see wildlife?"
- Be excited about exploring the refuge;
- Feel comfortable in their ability to find their way around the site;
- Have all the information they need for planning and having their desired experience;
- Are aware that the refuge offers programs and stages events, and that they can get a schedule in the visitor center or sign up to get notices on-line.

Description and Concept

This is a simple map of the site with images of interesting features, images of people enjoying themselves, directions to the refuge, site-specific orientation and wayfinding information so visitors can find their way around on-site, and other information that helps facilitate a visit. The primary purposes are to provide basic orientation and wayfinding to and within the site and to market experiences within Santa Ana NWR (this is the publication that is likely to be passed from friend to friend). One possible design approach is to create a 3-D illustration of the site from an oblique aerial perspective to use as a backdrop for the rest of the information. This allows people to be able to identify where they are based on features they can see rather than having to use a flat map, which many people cannot do. In addition, a 'menu' of experiences based on time required should be included, along with suggestion about what a visitor should do if they have limited time.

Note: *Actual design and content is likely constrained by the USFWS template. If that is the case, and the constraints prevent designing an effective map/brochure, consider having the Friends Group take this project on.*

Primary Experience: Overview

Note: *This section focuses only on the parts of the Visitor Center associated with Visitor Interpretive Experiences.*

Current Experience: At this time visitors have a variety of interpretive opportunities to choose from inside the existing visitor center, including a film, exhibits, a touch table, and a small viewing area that looks out on a bird feeding station. Bistro tables with chairs now occupy the space in front of the windows looking out over the feeding station. The Nature Store is located along the back wall to the left of the viewing windows.

Note: *My understanding is that the live animals have been removed as well as the video wall. The latter was removed because a door was needed in that location. I also understand that the information desk may be moved to the wall where the auditorium is. For that reason I do not list specific locations, but rather try to identify the visitor flow through the space and put elements of the visitor experience where they can support that flow.*

Outside, visitors can engage with interpretive signage in the covered entry area, along the trail system associated with Willow Lake and in the blind at Willow Lake. The trail system also includes the opportunity for gathering information using an app used on a smart phone. One of the trails – the Chachalaca Trail – is fully accessible. Visitors also have the opportunity to take a guided tour of the refuge on the tram, and to engage in any of a variety of personal tours and programs, such as morning bird walks during the winter months.

In addition to interpretive opportunities, visitors can walk any of a number of trails, check out the hawk tower and aerial walkway, visit a historic cemetery and have a picnic at Headquarters Lake or in the group picnic area adjacent to the rear of the restrooms. Currently, the only restroom facilities are at the Visitor Center, which can be a deterrent to visiting sites some distance from the facility, such as the aerial walkway, and to taking a tram tour.



The aerial walkway provides an opportunity to see different levels in the forest canopy

The area around Headquarters Lake, although it has an attractive picnic area in shade by water, does not enjoy much use. That pattern of behavior is probably caused by the lack of knowledge about that area, and because it is clear to arriving visitors that they should head toward the current visitor center after exiting their vehicle.

Future Experience: The approach we are using to develop the recommended Visitor Interpretive Experiences at Santa Ana is to provide an array of opportunities that represent a continuum of 'entry points' into an experience in nature so all visitors can find an experience that they are comfortable with and consider 'safe.' For urban residents who have almost no exposure to nature other than what is found within a city, the experience they are comfortable with may be the Window to the Wild in the visitor center; for others it might include a picnic in a developed area of the refuge; and for others it might be the tram tour. Ideally, each experience will be a stepping stone to experiences that involve more immersion in nature. To maximize the probability of a visitor going to the next step, the figurative 'distance' between opportunities is small. In this network the following sequence of opportunities reflect a gradual immersion into nature:

1. Visitor center exhibits
2. Window to the Wild
3. Tram Tour (visitors could also go from the Tram Tour to the viewing areas around the old Visitor Center to the interpretive trails in the Willow Lakes area)
4. Aerial Walkway and Hawk Tower
5. Willow Lakes trail system
6. Other trails on the refuge.

For the purposes of organization, the information in this section is divided into the following categories:

- Headquarters Lake Area
- Existing Facility
- Refuge proper (includes levee, Willow Lakes Interpretive Trail, Tram ride, aerial walkway and hawk tower)

These are the areas where interpretive components should be included in the information network. Although trails access a lot of area aside from Willow Lakes, most users of the outlying areas will probably not be particularly interested in interpretive information.

Note: *Although the hub of visitor activities is located at Headquarters Lake, a visitor's actual experience will vary based on a visitor's interests. For visitors attracted by opportunities centered at Headquarters Lake, the on-site experience will start there. For traditional refuge visitors (birdwatchers and wildlife photographers), the experience is more likely to start at the existing visitor center since their focus is likely on getting into the refuge rather than spending time in activities at Headquarters Lake.*

Future Primary Experience: Headquarters Lake Area: Overview

This has become the focal point for visitor activities at the refuge. It includes the following:

- A new **visitor center** with interpretive displays and other interpretive opportunities;
- A self-guided, fully accessible **interpretive trail** around the lake that includes decks for viewing waterfowl (a layout similar to that at Estero State Park where visitors can sit on a deck and look out at the lake and birds);
- A **picnicking area** that has been enlarged to include areas that cater to large groups;
- A **nature-based playground** located adjacent to the picnic area;
- A staging area for the start of **guided tours**;
- An **amphitheater type area** that can be used for interpretive talks and presentations;
- Improved **infrastructure to support recreational activities** and courses, such as kayaking and biking;
- The **tram station** where visitors board and leave the tram.

The area currently functioning as the visitor hub would become a secondary hub, retaining the restrooms, breezeway and a small part of the visitor center for serving traditional audiences.

In addition to presentations, programs and classes available in the Multi-Purpose Room, the array of visitor interpretive opportunities in the new visitor center includes an Introductory Video and the exhibits in the Exhibit Hall. The Introductory Video will focus on providing thematic overview, while the exhibits will provide overview and detail.

The Exhibit Hall 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 interpretive opportunities with multiple intellectual access points so that everyone will find something that captures his or her attention and imagination. The intent is also to provide the opportunity to dig deeper into the stories that are presented in the Introductory Video.

***Note:** It is important in designing exhibits and other opportunities for the Visitor Center to understand that the purpose is not to tell the whole story, but rather to provide thematic overview so all other interpretive opportunities offered on the refuge make sense, motivate people to get out into nature (where the story is really told), and facilitate that visit into the refuge proper.*

In addition to the site-specific orientation and trip planning information in the lobby, the facility will include an Exhibit Hall, and a multi-purpose room for showing the refuge video and providing a space for community meetings and/or functions.

Exhibit Hall

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

- An emphasis on connections and interrelationships, which is the reason the *Life Zones of Santa Ana NWR* exhibit complex highlights connections between the zones, emphasizing that the natural environment is a continuum of different zones and habitats.
- An emphasis on the importance of water in general and the Rio Grande specifically, both to the flora and fauna, and to the people who live and have lived in the area.

- A desire to connect with people from different cultural groups with history in this area, which is the focus behind the exhibit complex entitled, *The River Connects Us All*.
- An emphasis on 'discovery.'
- An emphasis on exciting and inspiring visitors to explore Santa Ana NWR in person as 'Detectives of the Landscape,' which requires them learning how to 'read' the landscape to find connections, signs of wildlife and other aspects of the land and its inhabitants.
- An emphasis on providing an interactive, multi-sensory experience.

Although the exhibits for the Exhibit Hall have been identified, at this point in the process the array of variables – especially the final size and layout of the space - make it difficult to be highly specific about where certain pieces of information or exhibit components should be located, or how large they should be relative to other exhibit elements. 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.

The center of the Exhibit Hall contains a diorama exhibit complex with the working title of '*The Life Zones of Santa Ana NWR*' that features the major life zones found in the refuge. The diorama is arranged as a continuum that starts outside the refuge (to include impacts from outside the borders) to the Rio Grande.

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 life zones, the refuge and Native Nature. As noted previously, these are all elements that can be changed out periodically.

The exhibit hall also contains a timeline type exhibit complex with the working title of '*The River Connects Us All*' that uses cultural history as a vehicle for highlighting how different cultural groups have used the area and its resources over time. Although the Rio Grande is the key, the exhibit includes riparian habitats and wildlife because they too are connected to the river, and cultural use of the land had impact on them. The chronology begins with Native Americans and proceeds through the coming of the Spanish, the coming of other EuroAmericans, through the present and into the future. Note that this is not intended to be a detailed look at each cultural group. The focus for each group is on how they depended on the natural resources of the area to sustain their quality of life, and how the Rio Grande played a key role in determining how they lived. The key point of the exhibit is to point out how we still depend on natural resources even if we live in an urban area.

In addition to these two exhibit complexes, the exhibit hall contains several single exhibits. Ideally these exhibits would be opposite an exhibit component on the life zone diorama that relates to the exhibit. For example, an exhibit element in the Life Zones of Santa Ana NWR could be one that focuses on pollinators. The purpose of that element is to introduce the issue with pollinators. Opposite this exhibit element, on the wall of the Exhibit Hall a visitor would find the "Pollinators' exhibit that would provide detail on the topic.

Possible exhibits include the following:

- 'Pollinators' exhibit
- 'How are You Connected?' exhibit
- Ocelot exhibit
- Butterfly exhibit
- Bird migration exhibit

Finally, the hall contains a children's NatureScape play area and Discovery Area that contains a 'Find the Hidden Wildlife' exhibit, and a contemplation zone (the Window to the Wild could double as the contemplation zone).

Future Primary Interior Interpretive Experience

Note: The new visitor center can be designed to house all the following strategies. If a new center is not built, not all of the exhibits identified here will fit as described, although most of them can be re-conceptualized as more compact exhibits with fewer elements that take up room.

Life at Santa Ana NWR (Exhibit)

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;
- Understand how they are connected to the refuge and Rio Grande through their actions and that they can have positive or negative impacts;
- Feel empowered to make a difference by engaging in stewardship behaviors.

Key Themes

This is a thematic overview exhibit, so all themes and sub-themes should be included.

Description and Concept

The exhibit is essentially a long narrow 'island' containing a continuous sequence of flat images and three-dimensional elements representing a sequence of life zones that begins with an 'urban' zone followed by a 'rural' zone and ends with the aquatic zone in the Rio Grande. The urban and rural zones are included to help emphasize that we are a part of the system and what we do in the urban and rural zones has impact on life zones in the refuge. The diorama will be used as a backdrop to present information focused on the native flora and fauna, connections with other zones, and human impacts.

The continuous exhibit island could be broken up by passageways with interpretive elements focusing on stories to be discovered under the surface, such as clues regarding the geomorphology and artifacts from previous cultural groups, 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 that the zones are all connected.

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 life zones, the refuge and Native Nature. As noted previously, these are all elements that can be changed out periodically.

Emphasis, as with all the exhibits, will be on providing brief snippets of information and then posing questions to stimulate thought rather than offering conclusions. Information will be presented using a variety of strategies and media, and with the opportunity to use multiple senses, with emphasis on 'discovering' the life zones of the refuge and what lives in each. Exhibit elements within each zone will provide opportunities to 'discover' different aspects of that zone using all senses. These are all elements where the information can be changed out periodically as a means of staying up to date and attracting repeat visitors. All aspects of the zone - plants, wildlife, fish, birds, humans, and the natural forces that continue to shape the land and its inhabitants - 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. The issues facing the refuge and potential impacts can also be found in the array of strategies.

The development of this exhibit will require working closely with the USFWS, particularly those at the refuge, to continue gathering and assessing additional potential stories and information that could be included.

As a whole, the components in every zone should establish the following:

- The zone supports different wildlife than other zones because it contains different habitat;
- The refuge is in the zone or is linked to the zone through a web of connections;
- Because of those connections, what happens in zones upslope from the refuge have impacts on the refuge and potentially on the Rio Grande, which means protecting the Rio Grande and the refuge depends on actions in the local community.

Exhibit Complex Framework

Each zone will have, at a minimum, the following elements:

'Didjknows'

Fun facts.

'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 to native plants and wildlife if global climate change continues?" 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 of something associated with birds or wildlife, such as a woodpecker hole, coyote scat, and badger holes. The identity of the organism is revealed upon opening the door, along with a tidbit of information about that piece of evidence, and how a visitor might find that piece of evidence.

Another approach is to use the question on the front of a reveal. 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 and for what. The key concepts to convey are that some species of wildlife use resources from more than one zone, and that migratory birds and wildlife use it during specific seasons.

Why do I live here?

Some form of this question would be located on an image of a species of wildlife. A reveal would contain an answer that focuses on the link between the species of wildlife and habitat.

What's the Connection?

This is an image of something in one zone with a visual link to another zone and the question, 'What's the Connection?' A reveal would highlight the connection between the two. For example, the aquatic zone could contain an image of a person fishing in the Rio Grande with the question "What's the Connection?" and an image of an urban and/or rural zone on the outside of a flip plate. Upon opening the door, the viewer finds out that contaminants and erosion from those zones can get into the river, causing negative impacts on fish and other species.

What's Going on Down There?

This exhibit element highlights what can be found underground in a zone, such as burrows, contaminants, the water table, artifacts from previous inhabitants, etc. Whenever something like a contaminant is included, if possible, actions being taken to combat the problem as part of the Environmental Justice program should be included.

What are We Doing?

This exhibit element highlights activities of the USFWS, such as research and habitat restoration.

The River Connects Us All (Working Title)

Objectives

When visitors finish interacting with this exhibit, they will:

- Be inspired to go out and explore the refuge;
- Be inspired to learn more;
- Understand the importance of the Rio Grande and the role it plays in human lives – past, present and future;
- Understand how they are connected to the Rio Grande through their actions and that they can have positive or negative impacts;
- Feel empowered to make a difference by engaging in stewardship behaviors.
- Understand the connection between the Rio Grande, the riparian areas and associated wildlife.

Key Themes

The following are the key themes to focus on in designing the exhibit, but that does not mean other themes and sub-themes cannot be included.

Interpretive Theme 7: Water, because it is a critical component of habitats, has long determined patterns and quality of life in the Lower Rio Grande Valley.

Sub-Theme 7-1: Water in all its forms has and continues to dictate cultural activity in the Lower Rio Grande Valley.

Sub-Theme 7-2: Wetlands, including those on Santa Ana NWR, are important to our quality of life.

Interpretive Theme 6: Everything in an ecosystem is linked. Impact on any one component has a ripple effect that causes impact on the habitats it supports and on other components of that ecosystem, including humans.

Sub-theme 6-2: All parts of an ecosystem, including the forces that shaped and continue to shape it, are necessary to keep the system healthy along with all the habitats it supports.

Sub-theme 6-3: Humans can determine what organisms live and what die by impact on habitat. Those impacts ultimately affect humans since humans are a part of the ecosystem.

Sub-theme 6-4: Because individual actions add up incrementally to significant impacts, you can play an important role in maintaining natural resources, and on conserving and recovering the wildlife in Santa Ana NWR and other refuges in South Texas.

Interpretive Theme 3: A lot of people, including the USFWS, are working to conserve and restore habitat to protect wildlife we value for the people today and for future generations.

Description and Concept

This exhibit complex that uses the river as a common thread to focus on the cultural history of the area in general and how different cultural groups have used the area and its resources over time, and the resulting impact on the natural world in general and the Rio Grande specifically. The chronology begins with Native Americans and proceeds through the coming of the Spanish, the coming of other EuroAmericans, through the present and into the future. Note that this is not intended to be a detailed look at each cultural group. The focus for each group is on how they depended on the natural resources of the area to sustain their quality of life, and how the Rio Grande played a key role in determining how they lived. The key point of the exhibit is to point out how we still depend on natural resources even if we live in an urban area.

One possible approach is to use a flowing river as a timeline element to organize the exhibit elements in chronological order. The key for each cultural group is to focus on how the role of the Rio Grande and different natural resources played a role in their lifestyle.

Note: *It is important in presenting this information to avoid giving the impression that any group is 'gone.'* Descendants of all cultural groups still live here.

Ocelot Exhibit

Objectives

When visitors finish interacting with this exhibit, they will:

- Be aware of the need for wildlife corridors for terrestrial wildlife;
- Be inspired to engage in actions associated with saving the ocelot, such as volunteering for work parties that restore important habitat, donating money, and supporting land acquisition to help preserve wildlife corridors;
- Be inspired to learn more;
- Know that a lot of people in addition to the USFWS are working to preserve ocelots;
- Understand they are a part of the problem and that they can become part the solution.

Key Themes

The following are the key themes to focus on in designing the exhibit, but that does not mean other themes and sub-themes cannot be included.

Interpretive Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Sub-theme 2-2: The habitat necessary to support migratory birds and wildlife extends the entire length of their migration routes.

Sub-theme 2-3: Native Nature has almost been wiped out in south Texas, and with it, much of the native wildlife that depends on Native Nature for habitat.

Interpretive Theme 3: A lot of people, including the USFWS, are working to conserve and restore habitat to protect wildlife we value for the people today and for future generations.

Interpretive Theme 5: The USFWS is an asset to the community.

Interpretive Theme 6: Everything in an ecosystem is linked. Impact on any one component has a ripple effect that causes impact on the habitats it supports and on other components of that ecosystem, including humans.

Sub-theme 6-1: Native wildlife depend on native plants as part of their habitat.

Sub-theme 6-2: All parts of an ecosystem, including the forces that shaped and continue to shape it, are necessary to keep the system healthy along with all the habitats it supports.

Sub-theme 6-3: Humans can determine what organisms live and what die by impact on habitat. Those impacts ultimately affect humans since humans are a part of the ecosystem.

Sub-theme 6-4: Because individual actions add up incrementally to significant impacts, you can play an important role in maintaining natural resources, and on conserving and recovering the wildlife in Santa Ana NWR and other refuges in South Texas.

Description and Concept

Not only is this a key species for this and other refuges in South Texas, but it is as close as you can get to charismatic megafauna living in this area. In addition, it is a species that needs a terrestrial corridor of protected habitat, so it is likely that SANWR can create a partnership with Friends of a Wildlife Corridor to fund such an exhibit.

One possible approach is to make this into a simple game with the visitor trying to get the ocelot from one part of the habitat to the other while avoiding hazards, such as cars. The participant must continually make sure that nothing blocks the ocelot's route.

Window to the Wild



A window to the Wild offers an opportunity to view nature from the comfort of a building

Objectives

When visitors finish interacting with this opportunity, they will:

- Be inspired to go out and explore the refuge;
- Be inspired to learn more.

Key Themes

The following are the key themes to focus on in designing the exhibit, but that does not mean other themes and sub-themes cannot be included.

Interpretive Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Description

A Window to the Wild (see image below) is a place where people can view nature from the protection of an interior space, thus it provides another 'safe' Stepping Stone of Engagement. It should look out onto a natural area with bird feeders and native plants that attract birds and other wildlife, so visitors can begin focusing on the outside, and so they can see wildlife. The sounds from the outside, including bird calls, can be piped inside. To be most effective it should be set off from the main exhibit area and welcome area to minimize distractions. In addition to providing identification keys and binoculars, information would link species to habitat, and make visitors aware that they can plant the same vegetation in their yard to attract the same species of birds (visitors should also be able to get a voucher for a discount at a local nursery).

Pollinator Exhibit

Objectives

When visitors finish interacting with this exhibit, they will:

- Be inspired to plant a pollinator garden;
- Be inspired to learn more;
- Feel empowered to make a difference by engaging in stewardship behaviors.

Key Themes

The following are the key themes to focus on in designing the exhibit, but that does not mean other themes and sub-themes cannot be included.

Interpretive Theme 1: Nature, such as that found at Santa Ana NWR, including native plants, wildlife and other organisms, is important to your (my) quality of life, as it has been important to the quality of life of all who have lived here in the past.

Sub-theme 1-1: The population of pollinators that are critical for pollinating local crops is declining due to loss of the habitat they need to survive, which will affect the availability of foods.

Interpretive Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Sub-theme 2-2: The habitat necessary to support migratory birds and wildlife extends the entire length of their migration routes.

Sub-theme 2-3: Native Nature has almost been wiped out in south Texas, and with it, much of the native wildlife that depends on Native Nature for habitat.

Description and Concept

This would focus especially on pollinators that are responsible for common foods in the area and the potential crisis if those pollinators are eliminated due to loss of habitat. Accompanying this exhibit should be instructions and supplies for planting a pollinator garden.

One possible approach is to use a game concept where participants must match pollinators to plants they depend on all along their migration route, while at the same time trying to manage human impacts to preserve necessary habitat along the pollinator's migration route. Note that this game must include the barriers that migrating pollinators face, with a potential outcome of not reaching their destination, or reaching it in reduced numbers. The impact must connect to availability of food and/or other products humans value.

A World-Renowned Jewel (working title)

Objectives

When visitors finish interacting with this exhibit, they will:

- Feel proud that one of the most valued birding sites in the world is in Texas;
- Be inspired to learn more;
- Be amazed at the variety of wildlife supported by the refuge;
- Be motivated to become an active advocate for Santa Ana NWR.

Key Themes

The following are the key themes to focus on in designing the exhibit, but that does not mean other themes and sub-themes cannot be included.

Interpretive Theme 1: Nature, such as that found at Santa Ana NWR, including native plants, wildlife and other organisms, is important to your (my) quality of life, as it has been important to the quality of life of all who have lived here in the past.

Sub-theme 1-2: Ecotourism, which depends to a significant extent on the natural resources of Santa Ana NWR specifically and other refuges in south Texas, is important to maintaining quality of life.

Interpretive Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Sub-theme 2-3: Native Nature has almost been wiped out in south Texas, and with it, much of the native wildlife that depends on Native Nature for habitat.
Interpretive

Interpretive Theme 4: Santa Ana NWR is an important asset to the people of the area, providing a myriad of opportunities that support quality of life.

Interpretive Theme 5: The USFWS is an asset to the community.

Description and Concept

This exhibit has two purposes. First, it can instill a sense of pride in the refuge, which could help with forming an emotional connection. Second, it can be used to highlight the loss of habitat in South Texas, and the importance of the UFWS refuges – Santa Ana NWR, Laguna Atascosa NWR and Lower Rio Grande Valley NWR – in that area to help protect what is left. Although the site may have had the same diversity of species prior to significant alteration of the landscape, the focus should be on the fact that they are concentrated here because most of the land has been developed, resulting in a loss of habitat. It also can be used to focus some attention on the amount of money coming into the area from ecotourism.

One possible approach is to have an interactive map with Santa Ana NWR in the center and arrows coming from places around the world that people live who have made the journey to Santa Ana NWR. The exhibit could also have a few 'didjacks' presented in a flip place with questions such as "What is the average distance people travel to visit Santa Ana NWR?" The answer would be revealed upon flipping up the plate. Flipping the plate would also initiate the exhibit to display the arrangement of arrows coming from different countries with width based on the number of people who come. Another element of the exhibit depicted in some way, indicates the amount of money and/or jobs (jobs should be included because people can relate to those more than money).

Butterfly Exhibit

Objectives

When visitors finish interacting with this exhibit, they will:

- Be inspired to plant a butterfly garden;
- Be inspired to learn more;
- Feel empowered to make a difference by engaging in stewardship behaviors.

Key Themes

The following are the key themes to focus on in designing the exhibit, but that does not mean other themes and sub-themes cannot be included.

Interpretive Theme 1: Nature, such as that found at Santa Ana NWR, including native plants, wildlife and other organisms, is important to your (my) quality of life, as it has been important to the quality of life of all who have lived here in the past.

Sub-theme 1-1: The population of pollinators that are critical for pollinating local crops is declining due to loss of the habitat they need to survive, which will affect the availability of foods.

Interpretive Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Sub-theme 2-2: The habitat necessary to support migratory birds and wildlife extends the entire length of their migration routes.

Sub-theme 2-3: Native Nature has almost been wiped out in south Texas, and with it, much of the native wildlife that depends on Native Nature for habitat.



Many butterfly species are in decline due to loss of habitat

Description and Concept

An exhibit on butterflies has several significant advantages. First, people – especially children – are drawn to butterflies, which creates another opportunity to establish an emotional connection. Second, they migrate, which creates the opportunity to communicate the need for a system of refuges along

migration corridors, and the opportunity to perhaps connect a visitor to areas along the migration route for which he or she has an existing connection.

One possible approach is to focus on the Monarch butterfly, which has become an iconic symbol for conservation. In the last few decades the population has declined by 80%. Unlike trying to save whales, which is a distant issue for most people, and one that takes lots of money and resources, people can help save monarchs through simply planting milkweed – the monarch’s favorite plant. In this case we have the opportunity to engage and hopefully affect people’s attitudes to the point that they take a simple action. That action could be the beginning of a large-scale shift in attitude towards conservation. If the monarch becomes the focal point for the exhibit, the Nature Store needs to sell or just give away milkweed seeds, so people can plant a butterfly garden that attracts monarchs.

Note: This could be a part of the Pollinator exhibit.

Migrating Birds

Objectives

When visitors finish interacting with this exhibit, they will:

- Be inspired to return to visit the refuge during spring migration;
- Be inspired to learn more;
- Understand the need for a network of refuges along migration corridors;
- Feel empowered to make a difference by engaging in stewardship behaviors.

Key Themes

The following are the key themes to focus on in designing the exhibit, but that does not mean other themes and sub-themes cannot be included.

Interpretive Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Sub-theme 2-2: The habitat necessary to support migratory birds and wildlife extends the entire length of their migration routes.

Sub-theme 2-3: Native Nature has almost been wiped out in south Texas, and with it, much of the native wildlife that depends on Native Nature for habitat.

Interpretive Theme 6: Everything in an ecosystem is linked. Impact on any one component has a ripple effect that causes impact on the habitats it supports and on other components of that ecosystem, including humans.

Sub-theme 6-3: Humans can determine what organisms live and what die by impact on habitat. Those impacts ultimately affect humans since humans are a part of the ecosystem.

Sub-theme 6-4: Because individual actions add up incrementally to significant impacts, you can play an important role in maintaining natural resources, and on conserving and recovering the wildlife in Santa Ana NWR and other refuges in South Texas.

Interpretive Theme 3: A lot of people, including the USFWS, are working to conserve and restore habitat to protect wildlife we value for the people today and for future generations.



Santa Ana NWR is an important stop for many migrating birds

Description and Concept

Although information on flyways should be included, it is not the major focus of this exhibit. The goal is to connect to visitors. For that reason, species should be selected that are charismatic and/or that connect a visitor to an area for which he or she has an existing connection. They should also be species that are at risk due to habitat loss or other factors. One possible approach is to create an opportunity where visitors can type in where they are from and a computer can provide information on what species that pass through south Texas also pass through or end up where the visitor lives.

Live Specimens, Touch Table and Associated Exhibit

Objectives

When visitors finish interacting with this exhibit, they will:

- Be inspired to learn more;
- Understand the concept that wildlife depend on habitat for survival;
- Be excited about trying to find wildlife in the wild.

Key Themes

The following are the key themes to focus on in designing the exhibit, but that does not mean other themes and sub-themes cannot be included.

Interpretive Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Sub-theme 2-2: The habitat necessary to support migratory birds and wildlife extends the entire length of their migration routes.

Sub-theme 2-3: Native Nature has almost been wiped out in south Texas, and with it, much of the native wildlife that depends on Native Nature for habitat.

Interpretive Theme 6: Everything in an ecosystem is linked. Impact on any one component has a ripple effect that causes impact on the habitats it supports and on other components of that ecosystem, including humans.

Sub-theme 6-1: Native wildlife depend on native plants as part of their habitat.

Sub-theme 6-2: All parts of an ecosystem, including the forces that shaped and continue to shape it, are necessary to keep the system healthy along with all the habitats it supports.

Sub-theme 6-3: Humans can determine what organisms live and what die by impact on habitat. Those impacts ultimately affect humans since humans are a part of the ecosystem.

Sub-theme 6-4: Because individual actions add up incrementally to significant impacts, you can play an important role in maintaining natural resources, and on conserving and recovering the wildlife in Santa Ana NWR and other refuges in South Texas.

Description and Concept

Live animals and 3-dimensional objects draw attention and interest. The key is to use the opportunity created by the attention and interest to communicate key messages, such as the ones focused on the relationship between wildlife and habitat. A possible addition to the information presented is why zoos are *not* the answer for protecting wildlife. It might be important in this instance because the underlying

message of any exhibit or opportunity in which wildlife are displayed is that you can keep species of wildlife alive in a built environment that is not their native habitat.

The interpretation associated with the live specimens and associated touch table elements should be brief, focusing on 'didjacks' to simply capture interest and make a visitor want to know more. Ideally, the 'didjacks' would focus on the relationship of specific wildlife to habitat, and what would happen if the habitat disappears. The exhibit part of this combination of components is a 'Where's Waldo' type of opportunity where visitors are challenged to locate wildlife or signs of wildlife within a mural. The information associated with the live specimens and touch table will provide clues on what habitat to search to find a species of wildlife or evidence that the species was there.

Note: *This is an important opportunity for children in general, but especially for children up to about age 8, because until that point they depend heavily on their senses to explore their environment. This should be developed into a family experience by creating opportunities for interaction between family member.*

A Child's View (NatureScape Play Area)

This is an area for children that contains larger than life models of species that can be found in the refuge, similar to the image below, which is of a NatureScape Play Area in the Clark County Wetlands Park Nature Center in Las Vegas, NV. A family opportunity can be developed by creating a set of questions and answers associated with the plants and wildlife depicted by the models. Another opportunity for this area is a "Where's Waldo" type of opportunity where children must search images depicting different life zones found in the refuge 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, with a resultant change in species. 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 zone. The message from engaging with this exhibit is that the refuge supports a lot of species of wildlife, even if you don't always see them, and that different habitats attract different species.



What do You Want to Invite Home?

Objectives

When visitors finish interacting with this exhibit, they will:

- Be inspired to learn more;
- Be motivated to plant native plants in their yards to attract specific species;
- Understand the relationship between wildlife and habitat;
- Feel empowered to make a difference by engaging in stewardship behaviors, specifically, by planting native vegetation.

Key Themes

The following are the key themes to focus on in designing the exhibit, but that does not mean other themes and sub-themes cannot be included.

Interpretive Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Sub-theme 2-3: Native Nature has almost been wiped out in south Texas, and with it, much of the native wildlife that depends on Native Nature for habitat.

Interpretive Theme 4: Everything in an ecosystem is linked. Impact on any one component has a ripple effect that causes impact on the habitats it supports and on other components of that ecosystem, including humans.

Sub-theme 4-3: Humans can determine what organisms live and what die by impact on habitat. Those impacts ultimately affect humans since humans are a part of the ecosystem.

Sub-theme 4-4: Because individual actions add up incrementally to significant impacts, you can play an important role in maintaining natural resources, and on conserving and recovering the wildlife in the LRGV.

Interpretive Theme 6: A lot of people, including the USFWS, are working to conserve and restore habitat to protect wildlife we value for the people today and for future generations.

Description and Concept

This exhibit offers the opportunity to see and hear birds at the same time, with the hope that people will become enamored with a specific species and will want to plant native vegetation in their yards that is part of the habitat required by that species. It could also motivate visitors to engage in projects that involve planting native vegetation in other locations, such as Islands of Habitat. Since the goal is for visitors to plant native vegetation in their yards to help support native wildlife, the focus should be on birds that are likely to use specific species of plants in an urban environment.

To help facilitate reaching the goal of having visitors plant native vegetation, the USFWS should develop a partnership with a local nursery so visitors are able to get a voucher for a discount at a local nursery. (Another option is to have a 'give-away day' at the refuge where you supply visitors with native plants for their yards, but those plants should be purchased at a local nursery so the refuge isn't in the position of begin a competitor with local businesses.)

The USFWS has an excellent publication entitled, *Building Homes for Wildlife: Lower Rio Grande Valley National Wildlife Refuge*, which should be available at this exhibit because it focuses on helping people plant native vegetation in their yards to attract wildlife.

Note: *The publication noted is excellent, but should be reviewed and modified before the next printing to minimize barriers to participation. For example, the first step under 'Get Started' is to figure out what kinds of native birds, butterflies or pollinators live in your area that you can attract. Although this may seem easy, an urban resident may have no idea how to go about obtaining such information, which increases the perceived 'cost' for engaging. As another example, the last paragraph on page 3 suggests that a bit of research can be helpful, but it does not tell a reader potential sources of information.*

Walking the Talk (Working Title)

This is a series of small panels at appropriate locations around the facility highlighting the conservation measures used in the design and construction of the building, such as low flow water fixtures, taking advantage of natural insulation (only if the building is partially buried), and similar measures with emphasis on those that can be adapted for use by homeowners. The actual topics will be determined by the design of the building.

Audiovisual Program

Location

Multi-Purpose room

Objectives

After viewing the program visitors will:

- Know all the major themes;
- Feel inspired to view the exhibits and experience the outdoor exhibits and interpretive trails;
- Feel inspired to explore the refuge.

Themes

All themes should be covered in this opportunity.

Description and Concept

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.

A variety of treatments can be used to present the desired information. One possibility is to use a chronological approach beginning with when the area was used by Native Americans. The purpose in presenting the cultural history is in part to tap into potential connections with viewers, in part to emphasize the role and importance of the Rio Grande in dictating cultural activity, and in part to emphasize the reliance on native flora and fauna through the ages, especially plants – for food, healing, dyes, building materials and a myriad of other uses. The emphasis on plants provides the backdrop for a focus on issues that could be important to residents due to the loss of native vegetation, such as the loss of pollinators. The chronology can extend into the future providing a vision for the refuge in years to come. That provides the opportunity at the end to focus on the different habitats that will be created on the refuge and the value of those habitats to different species of birds and wildlife.

Self-Guided Interpretive Trail with Interpretive Panel Clusters

Location

Headquarters Lake

Objectives

When visitors finish interacting with this opportunity, they will:

- Be inspired to learn more;
- Be motivated to visit the refuge proper, even if just on a tram tour;
- Understand the relationship between wildlife and habitat;
- Feel empowered to make a difference by engaging in stewardship behaviors.

Key Themes

The following are the key themes to focus on in designing the exhibit, but that does not mean other themes and sub-themes cannot be included.

Interpretive Theme 1: Nature, such as that found at Santa Ana NWR, including native plants, wildlife and other organisms, is important to your (my) quality of life, as it has been important to the quality of life of all who have lived here in the past.

Sub-theme 1-3: Native Nature, including that at Santa Ana NWR, provides opportunities for desirable recreational opportunities.

Interpretive Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Sub-theme 2-3: Native Nature has almost been wiped out in south Texas, and with it, much of the native wildlife that depends on Native Nature for habitat.

Interpretive Theme 4: Santa Ana NWR is an important asset to the people of the area, providing a myriad of opportunities that support quality of life.

Interpretive Theme 5: The USFWS is an asset to the community.

Interpretive Theme 6: Everything in an ecosystem is linked. Impact on any one component has a ripple effect that causes impact on the habitats it supports and on other components of that ecosystem, including humans.

Sub-theme 6-1: Native wildlife depend on native plants as part of their habitat.

Sub-theme 6-2: All parts of an ecosystem, including the forces that shaped and continue to shape it, are necessary to keep the system healthy along with all the habitats it supports.

Sub-theme 6-3: Humans can determine what organisms live and what die by impact on habitat. Those impacts ultimately affect humans since humans are a part of the ecosystem.

Sub-theme 6-4: Because individual actions add up incrementally to significant impacts, you can play an important role in maintaining natural resources, and on conserving and recovering the wildlife in Santa Ana NWR and other refuges in South Texas.

Interpretive Theme 7: Water, because it is a critical component of habitats, has long determined patterns and quality of life in the Lower Rio Grande Valley.

Sub-Theme 7-1: Water in all its forms has and continues to dictate cultural activity in the Lower Rio Grande Valley.

Sub-Theme 7-2: Wetlands, including those on Santa Ana NWR, are important to our quality of life.

Description and Concept

This is a fully accessible trail around Headquarters Lake with periodic interpretive panels and/or panel clusters (each panel has an embedded RFID chip), blinds for people to observe waterfowl on the lake, and platforms extending out into the water with shaded benches to provide contemplation zones. The specific focus of the panels would depend on the visuals, but they should reflect key messages, especially the ones on the relationship of wildlife to habitat and the importance of water in a semi-arid environment. Ideally the signs will draw attention to evidence of wildlife, such as woodpecker holes, scat, etc., so even if visitors don't see wildlife, they become aware that the site contains a significant amount of wildlife. The point is to show visitors that specific wildlife is associated with specific habitat instead of simply trying to tell them.

Note: *The existing panels should be removed.*

Sense-ational Discovery Guide

Objectives

The intent of this guide is to motivate visitors to:

- Experience key features of the refuge using all 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:

Interpretive Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Design Concept

This publication focuses on helping visitors connect with natural 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 Santa Ana NWR 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 woodpecker holes in the visitor center and then found one while exploring the refuge, 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 Nature Store could have a copy of the publication.

Note: *The Explorer's Kit or Backpack is a daypack full of tools for discovering the world around us, such as inexpensive binoculars, identification keys for plants, birds, wildlife and animal tracks, a magnifying glass, and any other items that would help youth discover nature on their own. It could also contain a simple camera with 12 exposures so youth can take pictures of their favorite features. Those pictures could be submitted in a contest with the best from each camera posted on a bulletin board in the Visitor Center. This could be a way of encouraging return visits, visits by other family members and relatives, etc. The backpack could be sold in the Nature Store or checked out.*

Opportunities on the Refuge proper

The other side of the levee contains several interpretive opportunities, with the closest being an interpretive platform that looks out over the native vegetation to the west, and the agricultural fields to the east so visitors can see what Texas used to look like to what most of it looks like now, with emphasis on the plight of wildlife due to loss of habitat. The aerial walkway and hawk tower remain, but have increased interpretive opportunities. The current trail hub continues to function in that capacity, but with improved orientation, wayfinding and interpretive information. The interpretive loop trail (Willow Lake) also continues to function as an interpretive trail.

Levee Overlook

Location

Built out from the top of the ramp that accesses the refuge (so it is not construction on the actual levee). so the visitor can see the landscape on either side of the levee. If that still isn't possible consider constructing a viewing platform adjacent to the levee. It would function as an effective interpretive opportunity and birdwatching opportunity.

Note: *Construction on the levee is not allowed. This recommendation is for a deck or viewing platform adjacent to the walkway connecting the refuge proper to the top of the levee, thus it would not actually be on the levee.*

Objectives

After viewing this interpretive opportunity visitors will:

- Feel inspired to explore the refuge;
- Be more aware of the importance of water in south Texas (this is associated with the interpretation that focuses on the canal);
- Understand that most of the native vegetation in Texas – and the wildlife that depends on that native vegetation – are gone, which leads to a desire to help protect what remains.
- Feel empowered to make a difference by engaging in stewardship behaviors, specifically by planting native vegetation wherever possible.

Key Themes

The following are the key themes to focus on in designing this interpretive opportunity, but that does not mean other themes and sub-themes cannot be included.

Interpretive Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Sub-theme 2-3: Native Nature has almost been wiped out in south Texas, and with it, much of the native wildlife that depends on Native Nature for habitat.

Interpretive Theme 3: A lot of people, including the USFWS, are working to conserve and restore habitat to protect wildlife we value for the people today and for future generations.

Interpretive Theme 6: Everything in an ecosystem is linked. Impact on any one component has a ripple effect that causes impact on the habitats it supports and on other components of that ecosystem, including humans.

Sub-theme 6-3: Humans can determine what organisms live and what die by impact on habitat. Those impacts ultimately affect humans since humans are a part of the ecosystem.

Sub-theme 6-4: Because individual actions add up incrementally to significant impacts, you can play an important role in maintaining natural resources, and on conserving and recovering the wildlife in Santa Ana NWR and other refuges in South Texas.

Interpretive Theme 7: Water, because it is a critical component of habitats, has long determined patterns and quality of life in the Lower Rio Grande Valley.

Sub-Theme 7-1: Water in all its forms has and continues to dictate cultural activity in the Lower Rio Grande Valley.

Description and Concept

The key visual at this location is the view to the south or north, which shows almost complete human manipulation of the landscape on the east side of the levee, and a pocket of natural vegetation on the west side. The image itself helps send the message that most of the natural landscape in Texas has been converted by humans for other uses, in this case, farming. The interpretive opportunities need to highlight that story because it supports the need to protect what little natural landscape remains, and with it, the wildlife that depend on that natural landscape for habitat.

The interpretation at this site should use multiple media to increase the probability of attracting the attention of visitors and conveying the key story. An option for one of the strategies is to use interpretive panels to focus not only on the changes to the landscape, but also the changes to the diversity of wildlife supported by each. As an example, the overlook could have a long interpretive panel (curved if the budget allows) along either the north or south edge of the viewing platform. The panel would be split down the middle, with one side focusing on the changes to the landscape and subsequent impact on the wildlife that depended on that natural landscape. The other side would focus on the natural landscape and the species that depend on it for habitat. Ideally images would be used to highlight at least some species in each area with the intent of showing that the native landscape supports a much larger diversity of wildlife. Another panel, on the side opposite the one with the primary panel would focus on water as a key factor in cultural activity in the area.

This could also be a stop along a self-guided tour that uses QR codes or the most recent equivalent to access audio files that provide the same information.

Note: Ideally, the interpretive trail to Willow Lakes would start from this point.

Tram Tour

Objectives

After engaging in this opportunity visitors will:

- Know all the major themes;
- Feel inspired to view the interior exhibits and experience the outdoor exhibits and interpretive trails;
- Be motivated to learn more;
- Feel inspired to explore the refuge.

Themes

Note that the themes identified for the interpretive network to not change. What changes are the supporting stories, based on available features, that are used as vehicles for communicating those themes. All themes could be covered in this opportunity. It just depends on the type of stimuli along the route. The following themes can all be conveyed depending on the stimuli available at a particular time of the year or time of day.

Interpretive Theme 1: Nature, such as that found at Santa Ana NWR, including native plants, wildlife and other organisms, is important to your (my) quality of life, as it has been important to the quality of life of all who have lived here in the past.

Note: To support this theme tour guides need to point out native plants that were important to previous inhabitants of the area and, if possible, to current residents.

Sub-theme 1-1: The population of pollinators that are critical for pollinating local crops is declining due to loss of the habitat they need to survive, which will affect the availability of foods.

Note: This can be communicated if flora important to pollinators is located along the route.

Interpretive Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Note: To support this theme tour guides need to point out native plants that support native wildlife, or, if viewing a species of bird or wildlife, draw the connection between that organism and the habitat at Santa Ana NWR.

Sub-theme 2-2: The habitat necessary to support migratory birds and wildlife extends the entire length of their migration routes.

Note: This sub-theme is more likely to be communicated well when species of migratory birds are spotted. That is a lead-in to talking about what Santa Ana NWR has in terms of habitat, and conveying the type of habitat they need on their migratory route.

Sub-theme 2-3: Native Nature has almost been wiped out in south Texas, and with it, much of the native wildlife that depends on Native Nature for habitat.

Note: This theme is most effectively communicated when the tram is on top of the dike and visitors can see the vast expanse of cultivated land on the east side of the dike compared with the pocket of natural vegetation on the right.

Interpretive Theme 3: A lot of people, including the USFWS, are working to conserve and restore habitat to protect wildlife we value for the people today and for future generations.

Note: To support this theme tour guides need to point out results of work done by the USFWS and resulting impact, ideally, on a species valued by tour goers, or perhaps by people in general.

Interpretive Theme 6: Everything in an ecosystem is linked. Impact on any one component has a ripple effect that causes impact on the habitats it supports and on other components of that ecosystem, including humans.

Note: To support the idea that everything is linked, tour guides simply need to draw the connection between specific species of wildlife to specific habitat and vice versa, which also supports sub-theme 6-1.

Sub-theme 6-1: Native wildlife depend on native plants as part of their habitat.

Sub-theme 6-2: All parts of an ecosystem, including the forces that shaped and continue to shape it, are necessary to keep the system healthy along with all the habitats it supports.

Sub-theme 6-3: Humans can determine what organisms live and what die by impact on habitat. Those impacts ultimately affect humans since humans are a part of the ecosystem.

Note: To support this theme tour guides can use the image of the cultivated land to the east of the levee as a tool for focusing on the impact on native species of flora and fauna.

Sub-theme 6-4: Because individual actions add up incrementally to significant impacts, you can play an important role in maintaining natural resources, and on conserving and recovering the wildlife in Santa Ana NWR and other refuges in South Texas.

Interpretive Theme 7: Water, because it is a critical component of habitats, has long determined patterns and quality of life in the Lower Rio Grande Valley.

Sub-Theme 7-1: Water in all its forms has and continues to dictate cultural activity in the Lower Rio Grande Valley.

Note: This sub-theme is best supported by noting that this was a Spanish land grant whose location was dictated by the Rio Grande, and by comparing the difference between native habitat and the cultivated lands to the east, ideally while also in view of the canal.

Sub-Theme 7-2: Wetlands, including those on Santa Ana NWR, are important to our quality of life.

Note: Although difficult to show, the role of wetlands in cleansing water and absorbing floods are two key roles of wetlands that humans value. The wetlands also support bird species valued by hunters.



The tram creates the opportunity to see a variety of habitats in a short amount of time

Description and Concept

This is a short (shorter than the current tour) tour around the immediately accessible parts of the refuge. It should include the aerial walkway and hawk tower and a view from the top of the levee at a minimum. It should also be designed to allow visitors to get off at locations within the refuge, such as trailheads and the aerial walkway, and catch the next tram back. That would necessitate having the tram run on a regular schedule, not just when there are enough visitors. It would also necessitate restrooms at the aerial walkway at least. The interpretation offered on the tour should be outlined so it reflects the key themes without eliminating the opportunity for tour guides to develop their own 'style.'. Currently it is more a recitation of facts about specific areas and features than an interpretive opportunity.

Hawk Tower and Aerial Walkway

Objectives

After engaging with this opportunity visitors will:

- Be able to pick out specific natural features and/or vegetation that is a part of the natural landscape;
- Be able to name at least 3 species of birds or wildlife that they are more likely to see in or above the canopy than on the ground;
- Want to know more;
- Feel inspired to experience the outdoor exhibits and interpretive trails;
- Feel inspired to explore the refuge.

Key Themes

The following are the key themes to focus on in designing the exhibit, but that does not mean other themes and sub-themes cannot be included.

Interpretive Theme 1: Nature, such as that found at Santa Ana NWR, including native plants, wildlife and other organisms, is important to your (my) quality of life, as it has been important to the quality of life of all who have lived here in the past.

Sub-theme 1-3: Native Nature, including that at Santa Ana NWR, provides opportunities for desirable recreational opportunities.

Interpretive Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Sub-theme 2-3: Native Nature has almost been wiped out in south Texas, and with it, much of the native wildlife that depends on Native Nature for habitat.

Interpretive Theme 4: Santa Ana NWR is an important asset to the people of the area, providing a myriad of opportunities that support quality of life.

Description and Concept

The view from the top of the tower isn't really a view that can be had anywhere else on the refuge, and likely in the surrounding area. It provides two relatively unique interpretive opportunities. Unlike the view from the levee, the visitor is more surrounded by native vegetation, so it is easier to get a 'feel' for what it must have been like before humans converted most of the other land for other uses. The other opportunity is related to the fact that the visitor is at the level of the canopy, which creates an opportunity to talk about the vertical dimensions of habitat, raptors and other topics related to the view. Although the topics suggest themselves due to the features in the viewshed, the delivery of information is more of a question mark, as is the desire to make the view and associated information accessible to everyone, regardless of whether they can or are willing to climb the tower or not. A periscope is a possibility, but the view from a periscope does not really provide the same opportunities

since it is a relatively small slice of the view available to those who climb the tower or aerial walkway. It also requires a sizable investment, will require regular maintenance, and is in an area where it can more easily be vandalized because it is not within view of the Visitor Center. Panels along the top can be hazardous if a lot of people are on the platform at one time, and have a limit to the amount of information that can be offered. The other issue with signs is that they are a 'one-and-done' strategy – once you have read it, the sign is no longer of much use. Consequently, signs are not as good of an investment when trying to serve a repeat audience. Ideally, a strategy that you could update easily, like a website accessed by cell phone or iPad, is better for serving a repeat audience. However, that type of opportunity requires time for updating.

With that in mind, our first recommendation is to check out technology available at the time you are ready to implement this strategy as there may be new technology that can provide the 360° view at the top and at different levels in the canopy. If visitors have smart phones or iPads, they can access the same information while seated on a bench at the base of the tower. At this time, we recommend using a smart phone or tablet to access a website that offers those views along with an audio component that provides interpretation. A tour guide operator can use a large tablet to offer the view and information to people taking a tour who do not want to climb the tower.

In addition, at the base of the tower is a vertical interpretive panel that depicts examples of different birds and wildlife that depend on different levels of the canopy for their habitat. The goal is not to show all species, but rather to impart the concept that different levels of the canopy (habitat) support different species.

Finally, on the way up the stairwell small interpretive panels would be used to depict what birds and/or wildlife might be seen at different levels in the canopy. Each panel would include 'didjacks' focused on the impact of losing the habitat. Note that these are not full interpretive panels, but rather small panels offering snippets of information to reinforce the interpretive panel at the bottom.

Note: *This does require removing existing panels.*

Chachalaca Interpretive Trail

Objectives

After engaging with this opportunity visitors will:

- Understand that just small changes in elevation change the habitat and the array of birds and wildlife that a person might see;
- Understand the importance of water and wetlands, not just to birds and wildlife, but also to humans;
- Want to know more;
- Feel inspired to explore more of the refuge.

Key Themes

The following are the key themes to focus on in designing the exhibit, but that does not mean other themes and sub-themes cannot be included.

Interpretive Theme 1: Nature, such as that found at Santa Ana NWR, including native plants, wildlife and other organisms, is important to your (my) quality of life, as it has been important to the quality of life of all who have lived here in the past.

Sub-theme 1-3: Native Nature, including that at Santa Ana NWR, provides opportunities for desirable recreational opportunities.

Sub-theme 1-5: The natural world, including Santa Ana NWR, provides many other benefits we value.

Interpretive Theme 2: Wildlife, along with all other biological organisms, depend on the availability and health of their specific habitat to survive, which for many species is a serious issue due to the widespread loss of critical habitat.

Sub-theme 2-1: Native wildlife depend on native plants as part of their habitat. (Plus the corollary theme: If you want to support native wildlife you need to plant native vegetation.)

Sub-theme 2-2: The habitat necessary to support migratory birds and wildlife extends the entire length of their migration routes.

Sub-theme 2-3: Native Nature has almost been wiped out in south Texas, and with it, much of the native wildlife that depends on Native Nature for habitat.

Interpretive Theme 4: Santa Ana NWR is an important asset to the people of the area, providing a myriad of opportunities that support quality of life.

Interpretive Theme 6: Everything in an ecosystem is linked. Impact on any one component has a ripple effect that causes impact on the habitats it supports and on other components of that ecosystem, including humans.

Sub-theme 6-3: Humans can determine what organisms live and what die by impact on habitat. Those impacts ultimately affect humans since humans are a part of the ecosystem.

Sub-theme 6-4: Because individual actions add up incrementally to significant impacts, you can play an important role in maintaining natural resources, and on conserving and recovering the wildlife in Santa Ana NWR and other refuges in South Texas.

Interpretive Theme 7: Water, because it is a critical component of habitats, has long determined patterns and quality of life in the Lower Rio Grande Valley.

Sub-Theme 7-1: Water in all its forms has and continues to dictate cultural activity in the Lower Rio Grande Valley.

Sub-Theme 7-2: Wetlands, including those on Santa Ana NWR, are important to our quality of life.

Description and Concept

The current experience is to walk from the visitor center along a paved, fully accessible trail to a platform that serves as the trailhead for several trails accessing different areas on the refuge. Of those trails, the Chachalaca Trail is probably the one most heavily used, and the one that would be most attractive to non-traditional audiences. It is a ½-mile loop trail that accesses the north edge of Willow Lakes, which includes a blind with interpretive signs and places to sit along the water's edge. The trail contains several interpretive panels focusing on different aspects of the natural environment. The recommended experience includes developing a better orientation sign for the trailhead platform, putting interpretive panels with thematic overview at the platform and then re-developing the interpretation along the Chachalaca Trail to reflect the theme hierarchy. The information would be delivered in a variety of media to ensure that all target audiences have an option they are comfortable with. For example, it could be offered in panels, a brochure, and in an audio format using cell phones (which could be triggered in a number of ways, such as a chip embedded in benches, or beacons). A visitor could also check out a set of headphones with receiver (checked out from the visitor center), which would work with audiences who were hearing impaired. Benches along the route encourage people to sit and listen for sounds of wildlife. The panels in the blind help visitors identify what they are seeing plus what people can see at different times of the year, with associated information on where the birds have gone, and the importance of a refuge system to aid survival of migratory species.

***Note:** When the Levee Overlook is built, the Interpretive Trail should start from that point. The existing trail hub could still be used for providing additional thematic overview along with orientation and wayfinding information for all trails.*

Directional Signage (on Trails)

Locations

At key decision points (intersections) of trails.

Objectives

After encountering directional signage visitors, whether on foot or bicycle, will:

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

Description and Concept

The design is dictated by existing standards. The information should be limited to direction, distance, and the level of difficulty.

Departure Experience: Overview

Current Experience: Currently, visitors may come in to the existing Visitor Center because they have a question, want to purchase something from the store, or get something cold to drink. Because the restrooms are outside the visitor center, a visitor can use them before departing without coming inside.

Future Experience: The departure experience does not typically involve additional interpretive opportunities, but it could involve an opportunity for visitors to interact with an exhibit entitled “What is Your Connection to Santa Ana NWR?” or some variation. It could also be an opportunity for people to identify their favorite species of wildlife, location, opportunity, etc. The point is to reinforce the positive aspects of the visitor’s experience at the refuge, and help embed that memory. In addition to that exhibit, the departure and travel experience may necessitate additional orientation and wayfinding to guide visitors back to the main travel routes. This can take the form of directions and/or highway signs.

In addition, the interpretive store is a key opportunity for providing the next step in the interpretive network through selling books and publications related to the stories. It should offer kits to plant butterfly gardens, pollinator gardens and native vegetation to attract wildlife to a visitor’s yard (similar to the publication *‘Make your Yard Bird-Friendly with Native Plants’* for refuges in New Mexico).

Departure Experience: Strategies

What is Your Connection to Santa Ana NWR? (Working Title)

Location

In the Visitor Center

Objectives

After engaging with this opportunity visitors will:

- Feel more connected to Santa Ana NWR;
- Value the refuge more because of their connection;
- Be motivated to plant native vegetation, a pollinator garden, and/or a butterfly garden;
- Feel positive about Santa Ana NWR and what it offers to visitors;
- Be motivated to engage in behaviors that help conserve the refuge.

Key Themes

This opportunity does not contain information, rather it is an opportunity for visitors to share their favorite parts of their experience with the intent of helping to strengthen the connection between the refuge and the visitor. Therefore, it has no themes.

Design Concept

The focus of the exhibit is to have visitors think about their positive connections to the refuge, and in so doing, increase the probability of them valuing Santa Ana more than if they simply departed. One possible concept is to have a station where children can write about their favorite experience, what they liked best, etc. on a card that can be displayed in some way. The cards would be reviewed by staff

before being displayed to eliminate cards with derogatory comments or unacceptable language. They would then put the remaining cards on display.

For adults, especially visitors from outside the area, one possible approach is to use a map of the world as a backdrop for highlighting the many ways that people are connected to Santa Ana NWR. Most, if not all those connections, would be associated with birds on specific flyways, but it could also include terrestrial wildlife that use the Rio Grande as a migration route or for other purposes. The challenge to the participant is to identify some aspect of Santa Ana NWR that they value as part of their quality of life either as a place to visit or in some other way.

In addition to being able to see, visually, if they are connected to the refuge, visitors can use a computer to punch in where they are from and it will tell them what species of birds from south Texas refuges pass through or spend time in the area in which the visitor lives. This exhibit could also show all the stops of the migratory birds. This would highlight the National Wildlife Refuge System and the importance of having a system of refuges to support migratory birds.

Another possible concept is a video booth, similar to the one at the National Museum of African American History, where participants can give voice to their experiences at the refuge.

Area Orientation Panel

Location

Somewhere easily available to people leaving the refuge.

Objectives

After interacting with this opportunity, visitors will:

- Be inspired to visit other similar sites, including nearby National Wildlife Refuges;
- Be aware that south Texas also contains the Lower Rio Grande Valley NWR and Laguna Atascosa NWR.
- Know where they are in relation to major roads and towns in the area.

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); and use a 3-dimensional perspective. At a minimum the Area Orientation Panel should contain the following:

- Mileages and travel times to destinations in the area, including key partner sites and nearby national wildlife refuges;
- A "You Are Here;"
- North arrow.

One possible approach is to use a stylized three-dimensional illustration of the area from an oblique aerial perspective for the map. Key locations and features would be enlarged to reflect significance and make it easy for users to find key locations. Note that this is not a strategy for wayfinding, but rather one for marketing. Fixed maps have limited value for wayfinding over any distance.

Return Travel Experience

Current Experience: Currently, signage seems adequate to guide visitors back to the major urban centers and highways.

Future Experience: Beginning with directional signage visible along the exit road, a network of signage directs visitors back to major urban centers and highways.

Post-Visit Experience

Current Experience: Given that the existing experience does not include a very strong call to action, or market additional sites, many visitors will not have a post-visit experience involving the refuge.

Future Experience: Every effort is made to continue engaging visitors after they leave. Possible strategies for could include the following:

- **In-depth information on Website.** In addition to providing marketing and trip planning information, the website should contain more detailed interpretive information that builds on on-site interpretive opportunities. To increase the likelihood of it being used, visitors should be directed to the specific sections of the website as a source of follow-up information during presentations, when answering questions, or when otherwise engaging in personal communication.
- **Ask a Biologist [wildlife specialist].** This involves visitors sending questions to the biologists and other staff and them answering. It requires staff time, but if successful it can be very effective at creating a more lasting connection between the refuge and visitors, especially children. This is something that should be available to school children as part of a follow-up to presentations, field trips and Environmental Education programs.

Ideally you want visitors to get into the habit of checking the website on a regular basis, so it can serve as an effective tool for marketing upcoming events and opportunities. You can facilitate this behavior in a number of ways, such as providing a continual feed from web-cams focused on animal trails, feeders or nests. (Taking observations on a regular basis from the webcams could be an activity for junior rangers or Citizen Science.)

The post-visit experience also includes visits to Islands of Habitat near where a visitor lives (if a resident), and visits to similar places in the surrounding area, such as Estero State Park. Facilitating those actions requires marketing such attractions at the refuge.

Phasing Plan

This section will be developed for the next submittal. However, I wanted to get reaction on potential phasing. At this point I am leaning toward implementation occurring in the following three phases with each culminating in a complete visitor experience.

Implementation Phasing: Phase 1

The focus for the initial phase is on elements of the plan that create a safer experience (both perceived and actual), components that improve wayfinding and orientation, and relatively simple components that significantly improve the visitor interpretive experience. Those components are as follows:

Approach to Visitor Center and Breezeway

- Develop 'sidewalks' from the parking area, along with crosswalks, to improve both the perception of it being a safe environment and actually improving the safety. The 'sidewalks' can either be along the edge of the parking with planter boxes creating a barrier between pedestrians and vehicles, or in the vegetated areas (islands of vegetation) adjacent to the parking. A pathway in the vegetation on the media may be more pleasant because it is shaded, and is perhaps the ultimate solution, but planter boxes can probably be done quicker and wouldn't require as much maintenance. The plants in the planter boxes can also be used as an interpretive opportunity.
- Develop a drop-off / pick-up zone at the entryway. This should include benches in the shade for people to wait, either to be picked up or to be joined by the driver after he or she parks.
- Put up a welcome sign in Spanish and English at the entryway.
- Either renovate or remove the vestiges of the trail and blinds for viewing birds in the area immediately east of the Visitor Center.
- Clean up the front of the building to make it more inviting as a transition zone from the built to the natural environment.
- Remove the vertical signage along the center of the covered area. Effectiveness of the panels is reduced by the amount of information each contains, and the fact that they are located in an area that is used for the Arrival and Departure stages of the experience by many visitors.
- Make the breezeway area more of a Welcome Area and a portal into the rest of the refuge. This can be accomplished in part by removing the signs as noted because it eliminates a visual barrier to the bird feeding station and area on the other side of the entryway. Other upgrades could include murals on the walls (level of vandalism needs to be considered).
- Develop clearer directional signage to restrooms, picnic area, and visitor center entrance.
- Consider adding small tables and chairs to facilitate socializing. Visitors could buy beverages and sit and converse, thus adding another desirable element to their experiences. If you ever decided to develop the Green Jay Café, it would be a simple matter to add coffee to the offerings.
- Develop more shade for the picnic area.
- If possible, develop an alternative entryway so people don't have to use the narrow passageway between the buildings.
- Extend the covering on the breezeway so it reaches the drop-off area.
- Develop a shade structure for the group picnic area behind the restrooms.

Visitor Center

From a visitor interpretive experience perspective for a non-traditional audience, given the size and layout of the existing space, it should be reorganized. Move the Nature Store to the area just to the right of visitors as they enter the facility, and move all the interpretive opportunities to the back. Also, replace the bistro tables in the area in front of the window with chairs to enhance the focus on what can be seen outside the windows rather than on the person seated across from you. Other actions include the following:

- Develop the Sense-ational Discovery Guide, a Discoverer's kit, laminated ID sheets showing typical birds, especially ones likely to be seen around the Visitor Center and parking area, and other items that facilitate moving on to the next 'stepping stone' to explore nature.
- Provide information for planting butterfly gardens, pollinator gardens, landscaping with native plants, and volunteering for work parties.
- Provide the opportunity to obtain key essentials for exploring the refuge, such as water, sunscreen, insect repellent, hats, etc.
- Continue to provide visitors with the opportunity to ask questions and to interact with staff and volunteers. If possible, increase the presence of trained volunteers to provide information that supports the themes.
- Keep the Touch Table but move it to the rear of the building.
- Make people aware of and heighten their interest in visiting other pockets of nature throughout the South Rio Grande Valley (part of the Exit Experience).
- Motivate visitors to take the next step into nature, which could be the tram tour, the Levee Overlook, the Hawk Tower and Aerial Walkway, or the Willow Lakes Interpretive Trail.

To continue serving traditional audiences, you should:

- Offer up-to-date information on what species have been sighted recently on the refuge and where they have been sighted (this can be as easy as having an easel with a pad of paper for visitors to write on).
- Continue offering information on other birding locations throughout the South Valley.
- Continue offering the opportunity to interact with the e-bird tracker.

The general location and design of the elements within the Visitor Center that achieve all these purposes depends on the current modifications to the interior, but from an interpretive perspective it is best to group the interpretive opportunities towards the back of the space to minimize disruption, and to put it within a natural flow of a visitor experience – after they have obtained orientation and wayfinding information. This would require moving the store, but the best store locations are closer to the exit/entry, where they are more likely to be a part of a visitor's Exit Experience. Unfortunately, using the restrooms, which are a key part of many visitors' Exit Experience, does not require visitors to come into the Visitor Center, thus it becomes more difficult to make a stop in the Nature Store a part of the Exit Experience. However, locating it in the space to the right of visitors as they enter the facility would allow displaying items in the window that is visible to visitors exiting through the breezeway. The current nature store could be suffering from being too crammed with items, which is not conducive to sales as some people tend to feel claustrophobic, and all potentially suffer from having their shopping experience interrupted by other visitors trying to move through the narrow walkways. This suggests reducing the amount of inventory to create more space for people to move around. The space suggested for the store is perhaps smaller, which suggests further reduction of inventory. To maintain a

quality visitor experience with the other opportunities in the visitor center, a mechanism for enclosing the store should be used to prevent 'store creep.'

Exterior Interpretive Experiences

The interpretive opportunities to develop in this phase include the following:

- Develop the tour guide outline so information on the tram tour supports the themes;
- Construct the Levee Overlook and associated interpretive opportunities;
- Develop the interpretive opportunities for the Hawk Tower and Aerial Walkway;
- Put at least one porta-potty at the Hawk Tower and Aerial Walkway site;
- Upgrade the Willow Lakes Interpretive Trail;
- Upgrade the orientation and wayfinding elements of the trail hub.

Implementation Phasing: Phase 2

The focus of the next phase is on developing the Headquarters Lake area to be the primary hub of visitor activities. Although it doesn't include a new Visitor Center being built (that will occur in Phase 3), it will likely require some type of small facility for staff, as there needs to be a staff presence in the area because of development to make it suitable to host special events, provide visitors opportunities such as kayak and archery lessons, and offer other similar opportunities not typically found on a National Wildlife Refuge. (Such activities are a key to increasing the perception of value for Santa Ana NWR and the USFWS.) This area is almost cut off from the rest of the refuge, and although it does offer some habitat, it is not as critical as the habitat on the other side of the levee that is much more natural, thus the conflict with the USFWS primary mission of managing wildlife is not as pronounced. If visitation by non-traditional urban audiences is desired, this is a necessary Stepping Stone of Engagement because it is 'safe,' and it is ideally located because accessing the more 'natural' parts of the refuge from this area takes almost no time compared to the time to drive out to the refuge, thus significantly reducing that barrier to engagement.

The following are specific actions to take in Phase 2:

- Develop the interpretive trail around Headquarters Lake (both infrastructure and interpretation);
- Upgrade the picnic area so it can accommodate both large and small groups. The picnic area could have grilles, which would make them even more attractive to some of the residents.
- Develop the tram tour staging area at the lake and re-route the tram so it starts and ends at Headquarters Lake;
- Develop a complete (and safe) walkway from Headquarters Lake to the breezeway.

Implementation Phasing: Phase 3

This phase focuses on building the new Visitor Center, with new exhibits, at Headquarters Lake. The covered walkway and restrooms in the existing facility complex would be maintained for use by visitors. Most of the existing visitor center would be used for some other purpose, such as an Environmental Education Center, with a small area with a staff person or volunteer to serve traditional audiences (birders) who want to know what has been sighted recently and where.

Appendix A: Definitions

Understanding the following terms will be useful in understanding this document:

- Visitor Interpretive Experience Plan
- Visitors
- Urban Wildlife Refuges
- Stepping Stones of Engagement
- Native Nature
- Transition Zones

Visitor Interpretive Experience Plans

Up until very recently, an ‘Interpretive Plan’ was the document that was typically produced to guide development of an Interpretive Program, which includes all the exhibits, interpretive panels, publications and similar interpretive opportunities for a site or facility. While such plans can identify opportunities that communicate desired messages to target audiences, they often fail because they do not take into consideration the experiential context in which they must function.

Most good interpretive planning models used today reflect the need to take target audience, goals and objectives, constraints, opportunities, and themes into account when selecting information delivery strategies and content. However, they still treat the array of strategies – the Interpretive Program as a whole – as the focal point of the plan. Although any interpretive planning effort should result in identifying the array of interpretive opportunities to develop, the approach should be to first identify the ideal *visitor experiences* (ones that by their nature would benefit from effective interpretive opportunities) from the perspective of those developing the interpretive program, and then use those experiences to determine what interpretive and other information to offer. Such experiences also must be ones that target audience are willing to buy with their time, which requires knowing your target audiences beyond basic demographic information. Using the visitor experience approach ensures that you develop a plan, labeled a ‘Visitor Interpretive Experience Plan, for a complete information network that begins with reaching your target audiences where they are – physically, emotionally and intellectually – and taking them where you want them to go by using a linked combination of trip planning information, orientation, wayfinding and interpretive opportunities. It also ensures that you identify barriers to the desired experiences, such as facilities that aren’t fully accessible, so you can address those barriers within the context of developing your interpretive program.

In sum, people today buy *experiences*. Consequently, the desired product to guide development of an interpretive program is a Visitor Interpretive *Experience* Plan (VIEP), which uses desired audience experiences as the frameworks for determining the interpretive, outreach, orientation, wayfinding, and trip planning information to develop and actions to take to facilitate experiences that will attract, hold and communicate effectively with target audiences, whether on or off-site.

Visitors

The goal of the network of interpretive opportunities is to forge an emotional/intellectual connection between a member of a target audience and nature in general, and wildlife refuges and their associated resources specifically. Although a visit to a refuge might be the most effective vehicle for creating such

connections, it is not the only one. In other words, people don't have to physically step foot on a refuge to be termed a visitor. The term 'visitor' in this document is applied to anyone engaging with a Stepping Stone of Engagement, such as an Island of Habitat, or the Santa Ana NWR website. Note that the goal of urban refuges is not to increase the number of visitors, no matter how they are identified, but to convert every 'visitor' into a member of the Connected Conservation Community. For many, that will require a visit to a natural area, such as a refuge.

Urban Wildlife Refuges

"To garner broad support for conservation, the U.S. Fish & Wildlife Service must provide a reason, and opportunities, for urban residents to find, appreciate, and care for nature in their cities and beyond. Therefore, engaging our urban neighbors, and fostering a sense of stewardship, reflects the heart of the Urban Wildlife Conservation Program."

In 2010 the USFWS released the publication entitled, *Conserving the Future: Wildlife Refuges and the Next Generation*, which contained the Service's vision for the National Wildlife Refuge System. They followed up by establishing the Urban Wildlife Conservation Program in 2012, which paved the way for establishing 8 pilot Urban Wildlife Refuges in 2013, of which Santa Ana is one. The overall goal of these designated refuges is to create Connected Conservation Communities.

Designated Urban Wildlife Refuges are within 25 miles of a population of 250,000 or more, but Urban Wildlife Refuges are defined by more than proximity to urban areas. They were established to "...create a Connected Conservation Community by providing inspiration and opportunities for urban residents to find, appreciate, and care for nature in their cities and beyond." The task of engaging urban dwellers and fostering a sense of stewardship among them is a key difference between traditional U.S. Fish and Wildlife Service (USFWS) refuges and Urban Wildlife Refuges. That goal is reflected in the following Standards of Excellence established to guide management of these refuges:

1. Know and Relate to the Community
2. Connect Urban People with Nature via Stepping Stones of Engagement
3. Build Partnerships
4. Be a Community Asset
5. Ensure Adequate Long-Term Resources
6. Provide Equitable Access
7. Ensure Visitors Feel Safe and Welcome
8. Model Sustainability

Wildlife and associated habitat necessary for survival are still the highest priority on Urban Wildlife Refuges, in part because they *are* a part of the National Wildlife Refuge system and must present an accurate picture of what the USFWS wants the conservation community to support, but also in part because without them an Urban Wildlife Refuge could not fulfill the primary reason for which the Urban Wildlife Conservation Program was created and Urban Wildlife Refuges designated, which is to create a Connected Conservation Community.

The location of refuges in this program reflect the belief that the make-up of the desired conservation community must be more than just traditional users of refuges, which consist primarily of those engaged in wildlife-dependent recreation, such as hunting, fishing, wildlife observation and wildlife photography. To be successful, the desired conservation communities must include non-traditional

audiences living in urban areas. Urban Wildlife Refuges are a gateway to exposing those audiences to the value of nature, of natural areas, of a specific refuge, and by extension, to the larger network of National Wildlife Refuges in a way that leads to the development of a conservation community that supports conservation, refuges and the USFWS.

The USFWS can take numerous actions that will lead to the local residents valuing the refuge and the agency. Examples include providing job skill training to youth, providing enriching programs, providing a Community Garden, giving away native plants for residents to plant in their yards, providing a community meeting space, offering recreational opportunities valued by residents and supporting community events. All could help make progress toward a favorable attitude toward the refuge and agency, but are unlikely to achieve the other major goal of Urban Wildlife Refuges, which is to create a Connected Conservation Community. None of those actions in themselves are likely to instill a desire among target audiences to conserve natural and cultural resources to the point they overcome barriers to begin practicing stewardship behaviors.

The typical approach to modifying visitor behavior in regards to conservation is to focus on changing attitudes towards conservation with the expectation that behavior will then be modified to be consistent with attitudes. This is more likely to work with youth because their attitudes are still being shaped. However, by itself, this approach can fail for a number of reasons, the most common being barriers to engaging in the desired behavior. Douglas McKenzie-Mohr in his book *Fostering Sustainable Behavior* notes two examples in his own life, both of which involved moving to Canada and an associated change to a colder climate. Upon arriving he bought a composter and set it up in a shed in the back. When the snow started to fall, he dutifully trampled a path to the shed to dispose of compostable waste, until the snow got too deep, at which point he threw the compostable waste in the garbage. In another example, instead of walking, bicycling or taking public transport to work, he chose to take a taxi because the cost of the taxi wasn't much more than the bus and he could travel on his own schedule rather than adapt to the bus schedule. In both cases the barrier to engaging in the sustainable behavior – too much effort to move the snow and too much inconvenience for taking public transport – negated the positive attitude (and strong drive) to sustainable behavior. With that in mind, it is important to look not only at opportunities for education – through interpretation, environmental education and public outreach – but also at the barriers that make it difficult for members of the target audience to engage in the desired behaviors. Minimizing or eliminating those barriers increases the likelihood that visitors will – at least in some small way – increase their practicing of sustainable behaviors.

Most members of audiences targeted by the USFWS at Santa Ana NWR are unlikely to engage in sustainable behaviors even if they have a positive attitude toward such actions due to the increased cost in money and/or time (barriers). For those that are supportive of conservation, removing such barriers, such as by offering free native plants to plant in their yards, may result in achieving the desired impact. That is one reason it is critical to identify barriers to engagement as quickly as possible and remove them to increase the likelihood that interpretation and environmental education will have the desired impact on visitor behavior.

In the research paper *Best Practices for Creating and Sustaining Engagement with Urban Communities: Recommendations for the U.S. Fish and Wildlife Service* by Mimi Kaplan, the following specific policies were recommended for overcoming barriers and engaging audiences:

1. Build strong relationships with the community, *in* the community

Building strong relationships may be a lengthy process given typical mistrust of government agencies, and it may take actions not directly related to managing a refuge. As noted in the paper, *Best Practices for Creating and Sustaining Engagement with Urban Communities: Recommendations for the U.S. Fish and Wildlife Service*, “Making connections with an urban community and making public lands relevant to them requires understanding that activities that urban residents want may not be directly related to the refuges at all” (Kaplan, pg. 22). The paper points out that nothing can be done without gaining the trust of the community, and convincing them that the refuge, refuge staff, members of the Friends Group and volunteers are an asset may require helping with activities the *community* deems important. In other words, although some activities the community desired may not appear to have a direct connection to conservation, they may be the critical first step in the pathway to an active conservation community. This requires refuge staff, members of the Friends Group and volunteers who support the refuge to leave the refuge and engage with community members within their space – not the refuge space.

In addition to working with members of the community, the paper suggests working with community groups as a means of exploring how those groups can be allies in conservation and community engagement. The policy recommendation emphasizes that in all meetings the refuge staff should focus on how they can be a community asset *as defined by the community* – not by the USFWS.

2. Identify barriers to participation in conservation activities both on and off the refuge, and ways to address and overcome these barriers.

Participants in Kaplan’s study noted that distance between the refuge and residents, lack of public transportation, lack of information about the refuge, belief that people aren’t allowed on refuges, discomfort with nature and lack of diversity of refuge staff are a few of the barriers that affect public participation. These and other such barriers must be addressed to achieve the highest level of participation possible. The paper has several suggestions for removing barriers, including hiring interns and students from the community to increase the diversity of staff while providing youth employment, and scaffolding programs, which means sequencing programs to begin where the audience is able and willing to begin and then progressing, step-by-step through a series of programs designed to move students – physically and/or mentally – to a desired end point. Each program builds on the programs before. For example, giving a program in the natural surroundings of the community and progressing to programs on the refuge to address discomfort with nature.

3. Establish meaningful and beneficial partnerships

Not only are partnerships the cornerstone of the USFWS Urban Wildlife Conservation Program, they have also proven to be essential to successfully engaging with urban communities. Kaplan’s study identified two types of partnerships that were essential: Partnerships with other conservation organizations and partnerships with community organizations already connected with residents. Partnerships with other organizations provide the opportunity to reach people who might not otherwise think to visit the refuge. Partnership with community organizations provides access to an already established pipeline to people in the community. In the case of Santa Ana NWR, it is

especially important to reach the heads of family/elders as they evidently fill the role of ‘leader’ within those hierarchies rather than looking to leaders from outside the family hierarchy.

4. Create lasting engagement through participatory design.

A key to creating lasting engagement is taking a visible ‘community first’ attitude. This does not supersede the ‘wildlife first’ approach of the agency, but rather elevates the community to a position of significance when it comes to developing an Urban Wildlife Refuge. The ‘wildlife first’ approach simply becomes a parameter that affects what decisions can be made jointly with the community. The paper suggests ‘maintaining the attitude that the refuge works from the community out, not the refuge out,’ and to ‘always consider how the refuge can be relevant and of service to the community, taking into account their needs and their views on conservation.’ This can manifest itself in a variety of ways, including involving the community in decision-making when possible and appropriate rather than simply making decisions and letting them know. The paper also noted the importance of following through after those decisions were made.

Although it is critical for the community to see the USFWS as an asset, the real goal is for the community to consider nature (as defined by the USFWS) an important part of their quality of life. As noted in the report *Nature Doesn’t Pay My Bills: Mapping the Gaps between Expert and Public Understandings of Urban Nature and Health* by the Frameworks Institute, “while experts see nearby nature as necessary to human well-being and thus an essential feature of urban landscapes, the public sees nature as a nice, but not necessary, add-on to urban life.” Nearby nature must be considered more than ‘nice’ if the goal of a Connected Conservation Community is to be realized.

Stepping Stones of Engagement

One of the Standards of Excellence is ‘Connecting people to nature via Stepping Stones of Engagement.’ The implication of a ‘progression’ is apt in that the ideal outcome is for all members of target audiences to become fully engaged in conserving natural resources, a goal that requires a progressive series of commitments, each a step beyond the other. However, the term is a misnomer in that it implies a linear pathway of steps with a specific starting and ending point, which by inference, involves a visit to the refuge.

In reality, Stepping Stones of Engagement includes an *array* of opportunities that constitute potential starting points to expose target audiences to nature, wildlife, refuges, the USFWS and conservation. By necessity, these ‘starting stepping stones’ are located in places – physical or digital – that the target audience already, which are unlikely to be on the refuge. Ideally, the first stepping stone should be something that is already a comfortable part of everyday life. Most people have some existing relationship with nature, such as having house plants, or a backyard garden. Those existing relationships should be the starting place for Stepping Stones of Engagement, which requires that *their* nature be considered valid. The discussion won’t proceed very far if it begins with an intimation that only the nearby nature that the USFWS wants to conserve constitutes real nature. The approach of starting where the audience is currently located reflects the commitment by the USFWS to meet people where they are, while also reflecting a key principal in this process, which is to minimize the effort required and barriers that must be surmounted for a person to begin engaging with nature and/or conservation. Each stepping stone provides an experience with nature in some way. As a whole, the ‘starting stepping stones’ offer potential visitors an array of opportunities to experience nature so everyone has an opportunity to interact with and experience nature in a way that they consider ‘safe’ and within his or

her comfort zone. For some it may be a virtual experience on the Internet. For others it might be engaging with Islands of Habitat within their community.

Each stepping stone not only provides an opportunity to experience nature at a specific level, but also seeks to move a visitor along the journey to becoming fully engaged in conserving natural resources. Consequently, all 'starting stepping stones' are linked to a myriad of potential 'follow-up stepping stones,' and from those to other Stepping Stones of Engagement in what the USFWS hopes is an endless journey of engagement and associated commitment to conservation that takes the form of actions. The journey does not require a physical visit to the refuge, although a visit may be one of the most effective tools in achieving the goal of a Connected Conservation Community that supports refuges, the USFWS, and most importantly, engages people in conserving natural and cultural resources.

The keys to an effective array of Stepping Stones of Engagement include the following:

1. Validate whatever relationship the target audience currently has with nature that they consider a part of their quality of life. This could range from a completely natural environment to house plants, a backyard garden, bird feeder, a neighborhood park, and other examples of nature that is managed in some way.
2. Provide easily accessible "next stepping stones" in locations already frequented by the target audiences, which in this case are within their community, with the goal of deepening their connection to nature.
3. Ensure that each stepping stone offers high benefit to the target audience for the cost of time, attention and other personal resources as defined by the target market. This is especially important for the starting stepping stones.
4. Ensure that the 'distance' between stepping stones is such that a person can take 'baby steps' of commitment to conservation.
5. Ensure that each stepping stone markets potential next stepping stones.

Native Nature

Everyone has a connection with nature since they breathe air, drink water and eat food, all of which are linked to our natural world. Most people already have a relationship and value this type of nature in some way, but the nature they value may be non-native house plants or non-native vegetation in their yards. To avoid distinguishing 'good' nature from 'bad' nature, which may not work well with the target audience, especially since they come primarily from immigrant communities, the term 'Native Nature' is used to differentiate native flora and fauna from other 'nature.'

Transition Zones on Refuges

The area, typically on the edges of refuges, that contains parking lots, visitor centers and similar infrastructure can be thought of as a Transition Zone within which the visitor moves from a built area catering to people, to a more natural area that focuses on conserving wildlife. The Transition Zone on traditional wildlife refuges is relatively small, with infrastructure limited to parking, visitor centers, trails, boardwalks, restrooms, viewing blinds and other low impact modifications to the environment. These typical Transition Zones are consistent with the current situation in which visitors to refuges come to immerse themselves in the natural world, and want to move into the refuge quickly. In other words, these small Transition Zones are sufficient for traditional users.

On designated Urban Wildlife Refuges, accomplishing the goal of moving non-traditional visitors physically, intellectually and emotionally from an urban area to a natural area may necessitate a series of stepping stones on the refuge that as a whole may require wider Transition Zones. People visit attractions if they believe that the personal benefits are worth the personal costs of the visit, the most significant of which is time. Locating refuges adjacent to urban areas reduces the personal cost by reducing travel time. However, they don't address the perceived lack of personal benefit that deters many potential visitors from taking the time to visit a refuge. One way to address that issue is to provide experiences and activities within the Transition Zone that are already valued by the local community, but not typically associated with a wildlife refuge. Examples include picnicking with a large extended family unit, celebrating a family milestone such as a birthday, and meeting friends to socialize. Such activities create the opportunity for the USFWS to expose people to the wonders of nature, have nature become a part of what they consider quality of life even if just a backdrop for social activities, and inspire them to care for nature in their communities and beyond. They also provide the opportunity to motivate visitors to move further along the Stepping Stones of Engagement.

To maximize the quantity and quality of habitat while also achieving the goal of putting non-traditional urban visitors adjacent to a natural setting, the Transition Zone should be concentrated in a band along the interface between refuge lands and the community, creating a space where the boundaries blur and necessary Stepping Stones of Engagement can be developed that will continue the journey – literally, intellectually and emotionally – of the visitor from an urban setting to a natural setting. In most cases, these Transition Zones will all be on refuge property because lack of control over surrounding land. In a sense, Islands of Habitat function the same as Transition Zones – to help move people intellectually physically from a focus on a built environment to a focus on a natural environment.

One way to think about Urban Wildlife Refuges is that they extend into a community in such ways as planting Islands of Habitat in schoolyards through partnerships with public schools, and helping people plant native plants in their yards to develop native habitat to attract local birds and wildlife. It may also include partnerships with entities that have different agendas, such as human health or community service, to create projects that are mutually beneficial, which in this case are ones where people experience nature beyond what they already value in their lifestyles. Such projects may inspire those partners and communities to engage in other activities that support conservation of natural resources. In turn, the community extends into the refuge by using it for activities they already participate in within their community that are compatible with the refuge's goal of restoring populations of native wildlife and plants. The goal is for the refuge to become a part of the community and the community to become a part of the refuge. The refuge can facilitate this connection by making all visitors feel welcome, creating environments with nature where they feel comfortable, and by offering non-traditional opportunities for the community to use the refuge. One way to make visitors feel more comfortable and welcome is by including and integrating cultural facets of target audiences such as language, stories, and traditions, in tours, signage, programs, facilities, etc.

In short, attracting non-traditional urban audiences may require offering non-traditional experiences and opportunities, such as a Community Garden or the opportunity to get coffee, which may conflict with existing parameters regarding what can and can't happen on a traditional refuge but should be assessed/considered. Those parameters may need to be modified to provide urban refuges a wider array of options for attracting and engaging such audiences. However, care must be taken to separate the Transition Zone in an urban refuge from the refuge proper to avoid creating the expectation that activities that occur within those areas can occur in the refuge proper.

The Information Network Approach

In today's world people have a very limited amount of time and virtually unlimited options for spending it, which makes time a highly valued currency. Interpretive opportunities are commodities, with the cost measured primarily in time and attention. To compete successfully for a visitor's attention requires offering information that the target audience considers to be a worthwhile benefit for the cost involved. That is why the number of people reading interpretive panels increases with the use of visuals (higher promise of benefit at lower cost), reduced text (reduced perception of and actual 'cost' in terms of time and effort), and application of a myriad of other factors that contribute to the perception of a good benefit-to-cost ratio.

In general, people prefer to commit small increments of time when making choices on engaging and staying engaged in interpretive opportunities (if I like the heading, I will read the text; if I like this sign, I will read the next one; if I like this exhibit, I will look at the next one; and so on). A commitment at the beginning of an interpretive experience to stay engaged throughout, such as to read *all* the signs or view *all* the exhibits, is rare. We have all experienced this when reading books. We choose them based on an expectation that we will find a benefit we seek (entertainment, mental stimulation, etc.) at a particular 'cost' related to time and difficulty. If the book does not provide the desired and expected return on the investment of time and attention, we often quit.

Applying the incremental approach to interpretation results in a series of opportunities arranged in a network, beginning with ones that are highly visible, attract attention and do not require a significant amount of time and effort, and then moving to opportunities that provide more detail on different. A book is a good example of an information network approach. The story that the author wants people to engage in is contained in the chapters, but to motivate people to start reading the book designers use a cover to attract attention so people see and pick up the book, a back cover to entice them to open the book, excerpts and other information on flyleaves to motivate them to start reading chapter one, and so on. Books are designed this way because it matches the process people use to choose to engage and stay engaged.

This is the approach being used to develop the Interpretive Network for Santa Ana NWR. For visitors, highly visible, low effort and interesting strategies, such as interpretive panels in or adjacent to areas already frequented by visitors (so additional cost in time to access the panel is minimized) will attract attention and quickly introduce people to key concepts, hopefully piquing their interest so they are more amenable to spending time with other opportunities that provide more detail. Successive levels of information providing more detail and requiring more time and effort, such as the exhibits and interpretive trails, will build off the panels.

Appendix B: Background Information

Audience Profiles

Introduction

Information - including interpretation - is a commodity; people have to buy it with their time, a highly valued personal resource, along with attention and cognitive effort. They also incur opportunity cost; in other words, if they spend time reading a sign or walking an interpretive trail, they can't spend that time doing anything else. In short, communication is 'expensive!'

Since different people "buy" different experiences, it is important to identify the key target audiences, and then build profiles of those different visitor groups to determine the type of interpretive experiences they are *willing* to "buy" with their time, and the level at which the information must be presented so they are *able* to process given their knowledge and background. Ideally, the audiences you want to reach are ones that will help achieve your goals. Consequently, the target audiences typically extend beyond visitors to include anyone who will contribute personal resources - time, money, etc. - to supporting Santa Ana NWR specifically, and by extension, the USFWS and National Wildlife Refuge system, and natural areas.

In general, experiences that visitors are willing to buy can generally be described as ones that:

- Meet their **needs**;
- Meet their **expectations**;
- Are within their **limitations** of time, money, energy, and other such personal resources;
- Are **opportunities** that compete successfully with other options for spending time.

Needs include such basic amenities as food, shelter, and restrooms. The key information-related need is orientation and wayfinding. Interpretation is an option. Consequently, orientation and wayfinding must be addressed at the beginning of and throughout the visitor experience.

Expectations are more variable because they are created by previous experience, what people hear and what they read. In the case of Santa Ana, expectations are likely to vary significantly due to the lack of experience of many residents with wildlife refuges.

Limitations are factors that prevent someone from engaging in an experience or interpretive opportunity, such as not knowing the language in which it is presented, and factors that tend to offset the reward for engaging in an experience and can therefore cause a potential user to bypass an opportunity. For example, visitors are often on vacation and do not want to 'work'—either physically or mentally—at their recreation unless the personal benefit is worth the time and effort required. Limitations can be related to physical ability, language, education level and other characteristics.

Opportunities that can compete for a person's time typically relate to a visitor's interests. Those interests often exist prior to arrival, such as is the case with visitors wanting to bird watch, or they can be generated by activities on-site by what they see or hear on a guided tour, or features they encounter. On-site features are of key importance because they represent one of the best opportunities to capture the interest of a visitor and begin the communication process.

Key Target Audiences

The focus of the audience analysis in Visitor Interpretive Experience Planning is to first determine the target audiences and then analyze those audiences to determine what type of *experiences* would attract them to the refuge. Once that is accomplished, interpretive opportunities can be identified that add value to those experiences, as the target audience defines value, and that they are willing to engage with and able to understand.

Santa Ana NWR is one of the '50 places to bird before you die,' which is perhaps why the average distance traveled to visit Santa Ana is 1100 miles. In short, people come from around the globe to Santa Ana NWR, but it attracts almost no visitation from the local community. Those visitors coming from far and wide to bird watch and engage in outdoor photography don't need much to be satisfied. Restrooms, drinking water, a good wayfinding system, a map oriented toward birdwatching and photography and a current list of what species have been seen and where those species can be found is likely to suffice. But birders are not the target audience. The challenge is to create desirable experiences for local residents who are not avid birdwatchers or nature photographers. To attract and engage these non-traditional audiences, the USFWS has to develop non-traditional experiences as a means of simply attracting such audiences to places where they can experience nature in a positive manner.

The STRC Logic Model report contains a fairly detailed list of potential audiences (see Appendix A), each of which would likely require a specific approach. Communication efforts focusing on many of those audiences will probably fall under the heading of public relations. For this plan, target audiences are limited to those for whom the USFWS wants to develop visitor interpretive experiences. Based on the goals and objectives associated with this project, and on review of existing information and discussions with USFWS personnel, the primary target audience for the interpretive experiences are residents of the Pharr-San Juan-Alamo area, and the secondary target audience are residents of McAllen area. Traditional audiences, such as bird watchers and those involved in nature study or photography, are a tertiary target audience as are winter Texans. Residents can be further divided into groups based on cultural heritage, age, social group, and other factors. The following section contains audience characteristics and implications, beginning with universal characteristics, followed by audience specific characteristics.

Audience Characteristics

Universal Characteristics

Regardless of the target audience, it must be assumed that within all groups of visitors all preferred learning styles and all physical impairments will be represented. It also must be assumed that children will be a part of any audience as will the elderly. Consequently the following characteristics must be considered when choosing and developing visitor interpretive experiences.

Preferred Learning Styles

Characteristics: The suggested number of different learning styles depends on the model. The most common model has 3 - visual, auditory and kinesthetic; others have more. Regardless, within any given audience you will have those who are more likely to engage with experiences involving social interaction, others who are more likely to engage in experiences offering the opportunity for 'hands-on,' and those who want to 'see' what you are trying to communicate.

Implications: Since participation in interpretive opportunities is voluntary, offering information in the preferred learning style of 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. A learning environment where visitors can work ideas and concepts out for themselves.

Observation: A learning environment where visitors can collect, analyze and reflect on information to come up with a concept. 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: A learning environment that encourages groups to discuss ideas. This is especially important for families. Also, if possible, create an environment with the option of asking someone questions.

People with Disabilities

The ADA is a civil rights law ensuring that the 20% of the U.S. population with disabilities have the opportunity to participate in all areas of public life. Using a Universal Design Approach, which focuses on creating experiences that can be enjoyed by all parts of the target audience, including people with disabilities, involves integrating multiple delivery tactics that involve multiple senses within the same interpretive opportunity. The result is an overall array of experiences with opportunities for everyone.

A Universal Design Approach also benefits our aging population because it is physical change, such as deteriorating eyesight, hearing and mobility that are the core of the issues that older adults have with

interpretive and recreational experiences, not their age. Therefore, a separate category for 'older adults' is not needed.

The overarching implication is that the interpretive program should adhere to universal design standards to make the information accessible to all people, despite any impairment, whether it is visual, auditory, physical or otherwise. The following are specific characteristics and implications based on specific disabilities.

Disability: People who use wheelchairs and other mobility devices

Note: *Surfaces that provide easy access for wheelchair users also generally work for people who use other mobility devices such as a walker or cane.*

Characteristic: Visitors who use manual wheelchairs, power wheelchairs and scooters sit at varying heights but are lower to the ground than a standing adult, making it harder to see objects and read text mounted at a height intended for someone standing.

Implication: Take into account the average sightline for adults who are shorter in stature or use wheelchairs as well as standing adults. Use where the sightlines overlap for mounting heights. A good set of guidelines can be found at: https://www.si.edu/Accessibility/SGAED#page_21.

Characteristic: Visitors who use wheelchairs or scooters need maneuvering clearance.

Implication: This has to be taken into account with all infrastructure – parking areas (accessible spaces), width of walkways, hallways, wheelchair locations integrated into the seating plan for a public program, etc.

Characteristic: Design exhibit interactives so they are within reach range of people who use wheelchairs as well as standing adults. The following is a link to Chapter 3: Building Blocks of the ADA Standards. The chapter focuses on information related to physical access. <https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards/ada-standards/chapter-3-building-blocks#308%20Reach%20Ranges>

Implication: Exhibits with text need to have it located at the right height and angle to be easily read from a wheelchair. All interpretive opportunities, including outdoor signage, needs to be designed for knee and toe clearance, thus allowing the person to get closer to text and other features of an exhibit. Pushbuttons and other devices that activate parts of the exhibit have to be within reach of someone sitting in a wheelchair.

Characteristic: Provide an accessible route from the exterior of a building, through the entrance and to all program spaces.

Implication: All areas of newly designed and newly constructed buildings and facilities and altered portions of existing buildings and facilities need to meet federal accessibility requirements.

Characteristic: Manually operating a wheelchair is physically challenging for some visitors depending upon the topography and surface they are navigating. Some people may need to move more slowly or tire more easily.

Implication: Program pace (in terms of speed when moving) must be slowed down. Plans should be made for additional time between program stops, and program routes may need to be shortened.

Characteristic: Visitors who use wheelchairs are just like able bodied visitors. Be inclusive in your program design and treat everyone in the same manner.

Implication: All elements of the Interpretive Program should be designed using a Universal Design Approach. That approach seeks to ensure that everyone can be involved in an interpretive opportunity at the same time and place.

Disability: People who are blind or have limited vision

Characteristic: Difficulty seeing clearly or at all.

Implication: Key information should be offered in an audio format, ideally with supporting tactile elements (which will also appeal to other audiences). To facilitate reading by those who are experiencing some loss of vision, fonts should be easily readable with font size large enough to achieve a high degree of probability that people with low vision will be able to read the text. Also use universal symbols when appropriate.

Characteristic: People with vision loss need mobility and orientation information to successfully navigate unfamiliar terrain.

Implication: An accessible route is equally accessible to people with mobility and vision disabilities. There must be at least 2030 mm (80 in.) of clear head room along the circulation route. Obstacles to be avoided include overhanging branches. Color contrast on the edge of a path can be useful.

Disability: People who are Deaf or have hearing loss

Characteristic: There is a range of hearing loss, from slight to profound. People who are Deaf often identify with the culture and language (American Sign Language) of their community.

Implication: Effective communication can be achieved through written materials, an accessible website, hiring a sign language interpreter for a program on request, and assistive listening equipment.

Children

Children are a critical audience since they will have a voice in the future regarding conservation. Reaching children is not about dumbing down the information presented. It is about offering experiences in nature that help build positive emotional, physical and intellectual connections to the extent possible so they are motivated to continue engaging in opportunities associated with nature, and laying groundwork for understanding key concepts when they are older. Key characteristics include ones relating to their physical limitations and assets, and ones relating to mental limitations.

Characteristics – Physical: Children are short. They also often have an abundance of energy.

Implications: Viewing opportunities and material addressed to children needs to be at a comfortable height. In addition, interpretation-related opportunities that involve expending energy should be included in the array of opportunities. For example, an exhibit at the Oregon Museum of Science and Industry gave children the opportunity to ‘race’ against either a horse, cheetah, or a couple of other organisms. A light moving along a rail at the speed of the chosen organism was triggered by the child crossing the starting line. I witnessed lots of children running through this exhibit again and again, expending energy. The point was to start focusing on adaptations to survival.

Characteristics – Mental: Children are a challenge because they have limitations regarding learning the same way as 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 focus primarily on acquiring information firsthand. Since they have not completely mastered the symbol system we call “language,” they use their primary information-gathering tools – their senses – to explore their environment.

Implications: 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 for children in terms of communication.

All Visitors

The following characteristics and limitations apply to almost every situation and every audience.

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 see wildlife.
- Visitors will expect orientation information to interpretive and recreational opportunities in the area surrounding the refuge (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 younger 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.
- Any given audience will have a variety of impairments represented.
- Users will have varying limitations in terms of energy, time, and interests.
- Users will have varying degrees of educational background.
- Groups, especially families, want to interact with each other while participating in an interpretive experience.

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 and to provide for repeat visitors.
- Frequent and well-placed opportunities to sit and rest in the shade will enhance the experience for many people.
- The interpretive program must offer opportunities that are understandable to audiences with limited expertise and knowledge in biology and ecology.
- To the extent possible, the interpretive program should present information in a way that is rewarding, within a visitor's limits imposed by a 'leisure' activity, and organized according to themes to eliminate unnecessary effort.
- To the extent possible, the interpretive program should offer opportunities to "skim," "browse," or "gorge" the information to accommodate preferences and to accommodate visitors on a tight schedule.
- The interpretive program should provide an 'opportunity menu' that lists time required for each activity and suggested itineraries based on time available. For example, it should suggest an itinerary for the visitor that has a half-hour, 2 hours and a half-day.

Residents in general

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 can participate in interpretive experiences due to the need to work, such as in the evening and during weekends.
- They are present year-round so they have a higher potential to be repeat visitors.
- Residents are often interested in local issues, such as problems with invasives or pests, because of direct impact on their 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.

Local Residents

Note: *Implications are provided for each characteristic because characteristics of local audiences tend to have the most significant impact on determining effective interpretive experiences.*

Characteristic: Likely to be low income, with both parents working.

Implications: Opportunities that are free, and ones that support improving their quality of life, such as offering native plants to use in landscaping their yards, and providing instruction on planting the plants, are likely to be attractive to many residents. Since they are likely to visit in family groups, a per-person fee could be an obstacle to visitation. Annual passes, family passes and similar strategies for reducing cost and increasing visitation could be effective. In addition, they may have difficulty simply traveling to the refuge, so trollies that run at specific times and other strategies for transporting them to the refuge should be considered.

Characteristic: Spanish is the language spoken in many of the homes of residents. They are also likely to listen to local television and radio stations that broadcast in Spanish and read newspapers in Spanish.

Implications: Basic welcoming, orientation and wayfinding information must be available in Spanish. Studies indicate that offering information in their native language gives them a sense of ownership, which is critical to this effort. In addition, providing programs in Spanish may attract more visitation from residents. Finally, the local television and radio stations broadcasting in Spanish should be utilized for marketing the refuge experiences to residents.

Characteristic: They value family highly and enjoy multigenerational family gatherings that involve sharing food, such as at picnics.

Implications:

- Some of the members are likely to be mobility impaired, so it is important that all areas in the visitor hub (visitor center, parking area, picnic area, etc.) are fully accessible. In addition, areas easily accessible to those who are mobility impaired should be located next to areas that are natural and likely to attract wildlife, so they can enjoy nature without having to move too far.
- Children are likely to be present, so opportunities that allow children to be active will be important. Ideally, opportunities for activity would be tied to information about nature, such as nature-based playgrounds with associated interpretive components.
- Interpretive strategies must provide opportunities for all members of the group to be occupied at the same time and place.

Characteristic: It is likely, since they are urban dwellers, that they do not have much experience in nature and could find it 'scary.'

Implications: A gradual continuum of experiences – from the outside looking in to the inside looking out – is important.

Characteristic: They value education for their children and are likely to engage in such activities as a family.

Implication: Interpretive opportunities should be designed with multiple entry points to allow visitors with different levels of education to all access the same opportunity. In addition, such opportunities should be designed to allow the family to interact.

Note: A focus group or some other method of gathering information would be necessary to determine if they would use the refuge for such a purpose if it had the space and necessary amenities before considering it as a factor in designing a new visitor center.

Audience-Specific Characteristics affecting infrastructure

In addition to characteristics of those with physical limitations that affect infrastructure, the following, audience-specific characteristics also have an impact on layout and infrastructure:

Characteristic: Latinos and Hispanics enjoy large extended family picnics.

Implication: Picnic areas designed to accommodate large groups of people have a high potential for attracting use from these groups.

Characteristic: School groups typically involve arrival by bus of large numbers of children from a single grade.

Implications: The site needs to be laid out to accommodate bus parking and bus turnaround space. Additional infrastructure elements that facilitate visits by this target audience include a large staging

area near the bus drop-off zone, multiple toilet facilities, and learning stations along trails that can accommodate 15-20 people at a time.

Characteristic: People across cultural and socioeconomic groups often value spending time relaxing and talking with friends.

Implications: A place for people to meet and talk, especially one that offers shade, views to nature, coffee and other beverages, could be attractive to many residents. However, given the distance to the refuge, it may be that additional activities need to be offered to create the necessary level of 'benefits' to justify their time traveling to the refuge.

Audience-Specific Characteristics affecting other aspects of experiences

The following audience-specific characteristics relate to aspects of the experience other than infrastructure, such as base of knowledge on the part of the visitor, and USFWS policies.

Characteristic: Many residents are not familiar with wildlife refuges, and may not see them as a place that is likely to offer experiences of interest.

Implication: Marketing what the refuge has to offer in the way of non-traditional experiences that specific target audiences would enjoy, in tandem with what a refuge is and isn't will be important. In addition, familiarity can't be assumed when designing and developing interpretive and informational components of the experience.

Note: *Potential issues with lack of experience on the part of visitors with wildlife refuges could be exacerbated by the inclusion of non-traditional opportunities at Santa Ana, so it will be extremely important to differentiate the Transition Zone from the Wildlife Refuge proper at Santa Ana, and from traditional wildlife refuges. In other words, the USFWS needs visitors to understand that just because something is offered in the Transition Zone does not mean that it is an appropriate use of traditional refuge property.*

Parameters

Introduction

Parameters are those conditions under which visitor experiences and the associated Interpretive Program must be developed, such as monetary constraints, and under which they must function, such as climate. They are also called ‘givens,’ ‘circumstances’ and ‘constraints.’ Identifying parameters ensures selection and development of experiences and interpretive and wayfinding strategies and infrastructure that are feasible, effective and realistic, not idealistic.

The following section contains key parameters that could affect developing visitor experiences at Santa Ana National Wildlife Refuge. In reviewing the parameters, it is important to remember that they represent what *is*, not what should be or what is desired. It is also important to remember that people not engaged in the planning process will read this document, which is why it is important to note what you are *already doing* to deal with parameters and why.

Key Parameters

Budget

B-1: Budget for developing visitor interpretive experiences is rarely enough to implement everything recommended in a plan at the same time. The plan should be structured so it can be implemented in a phased approach if necessary. In addition, the first experiences developed should be highly visible with a high chance of quick return on investment to maintain momentum.

B-2: The refuge is supported by the Friends of the Wildlife Corridor, who have a store in the Visitor Center. This creates a source of additional funds, but perhaps more importantly, the Friends group can sometimes do things that the USFWS cannot.

B-3: Budget is limited for site improvements. The plan will need to prioritize improvements based on getting the most return on investment in terms of effectively reaching key target audiences.

Environmental Conditions

E-1: Weather can be harsh in the summer (heat and direct exposure to the sun).

- Outdoor signs and structures must be constructed of materials resistant to the weather conditions.
- If the refuge wants to attract and hold visitors on hot summer days, shaded areas with benches, drinking water, and other strategies for increasing a visitor’s comfort during such times will be necessary.

E-2: Heavy rains can make it very difficult for the tram or bicycles to travel the roads on the refuge.

Given the value of the tram tour as a ‘stepping stone’ that moves people further into the natural world, its importance to offering high quality opportunities to the mobility impaired, and the potential to attract another group of users, paving the road should be a high priority.

E-3: The site does have some biologic hazards, such as rattlesnakes. Information should be available on how to recreate safely in the refuge.

Staffing

S-1: The refuge has limited number of staff for providing visitor services, and a limited number of volunteers. Although personal interpretive services should be offered whenever possible, the visitor interpretive experiences must be designed to function with no or limited number of staff.

S-2: Environmental Education programs currently offered at Santa Ana depend on volunteers to help manage the programs. The refuge has a good complement of volunteers, but to ensure continued availability at a high level of consistency, a space in the visitor center needs to be reserved for the use of volunteers.

Vandalism and Theft

V-1: Vandalism and theft are unlikely at Santa Ana NWR. However, opportunities developed in residential areas, such as Islands of Refuge, are more likely to be subjected to vandalism and theft. This should be a consideration when choosing materials for signage.

Physical Infrastructure and Layout

PI-1: SA NWR currently has a perimeter road accessing the refuge that is used for tram tours. Biking is an option if allowed by the refuge. However, the road needs to be repaired and ideally, needs a bike lane to make this an attractive opportunity.

PI-2: The only restrooms on site are located at the Visitor Center. This currently limits the amount of time a visitor can spend in the actual refuge. Ideally, restroom facilities should be located at select locations on the refuge, such as at the canopy bridge.

PI-3: The picnic area closest to the road is isolated from the rest of the refuge by the parking area. Lack of immediate parking, isolation and lack of restrooms in this section of the refuge render this area essentially useless from a visitor perspective other than for special events and other activities that draw people to that location.

PI-4: The refuge has an extensive trail system. A good wayfinding and orientation network is necessary to avoid having people get lost.

PI-5: Observation structures include a blind and a viewing platform on Willow Lakes. These are magnets to visitors on the refuge and consequently are good places to provide thematic overview, especially the blind since it is closest to the visitor center. *(Note: This blind already contains interpretive panels, but these may need to be replaced eventually depending on final decisions on messaging.)*

PI-6: The site contains a canopy bridge and hawk viewing tower, but both require walking up a significant number of steps. These are highly attractive features, but a significant number of visitor groups will have at least one member who is not able or willing to climb to the top. Currently the interpretive opportunities are only available to those who choose to make the climb. Ideally, the visitor experiences will include the opportunity for visitors to gain access to the information without climbing to the top.

PI-7: Visitors have to walk in the parking lot to reach the visitor center from where they parked. This is a safety issue (even if not, parents perceive it as a safety issue).

PI-8: The Visitor Center area does not have a good, clearly demarcated bus or handicapped drop-off / pick-up zone. This would be a good thing to add in order to facilitate use by some audience segments.

PI-9: SANWR has a Visitor Center with an auditorium and public space that is currently occupied by exhibits (some of which are dated), a viewing area out to a feeding station, a small store run by the Friends Group and a welcome desk. Given that funds for a new facility may not come soon, the current space has to be used to the best advantage to serve the target audiences. This does not mean that the movable features in the public space can't be moved. It simply notes that the visitor center has an auditorium, in which they currently show videos, and it has a public space that can be utilized for visitor interpretive experiences.

PI-10: The refuge has picnic tables set up in close proximity in space behind the restrooms. This space is not easily visible from the breezeway, and the walkway to the picnic areas is relatively narrow. Again, lack of funding may preclude developing any new facilities, so this site should be utilized in some way. However, it may not be too difficult to develop a different access path.

Location and Access

LA-1: Accessibility is an issue given the refuge's location. It will be difficult for many residents, particularly those of lower income, to visit at all let alone on a regular basis. The situation can be addressed by providing assistance with transport, such as by a low-cost weekend trolley.

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.

PL-2: Although non-traditional activities and experiences may be offered in the Transition Zone, the bulk of the property will be a traditional National Wildlife Refuge. It will be important to manage visitor expectations so they do not get the idea that anything happening in the Transition Zone can also happen on the refuge. This is likely to be hampered by the lack of understanding on the part of many community members as to the function and management of a wildlife refuge.

PL-3: Fire of any kind is not likely to be permitted on the refuge. This simply eliminates the opportunity for people having picnics to grill or barbeque.

PL-4: Urban refuges are relatively new, and have an additional purpose, which is to connect with urban residents so they become partners in wildlife conservation. Because of the additional purpose of Urban Refuges, it is likely that policies developed for traditional refuges will need to be modified.

Existing Information and Interpretive/Educational Opportunities

EI-1: The refuge already offers a wide array of interpretive and environmental education opportunities. Because of limited budgets, to the extent possible existing opportunities should be used.

Note: I did not list the environmental education opportunities currently offered by the refuge because they don't really constrain or dictate what you decide to do in terms of visitor interpretive experiences.

Potentially Complementary/Competing Opportunities

PCO-1: The LRGV is a World Birding Center with a myriad of opportunities for bird watching and nature photography. To the extent possible, Santa Ana NWR should try to develop complementary rather than competing opportunities. However, it is not likely that many of those similar opportunities were developed as part of an integrated network of opportunities designed to communicate key messages. With that in mind, SANWR should be prepared to develop what the USFWS needs to develop to accomplish their goals.

Other

O-1: A Border Patrol station is located on the same site. This may deter some local residents from visiting the refuge.

O-2: Santa Ana NWR has already developed a wide array of partnerships.

O-3: The USFWS wants a conservation constituency that supports a sustainable approach to life. It will be important for the USFWS to visibly 'walk the talk' through such activities as recycling, composting, adaptive re-use of structures and materials, use of sustainable materials, use of water, and sustainable design of new structures. Energy and resource saving aspects of buildings and other infrastructure should be interpreted to raise the visibility of the USFWS's sustainable approach.

O-4: Teachers are interested in field trips and environmental education programs that help them meet state standards. The refuge staff are aware of this parameter and currently work with schools to provide programs that meet the needs of the teacher.

O-5: Programming for school groups is hampered by the fact that all classes of a particular grade come on the same trip, creating a capacity issue.

Inventory of Potential Interpretive Stories

Introduction

The Visitor Interpretive Experience Planning Process includes selecting themes (messages) that will, if understood by the visitor, have the potential to cause a change in knowledge leading to an impact on behavior that is consistent with the USFWS goals. Stories are the vehicles for communicating the themes. People generally become more interested in a story 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, features and other sensory stimuli in conveying information, the more effective the opportunity will be. With that in mind, the inventory of potential stories within the context of Visitor Interpretive Experience Planning is focused on identifying sensory stimuli as a means of determining what stories can be told most effectively.

Key Features and Potential Stories

The following is a general inventory of key features that could be used to tell stories, and the possible stories they can be used to tell. There are likely to be other features and associated stories, but rather than simply inventory features to tell stories, a better approach might be to look at key messages you need to communicate, and then figure out how to 'show' people that story on the refuge.

Development versus natural: The view from the top of the levee is one of the most compelling views because the landscape tells a story all on its own. The vast amount of agricultural land on one side compared with the pocket of natural habitat on the other makes it clear that humans have taken over much of the landscape and developed it in some way, and that very little natural habitat remains. That is one reason why I think any interpretive opportunity must include that view. Note that the view is very powerful at the point where the tram comes back up on the dike at the end of the tour. If you stood there and told people that humans have eliminated 95% of the natural habitat in the area, they are likely to take a look at the view and say, "I see what you mean," which is exactly what you want in an interpretive situation. As a side note, I don't think it is as visible or striking nearer the visitor center.

Water is the lifeblood of the area: The canal carrying water combined with the agricultural fields, the Rio Grande and its riparian area, the ponds and wetlands, and the piping used to control water level in the ponds all speak to the importance of water. The gradual transition of habitats as you walk the trail toward the ponds also is a story of water, as is the natural flooding of the Rio Grande to maintain some of the natural habitats in the area. In essence, water controls life, which is always more easily seen in hot, arid areas than wetter climates. This is a key story as it is also tied to the importance of having a series of wildlife refuges along bird migration routes. The site also has cultural features that tie to the water story, including the foundations of the old resort, and perhaps aspects of the cemetery (water is they to why people settled along the Rio Grande, why major trade routes followed the course of the river, and a myriad of other facets of cultural history because water dictated cultural activity in the Rio Grande Valley).

Biological organisms depend on habitat for survival: The milkweed and monarch butterfly is perhaps one of the simpler combination of features that helps tell the story of the importance of habitat in managing wildlife. As noted previously, the message that managing wildlife is all about managing habitat is a key message that needs to be communicated because it is at the core of everything the USFWS does. One of the advantages of the monarch butterfly-milkweed story is that monarch butterflies are one of the few charismatic microfauna. However, there are unlimited opportunities to ‘show’ people this story using organisms on the refuge. The best examples are going to be ones where the public values a species in some way.

Everything in an ecosystem is linked. Impact on any one component has a ripple effect through the ecosystem. Another version of this is “All parts of an ecosystem are necessary to keep the ecosystem healthy.” A sub-message that nest beneath this that could be applicable is “Healthy uplands are critical to healthy wetlands. In a way, this is still the ‘wildlife depend on habitat’ story. However, humans have a hard time grasping the fact that when you talk about habitat for a species of wildlife, it is more than just what they eat, where they live, and materials they use to build nests. Everything in the ecosystem is a part of their habitat, joined together by a confusing array of interconnections. We can’t show everyone all the interconnections, but we might be able to communicate this idea that causing impact on one part of an ecosystem affects everything else in that system in some way. The importance of sending this message is that it underlies why we want people to limit their impacts. As innocuous as those impacts might seem, they may have a significant impact. As with the relationship of wildlife to habitat, there are any number of possible storylines to help prove this point. One of the more compelling and perhaps visible may be the impact of development along and on the river that interfered with the natural flooding cycles.

Everyone can have a positive impact on conserving and recovering the wildlife in the LRGV. There are myriad ways of saying this, including, “you are either a part of the solution or part of the problem,” and “humans can determine what lives and what dies by their impact on habitats of other organisms.” I am more in favor of the first because it speaks specifically to the reader and is positive. Regardless, the key is to empower people so they have confidence that whatever small part they can play is still important in the grand scheme of things. This will be important when trying to motivate people to plant native plants in their yards and taking other small steps that help the environment. The Schoolyard habitats are perhaps one of the key features in communicating this concept, but it may be one that you have to get people to take on faith, and then hope that faith is rewarded when they see a bird in a plant in their yard that they had never seen there before.

Appendix C: STRC Logic Model Report (Excerpts)

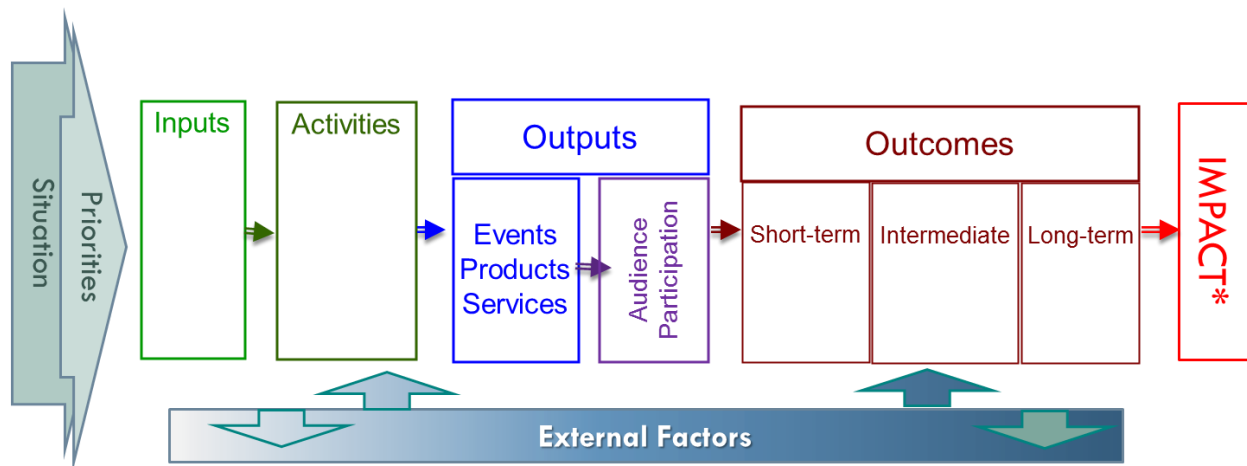
The parts of the report included in this Appendix include the introduction, visual depiction of the model, Impact Statement, Visitor Opportunities, and Outcomes

Introduction

The Regional Office Division of Visitor Services met with the South Texas Refuge Complex staff in August 2015 to provide an evaluation of their overall Visitor Services Program. Using a logic model process, the group discussed a wide range of visitor services activities and services offered on the Complex. Visitor services activities and tasks were inventoried. Refuge staff identified desired outcomes of the Visitor Services Program and created an impact statement.

Following the meeting, the Regional Office Visitor Services staff grouped the results into resources (current situation), inputs (past, current, and potential activities; and audiences), and outputs (target audience, frequency of activity and expected number of participants). Short-, medium- and long-term desired outcomes were identified by the Complex staff and consolidated by the Regional Office Visitor Services staff. A decision tool was created to facilitate the Visitor Services Program planning process. The Output section will need to be generated by the Complex staff using the supplied decision tool.

The logic model used in this process considers the relationship between activities and desired results.



* IMPACT = Urban Communities Partner with the Service in Natural Resource Conservation

Impact Statement

The South Texas Refuges Complex will have a diverse and connected conservation constituency.

Visitor Opportunities

Interpretive Programs - A mission-based communication process that forges emotional and intellectual connections between the interests of the audience and the meanings inherent in the resource. Interpretation translates the technical language of science into terms and ideas that the non-scientist can readily understand.

- Tram tours
- Local storytelling about nature
- Historical program
- Night walks
- Speaker series
- Salt lake tour
- Wildlife walk
- Summer camp
- RV park programs
- QR code trails
- Auto tour
- Pollinator programs
- Bus route/scenic hike and bike trail connecting to refuge
- 'Birking' – birding while biking
- SNWR activity/coloring book

Information - A wide-ranging communication process not targeted at a specific audience or topic. Example: Information provided at fairs or festival to a wide audience on broad topics.

Outreach - Specific targeted information that is communicated to a specific audience, e.g., flyers, meetings regarding a new hunt plan, or attendance at a State hunting and fishing Expo, etc. In FWS reporting (RAPP) outreach and Information are combined (Information /Outreach –Look at the definitions for each to decide which category this falls under).

- Monthly outreach to elected officials
- Community open house
- Outreach to Winter Texans
- Community meetings
- NGO meetings
- Mascot parade
- Public Service Announcement (PSA)
- Social media
- Skills USA TV productions, high school contest
- Border patrol
- Congressional tours
- Weekly newsletters
- Videos
- Service clubs such as rotary, Kiwanis
- Nature coalition
- General news articles
- Repeated messaging with public leaders
- Engage physicians/healthcare providers for fitness

- Outreach to faith-based organizations
- STRC specific – Outreach products
- Public Service Announcement (PSA)
- Social media
- Video

Special Events - Large, once-a-year thematic-type events either sponsored by the Complex or its Friends group(s).

- Rio Reforestation
- Ocelot festival
- Coastal Expo
- Xmas Bird Count
- City Music events
- McAllen art walk
- Park day cleanup
- Hunt Expo
- Hawk Watch
- Rio Grande Birding Festival
- Butterfly Festival
- National Wildlife Refuge week
- International Migratory Bird Day and Public Lands Day
- Watermelon festival
- Conjunto Festival
- Wild-N-Willacy
- Palm fest
- Viva Verde
- Sea turtle day
- Archery fair

Recreation - These are activities not included in the Big 6 and are appropriate and compatible. Examples: kayaking, beachcombing, biking, etc.

- Summer camp
- Virtual geocaching
- Boating
- Beachcombing
- Biking
- Kayaking/canoeing
- Commercial tours
- Fitness
- Soccer/track teams (widespread interest)
- Bus route/scenic hike and bike trail connecting to refuge
- 'Birking' – birding while biking

Hunting

- Hunt experience
- Youth Hunting
- Hunters with Disabilities

Fishing

- Fishing derbies
- Fishing clinics
- Crabbing
- Boating Activities
- Anglers with Disabilities

Wildlife Observation

- Tram tours
- Night walks
- Bird walks
- Wildlife Watching Tours
- Salt lake tour
- Wildlife walk
- Summer camp
- Auto tour
- Pollinator programs
- Bus route/scenic hike and bike trail connecting to refuge
- 'Birking' – birding while biking

Outcomes

The short-, medium and long-term results of the Visitor Services Program. Short-term is what we expect to happen; medium is what we want to happen; and the long term is what we hope will happen.

Refuges may choose to identify the outcomes by asking "How and to what extent did activity/program X contribute to achieving the outcome?"

Long term Outcomes: *Hope*

1. Diversify visitors – refuges and complex visitation is reflective of the local community. Locals value/love the refuge (personal gain for the individual). Awareness of refuge's economic benefit to the community. Local leaders understand the refuge value, economic, tourism. Increased financial support; congressional support; local participation in activities; and refuge is part of the community.
2. The refuges/complex is premier destination for birding and nature tourism. Local leaders understand the refuge's value, economically and through tourism. Locals value/love the refuge (personal gain for the individual).
3. The refuges/complex is a resource for local youth to explore and gain entry-level employment in conservation. Local opportunities career wise.
4. Refuge/complex activities and messaging and programs are consistently relevant to the local communities. Consistently evolve to reflect or relevant to culture. * Making conservation cool.
5. The Service values innovation in public use. Increase internal awareness – Service culture recognizes and values diversifying use for visitors.
6. The refuges/complex achieves its conservation mission while providing effective/high-quality visitor services. Offer a balance between wildlife and visitors. Not having a negative impact on the wildlife.
7. The refuges and complex accomplish the Urban Standards of excellence.
8. The refuges and complex have deep and sustained partnerships that accomplish mutual goals.
9. Consistent engagement in activities by youth on the refuges/complex.

10. Value of visitors becomes embedded as the cultural norm of the refuge staff.
11. Stove piping of responsibilities disappears.

Intermediate Outcomes: *Want*

1. Diversity of visitors (locals) - seeing an increase in the local community's willingness to participate and visit refuge programs.
2. Refuge/complex raises the bar on their birding and nature tourism programs. Do the programs work for the refuges? Are we providing a way to become a premier birding destination – evaluating, implementing, etc.
3. Refuge/complex offers a limited number of employment opportunities and information on wildlife conservation careers. Career opportunities for locals.
4. Local communities participate in said activities - making it cool.
5. The Service supports innovative public use programs.
6. Visitor services programs and facilities' planning is sensitive to the habitat and conservation mission.
7. Refuges and complex undertaking Urban Standards of Excellence.
8. Refuges/complex has partners that are mutually beneficial--partnerships that we support us – increase partnership that benefit refuges and complex.
9. Youth are engaging in activities on the refuges/complex including environmental education.
10. Staff makes visitors feel welcome and valued. Value of our visitors by staff – better customer service - to understand the needs of diverse visitors. Do you have materials that are bilingual; staff understands the culture of the visitors. Ambassador training. Visitors feel welcome.
11. The refuges/complex staff takes initiative for cross programmatic work and (tasks or doing work that needs to be done) for enhancing the visitor experience. Help out each other to get the work done to enhance the visitor experience.

Short term Outcomes: *Expect*

1. Awareness that the refuges/complex exists.
2. Maintain current status of birding and nature tourism programs.
3. Awareness that there is a conservation career opportunity.
4. Local communities are aware of activities on the refuges/complex or off-site sponsored by the refuges/complex – making it cool.
5. Service leadership recognizes the need for innovation in planning and operations of visitor services.
6. Staff understands the relationship between conservation mission and visitor services activities.
7. The refuges/complex understands and identifies Urban Standards of Excellence pertinent to the individual refuge.
8. The refuges/complex values partnerships. Existing partnerships are evaluated and potential partnerships are identified.
9. Awareness of refuges by youth – Know why we are there and what is happening.
10. Staff understands the need to value visitors. Visitors feel welcome.
11. Entire staff recognizes the need and value helping each other work, general activities without dumping back on the division of providing excellent visitor experiences.

Appendix D: Theme Work Sheet Input

The following input was gathered by having participants fill out the following sentence as many times as they needed.

After learning about _____ (topic) _____, I want people to know that _____ (message) _____.

Example: After learning about **wildlife management** (topic), I want people to know that **managing wildlife is all about managing habitat** (message).

After experiencing the refuge (**topic**) I want people to know that _____ (message) _____.

Topic / Experience	Theme
Urban Refuges	Green spaces like schoolyard habitats and backyard habitats are valuable to wildlife.
LRGV Habitat and wildlife	Unique place like no other and it is nature within reach of local community.
Habitat Fragmentation/Connectivity through Corridors	The need for wildlife corridors – even though urban areas – to provide safe passage for wildlife to move free of (urban) dangers.
Monarchs/Pollinators	Their importance of pollinators for our own well-being and the negative impacts of human activity on pollinators.
Rio Grande floods and the power of water	The role of water on habitat types (thornscrub, riparian, etc.) and human needs
Human Impact on the Environment	Development, fragmentation,
Dynamic Environment/ everything is interrelated	Can't think about an issue (i.e. ocelot conservation) as an isolated case. What we do on a daily basis impacts our environment
Our similarities to wildlife	We can learn a great deal from our environment. We may not look alike but we have a great deal of behavioral commonalities to wildlife to ensure our survival. i.e. social structure in coyotes,
Outdoor recreation (Urban Refuge)/places to visit in the LRGV	Nature is not this "far away concept" it is within a reasonable distance from Valley residents and there are many places to visit
Bird & Butterfly Migration	The Rio Grande Valley and its habitat is a special, unique and important migratory area in need of conservation, mitigation, and protection
Rio Grande Siren	the RGV is home to unique species found nowhere else in the US or even the world
Refuges around the globe	the world's refuges protect important species and habitat that would disappear from our planet without the conservation and education efforts led by our refuge system

Ecosystems & Habitats	There is a diverse array of species found in different habitats, but that there are similarities in dependence and interaction between and within these systems (food chain, energy dispersion, niches, etc.).
Climate Change & Weather	Changing patterns affect wildlife and human alike, especially in food availability, physical comfort and health.
Life cycles	People will know that the refuge is where they can observe and learn more about life cycles.
Bird adaptations	People will know that the refuge is where they can see birds and observe how bird adaptations work in nature.
Endangered species	People will know that Santa Ana NWR is a part of the wildlife corridor that provides endangered species with habitat they need to survive.

Appendix E: Outcome Work Sheet Input

The following input was gathered by having participants fill out the following sentence as many times as they needed.

As a result of experiencing the refuge and/or its interpretive opportunities, (target audience) will/will not (do what?). The result will be _____.

Audience	Do what?	Result (Impact)
Families	<p>Be aware of NWRs and outdoor recreational opportunities within 30 min drive.</p> <p>Visit the refuge again and again and use it as their “go-to” destination for recreation.</p>	<p>Love of nature and an increased appreciation of organizations/agencies established to preserve the natural heritage of the country.</p> <p>Increased environmental literacy.</p> <p>Increased confidence/enhanced outdoor skills</p>
Outdoor enthusiasts	<p>Repeated visits to the Refuge.</p> <p>Share their passion for the outdoors and promote environmental stewardship.</p>	<p>Support USFWS mission, public policies and laws.</p> <p>Increase in NWRs, green spaces, and wildlife habitat.</p>
Potential Volunteers (local and non-local)	<p>Commit their time to help support Refuge needs.</p>	<p>Support USFWS mission, public policies and laws.</p>
Teachers/students	<p>Use the Refuge as an educational resource.</p> <p>Promote environmental stewardship and take action to protect the environment (reduce wasteful consumerism, reduce carbon foot print, restore and preserve habitats, etc.)</p>	<p>Increased environmental literacy.</p> <p>Increase of green spaces and wildlife habitat.</p> <p>Recovery of endangered species.</p> <p>Environmentally-conscious constituents</p>
Local Leaders	<p>Understand that development and environmental stewardship are not mutually exclusive.</p> <p>Understand the benefits of conservation, and support environmental policies.</p>	<p>Greener infrastructure (roads, construction, etc.) and more green spaces for their constituents and wildlife.</p> <p>Enforcement of environmental laws and policies.</p>

Media/spokesperson/ Advocates	Increase positive exposure of NWRs to urban audiences. Promote outdoor recreation Promote environmental stewardship	Increased environmental literacy. Increase of green spaces and wildlife habitat. Environmentally-conscious constituents
Middle School & High School Students	Participate in citizen science conservation projects and sharing those results in a student-based international conservation forum.	A better understanding of global environmental issues and ways they can make an impact through conservation practices and scientific investigations
K-12 Students	Will participate in interactive, inquiry based, thematic interpretive learning experiences focused on one environmental issue (at a time) through a gateway animal, incorporating awareness, knowledge and action (See: Zoos Victoria. http://www.zoo.org.au/)	Engaged students and teachers who grow to be advocates by providing them with opportunities to connect with nature, build their understandings of real-life conservation issues and be empowered to take action. (Paraphrased from Zoo Victoria website).
College Students / Adult Volunteers	Will be trained as interpretive naturalist and bird guides	A larger volunteer and workforce to assist with programs, events, field trips and tours.
Local families	Offer programs that are inviting and of interest to local families	More visitation and local will find value in the refuge and our mission
Local youth (ages 15-21)	Offer programs that interest this age group	More visitation and we plant the seed of conservation to value and protect Santa Ana NWR
Educators (teachers)	Offer training and tools to help them meet testing science goals	Better test scores. Teachers will utilize the Refuge as an outdoor classroom and students will see value in protecting the resource.