

Fundamentals of Nature Interpretation

Synthesis

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ABSTRACT

Nature interpretation can be an effective way to communicate about and involve people in biodiversity conservation. Interpretation activities may comprise presentations or walks led by an interpreter, as well as exhibitions and print or audiovisual materials that people can use independently. This module describes the history, guiding principles, underlying philosophy, and methods of nature interpretation. Interpreters can be found in a wide range of settings beyond nature guiding and work for a variety of organizations. The module provides examples of themes—and guidance for developing them—and describes major categories of interpretive programs – presentations, exhibits, and community outreach – outlining the process for planning, implementing, and evaluating.

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I. INTRODUCTION

Thirty tropical ecology students climb down from a bus that has transported them from their campus to a nearby nature reserve. The purpose of their afternoon field trip is to observe the structure of a tropical forest and some of the adaptations of flora and fauna that they have discussed in the classroom. Two instructors accompany the students and divide the group in half as they leave the bus. Each instructor leads his/her group in a different direction on a two-kilometer long nature trail looping back to the point of origin.

When the first group of students returns to the bus, they are animated, inspired, and eager to learn more about this forest habitat. Many students in the second group, however, are tired, visibly bored, and thinking about something other than tropical ecology. What might account for the differences between these two groups? What happened on the trail to shape students' reactions?

After walking a few paces at the start of the trail, the instructor leading the first group stopped and moved to a place where all of the students could clearly see and hear her. She asked, "What do you observe about the vegetation in the layers from the forest floor to the canopy?" As she then led the walk, she made several pre-planned stops to point out features along the trail, including examples of how plants are adapted to the available light, water, and nutrients. She selected tangible things, such as a vine climbing upward toward the light, to illustrate the concept of adaptation within the layers of forest vegetation.

This instructor varied her approach by asking questions, pointing out features along the trail, and telling stories about the early naturalists who had discovered and named the local flora and fauna. She presented explanations at each stop for no more than three to five minutes, always connecting information about adaptations of flora to the forest structure and including observations about how fauna are specialized for the resulting microhabitats – especially when students noticed insects and frogs, or heard birds along the way. From time to time, she took objects from her backpack to show and related them to the discussion. These objects included charts, field guides, plant and animal specimens, and even a couple of products students might recognize made from forest resources.

The instructor kept the attention of her audience with dynamic gestures and expressions and by modulating her voice—lowering it to a near whisper at times, but always making sure the students could hear her easily. Her knowledge and enthusiasm for the subject helped to engage students and she encouraged them to ask questions. At the conclusion of the walk, she repeated her introductory question and students gave examples from what they had just seen. When students asked how they could learn

more about some aspects of forest ecology, she suggested some bibliographic references.

The instructor of the second group made fewer stops, speaking at each for 15 minutes or more. His voice was monotone as he described vegetation of the forest floor, the undergrowth, and the canopy, defining new vocabulary and identifying more than a dozen plants by their scientific names. The students recognized that this instructor was presenting information in much the same way as he would in a classroom lecture. What he said did not connect with what they saw along the trail – flowers, trees, birds, and butterflies that he never pointed out nor mentioned.

What are some of the differences between these two instructors' approaches to the field experience? How did the instructor of the first group inspire her students while the second did not? A major factor was their different communication styles. The instructor of the first group revealed information by connecting it to what students had learned in the classroom and inviting students to relate this to what they were experiencing by making their own observations. In contrast, the instructor of the second group stated information and did not interpret it. He did not make a connection with students and involve them, nor did he frame the experience with a clear theme. In addition, the first instructor made careful preparations to connect her audience with the field location by selecting the stops along the trail and integrating objects she brought with her into the discussion.

The techniques that worked so well with the first group are hallmarks of interpretive communication. Interpretive programs translate information from scientific language to “everyday language” so non-scientists can easily understand it. The interpretive style is interactive with a focus on imparting an understanding of *meanings* and *relationships* rather than on memorizing facts (Domroese and Sterling 1999). As such, nature interpretation can be an effective way to communicate about, and involve people in, biodiversity conservation.

While this example illustrates the application of nature interpretation within a conservation biology course, it is often associated with programs in parks, zoos, and museums where many visitors arrive independent of a formal course. In addition to presentations or guided walks, as described here, interpretation can comprise other types of activities led by an interpreter, as well as exhibitions and print or audiovisual materials that people can use independently. The history, guiding principles, underlying philosophy, and methods of nature interpretation are discussed in this module.

SYNTHESIS AND PRESENTATION LEARNING OBJECTIVES

Through using this Synthesis and Presentation teachers will enable students to:

- Identify the role of nature interpretation in biodiversity conservation
- Understand the history and philosophy of nature interpretation
- Employ methods of nature interpretation
- Plan an interpretive program or activity

II. HISTORY OF NATURE INTERPRETATION

ORIGINS OF THE NATURE INTERPRETATION PROFESSION

Passing along traditions, ceremonies, and natural history lore is part of formal and nonformal education systems of peoples everywhere. In this sense interpretation has taken place around the campfire, in the home, and on the trail for millennia (Knudson et al. 2003). The beginnings of nature interpretation as a profession in the United States, however, are attributed to nature guiding in the Rocky Mountains and other parts of the western U.S. in the late 19th and early 20th centuries.

During that time Enos Mills, who is widely regarded as the “Father of Nature Interpretation,” guided parties of tourists to the top of Long’s Peak in Colorado. Mills worked to refine his approach to trailside conversations in order to capture and hold the attention of his clients by incorporating his extensive personal knowledge of local natural history and geology. He was inspired and encouraged by the famous naturalist John Muir, as well as other contemporaries such as Liberty Hyde Bailey and leaders of the Nature Study Movement, and by the efforts of naturalists such as John Burroughs and Ernest Thompson Seton (Drummond 1995). While Mills was not alone in providing educational services to the visitors of the expanding western U.S. national parks, he was the first to fervently promote the best practices of the nature guide, and to encourage the development of nature guiding as a profession. He fashioned his interpretation methods through trial and error, making note of techniques that worked and those that did not for communicating the significance of nature along the trail. Mills published his nature guiding ideas in books, including *Adventures of a Nature Guide* (first published in 1920), and in articles in popular magazines. Mills eventually established a “trail school” to introduce visitors to the Rocky Mountains and to train novice interpreters, and his ideas are still regarded as relevant to the process of interpretation today (Knudson et al. 2003).

The popularity of guiding services was bolstered by the public’s growing enjoyment of natural history and interest in parks, historic sites, and museums, where exhibitions are an important means of interpreting the natural world. Contemporary practitioners and authors now ascribe a wider range of qualities and functions to the interpretive profession than was the case when nature guiding arose. Interpreters, who may go by various titles (see Box 1), work in diverse settings such as conservation organizations, nature centers, zoos, science museums, public parks and gardens, and other tourist sites. They offer guided walks and presentations; and develop indoor exhibits, wayside panels, brochures and other publications, and websites. Environmental interpretation, environmental education, and even active teaching (See the Student-Active Teaching Techniques module) often share similar goals and approaches. A number of programs and resources now exist for training and professional interpretation certification (See Appendix A for examples).

Box 1. Some of the many titles for interpreters (Knudson et al. 2003)

Docent	Curator of education
Naturalist	Site manager
Environmental educator	Camp programs director
Park ranger	Researcher
Public information specialist	Nature guide
Historian	Travel or ecotourism operator

DEFINITIONS OF NATURE INTERPRETATION

Freeman Tilden was a writer, newspaper reporter, and philosopher hired by the U.S. National Park Service to study and write about interpretation. He provided the first formal definition of “nature interpretation” in his classic book, *Interpreting Our Heritage*, first published in 1957:

an educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative material, rather than to simply communicate factual information (Tilden 1977, 8).

Since then numerous other definitions have been proposed, including:

- A mission-based communication process that forges emotional and intellectual connections between the interests of the audience and meanings inherent in the resource (National Association for Interpretation 2007)
- A catalyst in creating an opportunity for the audience to form their own intellectual and emotional connections with the meanings and significance inherent in the resource (National Park Service 2003)
- Environmental interpretation involves translating the technical language of a natural science or related field into terms and ideas that people who aren’t scientists can readily understand (Ham 1992, 3)

One specific definition cannot easily encompass the breadth of the interpretive process. Varying definitions emphasize different aspects of the profession and its contributions, and often reflect priorities of the organizations and agencies offering interpretive services. However, most authors agree that:

- Interpreters deliver messages that connect with the interests of the audiences and reveal meanings.
- Interpretation is more than information.
- Interpretation is a communication process rather than a product (Brochu and Merriman 2008).

III. WHY INTERPRET?

BENEFITS OF INTERPRETATION

Interpretation, properly carried out, serves as an indispensable tool to achieve successful, intelligent cultural and natural resource stewardship (Knudson et al. 2003, 13).

Mills and Tilden were clear about the value of developing a deep appreciation for nature to preserve special places. However, interpretation can also serve many other purposes, including enhancing management, implementing policies, improving public relations, recruiting and managing a corps of volunteers, and marketing and fundraising (for many examples, see Jacobson 1995, 1999). Knudson et al. (2003) outline a number of different purposes of interpretation; one or more of these may take priority at a given site or within an overall interpretive program:

1. Enable visitors to develop “a sense of place,” responding to the beauty of their environment and recognizing the special character of the place and what it represents in the broader picture
2. Enrich visitor experiences by adding value to leisure and recreational time
3. Meet education and conservation mandates by fostering awareness and intelligent action by visitors during their visit and beyond
4. Produce marketing and management benefits by providing interpretive programming that makes the location attractive to visitors and informs them of regulations, which may help lower the cost of resource protection
5. Serve visitors with programming that enhances their skills, understanding, and ability to interpret, and that helps them become well-informed stewards

Interpretation can help meet visitors' basic needs and contribute to fulfilling higher order ones. Signs, posters, radio messages, newspapers, and interaction with interpreters can help visitors be aware of and understand threats such as severe weather conditions, dangerous plants, appropriate interaction with wildlife, water safety, and risks of climbing and hiking. Interpretation can offer safety in another sense as well by making people feel welcome and reducing social barriers for groups who have not traditionally participated in such programs (Knudson et al. 2003). Programs and facilities can also be designed to accommodate people with physical disabilities. This has been legally mandated in the U.S. since the Americans with Disabilities Act was signed into law in 1990 (Knudson et al. 2003).

Beyond meeting needs for access and safety, interpretive programs or materials can help to provide “peak” or “optimal” experiences, “moments of highest happiness” that

achieve the self-actualization at the top of Maslow's hierarchy¹ and make life more enjoyable and meaningful (Knudson et al. 2003, Beck and Cable 2002).

GOALS OF INTERPRETATION

The goals of interpretation generally correspond to the mission or vision of an agency or program. Beck and Cable (2002) outline three goal levels:

1. *Entry level goals* include four components that communicate basic site information by providing the visitor with:
 - a. An overview of site characteristics and awareness of the ecology and cultural history (as appropriate)
 - b. Opportunities to understand relationships of the site's ecological and cultural history with the surrounding area
 - c. An awareness of management policies and effects these have on the site and its resources
 - d. Experiences that inspire environmental awareness through appreciation and enhanced enjoyment of the site
2. *Ownership goals* have two components in which interpretation aims to:
 - a. Foster awareness of collective impact of visitors' actions on the quality of the site
 - b. Encourage investigation and evaluation of resource issues
3. *Empowerment goals* encourage visitors to "embrace responsible actions."

Interpretive experiences that represent all three goal levels in sequential order have the potential to stimulate attitude and behavior change in visitors that contributes to their enjoyment of the visit, as well as enhances their participation in conservation and stewardship beyond their stay.

IV. PRINCIPLES OF NATURE INTERPRETATION

TILDEN'S PRINCIPLES

In *Interpreting Our Heritage*, Freeman Tilden offered six "Principles of Interpretation" based on his observation of the key characteristics of the programs of U.S. National Park Service rangers. For more than five decades these have guided and been adapted by interpreters. The following list paraphrases and illustrates these principles (Tilden 1977; Beck and Cable 2002; Brochu and Merriman 2008).

Principle 1: Relate what is being displayed or described to something within the personality and experience of the visitor. This follows with the constructivist theory

¹ Maslow's hierarchy is a theoretical model constructed by psychologist Abraham Maslow that describes a "hierarchy of motivations from physiological needs, to safety, to social connectedness, to esteem, to self-actualization" (Beck and Cable 2002, 52).

of learning, emphasizing the importance of connecting new information with visitors' existing knowledge and experience.

Principle 2: Information, as such, is not interpretation.

An interpreter can literally reveal something by taking it out of a basket or by pointing out something such as an insect on a leaf, but even more important is the revelation of intangible meaning or significance connected with such tangible things.

Principle 3: Interpretation is an art, which combines many arts. Any art is in some degree teachable.

Interpreters can treat information imaginatively to create opportunities for the audience to connect with it through artistic approaches such as a story or folk song, imitating a birdcall, or any other means that makes use of their artistic strengths.

Principle 4: The chief aim of interpretation is not instruction, but provocation.

An interpreter should "stimulate the reader or hearer toward a desire to widen his horizon of interests and knowledge, and to gain an understanding of the greater truths that lie behind any statement of fact" (Tilden 1977, 33).

Principle 5: Interpretation should aim to present a whole rather than a part, and must address itself to the whole person rather than any phase.

A stump made by a gnawing beaver can provide an opportunity to describe how a wetland system formed and to compare the beaver's role to that of an engineer in a water treatment plant where visitors live. Presenting such a system and placing it into a meaningful context for visitors helps to convey meaning. Interpreters can also encourage people to engage their senses, and, in attempting to meet a range of needs, work up Maslow's hierarchy to create a comfortable and holistic experience.

Principle 6: Interpretation addressed to children should not be a dilution of the presentation to adults, but should follow a fundamentally different approach.

Nature interpreters can benefit from learning theory, cognitive and developmental psychology, and educational psychology to use appropriate educational methods for children or adults (see Box 2 for some general concepts). Regnier et al. (1994) provide suggestions for working with children at different ages and stages of development. In comparison with children, adults have a wealth of experience and tend to know what they want to learn and want to be able to apply it.

Box 2. Summary of learning concepts

Knudson et al. (2003, 181-182) distill a list of key learning concepts based on discussion of education theory, interpretive research, motivation theory and other related disciplines in Pond's (1993) *The Professional Guide*:

1. People process information differently, at different ages, and among different individuals and cultural groups.
2. Learning is influenced by the degree to which individuals perceive that it meets their individual needs.
3. A sense of comfort and security affects a person's capacity to learn.
4. How people feel about the person facilitating the experience can influence how much they care about and remember the information presented.
5. Most people learn more easily when they use multiple senses.
6. Many people tend to remember most what they *do*, less of what they see or *read*, and least of what they *hear*.
7. Using a variety of approaches to a subject can enhance the learning process by making it more interesting and by meeting the needs of diverse learners.
8. Self-discovery is a powerful motivator.

PRINCIPLES FOR THE 21ST CENTURY

Generations of nature interpreters have been influenced by Tilden's principles. Beck and Cable (2002) have updated them, embracing the original six principles, incorporating some of Tilden's other ideas, and grounding concepts in the work of other interpreters. They include the use of technology to reveal meaning in new ways, but caution against letting the technology, rather than the message, drive the program. Another of their principles relates to the importance of attracting support – financial, volunteer, political, and administrative – to sustain a program. They also recognize that in addition to children, other groups such as teenagers and seniors have particular interests and needs. While not designated among his six principles, Tilden counted passion and enthusiasm as essential for effective interpretation. Beck and Cable (2002, 8) make this idea their final principle: "Passion is the essential ingredient for powerful and effective interpretation—passion for the resource and for those people who come to be inspired by the same." (See Appendix B for the list of 15 principles.)

The U.S. National Park Service has formulated a succinct equation that incorporates these principles and can guide interpreters in developing an interpretive program (see Box 3).

Box 3. An interpretive equation

The U.S. National Park Service uses an equation to illustrate the relationships among the main components in the interpretive process. If you combine knowledge of your audience (Ka) with knowledge of the resource (Kr) and apply appropriate techniques (AT), you can provide an Interpretive Opportunity (IO).

$$(Ka + Kr) \times AT = IO$$

Knowledge of the audience involves getting a sense of audience composition such as age, geographic origin, knowledge level, physical abilities, perceptions, and expectations. Knowledge of the resource includes both the subject matter and the site. Tilden's Principle 6 relates to Ka, Principle 2 relates to Kr, and the others pertain to AT. The equation, used in conjunction with Tilden's principles, guides interpreters to examine audiences and resources before they look to technique. It also indicates the need for overall balance of the knowledge base and presentation techniques; too much information can make for an ineffective presentation, while too many gimmicks in presentation style can overwhelm the message (Brochu and Merriman 2008). The principle behind the equation is that an interpreter can provide an opportunity, but cannot guarantee that interpretation – or revelation of meaning – will actually take place. However, providing the setting and using appropriate communication techniques helps.

V. METHODS OF INTERPRETING NATURE

PERSONAL AND NON-PERSONAL INTERPRETATION

Interpretation may be personal or non-personal. **Personal interpretation** requires an interpreter to actively present information, ideas, or concepts to other people. It can involve presentations, demonstrations, guided walks, or responding to visitor needs at an information desk. It is a powerful approach to interpretation because the interpreter can adapt to the audience and make emotional and intellectual connections (Brochu and Merriman 2008). **Non-personal interpretation** includes brochures, exhibits, signs, audiovisual presentations, or other methods that do not require a person to be present or to lead an activity. The decision to use personal or non-personal interpretation can be based on a number of factors such as budget, staff time, or program context. Often, a combination of the two approaches is used within an overall interpretation program, however, the same principles of interpretation apply regardless of whether the activity is personal or non-personal.

THE INTERPRETIVE APPROACH

While there are diverse methods of interpretation, to be effective interpretation should be thematic, relevant, organized, and enjoyable (TORE, Ham 2008). These are qualities

that “distinguish interpretation from other forms of information transfer and define the *interpretive approach* to communication” (Ham 1992, 8).

Thematic: An enjoyable, relevant, and organized interpretive program can capture and hold an audience’s attention, but a theme can lead audiences to make their own meaning (Ham 2008). The theme is therefore critical to effective interpretation and is a good place to start the process/practice.

Organized: Interpretation has a logical structure that begins with a clear introduction to the theme, followed by discussion of key points to support the theme connected by transitions, and a conclusion that restates the theme. A coherent story can help the audience to understand, capture and remember information.

Relevant: As Tilden observed in his first principle, interpretation relates new information to prior knowledge and experience of the audience. For example, on a guided walk in a North American boreal forest, the interpreter might link the balsam fir (*Aibes balsamea*) to something that the audience may be familiar with. The interpreter can ask whether people are familiar with any commercial products made from parts of the tree. He/she can encourage them to think of any by using their sense of smell or he/she can show samples or pictures of products, such as fragrant branches used for holiday decorations, leaf oil used in hair shampoos and perfumes, and fine laser papers made with wood fibers.

Similarly an interpreter on a hike in a tropical forest can ask participants why they think neem tree (*Azadirachta indica*), native to South Asia, is sometimes called the “village pharmacy.” It is a source of many health products, including toothpaste and treatments for many ailments such as burns, boils, acne, cholera, constipation, and diabetes, to name a few (Hunter and Gibbs 2006).

Enjoyable: Audiences tend to pay more attention to programs that are novel and entertaining. Offering an enjoyable experience is essential when audience participation is voluntary, as is generally the case in “free choice” learning settings such as museums or parks and reserves. An interpretive approach can also enrich formal education, capturing students’ imaginations and restoring teachers’ enthusiasm for teaching (Saunders 1999).

THEMATIC INTERPRETATION

“A theme is a whole idea, a belief, an inference or connection that the mind makes” (Ham 2008). To arrive at a theme, Ham (1992) suggests taking the topic, or subject matter, and thinking about what is important for people to know about it. Then craft a theme that expresses the “whole idea,” whether in the form of a sentence or two, or a paragraph (Ham 2003). Once you have a theme in mind you can decide what information you need in order to communicate it. Thus, the theme serves as a guide for the interpreter in planning and presenting a program, and it helps the audience to connect with the program in a meaningful way.

Ham (2003) gives an example of a goal and objectives for an interpretive program, and how a theme can be conceived to meet these.

Goal: To inspire visitors to care about Green Forest National Park.

Objectives:

- Learning: Given the opportunity to do so, people who have heard my talk will say that one of nature's greatest experiments was the creation of a rainforest.
- Feeling: Given the opportunity to do so, people who have heard my talk will use words like "amazed," "surprised," "inspired" by what goes on in a temperate rainforest.
- Behavioral: After hearing my talk, members of the audience will choose to stay to continue discussion or ask questions even though they know the presentation is over.

Theme: "One of nature's greatest experiments was its creation of the temperate rainforest."

This is a good general theme to get an interpreter started in developing a program, but it could be expanded beyond the expression of the learning objective to include feeling and behavioral objectives, "making it a statement that demands attention and creates curiosity in and of itself" (Ham 2003, 11).

Drawing on the feeling objective above, an interpreter could develop a theme like this: "One of nature's greatest experiments was its creation of the temperate rainforest in Green Forest National Park. To this day, it harbors answers to questions that science is still too naïve to even ask." For more examples of topics and themes, see Box 4.

Table 1. Topic and Theme Examples

Topic	Theme
Fire in nature	Fire is a natural process that creates life out of death and provides insight into tangible and intangible loss and renewal.
The power of water	The power of water to carve, smooth, and continuously reshape this landscape provides opportunities for us to marvel at how a seemingly simple liquid can play such a profound role in every landscape on the planet.

(National Park Service 2007, 22)

The theme is an essential guide for the interpreter, and in some cases may not even be stated in so many words to the visitor. Particularly in the case of exhibition development, a rather lengthy theme statement may be necessary to encompass the story that the exhibit will convey. Anything that falls outside of this theme statement does not belong in the exhibition. Sticking to the theme prevents an interpretive exhibition from become a cabinet of curiosities that includes objects simply because you have them.

TYPES OF INTERPRETIVE PROGRAMS

The types of interpretive programming generally fall into three categories (Domroese and Sterling 1999):

1. **Interpretive presentations** may be talks, demonstrations, tours, games or dramas. Roving interpreters, making rounds or simply strolling around the site, can also interact with visitors informally.
2. **Interpretive exhibits** consist of displays of objects or graphics that visitors interact with and explore on their own at an interpretive center.
3. **Community outreach** allows the interpreter to reach audiences who do not have the opportunity to visit, or to reinforce what visitors learn at a site. Outreach activities may include presentations (slide shows, films, puppet shows, dramatic sketches), portable exhibits, media campaigns, community meetings, and special events.

Interpretive Presentations

An interpreter can use a wide range of techniques in interpretive presentations, selecting those that are appropriate for the audience, theme, and setting, as well as those that make best use of his/her own style and abilities. Any presentation should have a clear introduction, body, and conclusion.

Storytelling can provide a cohesive and entertaining format. Within a story, techniques such as foreshadowing – or offering clues of what is to come – can help to maintain audience interest. Interpreters can be *story-spotters*, collecting stories that pertain to their subject areas, and where appropriate, incorporating these into their interpretive materials. *Characterization* (posing as a historical personality or imaginary creature), *guided imagery* (taking visitors on a “mental fieldtrip”), and *puppetry* are all creative approaches to presentations (Regnier et al. 1994).

Interpreters can use different types of *questions* to involve audience members and to learn more about the knowledge and attitudes they bring to the presentation. Through *directed dialogue* the interpreter solicits assistance from the audience in revealing facts and key relationships, often drawing these out in a manner that appears unrehearsed.

Objects or “*props*” can be powerful tools for engaging and holding audience interest. Props can engage different senses. Besides visual impact, odors, sounds, or the opportunity to touch an object and examine its weight or texture can all make an experience memorable. People also respond to familiar objects when they are used in innovative ways (Regnier et al. 1994). Making effective use of props is an art; an interpreter can create dramatic effect by keeping props out of view until just the right moment.

It can take some effort to obtain, curate, and present props. At the end of a program, props must be collected and put away for safekeeping. An interpreter’s handling of props can set an example for the audience, encouraging them to handle items with respect and to abide by laws that protect resources. In some countries it is unlawful to

possess certain items, such as a feather of a wild bird, unless a permit has first been obtained.

A guided walk can use many of the same techniques as a stationary presentation, with the added advantage of being able to view different things along the way – which can also pose some challenges for group management. The interpreter is responsible for the basic comfort and safety of participants. Participants who fear their surroundings, or who are physiologically stressed, are not likely candidates for successful interpretive outcomes (Knudsen et al. 2003). See Appendix C for a trail interpretation checklist.

Resources for more information on interpretive presentations:

Personal Interpretation: Connecting Your Audience to Heritage Resources (Brochu and Merriman 2008) provides an overview of techniques that are useful for any type of personal interpretation.

The Interpreter's Guidebook (Regnier et al. 1994) offers advice on the structure and substance of different types of interpretive presentations, using props, leading interpretive tours on nature trails, information stations, and roving interpretation.

Environmental Interpretation: A Practical Guide for People with Big Ideas and Small Budgets (Ham 1992) outlines presentation skills and offers guidelines for using visual aids.

Past into Present: Effective Techniques for First Person Historical Interpretation (Roth 1998) is a good guide for this particular style of interpretation.

Interpretive Exhibits

An exhibition is a common form of interpretive communication at sites such as national parks, nature centers, zoos, and museums. It is a display of graphics or objects assembled to convey a message to viewers. Visitors can view exhibitions at their own pace, generally without a guide (Domroese and Sterling 1999). A thematic, organized, relevant, and enjoyable exhibit is one that is also visually pleasing and easy to read. There are a variety of types of exhibits to choose from, depending on the audience, objectives, setting, timeframe, and budget, among other factors. These include exhibits mounted on a wall or on moveable panels, three-dimensional displays and dioramas, and hands-on activities, and can be located indoors or out. Brochures or other publications can be used in conjunction with an exhibit or on their own.

Resources for more information on interpretive exhibits:

Signs, Trails, and Wayside Exhibits: Connecting People and Places (Gross et al. 2006) covers the basics for interpretive exhibits, including developing an effective message; components of signs and how to construct them; designing, constructing, and maintaining trails; and trail interpretation options.

Interpreting Biodiversity: A Manual for Environmental Educators in the Tropics (Domroese and Sterling 1999) gives an overview of various types of exhibits and the process for developing them.

Exhibit Labels: An Interpretive Approach (Serrell 1996) covers creating an exhibition message, developing appropriate exhibit labels, and evaluating the process of exhibit development, the impact of the exhibit, and how well it meets objectives.

Environmental Interpretation: A Practical Guide for People with Big Ideas and Small Budgets (Ham 1992) includes a chapter on “How to Plan and Prepare Inexpensive Exhibits,” which covers creating a message, interpretive labels, and exhibit design and production techniques.

For interpretive writing, see Leftridge (2006). Beck and Cable’s *Interpretation for the 21st century* (2002) includes a chapter on principles that contribute to good interpretive writing.

Community outreach

Community outreach can employ many of the same methods as the interpretive presentations and exhibits described above, but applies them offsite (though sometimes with the aim of attracting visitors to the site). Community outreach can provide an opportunity to:

- Facilitate dialogue in the community concerning environmental issues
 - Reach a broad audience, including those who cannot come to your facility or site
 - Enhance visits to a site with pre- and post-visit activities
 - Publicize a particular site or organization and its mission
 - Build support in the community for the site and for the environment
 - Mobilize people to act on a solution to an environmental problem
- (Domroese and Sterling 1999)

Although community outreach can potentially reach a large number of people, it is still important to identify and target groups within this large audience. There is a range of communication approaches from meeting people one-on-one or convening meetings, to using mass media. You might develop a traveling exhibit or mobile unit or organize an environmental club at a school or community center. Look to possible partners in the community to strengthen your efforts or to participate in events that are already scheduled.

Resources for more information on community outreach:

Interpreting Biodiversity: A Manual for Environmental Educators in the Tropics (Domroese and Sterling 1999) describes the process of investigating community outreach opportunities and a variety of practical methods using low cost materials.

Conserving Wildlife: International Education and Communication Approaches (Jacobson 1995) presents a model for effective conservation education and communication programs, including planning, implementation, and evaluation. It also describes case studies from around the world.

VI. PLANNING INTERPRETATION

Whether you are planning exhibits, presentations, or community outreach activities,

there are some basic steps in developing an interpretive activity (Domroese and Sterling 1999):

1. Choose and research the issue
2. Develop a theme related to the issue
3. Identify the target audience (assessment)
4. Produce the activity (brainstorm options, follow guidelines for specific methods)
5. Evaluate

Your plan should make sense within an overall interpretive plan for the organization or site. There are a number of excellent resources to help with thinking on this more comprehensive level, in terms of an organizational strategy (Knudson et al. 2003; Brochu 2003, Veverka 1994), comprehensive planning (Brochu 2003) and management (Merriman and Brochu 2005). Knudson et al. (2003) also discuss other important aspects for operating a facility with interpretive services – including budget, management, training, supervision of staff and volunteers – that impact the types of activities that might be carried out. For overall planning and examples for designing and evaluating each type of program, see Domroese and Sterling (1999).

Some important questions to ask at the activity-planning level are: Will your audience pick up the brochure and read it? How long will they be willing to remain in one place for a demonstration? Do they have the interest and stamina for a 90-minute walk over demanding terrain? Audience assessment can help answer these types of questions and select interpretive methods to attract and accommodate participants. Formal assessment tools may include personal, phone and internet surveys and questionnaires, focus groups, or observation of visitor behavior in an exhibition. These methods can be undertaken by program staff who have the appropriate expertise or by an outside consultant. (See Jacobson 1999 for an excellent review of assessment methods and their advantages and limitations.)

An interpreter can also informally assess audience knowledge, for example, by arriving in advance of a guided walk and engaging participants in conversation to learn about their background and what they are interested in learning. During the program the interpreter can continue to gauge an audience's reactions and adapt the approach or pace as necessary to maintain their interest. This type of assessment should always be part of an interpretive activity, and when resources are limited, may be the main source of information about audiences.

Visitors may represent a broad range of traits, interests, attitudes, practices, and behaviors. They may be one age group, mixed ages, families, foreign visitors, new or repeat visitors. All of these characteristics impact the way an audience receives and reacts to an interpretive program. Different people favor different learning styles—they take in, process, and retain information in various ways (See Box 2 on page 11, and the Student-Active Teaching Techniques module). An interpreter will be most effective in reaching people by providing various ways for them to encounter information.

Evaluating how well an interpretive program conveys information, messages, and

meaning is critical in ensuring that program's effectiveness. Evaluation of programs designed around "meaning-making" objectives seeks to answer questions such as: "Can audiences say what the...main idea was? Can they elaborate on the key thing that they learned? Did it impact their point of view?" (Ham 2003, 12). Evaluation can demonstrate the extent to which an interpretive experience, whether delivered by a person or by means of an exhibit, is in line with institutional or agency goals and with audience expectations. It can also assist practitioners in improving their interpretive skills and can identify and objectively document successful efforts, often a requirement of funding agencies.

Front-end (or initial), formative, and summative evaluations offer insights into different phases of the interpretive process (see the Classroom Assessment module for discussion of these terms). Jacobson (1995) describes a variety of projects in which systematic data collection and analysis made it possible to identify approaches and components that contributed to their success. These projects include conserving natural areas, protecting declining species, targeting resource users, programming for schools, and involving community groups.

Going through the steps in an interpretive activity – particularly considering them as an iterative process – will help to better understand and to improve the contribution of such activities to an overall interpretive program, and integrate/situate this within overarching conservation goals.

APPENDIX A: RESOURCES FOR TRAINING AND CERTIFICATION IN INTERPRETATION

The following are examples of programs and resources for interpretation training and certification.

National Association for Interpretation Certification Program

<http://www.interpnet.com/certification/index.shtml>

NAI offers a certification in six categories: (1) Interpretive guiding, (2) Heritage Interpreting, (3) Interpretive managing, (4) Interpretive training, (5) Interpretive planning, and (6) Interpretive hosting.

US National Park Service Interpretive Development Program

<http://www.nps.gov/idp/interp/>

Focuses on philosophy and techniques, curriculum and training, and certification review process

US National Park Service Competency Program

<http://www.nps.gov/idp/interp/competencies.htm>

This program is part of the larger Interpretive Development Program and offers modules that focus on a variety of key “competencies” for interpreters of different experience levels.

State University of New York College of Environmental Science and Forestry

<http://www.esf.edu/efb/nhi/>; <http://www.esf.edu/efb/envint/>

Undergraduate (BS - Natural History and Interpretation) and Graduate (MS, MPS, and Ph.D. - Environmental Interpretation) degree programs.

University of Wisconsin, Stevens Point Environmental Education and Interpretation Program

<http://www.uwsp.edu/cnr/eeinterp/>

Program available for both undergraduate and graduate students

Stephen F. Austin State University

<http://www2.sfasu.edu/msri/index.htm>

Offers a Master of Science in Resource Interpretation in partnership with the United States National Park Service

APPENDIX B: BECK AND CABLE'S 15 PRINCIPLES FOR INTERPRETATION

1. To spark an interest, interpreters must relate the subject to the lives of visitors.
2. The purpose of interpretation goes beyond providing information to reveal deeper meaning and truth.
3. The interpretive presentation – as a work of art – should be designed as a story that informs, entertains and enlightens.
4. The purpose of the interpretive story is to inspire and provoke people to broaden their horizons.
5. Interpretation should present a complete theme or thesis and address the whole person.
6. Interpretation for children, teenagers and seniors – when these comprise uniform groups – should follow fundamentally different approaches.
7. Every place has a history. Interpreters can bring the past alive to make the present more enjoyable and the future more meaningful.
8. High technology can reveal the world in exciting new ways. However, incorporating this technology into the interpretive program must be done with foresight and care.
9. Interpreters must concern themselves with the quantity and quality (selection and accuracy) of information presented. Focused, well-researched interpretation will be more powerful than a longer discourse.
10. Before applying the arts in interpretation, the interpreter must be familiar with basic communication techniques. Quality interpretation depends on the interpreter's knowledge and skills, which should be developed continually.
11. Interpretive writing should address what readers would like to know, with the authority and wisdom and the humility and care that comes with it.
12. The overall interpretive program must be capable of attracting support – financial, volunteer, political, administrative – whatever support is needed for the program to flourish.
13. Interpretation should instill in people the ability and the desire, to sense the beauty in their surroundings – to provide spiritual uplift and to encourage resource preservation.
14. Interpreters can promote optimal experiences through intentional and thoughtful program and facility design.
15. Passion is the essential ingredient for powerful and effective interpretation – passion for the resource and for those people who come to be inspired by the same.

(Beck and Cable 2002, 8)

APPENDIX C: TRAIL INTERPRETATION CHECKLIST

1. Arrive early. Get to the starting point ahead of time to assure people they are in the right place.
2. Get to know your participants. Use the time before the tour starts to find out about participants' interests and make sure they are prepared for the activity. Continue these informal conversations along the way.
3. Start on time.
4. Set expectations. Let people know the distance they will cover, what they will see and how long the walk will take.
5. Make your first stop within sight of the starting point. Later arrivals will be able to catch up with the group.
6. Stay in the lead.
7. Keep visitors comfortable. Be mindful of sun or wind when selecting stops.
8. Go past the feature you wish to talk about, then move to the middle of the group so that everyone can see it. This is important for managing large groups.
9. Use teachable moments. Take advantage of sightings of birds, insects, or other wildlife.
10. Speak loudly but use inflection. Your voice will not carry as well outdoors as it does indoors.
11. Return on time. Whenever possible bring people back to the beginning point – physically and thematically.
12. Carry a “gimmick” or prop bag. Bring equipment to help “see better,” such as field guides and found objects. You can elicit the assistance of a participant who may otherwise wander or lose interest.
13. Involve the group. Use questions and discussion as much as telling. Engage the senses to fully experience rather than only talk about concepts.
14. Conclude the walk. Do not allow people to drift away. Tie the walk back to the theme and conclude.
15. Make certain that your activity does not damage or stress the resource.

(Regnier et al. 1994, 74)

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