# Heartland Network Inventory & Monitoring Program

# Communication Plan

Developed by:
NPS Office of Education and Outreach
and Colorado State University
Revised July, 2007

Heartland Network
Natural Resource Monitoring

Table of Contents

Introduction ..... 1
Problem Statement ..... 1
Project Goals ..... 1
Objectives ..... 2
Our Approach ..... 2
Interpretive Equation ..... 3
Familiarization & Scoping ..... 4
Knowledge of the Resource ..... 4
Inventory & Monitoring Program ..... 4
Heartland Network Inventory & Monitoring Program ..... 4
Heartland Network Parks ..... 4
Evaluation of Existing Communication Methods ..... 4
Knowledge of the Audience ..... 5
Internal Audience Analysis ..... 5
External Audience Analysis ..... 6
Inter- and Intra-Agency ..... 7
Message Development ..... 7
Statement of Significance ..... 7
The Anchor Concept: Connecting Cultural and Natural Resources ..... 7
Product Development ..... 8
Evaluation ..... 9
Formative Evaluation ..... 9
Summative Evaluation ..... 10
Appendix A: Park Staff Survey ..... 11
Appendix B ..... 13
Logo ..... 15
Website Recommendations ..... 16
Appendix C: Communication Products ..... 21
Appendix D: Matrix of Interpretive Product Options ..... 55

List of Figures

Figure 1. The Information Iceberg, linking the gap between good scientific information and the need for a simple, clear public message. ..... 3
Figure 2. Project concept map guiding message development ..... 8

# Introduction

## Problem Statement

The Heartland I&M Network and Prairie Cluster Prototype Monitoring Program (HTLN) is in need of strategies to convey information about the purposes and objectives of the Inventory & Monitoring (I&M) Program as a whole, its inventory and monitoring activities, research results and trends, and examples of successes in providing critical information for adaptive management decisions. Before the initiation of this project, no comprehensive plan existed to disseminate this information to staff and visitors for the 15 network parks, National Park Service (NPS) divisions, other federal agencies, and partners of the program and parks. This project addresses the need for developing clear and concise messages about the efficacy of the I&M Program for diverse audiences with various levels of interest and expertise.

### A diverse resource base

The 15-park Heartland Network encompasses:

- A wide geographic area across 8 states (approximately 500,000 square miles)
- Diverse ecological regions
- A varied set of missions and enabling legislature
- A blend of cultural and natural resources
- Large riverway parks with significant recreational resources
- A diverse population of park visitors

### The I&M Program serves a diverse constituency

| Internal Audience | External Audience |
|---|---|
| 1. NPS staff | 1. Visitors |
| 2. NPS divisions | 2. General public |
| 3. NPS decision makers | 3. NPS partners |
| 4. Federal agencies | |
| 5. Federal government | |

## Project Goals

Central goals of this project were to raise awareness and communicate the efforts and findings of the HTLN I&M Program to both internal and external audiences by:

- Engendering support for the I&M Program and Vital Signs monitoring by promoting its benefits;
- Identifying and conceptualizing messages, products, and strategies to facilitate communication between the HTLN and its audiences;
- Enhancing communication between and within parks in the HTLN (e.g. distribution of e-newsletter);
- Assisting the transfer of critical information between I&M scientists and the non-scientific community.

## Objectives

To achieve the project goals, three objectives were identified.

1. Raise awareness of and promote the I&M Program in general and the HTLN in particular (activities and benefits) to NPS staff, volunteers, partners, and concessionaires. This was accomplished through the development of interpretive products identified by this plan. Audience analysis was used to determine which media will be most useful to specific audiences. This communication plan will form the foundation for long-range planning efforts conducted by HTLN staff.
2. Supply a matrix of interpretive product options (print publications, electronic media, signage, etc.) to communicate I&M Program's purpose and findings to a variety of audiences. These product options serve as a template covering general natural resource issues and priorities that could be applied to specific parks/groups of parks. Products relate to the NRPP Interpretive Component guidelines where applicable.
3. Provide guidance to scientists about interpretative techniques so that they may more effectively communicate the significance of their research to a wider audience (park managers, interpreters, public, etc.) This was accomplished through a training session at the HTLN annual meeting by staff from the Eppley Institute.

The communication plan focuses on developing example products that may be used to raise awareness of the I&M Program and the HTLN and a matrix of products and services that could be implemented to communicate HTLN resource issues to a broad audience.

## Our Approach

HTLN needs strategies to convey information about:

- Purposes and objectives of the I&M Program
- Inventory and monitoring activities
- Findings on status and trends
- Successes in providing critical information for adaptive management decisions

The gap between good scientific information and the need for a simple, clear message for the non-scientific community must be filled by information obtained through expert recommendation (Figure 1). These recommendations can be used to develop outreach products and strategies.

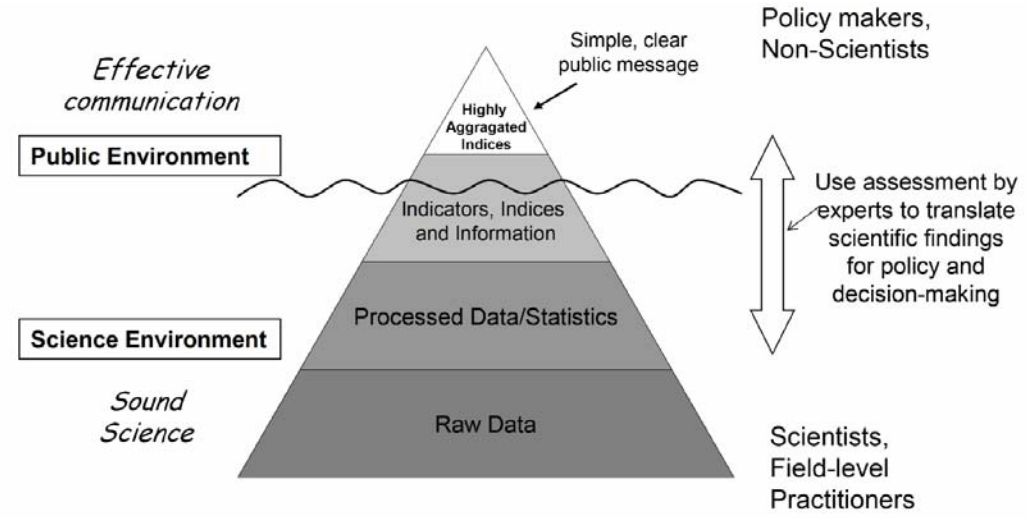



**Figure 1. The Information Iceberg – linking the gap between good scientific information and simple, clear public messages. (From Steve Fancy)**

To develop this communication plan, the HTLN contracted with Colorado State University (CSU), a Cooperative Ecosystems Studies Unit. The CSU project team developed strategies for delivering messages to target audiences at parks and for the HTLN as a whole. Strategies include basic information on the type of media, method of presentation or product. The strategies developed were meant to be easily implemented and should not present a burden on park personnel or park budget. Strategies included out-sourcing product development and construction for displays, brochures, videos, or other products.

The interpretive products and programs were developed to meet the requirements of the competencies described in the **NPS Interpretive Development Program** (the national standards for interpretation set in ten benchmark areas of interpretive work). The national standard rubric for each competency is used by peer review certifiers in measuring whether a specific product demonstrates the elements of success in that area at a point in time.

All interpretive products and programs developed adhere to the guidelines of the **NPS Director's Order 6** (guidelines for NPS Interpretation). Additionally, all products and programs developed conform to the format specified by the **Natural Resource Preservation Program (NRPP)**. This funding source requires that requests for more than $100,000 *must include* a separate **Interpretive Component** as part of the project statement in the PMIS justification data field. Development of communication strategies were based on these official standards and are intended to generate products and capacities to create additional communications projects which support the service standards.

*Interpretive Equation*

The initial task in this communication project was to develop our knowledge of the I&M Program, the Heartland Network and its audiences. The second task focused on raising awareness of the HTLN through the development of interpretive themes and messages. The NPS has developed a philosophical equation to guide interpreters in the facilitation of interpretive opportunities.

Interpretive Equation: **(Kr + Ka) x AT = IO**

The equation states that knowledge of the resource (Kr) combined with knowledge of the audience (Ka) in addition to application of an appropriate technique (AT), leads to interpretive opportunities (IO). This idea served as a guide for the development of example products for this communication plan.

## Familiarization & Scoping

In order to create effective communication products, the CSU team acquainted themselves with basic information about the who, what and where of the service-wide I&M Program and the Heartland Network.

### Knowledge of the Resource

*Inventory & Monitoring Program*

The team began by researching the service-wide goals and objectives of the I&M Program via its intra- and internet sites and brochures such as "*Natural resource inventories in the national parks - Revealing America's remarkable natural heritage*." Documents pertaining to the Natural Resource Challenge were studied to place the significance of the I&M data collection and monitoring in context with the Park Service's overall mission and goals. Interviews with Steve Fancy, National Monitoring Program Coordinator and John Gross, Intermountain Ecologist, enhanced this search and provided direction and guidance for the development of communication products.

*Heartland Network Inventory & Monitoring Program*

With greater comprehension of the I&M Program as a whole, the team focused on the Heartland Network to determine its purpose and objectives, identify priority resource issues, and define the image HTLN wanted to present. The team reviewed the network's website, read through its Phase III report, brochure, newsletters, interpretive media and other materials (i.e. the roadshow presentation, interpretive panels, etc.).

*Heartland Network Parks*

Each team member researched 3-4 network parks in detail by reviewing park websites, print materials, and sections of the Phase III report. A debriefing was held to apprise the team of each park's enabling legislation, natural and cultural resources and priority issues. The team noted that while each of these parks had been identified as having significant natural resources, many of them had a stronger focus on their cultural and historical resources. Thus, it was important to emphasize the link between the natural and cultural when presenting HTLN information, particularly to an internal audience.

*Evaluation of Existing Communication Methods*

The team evaluated the current communications methods employed by the HTLN to learn what type of information is being disseminated, who is receiving it, how it is being delivered and what barriers existed. The e-newsletter, brochure, and website were analyzed for content, design and their potential to reach appropriate audiences. Though a wealth of information existed, it was not always reaching the expected audience, and it was not always

presented in a format that would be user-friendly to a variety of audiences. There were some instances where design could help increase appeal and attention to information.

In addition to a critique of HTLN communication efforts, the team compiled examples of existing communication strategies employed by other networks (brochures, newsletters, and PowerPoint presentations) and used this information to identify successful communication efforts of other networks as well as between NPS divisions.

**Knowledge of the Audience**

Knowledge of the audience is essential to the development of any successful communication plan and related products. Such knowledge enables the creation of appropriate themes and messages targeted at specific audiences.

The first step was to determine who the primary internal and external audiences were. The division of audiences aided in determining appropriate messages and amount of detail. The team produced the following list of internal, external and inter- and intra-agency audiences. Due to requests by the HTLN, this list was weighted heavily toward internal audiences; staff within all levels and offices of the parks should have at least a basic knowledge or awareness of the I&M Program and the HTLN.

The target internal audiences for HTLN communications include:

- Law enforcement rangers
- Maintenance/facility staff
- Park managers
- Superintendents
- Administrative staff
- Interpreters/Historians
- Scientists
- Volunteers
- Seasonal staff

External audiences include:

- Local residents/communities adjacent to the park
- School groups (K-12 and university level, particularly CESUs)
- Diverse cultural audiences
- Tourists (both local and out-of-state)
- Political representatives
- Special interest groups (Sierra Club, etc.)
- Media
- Inter- and Intra-agency offices

*Internal Audience Analysis*

After establishing a list of potential audiences, it was determined that park staff would be the primary audience. A five-question scoping survey was delivered via email to each staff member within all 15 network parks (See Appendix A). The survey responses provided background information about who the internal audiences were, what roles they play in the parks, how much they knew about the I&M Program and the HTLN, and where they got their

information. Staff were also asked about who visits their parks, how they saw the I&M Program relating to their jobs, how it could benefit them, and techniques they felt would be effective in publicizing the program to staff and the public.

The survey generated at least one response from each of the 15 parks. Office assistants and park rangers, biologists, and facility supervisors were among the respondents. The level of knowledge about the HTLN was not dependent upon job type; for example, some maintenance workers were better acquainted with the network than some rangers. Those who had some familiarity with the HTLN were positive and for the most part, appreciative of the additional help and funding in completing projects or managing resources.

Some of the comments from individuals familiar with the HTLN include:

> *We've been able to fund and complete several projects that we would not have been able to fund over the past few years.* - Biologist

> *It makes lots of sense to have this material at hand for reference and as a guide for those of us who are doing the 'educating of the visitor.'* – Park Ranger

> *I know they are a group of NPS employees that travel to many parks to inventory and monitor aquatic life, endangered species, etc. I have not received info lately.* – Maintenance Supervisor.

Those who knew about I&M Program and the HTLN said they had heard about it from a variety of sources including emails, staff meetings, encounters with I&M staff, brochures, and conversations with supervisors. Many stated that they did not have a lot of time to read through reports and wanted information presented in an easily digestible format.

For some, the survey was the first they had heard about the I&M Program or the HTLN. A few asked for more details and a web address to get further information.

> *I do not know all the inner working of this program, nor have time for the details. A short synopsis would do.* - Supervisory Park Ranger

> *I have not received any info about the HTLN.* – Hydrologic Technician

> *Am not familiar with HTLN IMP – I've worked here 26 years and do try to keep up.* – Facility Management Specialist

*External Audience Analysis*

While an in-depth analysis of the external audience was not possible, the survey provided some insight into those who visit the HTLN parks. According to staff responses, it appears that visitors are often locals seeking a chance to get out and away, families and friends who recreate in the scenic rivers, civil war buffs at battlefields, and school groups on field trips.

> *Most of the visitation is local. People looking for some respite, quiet, outdoor events, and nature and wildlife viewing.* - Biologist

*The general public, tourists, and the school kids from within 75 to 100 miles.* – Park Ranger

*Inter- and Intra-Agency*

Though the project team recognized this group as an important audience for HTLN messages, an audience analysis was not within the scope of work. Initial interpretive items that may be appropriate for this group can be found in the matrix in Appendix C.

## Message Development

The initial task of this communication plan was to develop knowledge of HTLN resources and audiences. This knowledge base provided the foundation for crafting messages to raise awareness about the HTLN and its role in providing information for management decisions. A statement of significance, anchor concept, and related themes were created to guide the development of services and products.

### Statement of Significance

The project team identified the need for a statement of significance which would aptly represent the goals and mission of the HTLN and which could be used as a guiding document in the team's development of communication products. This statement was fashioned from language found in the Phase III report and I&M Program goals.

> *The purpose of the HTLN is to collaboratively develop and conduct scientifically credible inventories and long-term monitoring of park "vital signs" and to distribute this information for use by park staff, partners, and the public, enhancing understanding which leads to sound decision making in the preservation of natural resources and cultural history held in trust by the NPS.*

The statement of significance articulates the HTLN's purpose and can serve as a foundation for communication about the program.

### The Anchor Concept: Connecting Cultural and Natural Resources

The fifteen HTLN parks represent a broad spectrum of natural resource and cultural values and include sites commemorating civil war battlegrounds, Native Americans, U.S. presidents, and historical figures. Message development incorporated both the significance of cultural resources and an emphasis on the natural resources that the HTLN is inventorying and monitoring. An anchor concept was constructed to articulate a clear link between natural resources and cultural heritage. The anchor concept is:

*The Heartland Network is protecting the habitat of our heritage.*

This concept was used to guide the messages delivered through different communication strategies, to link park-level themes and issues, and to spread the message of the benefit and successes of the HTLN. Figure 2 is a concept map demonstrating the communications goals: 1) general awareness of the I&M Program and the HTLN, and 2) themes appropriate for specific issues (that can further be broken down into topics appropriate for groups of network parks).

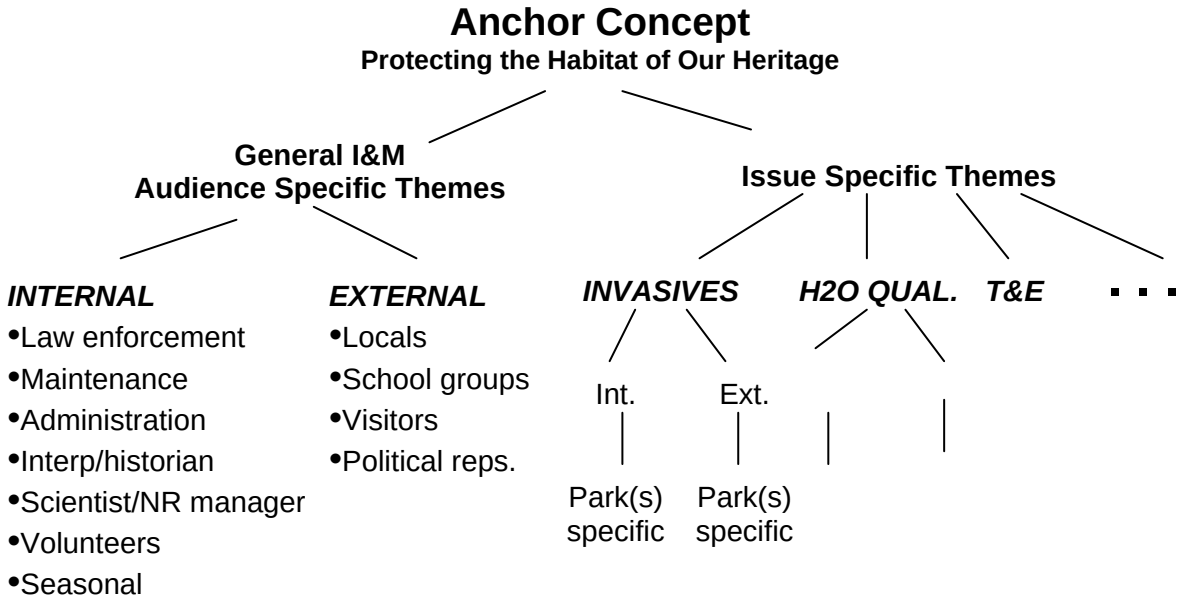



**Figure 2. Project concept map guiding message development**

## Product Development

Based on the team's knowledge of the resources and audiences, appropriate techniques were identified and developed to most effectively communicate HTLN messages and ultimately result in an interpretive opportunity. Interpretive products that the team developed and implemented are outlined in Appendices B and C. These products include:

- HTLN logo
- Brochure revision
- Five radio spots covering various issues
- QuickTime movie about general HTLN information
- Roadshow PowerPoint revision
- Newsletter template
- Fact sheet
- Folder
- Notecard template
- Two posters
- Letterhead and facsimile
- Website recommendations
- Native seed packets
- T-shirts
- Press release

A list of potential products (Appendix D) is outlined for the purpose of garnering support and funding for a specific interpretive product.

- Wayside exhibit
- Junior ranger component
- Patch
- Bird checklist
- Bookmarks
- Traveling exhibit design template
- Education curriculum

Each product in the appendices states the intended audience. These matrices list products by: 1) interpretive intent and critical resource issues related to this individual service, 2) media and methods, 3) set-up and cost, 4) vendor information, and 5) evaluation.

Other products that may be potentially useful in conveying HTLN messages, but are not in the matrices, are listed below.

- Listserv
- *Interpreter* article
- Curriculum development
- Volunteer days
- Water bottle
- Flag pen
- Playing cards
- Bumper sticker
- Carabiner
- Coffee mug
- Croakie
- Hankerchief
- First-aid pack
- Compass/Thermometer
- Swiss Army knife
- Screensavers
- Buttons
- Pencils
- Flashlight
- Banner
- Touch screen kiosk
- Baseball hat
- Post-it notes
- Coloring book
- Puzzle
- Audio driving tour

## Evaluation

How does an organization know if it was successful in communicating its messages? Evaluation is the only way to identify successes as well as potential failures in achieving the goals of a communication plan and to make appropriate changes. Once it is understood what works and what does not, messages and products can be tailored accordingly. This section is dedicated to explaining evaluation techniques that have been used throughout the planning process.

Evaluation should be a continuous process during the life of a communication program. Two types of evaluation are common in communication planning – formative and summative. Formative evaluation occurs during the development of a program or product, and is explained for this plan below. Summative evaluation should occur at the end of a project to assess its success at meeting objectives. Ideas pertaining to summative evaluation of this communication plan are provided below.

### Formative Evaluation

During development of this communication plan, formative evaluation was used to provide early feedback to make improvements in product design. Such an evaluation enabled the team to assess whether products could reach their targeted goals and objectives, what constraints might be faced upon implementation, and whether the products were targeted for the appropriate audiences. In other words, the goal of formative evaluation was to detect ineffective strategies before beginning intensive efforts to complete product design. Some basic forms of formative evaluation were built into the project inherently. At a team level, the four team members were able to bounce ideas off of each other and review materials that

each had developed. Many of the products were evaluated during their development by feedback from various other individuals and groups as well including:

- Mike Whatley, Branch Chief of the NRPC Office of Education and Outreach
- Colorado State University students
- Superintendents of HTLN parks, NR managers, and HTLN staff at the Annual Meeting
- Roberta D'Amico, Fire Communications and Education National Program Lead and Tina Boehle, Fire Communications and Education Specialist of the National Wildfire Coordinating Group
- Beth Barrie, PhD – The Eppley Institute
- The NRPC Outreach Technical Advisory Group
- Sunita Hilton, PhD – Assistant Professor in Environmental Communications, CSU
- Paul Caputo, Art & Publications Director, National Association for Interpretation
- Sherry Middlemis-Brown, Biologist, Midwest Region
- Mike DeBacker, Program Coordinator, Prairie Cluster & Heartland Network

**Summative Evaluation**

Summative evaluation helps to assess program impacts and to determine needs for continuation or expansion of the plan. Summative evaluation is beyond the scope of this project, but it is strongly suggested that the HTLN follow program and product implementation with an additional evaluation. An overall evaluation of the communication campaign is a necessary tool in determining whether the HTLN messages were received by audiences. Some methods that may be useful:

- A review of the number of hits to the website
- For internal audiences, a second mailing of the email survey (Template of first survey can be found in Appendix D)
- A review of products at the next annual meeting.
- A log of responses from other I&M Networks.
- A comprehensive report presenting evaluative materials for each program or product (suggestions for these are contained in the matrices).
- A basic count of the number of routes through which HTLN messages were sent (i.e. the number of programs or products developed and implemented).

An exhaustive evaluation does not seem feasible, but if time and/or money would allow, appropriate techniques might include surveys, interviews, or focus groups of park staff, visitors, local residents, and other stakeholders.

# Appendix A

## Park Staff Survey

_____ Park Staff,

Earlier this month you may have been given a heads up about the Heartland Networks project to develop a communications plan to increase awareness of the Inventory and Monitoring Program. *(A copy of this introductory letter is attached)*. I am a part of the team from the NRPC Office of Outreach & Education and Colorado State University CESU working on this plan. We are seeking input from all park staff so that we can develop a plan that incorporates your ideas about how to raise awareness of the I&M Program and how to communicate its stories.

Below, you will find a short questionnaire – you can simply fill this out by hitting reply, typing in your responses and then sending it back to me. Your comments will provide me with valuable information to bring to my team in determining the most useful communications plan for you and your park. I am also interested in talking with some of the park staff over the phone, so you may be hearing from me in the next few weeks.

Please feel free to expand on the questionnaire below, any information you would be willing to share would be greatly appreciated. This is your chance to provide us with valuable input on how we can develop a plan that will benefit you!

Thanks for your time.

Sincerely,

1. Tell me what you think is unique about your park, and what your role is . . .

2. Who visits your park? What are these people like, i.e. why do they come, what questions do they ask/information are they seeking?

3. What do you know about the Heartland Network (HTLN) Inventory & Monitoring Program? Have you received information about HTLN and how?

4. Do you see any benefits of the I&M Program to your work? How could the findings of the I&M Program be helpful/relevant to your work?

5. How would you promote I&M's story to other staff members and visitors?

June 2, 2005

Dear _____,

During the next few months, staff at Heartland Network (HTLN) parks will be contacted to provide input regarding the role and significance of the NPS' Inventory and Monitoring Program (I&M).

HTLN has recognized a need to raise overall awareness about the I&M Program, the network's role and activities in I&M and research results and trends. Currently, no comprehensive plan exists to disseminate this information to staff and visitors of the 15 network parks. As such, HTLN has contracted with NRPC Office of Outreach and Education (OEO) and Colorado State University CESU (CSU) to address this need.

The goal of this project is to engender support for the I&M program. This will be accomplished by:

- promoting it's benefits
- creating messages, products, and strategies to aid in communication between the HTLN and it's audiences
- enhancing communication about I&M related topics between and within Network parks and
- assisting in the transfer of information between I&M scientists and the non-scientific community.

We encourage you to inform your staff about this project as the CSU team will be contacting a broad spectrum of employees at each of the Network parks through emails, phone calls, and/or written material.

Your input and support are critical to the success of this project. We look forward to working with you and will be contacting you in the near future.

Sincerely,

# Appendix B

Establishing an Identity: Logo, Website Recommendations, Fact Sheet, Press Release & Newsletter

**Logo**

# Website Recommendations

1. MONITORING PROJECTS link has helpful background information organized by subject. This should be done for all other pages (organize by subject area). Include photos of research and public information sheets.

2. CONTACTS – Name and area (specialty) are currently included. Add a picture and short bio including more detail about research projects, interests, etc.

3. INVENTORY – "Inventory product status snapshot file" is impossible to read. Reports found at this link in the Biodiversity data store are difficult to find. A subject-oriented page (similar to the monitoring page) is recommended.

4. ARCHIVES – Is this data old and outdated? If not, then why isn't it linked through inventory & monitoring? If it is, why is it necessary?

5. The three tabs of INVENTORY, MONITORING & ARCHIVES make it hard to find data on a specific species/subject when you have to search around in all 3.

6. EDUCATION & OUTREACH – seems to be missing an introduction or background in addition to links (which could be helped by having a short description). Pictures could be used to make it more enticing.

7. Add a photo file; a place where photos from research can be linked to the informational piece.

National Park Service
U.S. Department of the Interior

Heartland Network
Inventory and Monitoring Program

c/o Wilson's Creek National Battlefield
6424 West Farm Road 182
Republic, MO 65738

Phone: 417-732-6438
Fax: 417-732-7660

# Heartland Network Inventory and Monitoring Program Fact Sheet

- **Contact Information:** Mike DeBacker, Program Coordinator
  Mike_DeBacker@nps.gov

- **What:** The National Park Service (NPS) has organized parks with significant natural resources into 32 networks linked by geography and shared natural resource characteristics as part of the nationwide Inventory and Monitoring program of the NPS. These networks are charged with creating inventories of their species and natural features as well as monitoring trends and issues in order to make sound management decisions.

- **When:** In 1994, the NPS began Long-Term Ecological Monitoring and The Prairie Cluster Prototype was set into place. This prototype was integrated with the Heartland Network in 2001, The Heartland Network Inventory and Monitoring Program received funds and began conducting inventories and monitoring activities at its 15 park units.

- **Where: The Heartland Network Inventory and Monitoring Program** is composed of 15 National Park Service (NPS) units in eight Midwestern states. These parks contain a wide variety of natural and cultural resources. Tallgrass prairies, oak savannas, hot springs and scenic riverways provide the backdrop for sites focused on commemorating civil war battlefields, Native American heritage, westward expansion, and our U.S. Presidents.

- **Why:** The I&M program enhances the protection, restoration and maintenance of natural ecosystems by bridging the gap between science and management. Within the Heartland Network, a multi- disciplinary team of scientists develops and conducts scientifically credible inventories and long- term monitoring of park "vital signs" and distributes this information for use by park staff, partners, and the public. Greater efficiency is achieved through shared staff and funding as these core groups of professionals augment work done by individual park staff. Through this type of integration and partnership, network parks are able to accomplish more than a single park could on its own.

www.nature.nps.gov/im/units/htln

Heartland Network
Natural Resource Monitoring

National Park Service
U.S. Department of the Interior

Heartland Network
Inventory and Monitoring Program

c/o Wilson's Creek National Battlefield
6424 West Farm Road 182
Republic, MO 65738

Phone: 417-732-6438
Fax: 417-732-7660

**FOR IMMEDIATE RELEASE:**

**Contact:**
**Title**
**National Park Service**

## From Data to Decisions—the Heartland Network Inventory and Monitoring Program Serves the National Park Service

What do trail building at Effigy Mounds and prairie restoration at Wilson's Creek have in common? Both projects relied on information gathered through the Heartland Network (HTLN) Inventory and Monitoring Program to help plan expansion of Effigy Mound's trail system and restore the cultural landscape for Wilson's Creek. HTLN is part of the nationwide Inventory & Monitoring (I&M) program of the National Park Service (NPS). I&M exists to help units collect sound scientific data on their natural resource priorities and provides for better protection, restoration and maintenance of the natural ecosystems of park service lands.

The NPS has organized its parks with significant natural resources into 32 networks linked by geography and shared natural resource characteristics. HTLN is composed of 15 National Park Service (NPS) units in eight Midwestern states. These parks contain a wide variety of natural and cultural resources including sites focused on commemorating civil war battlefields, Native American heritage, westward expansion, and our U.S. Presidents. The Network is charged with creating inventories of its species and natural features as well as monitoring trends and issues in order to make sound management decisions. Critical inventories help park managers understand the natural resources in their care while monitoring programs help them understand meaningful change in natural systems and to respond accordingly. The Heartland Network helps to link natural and cultural resources by protecting the habitat of our history.

The I&M program bridges the gap between science and management with a third of its efforts aimed at making information accessible. Each network of parks, such as Heartland, has its own multi- disciplinary team of scientists, support personnel, and seasonal field technicians whose system of online databases and reports make information and research results available to all. Greater efficiency is achieved through shared staff and funding as these core groups of professionals augment work done by individual park staff. Through this type of integration and partnership, network parks are able to accomplish more than a single park could on its own.

The mission of the Heartland Network is to collaboratively develop and conduct scientifically credible inventories and long- term monitoring of park "vital signs" and to distribute this information for use by park staff, partners, and the public, thus enhancing understanding which leads to sound decision making in the preservation of natural resources and cultural history held in trust by the National Park Service.

www.nature.nps.gov/im/units/htln/

####

Heartland Network
Natural Resource Monitoring

*protecting the habitat of our heritage*

# The Weather Vane

The Newsletter of the Heartland Network Natural Resource Monitoring Program

Volume 1 / Number 3 – September 2005


## Mike's message from the I&M World

Greetings – please welcome *The Weather Vane*, the latest reincarnation of our newsletter. The new masthead and format is one of several recommendations from our cooperator in developing effective tools to communicate the value of the I&M program to a diverse constituency. You will find in the newsletter descriptions of additional products from our work with Colorado State University to better interpret monitoring results to park managers, decision makers and the general public. We've also expanded the mailing list for *The Weather Vane* – if you prefer not to receive our newsletter in the future, please let me know (HTLN staff are exempt from this offer and must endure reading this rag).

The focus of this edition is the Heartland Network annual meeting. We covered a lot of ground in two days. One notable accomplishment of the meeting was approval of a network staffing plan to make our program fully operational (see back for details). Thank you everyone who participated. Feedback is welcomed, especially thoughts on how the next meeting could be even better. Collectively we're working to create an excellent monitoring program that will benefit everyone.

- Mike DeBacker


*The Weather Vane* is published by the Heartland Network Inventory and Monitoring Program of the National Park Service. Visit www.nps.gov or http://www1.nature.nps.gov/im/units/htln/ for more information.

## HTLN Annual Meeting – Better Than Ever

Representatives from network parks and partners from Colorado State University and the Eppley Institute attended the annual meeting hosted by Hopewell Cultural NHP. The meeting brought the Technical Committee (TC) of natural resource managers and Board of Directors (BOD), representing all 15 park superintendents, together to review last year's accomplishments and provide guidance for next year's activities.

Tuesday morning integrated updates on monitoring projects and short presentations on data management, sample design, and statistical power analysis. Tuesday afternoon had the TC and BOD sailing into uncharted waters for I&M networks. It began with looking at how the network can fit into Resource Stewardship Planning. We found significant connection between the process steps and network expertise, which can provide status and trend information for adaptive management to achieve desired condition. Additionally, network scientists can assist in developing comprehensive strategic plans.

Sara Melena and Tawnya Ernst of Colorado State University updated us on the communication / interpretation plan. We viewed several products in rough draft, including a video clip and a slide show about the I&M program and the network, examples of posters, and visual identity concepts. Sara and Tawnya will use the feedback from the group during the final phase of the project. As part of the project Beth Barrie of the Eppley Institute offered interpretive techniques training to close the day.

After early morning birding at Hopeton Earthworks, the group settled into the network business on Wednesday. At mid-day, participants received a tour of Hopewell Culture NHP. The BOD met while the TC members attended workshops. Minutes of the BOD meeting have been distributed and will be available on our website soon.

Steve Miller and the Board of Directors wrapped up the meeting with their thanks to the hosts, and to the superintendents going off of the BOD.

### Almost Newsworthy

### Lost-N-Found

Network supported monitoring of endangered hellbenders in OZAR found a number of individuals that had never been captured. The species population is so low that the new individuals are a truly significant find.

### Partnering

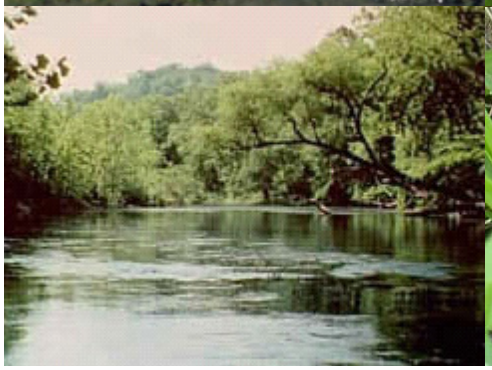
A network funded project to determine the source of fecal contaminants will provide crucial information for OZAR's legal action against the source of contamination. The park managers recognized the problem and the best approach for resolving it and brought the network in to help.

### Breaking Records

Network monitoring found a record number of prairie fringed orchids at PIPE. This makes three years of record high numbers, suggesting successful conservation of the species at PIPE.

## When will the HTLN be at your park?

| | |
|---|---|
| September 6 - 9 | Vegetation community monitoring at GWCA (crew: Karola Mlekush and Pam Lucas) |
| | Invasive, non native plant pilot monitoring project at GWCA (crew: Craig Young) |
| September 12 -17 | Vegetation community monitoring at EFMO and HEHO (crew: Alicia Sasseen, Craig Young, Karola Mlekush and Pam Lucas) |
| September 19 - 22 | Fish community monitoring at PIPE (crew: David Peitz crew and Hope Dodd) |
| October 3 - 9 | Vegetation community monitoring at TAPR (crew: Alicia Sasseen, Karola Mlekush, Craig Young and Pam Lucas) |
| | Fish community monitoring at TAPR (crew: Dave Peitz crew, Hope Dodd and David Bowles) |
| October 12 - 14 | Fish community monitoring at BUFF (crew: David Bowles, Hope Dodd, Jan Hinsey and Shawn Hodges) |
| October 17 - 18 | Measuring fire fuels at WICR (crew: Karola Mlekush and Pam Lucas) |
| October 18 - 20 | Fish community monitoring at BUFF (crew: Hope Dodd, Jan Hinsey and Shawn Hodges) |
| | Spring invertebrate monitoring at OZAR (crew: David Bowles and Jessica Luraas) |
| October 25 - 27 | Fish community monitoring at BUFF (crew: Hope Dodd, David Bowles, Jan Hinsey and Shawn Hodges) |
| November 2 - 4 | Fish community monitoring at BUFF (crew: David Bowles, Hope Dodd, Jan Hinsey and Shawn Hodges) |
| November 15 - 18 | Fish community monitoring at OZAR (crew: David Bowles, Hope Dodd and Jessica Luraas) |
| November 21 – 22 | Fish community monitoring at OZAR (crew: David Bowles, Hope Dodd and Jessica Luraas) |
| November 29 - 30 | Fish community monitoring at OZAR (crew: David Bowles, Hope Dodd and Jessica Luraas) |

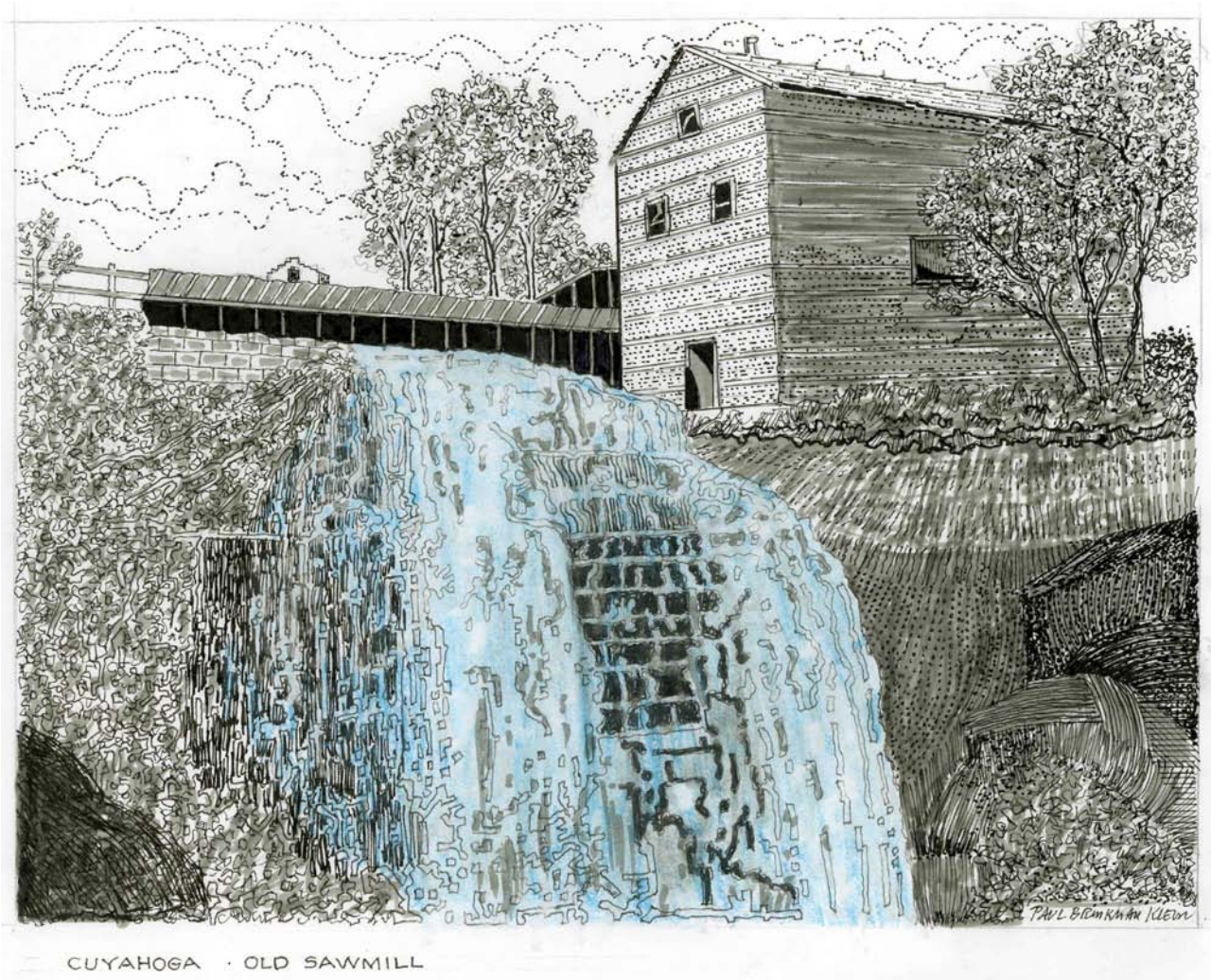


### Final Thoughts

The BOD acted on the recommendation of the TC and approved a staffing plan for the network. The new plan restructures the network to provide more field level staff to accomplish data collection and processing, while providing greater flexibility to adapt to a dynamic fiscal environment. The new staffing plan meets the 'fixed costs' standards of the Midwest Region. Through further deliberation of the staffing plan, the BOD also chose to retain the term data manager position to provide support for development of database management systems for newly implemented monitoring projects.

# Appendix C

Communication Products



| Product | Audience<br>*Message* | Purpose | Issue | Cost/unit | Page number |
|---|---|---|---|---|---|
| HTLN Brochure | Internal<br>External | Awareness<br>Benefits | | Printing | 25 |
| | *HTLN gathers credible scientific information and monitors resource vital signs and make this information available to park personnel so that they can make sound management decisions.* | | | | |
| Folder | Internal<br>External | Awareness | | $1/folder | 27 |
| | *Conveying the identity and building credibility of HTLN professionalism.* | | | | |
| Native Plant Cards | External | Awareness | Native habitat | $1.50/packet | 31 |
| | *The HTLN is restoring native plant species.* | | | | |
| Posters | Internal | Awareness | N/A | $1/poster | 39 |
| | *The HTLN is protecting the habitat of our heritage.* | | | | |
| QuickTime Movie | Internal<br>External | Awareness<br>Issues<br>Benefits | The interdependence of cultural and natural resources | $4-5/DVD | 41 |
| | *The fifteen parks within the Heartland Network protect significant cultural and natural resources. HTLN gathers credible scientific information and monitors resource vital signs and makes this information available to park personnel so that they can make sound management decisions.* | | | | |

| Product | Audience<br>*Message* | Purpose | Issue | Cost/unit | Page number |
|---|---|---|---|---|---|
| Radio Spots | Internal<br>External | Awareness<br>Issues<br>Benefits | Water quality<br>Invasive species<br>Threatened & Endangered species | $50/studio hour | 43 |
| | *HTLN: The fifteen parks within the Heartland Network protect significant cultural and natural resources. HTLN gathers credible scientific information and monitors resource vital signs and makes this information available to park personnel so that they can make sound management decisions to protect the cultural and natural resources for future generations.*<br>*Natural Resource Challenge: Legislation passed in Congress enables National Park Service managers to inventory park resources, monitor changes, and identify trends, enabling them to make scientifically sound decisions that ensure the future health of the parks.*<br>*Water Quality: The HTLN is monitoring water quality and the species that depend on it.*<br>*Invasive Species: Natural habitats and cultural histories are threatened by the spread of invasive plant and animal species.*<br>*Threatened & Endangered Species: Radio spots could be developed to focus broadly on the interdependence and connectedness of all species or on particular species, for example a radio spot has been developed for the Ozark Hellbender.* | | | | |
| Roadshow | Internal | Awareness<br>Benefits | Park-specific issues | N/A | 49 |
| | *The HTLN is a source for current information about the status Park-specific issues and trends of park-specific natural resources.* | | | | |
| Traveling Exhibit | External | Awareness | Benefits of science in management of resources | | 51 |
| | *HTLN gathers credible scientific information and monitors resource vital signs and makes this information available to managers so that they can make sound management decisions. The HTLN is engaged in a variety of activities that benefit network parks.* | | | | |

**Interpretive Intent:**

The National Association for Interpretation defines interpretation as: "a communication process that forges emotional and intellectual connections between the interests of the audience and the inherent meanings in the resource."

Interpretation seeks to create meaning and connectedness between individuals and the environment through a variety of media. Interpretation is a process – dynamic, flexible, and goal- driven . . . Done well, resources flourish, done poorly, resources perish.

These interpretive products support the mission and goals of the National Park Service and the Heartland Network.

Resource managers can use interpretation as a tool to help people understand the processes and policies of management objectives. Interpretive products can increase visitor enjoyment and maybe most importantly increase support for Heartland Network and park programs and activities.

Interpretive products are structured to evoke emotional, behavioral, and psychological responses. The interpretive intent of the products is to present information in an accessible way to as many people as possible to raise awareness of the program itself and the diverse natural resource issues faced by network parks.

Interpretation within the National Park Service encourages the stewardship of park resources by facilitating meaningful, memorable visitor experiences. The program is based on the philosophy that people will care for what they first care about. Successful interpretation requires a high standard of professionalism and quality products.

The following products convey messages about a variety of natural resource issues relevant to the 15 parks within the Heartland Network. Their intent is to promote an awareness of the Heartland Network, the individual parks, and the work that is being done to protect these valuable resources.

*The Heartland Network is protecting the habitat of our heritage*

| Interpretive Service or Product: Brochure | |
|---|---|
| Target Audience: | Internal –Park staff |
| **Interpretive intent and critical resource issues related to this individual service** | |
| *Interpretive intent* | Raise awareness, promote benefits. |
| *Critical Resource Issues* | Resources monitored within Heartland Network parks. |
| *Human Dimensions Component* | Increase awareness of the benefits of the program to gain institutional support for the program. |
| *Message* | HTLN gathers credible scientific information and monitors resource vital signs and makes this information available to park personnel so that they can make sound management decisions. |
| *Description* | 8.5" x 14" four- fold brochure<br>Provides general information about the I&M Program and the Heartland Network.<br>Information is arranged to describe general information about the I&M Program followed by details of the Heartland Network and specific issues related to network parks.<br>Contact information is included for both the I&M Program and HTLN. |
| **Media and Methods: Operational Details** | |
| *Service Duration* | N/A |
| *Logistics* | Printing and folding of brochure |
| *Staff Time Commitment* | N/A |
| **Set-up and Cost** | |
| *Graphic Design* | Design file provided in Microsoft Publisher, see "Template CD." |
| *Artwork* | Images (photos) can be updated to show the most relevant and compelling photos of HTLN issues, benefits, and staff in action. |
| *Materials* | Glossy 8.5 x 14 paper |
| *Installation* | N/A |
| *Set-up* | N/A |
| *Cost/unit* | N/A |
| *Quantity* | N/A |
| *# of units* | N/A |
| *Shipping* | N/A |

| Vendor Contact Information | |
|---|---|
| *Company* | N/A |
| *Website* | N/A |
| *Contact Person* | N/A |
| *Email* | N/A |
| *Phone* | N/A |
| **Evaluation** | |
| | Feedback and comments from park staff. |

**Inventory and Monitoring**

The diverse landscapes within our National Parks hold a tremendous amount of natural wealth and beauty. However, beauty is not a sufficient indicator of the condition and health of the parks.

The Park Vital Signs Monitoring Program, established in the late 1990s, organized all parks with significant natural resources into 32 networks, including the Heartland Network, to conduct long- term monitoring for key indicators of change, or 'vital signs'.

Scientists within each network measure the condition of water, air, geologic resources, plants and animals, and the various ecological, biological, and physical processes that act on those resources. Such efforts will help provide early detection of potential problems enabling park managers to take action to restore ecological health of park resources before serious damage can occur.

Heartland Network
Natural Resource Monitoring

*....protecting the habitat of our heritage*

For more information about the Heartland Network, please visit our website at:
**www.nature.nps.gov/im/units/htln**

For more information about Vital Signs Monitoring and the 32 networks, please visit:
www.nature.nps.gov/protectingrestoring/IM/inventoryandmonitoring.htm

**National Park Service**
**U.S. Department of the Interior**

Heartland Network
Inventory & Monitoring Program

**Protecting our heritage**

The 1916 Organic Act established the National Park Service and directed it to manage its lands.....

*"to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."*

The National Park Service serves as a key partner in preserving public natural and cultural resources. The NPS ensures that examples of our natural and cultural heritage are available for us, our children, and our grandchildren to enjoy. Natural resource inventory and monitoring efforts will help guarantee these goals are met.

**The Heartland Network**

The Heartland Network conducts vital signs monitoring in 15 Midwestern parks. These parks encompass tallgrass prairies, Eastern forests, scenic rivers, interior highlands, wetlands, savannas and springs and protect the plants and animals that depend on them for their survival.

**Threats to our Heartland**

Landscape fragmentation, water pollution, habitat loss, and invasive species have left our National Parks with a unique challenge to preserve remnants of nearly vanished habitats. The Heartland parks are no exception. The spread of invasive species such as Japanese honeysuckle and the decline of native species like the Ozark hellbender, this hemisphere's largest salamander, are but two examples of the natural resource issues faced by the 15 parks. Network staff have prioritized a list of the most critical resource indicators. By pooling their resources, parks are able to better address these priorities.

**In the field**

Park visitors may see scientists working in the water and on land. From terrestrial botany to aquatic ecology, scientists collect data using the best scientific methods available. But, field work is only the beginning. The credible scientific data they provide will help resource managers meet these challenges and best preserve and protect park resources for public benefit and enjoyment. Data managers, scientists, and park managers and rangers all have a hand in making this information available to all.

**Heartland monitoring highlights:**

- Populations of rare, threatened and endangered species including: Topeka shiner, Western prairie fringed orchid, Ozark hellbender, Indiana bat, Cerulean warbler
- Condition of Outstanding Natural Resource Waters
- Effects of prescribed fire management on land cover
- Water quality in streams and springs
- Prairie, savanna, and wetland ecosystem restoration
- Exotic and invasive species encroachment
- Stream condition associated with landscape changes in the watershed



**Heartland parks at a glance**

**Arkansas Post National Monument:** The first semi-permanent French settlement in the lower Mississippi Valley this 758 acre park is home to deer, alligators and bald eagles.

**Buffalo National River:** Canoeists, fisherman and other recreationists share this 135 mile stretch of one of the last remaining free- flowing rivers in the lower 48 states with more than 300 species of fish, insects, freshwater mussels and aquatic plants.

**Cuyahoga Valley National Park:** Remains of the Ohio & Erie Canal can be seen in this 33,000 acre refuge along the banks of the Cuyahoga River.

**Effigy Mounds National Monument:** Forests, prairies, and wetlands along the Mississippi provide the backdrop for pre- historic mounds shaped like mammals and birds in this 2,526 acre park.

**George Washington Carver National Monument:** More than 200 acres of rolling hills, woodlands, and prairie envelop the family farm where Carver spent his childhood.

**Herbert Hoover National Historic Site:** This 81 acre site contains the cottage where Hoover was born and remnants of a tallgrass prairie.

**Homestead National Monument of America:** This 195 acre park in a tallgrass prairie landscape was the site of one of the first claims made under the 1862 Homestead Act.

**Hopewell Culture NHP:** Remnants of the Hopewell culture can be viewed on the riparian landscape bordering the Scioto River and its tributaries.

**Hot Springs National Park:** This 5,400 acre park protects 47 hot springs and their watersheds as well as eight historic bathhouses within a city landscape.

**Lincoln Boyhood National Memorial.** This working pioneer homestead was the site of the farm where Abraham Lincoln spent 14 years.

**Ozark National Scenic Riverways:** More than 300 recorded caves and nearly as many springs exist within the boundaries of this park which spans 134 miles of the Jacks Fork and Current Rivers.

**Pea Ridge National Military Post:** Deciduous hardwood forests dominate the 4,300 acres where the Battle of Pea Ridge saved Missouri for the Union.

**Pipestone National Monument**: Prairie and oak savanna dot this 282 acre site where Plains Indians have quarried pipestone for over four centuries and continue to quarry it today.

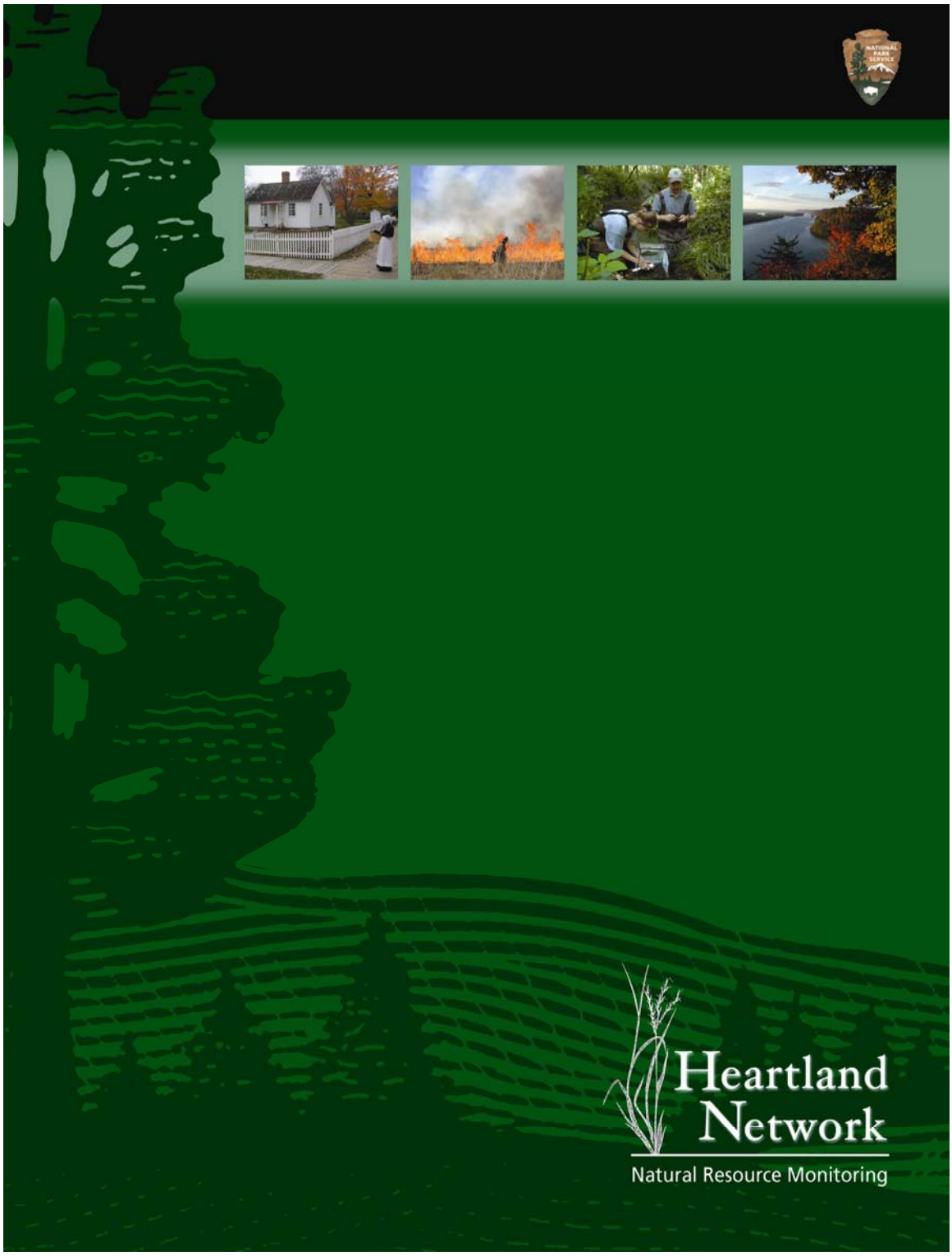
**Tallgrass Prairie National Preserve:** This 10,894 acre example of the once vast tallgrass prairie ecosystem contains the historic house and outbuildings of a former cattle ranching operation.

**Wilson's Creek National Battlefield:** A mix of woodland and prairie characterize this 1,750 acre battlefield which was the site of the first major Civil War engagement west of the Mississippi River.

| Interpretive Service or Product: Folder | |
|---|---|
| Target Audience: | Internal—Training, annual meetings<br>External—Media, political representatives |
| **Interpretive intent and critical resource issues related to this individual service** | |
| *Interpretive intent* | Raising awareness through a uniform visual identity (photos/logo) which links natural and cultural resources. |
| *Critical Resource issues* | N/A |
| *Human Dimensions Component* | N/A |
| *Message* | Conveying identity and building credibility of HTLN professionalism. |
| *Description* | 9"x 12" two pocket folder with die- cut pocket to hold business card.<br>Includes images of the natural and cultural resources within HTLN parks and HTLN staff inventorying and monitoring vital signs.<br>Includes the anchor concept, statement of significance and logo.<br>The folder serves multiple purposes including training packet and media information packet. It will contain the fact sheet, brochure, DVD, newsletter and audience- specific materials. |
| **Media and Methods** | |
| *Service Duration* | N/A |
| *Logistics* | Stuffing folder with appropriate materials. |
| *Staff Time Commitment* | Minimal. |
| **Set-up and Cost** | |
| *Graphic Design* | Design file provided in Adobe Acrobat and Quark Express v.6, see "Template CD."<br><br>Desktop Publishing - Disk Information (for GPO form 952)<br>• Computer operating system: Mac version 10.4<br>• Page lay out program used: Quark Express version 6<br>• Program used for illustrations/drawings: Photoshop CS<br>• Program used for scans, photos & bitmapped images: Photoshop CS<br>• Files are supplied in Native Format.<br>• All fonts are furnished.<br>• Color Identification System Used: CMYK<br>• Files require bleeds.<br>• Bleeds have been furnished. |

| | |
|---|---|
| | • All graphics were linked properly.<br>• No changes were made to any files after the visual was made. |
| *Artwork* | High resolution photographs contributed by HTLN. |
| *Materials* | Paper (provided by printer). JPC code*L10, White Litho Coated Cover, Basis Size 20x26", Basis Weight 80. |
| *Installation* | N/A |
| *Set-up* | N/A |
| *Cost/unit* | TBD |
| *# of units* | 1,000 |
| *Shipping* | TBD |
| **Vendor Contact Information** | |
| *Company* | Government Printing Office |
| *Website* | www.gpo.gov |
| *Contact Person* | Chicago Regional Printing Office, Clint Mixon<br>Columbus Regional Printing Office, Aurelio E. Morales |
| *Email* | Chicago: infochicago@gpo.gov<br>Columbus: infocolumbus@gpo.gov |
| *Phone* | Chicago: 312- 353- 3916<br>Columbus: 614- 488- 4616 |
| **Evaluation** | |
| | Solicited comments and suggestions from NPS staff. |

Folder Cover



| Interpretive Service or Product: Native Plant Cards | |
|---|---|
| Target Audience: | External (park visitors, local residents, volunteers, media relations)<br>Internal (seasonal staff) |
| **Purpose/Need** | |
| *Critical Natural Resource Issue* | Preserving native habitat and increasing awareness of invasive plant impacts. |
| *Human Dimension Component* | Native landscapes have been modified by human activity which has allowed invasive species to flourish. The cards could help individuals understand, identify, and appreciate native plants in parks and in their own backyard.<br>The park will create an awareness of how small human actions can have environmental consequences by providing native plant cards with informational packaging to visitors and volunteers. |
| *Goals & Objectives* | Goal: Increase awareness of native plants and their role in the landscape and the threats to native plants from invasive species. Promote action through encouraging recipients to further explore native gardening.<br>• Disseminate packets through promotional materials.<br>• Recipients will develop an appreciation for the beauty and utility of native plants.<br>• Recipients will be concerned about the introduction of invasive species. |
| **Product Summary Information** | |
| *Description /Summary (including duration)* | The native plant cards will contain artistic renditions of wildflowers and information about plants indigenous to the prairies of the Heartland. Each packet of cards will describe the significance of native species and the threats they face. This project will provide a tangible means of demonstrating the value of native plants through a take- home item that carries a message for the user and for those who share the cards. |
| *Message/Theme* | Help preserve the American landscape - Bring the beauty of the prairie to your backyard. |
| *Making Connections* | The general public has a high regard for attractive plants in natural or garden settings. Unfortunately, most people associate garden flowers with plants that were developed specifically for the home garden. These domesticated plants are often exotic/alien (from different regions, countries, and continents, or varieties that have been genetically altered from wild stock) and require special care to thrive in gardens. Other "easy to grow" plants escape from gardens and become a nuisance in native ecosystems and agricultural fields.<br>The native plant cards will help individuals realize the beauty and utility of plants native to the area and may be the first step in encouraging native plant landscaping. |

| Product Development | Identification packets | |
|---|---|---|
| | Identification cards | Postcard- size packets |
| *Materials* | 3 1/2 inch by 5 inch on glossy cardstock | 4 1/2 inch by 6 inch packets on cardstock |
| *Graphic Design & Artwork* | Cards designed by CSU including original native plant artwork. Information and maps from USDA NRCS Plants Database and Lady Bird Johnson Wildflower Center.<br>Design file provided in Adobe Acrobat and Quark Express v.7, see "Template CD." | Design file provided in Adobe Acrobat and Quark Express v.7, see "Template CD." |
| *Installation/ Set-up &/or Distribution* | 4- color printing<br>Distribution via informational/promotional material | |
| *Staff Time Commitment* | Medium (time to organize work, stuff packets and place in appropriate venues) | |
| *Background* | **INVASIVES**:<br>Invasive plants rapidly invade and compete with native plants for light, water and nutrients. They have been introduced (either accidentally or on purpose) into an environment in which they did not evolve and thus are not affected by natural controls such as herbivores, parasites, and pathogens that keep them in balance in their native habitats. Many invasive plants have escaped and are especially quick to colonize disturbed areas such as residential, commercial, and agricultural development areas. Invasive plants can be spread naturally (by wind, water, and wildlife) or by humans (through seeds/spores in treads of shoes, bikes, vehicles, etc. or on purpose as ornamental species). Human actions are the primary means of invasive species introductions. Home gardens have been a source for many invasive plants.<br>An invasive species is defined as a species that is:<br>1. Non- native to the ecosystem under consideration *and*<br>2. Whose introduction causes or is likely to cause harm to the economy, environment, or human health.<br>Invasive plants typically exhibit the following characteristics:<br>1. rapid growth and maturity and long life in the soil<br>2. prolific seed production<br>3. highly successful seed dispersal, germination, and colonization often due to seed dormancy ensuring periodic germination and prevents seedlings from sprouting during unfavorable conditions<br>4. ability to out- compete native species for nutrients and/or water<br>5. high cost of removal and control | |

| | |
|---|---|
| | 6. avoid predation by herbivores<br>7. some may produce biological toxins<br>**NATIVES**:<br>A native species is one that occurs in a particular region, ecosystem, and habitat without direct or indirect human actions. Native plants in a particular area are those that were growing naturally in that area before humans introduced plants from distant places. They have evolved and adapted to local conditions over thousands of years. Once established they require no irrigation or fertilization. They are resistant to most pests and diseases. Each native plant species is a member of a community that includes other plants, animals, and microorganisms. Native plants provide food and shelter for birds, butterflies, and other desirable wildlife. Many help to enrich the soil. Their root systems help rainfall percolate into the soil reducing erosion and runoff, which improves water quality. Another dimension of native plants is their historical and cultural interest. Some played a significant role in native American culture or in the European exploration and settlement. Native plants can provide children and adults with a tangible link to the past.<br>Some nurseries have discovered the value of providing customers with local wildflower varieties. These varieties still have specific requirements for light and soil type, but they are generally better suited to the local area, because they have adapted to the local environment. Many species are perfect specimen plants for the garden, while others are well suited for colonizing larger areas. Check with the distribution to ensure a weed free stock. |
| *Timeline/Steps* | 1. Determine native plants to be included in the packets as cards and number of packets desired. Each packet should contain approximately 5- 10 artistic cards.<br>2. Research chosen plants, obtain artwork and maps, and write informational paragraph. Design cards.<br>3. Design packets using artwork, native plant information, threats from invasives, and interpretive messages (see messages and other information above).<br>4. Contact printer and send design templates. Order desired number of packets and cards.<br>5. If the printer is not able to stuff packets, once both the packets and cards have arrived, stuff packets.<br>6. Distribute to desired locations and audiences. |
| *Extensions* | 1. Individual parks could borrow the package design developed by the HTLN to make their own local native plant cards.<br>2. In- depth information on the importance of native species, the value of native landscapes, and the prevention of invasive introductions could be placed on an accompanying fact sheet and/or brochure. |
| *Additional Resources* | www.invasivespecies.gov<br>www.nps.gov/plants<br>www.nps.gov/plants/alien |

Georgia Agriculture Education Curriculum – http://aged.ces.uga.edu/

Return of the Natives: Restoration Education Project – http://watershed.csumb.edu/ron/roncor/cor

Tu, M., Hurd, C., & J. M. Randall, 2001. Weed Control Methods Handbook, The Nature Conservancy, http://tncweeds.ucdavis.edu, Version: April 2001.

Westbrooks, Randy G., 1998. Invasive plants: changing the landscape of America: fact book, Washingtong, D.C.: Federal Interagency Committee for the Management of Noxious and Exotic Weeds, 1998.

http://www.nazflora.org/meaning_of_native.htm

www.for- wild.org

www.potomac.org/action/education/invasive.html

http://www.wildflower2.org/NPIN/Clearinghouse/Factpacks/Midwest/MW_Seeds.PDF

http://www.hort.purdue.edu/ext/sources_IN_wildflowers.html

www.gcamerica.org (Garden Club of America)

www.plants.usda.gov (Natural Resource Conservation Service, Plants Database) Maps available for download

www.wildflower.org (Lady Bird Johnson Wildflower Center)

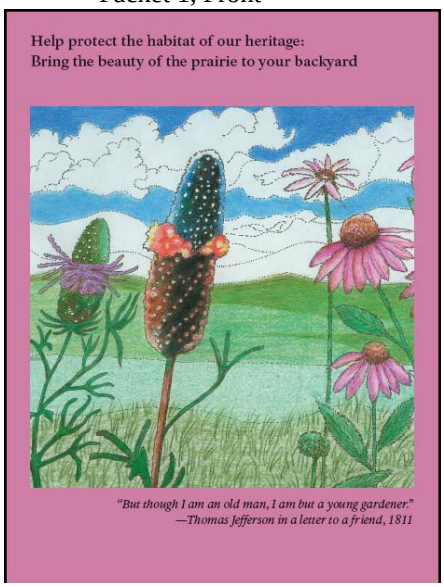
| Cost | Native Plant ID packets | |
|---|---|---|
| | Identification Cards | Postcard- size packets |
| *Development Cost* | In- kind contribution of time for artwork and graphic design. | |
| *Cost* | TBD | TBD |
| *# of units* | 6,000 sets of 6 cards each (36,000 cards) | 6,000 |
| *Shipping* | TBD | TBD |

## Evaluation

- Dissemination measured by the number of requests by parks for additional packets to distribute.
- Count the number of recipients requesting further information about native plant species.
- Recipients will request further information regarding invasive plant species. Measure the number of brochures, fact sheets, etc. taken, an increase may indicate a greater awareness of the subject.

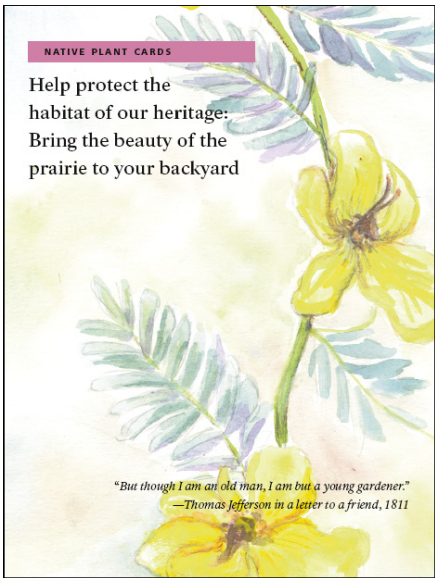
| Vendor Contact Information *(These are the initial vendors used by HTLN, selections should be based on park needs)* | |
|---|---|
| *Company* | Government Printing Office |
| *Website* | www.gpo.gov |
| *Contact Person* | Chicago Regional Printing Office, Clint Mixon<br>Columbus Regional Printing Office, Aurelio E. Morales |
| *Email* | Chicago: infochicago@gpo.gov<br>Columbus: infocolumbus@gpo.gov |
| *Phone* | Chicago: 312- 353- 3916<br>Columbus: 614- 488- 4616 |

Packet 1, Front

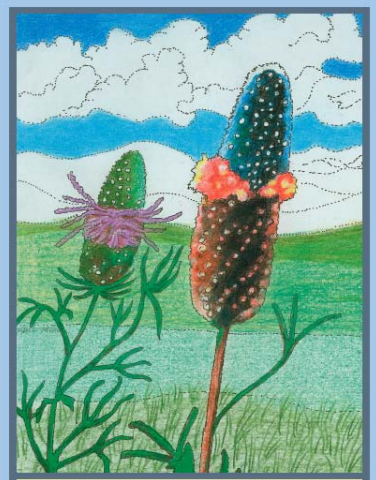



Packet 1, Back

Packet 2, Front

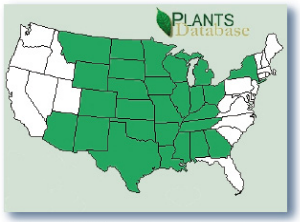



Packet 2, Back



Purple Prairie Clover
*Dalea purpurea*

**Scientific Name** - *Dalea purpurea*
**Description** - Purple prairie- clover is a popular prairie perennial with delicate, foliage and showy flowers. Numerous slender stems rise 1- 3'. and bear small leaves divided into linear segments. Tiny, individual flowers cluster around a cylinder- like cone. The bright, magenta- purple flowers start as a ring around the base of the cone and work upward as the season advances.




USDA, NRCS. 2006. The PLANTS Database (http://plants.usda.gov, 20 June 2006). National Plant Data Center, Baton Rouge, LA 70874- 4490 USA.
www.wildflower2.org/NPIN/Plants/Detail.asp?Symbol=DAPUP
Artwork by Paul Klein

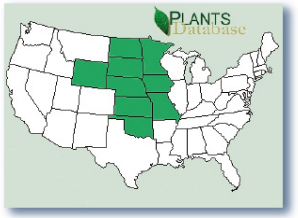
Partridge Pea
*Chamaecrista fasciculata*

**Scientific Name** - *Chamaecrista fasciculata*
**Description** - The Partridge Pea's flowers have 5 yellow petals of unequal size and irregular shape, about 1 inch across. The upper petals have red spots at the base and the lower petal is larger than the others. Stamens are yellow. The pistil extends conspicuously to the side opposite the stamens. The plant grows 2–4 feet tall, erect, usually with a few branches near the top. The leaves are alternate and have 8–14 pairs of small leaflets. Several buds grow on a short stem between the leaves near the top, but only 1 on each stem blooms at a time.

USDA, NRCS. 2006. The PLANTS Database (http://plants.usda.gov, 20 June 2006). National Plant Data Center, Baton Rouge, LA 70874- 4490 USA.
www.wildflower2.org/NPIN/Plants/Detail.asp?Symbol=CHFAF

Western Prairie Fringed Orchid
*Platanthera praeclara*

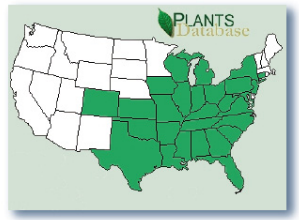
**Scientific Name** - *Platanthera praeclara*
**Appearance** - These orchids produce flower stalks up to 47 inches tall. Each stalk has up to 40 white flowers about an inch long. The western prairie fringed orchid's flowers are somewhat larger than those of the closely related eastern prairie fringed orchid.
**Habitat Loss or Degradation** - The greatest threat to the western prairie fringed orchid is habitat loss, mostly through conversion to cropland. Competition with introduced alien plants, filling of wetlands, intensive hay mowing, fire suppression, and overgrazing also threatens these species.




USDA, NRCS. 2006. The PLANTS Database (http://plants.usda.gov, 20 June 2006). National Plant Data Center, Baton Rouge, LA 70874- 4490 USA
www.fws.gov/midwest/Endangered/plants/prairief.html
Artwork by Paul Klein

Purple Coneflower
*Echinacea purpurea*

**Scientific Name** - *Echinacea purpurea*
**Description** - A popular perennial with smooth, 2- 5 ft. stems and long- lasting, lavender flowers. Rough, scattered leaves that become small toward the top of the stem. Flowers occur singly atop the stems and have domed, purplish- brown, spiny centers and drooping, lavender rays. An attractive perennial with purple (rarely white), drooping rays surrounding a spiny, brownish central disk.
**Comments** - The genus name is from the Greek echino, meaning "hedgehog," an allusion to the spiny, brownish central disk.



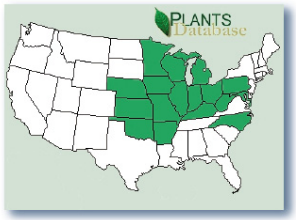

USDA, NRCS. 2006. The PLANTS Database (http://plants.usda.gov, 20 June 2006). National Plant Data Center, Baton Rouge, LA 70874- 4490 USA.
www.wildflower2.org/NPIN/Plants/Detail.asp?Symbol=ECPU
Artwork by Paul Klein

Cream Gentian
*Gentiana alba*

Scientific Name - *Gentiana alba*

Gentiana is named after Gentius, king of Illyria, who supposedly discovered a medicinal value for the plant. Alba is the Latin word for white, which refers to the whitish flowers.

Description - This native perennial plant is 1- 2' tall, with a stout smooth stem that is unbranched. The yellowish or olive green leaves are opposite and strongly clasp the central stem.The tubular flowers of the Cream Gentian are white, greenish white, or yellowish white, depending on the local ecotype. Like many other gentians, Cream Gentian has an otherworldly beauty that is oddly attractive.

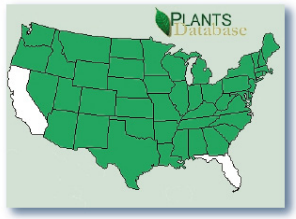



USDA, NRCS. 2006. The PLANTS Database (http://plants.usda.gov, 20 June 2006). National Plant Data Center, Baton Rouge, LA 70874- 4490 USA.
www.illinoiswildflowers.info/savanna/plants/cr_gentian.htm
Artwork by Paul Klein

Bee- balm
*Monarda fistulosa*

Scientific Name - *Monarda fistulosa*

Description - This aromatic herbaceous perennial is 5 to 12 dm. high and has branched, hairy stems and spreads by seeds and rhizomes. The opposite leaves are distinctly petioled and deltoid- lanceolate to lanceolate and slightly toothed. Bee- balm, also called wild bergamot, has square stems with graygreen foliage. The flowers bloom from June to September. They are solitary and terminal on the flowering branches and the two stamens surpass the upper lip. The flowers are tubular, 13- 15 nerved, with lobes much shorter than the tube.

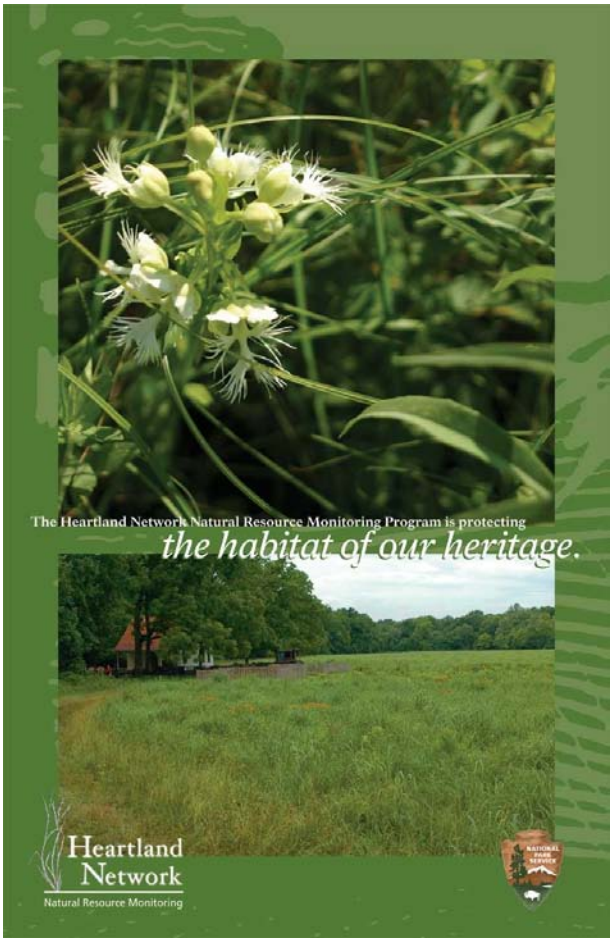



USDA, NRCS. 2006. The PLANTS Database (http://plants.usda.gov, 20 June 2006). National Plant Data Center, Baton Rouge, LA 70874- 4490 USA.
www.wildflower2.org/NPIN/Plants/DetailAsp?Symbol=CHFAF
Artwork by Paul Klein

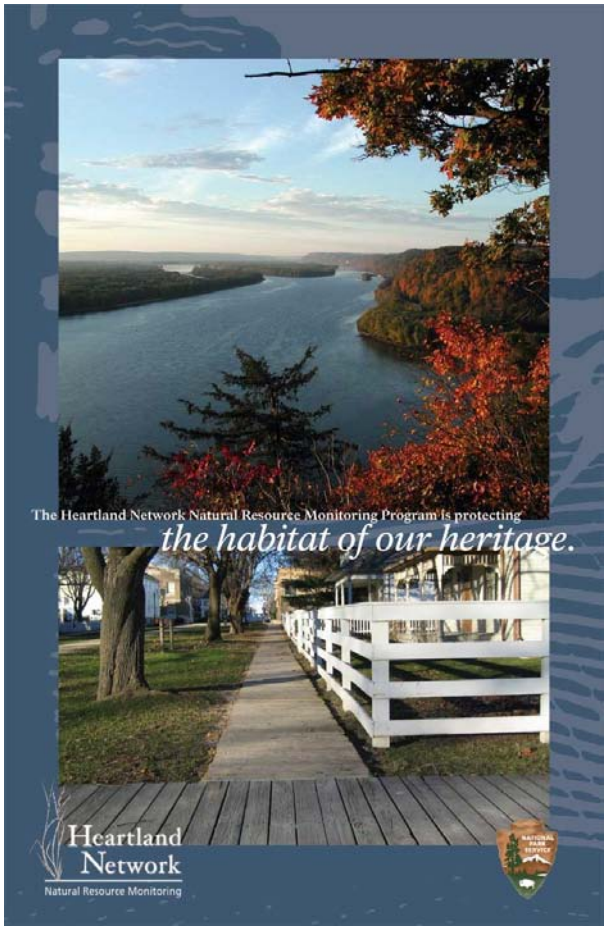
| Interpretive Service or Product: Posters | |
|---|---|
| Target Audience: | Internal –Park staff |
| **Interpretive intent and critical resource issues related to this individual service** | |
| *Interpretive intent* | Raising awareness through a uniform visual identity which links natural and cultural resources and communicates the HTLN anchor concept. |
| *Critical Resource issues* | N/A |
| *Human Dimensions Component* | N/A |
| *Message* | The HTLN is protecting the habitat of our heritage. |
| *Description* | Two 16" x 20" or smaller posters that match a cultural image with a natural resource image. The design includes the HTLN logo and the NPS arrowhead. |
| **Media and Methods** | |
| *Service Duration* | N/A |
| *Logistics* | Displaying posters in each of the network parks. Posters should be displayed in common areas for all staff to view. |
| *Staff Time Commitment* | Minimal. |
| **Set-up and Cost** | |
| *Graphic Design* | Design file provided in Adobe Acrobat and Quark Express v.6 , see "Template CD."<br>Desktop Publishing - Disk Information (for GPO form 952)<br>• Computer operating system: Mac version 10.4<br>• Page lay out program used: Quark Express version 6<br>• Program used for illustrations/drawings: Photoshop CS<br>• Program used for scans, photos & bitmapped images: Photoshop CS<br>• Files are supplied in Native Format.<br>• All fonts are furnished.<br>• Color Identification System Used: CMYK<br>• Files require bleeds.<br>• Bleeds have been furnished.<br>• All graphics were linked properly.<br>• No changes were made to any files after the visual was made. |
| *Artwork* | N/A |
| *Materials* | N/A |
| *Installation* | N/A |
| *Set-up* | N/A |

| | |
|---|---|
| *Cost/unit* | TBD |
| *# of units* | 500 (250 of each design) |
| *Shipping* | TBD |
| **Vendor Contact Information** | |
| *Company* | Government Printing Office |
| *Website* | www.gpo.gov |
| *Contact Person* | Chicago Regional Printing Office, Clint Mixon<br>Columbus Regional Printing Office, Aurelio E. Morales |
| *Email* | Chicago: infochicago@gpo.gov<br>Columbus: infocolumbus@gpo.gov |
| *Phone* | Chicago: 312- 353- 3916<br>Columbus: 614- 488- 4616 |
| **Evaluation** | |
| | N/A |

Poster 1




Poster 2



| Interpretive Service or Product: QuickTime Movie | |
|---|---|
| Target Audience: | Internal –Training purposes<br>External –Political representatives, park visitors (in VC) |
| **Interpretive intent and critical resource issues related to this individual service** | |
| *Interpretive intent* | Raise awareness about the HTLN, the I&M Program, and the benefits of using scientific data to inform management decisions that protect the integrity of the parks. Make a link between cultural and natural resources of the parks. |
| *Critical Resource issues* | The interdependence of cultural and natural resources. |
| *Human Dimensions Component* | The first steps toward developing stewardship are to pique curiosity and raise awareness. The 3- minute film is intended to stimulate interest in HTLN and issues related to the network through compelling stories and the use of visual images representing HTLN parks. |
| *Message* | The fifteen parks within the Heartland Network protect significant cultural and natural resources. HTLN gathers credible scientific information and monitors resource vital signs and makes this information available to park personnel so that they can make sound management decisions to protect our cultural and natural resources for future generations. |
| *Description* | Film begins with a strong emphasis on natural resources as habitat of our cultural record, uniting both the land and its people as our national heritage. Introduces the I&M Program and HTLN projects and benefits. The film can be downloaded from the HTLN Education & Outreach webpage, included in DVD media packages, and shown at park Visitor Centers. |
| **Media and Methods** | |
| *Service Duration* | 3 minutes |
| *Logistics* | DVD player and TV, or LCD project or computer with QuickTime software. |
| *Staff Time Commitment* | Minimal. |
| **Set-up and Cost** | |
| *Graphic Design* | N/A |
| *Artwork* | N/A |
| *Materials* | High resolution digital images. Production music. |
| *Installation* | Loading movie onto HTLN Education & Outreach website. |
| *Set-up* | Concept development. Copy- writing. Collecting visual images. Recording narration. Editing. |
| *Cost/unit* | $4.50/DVD<br>$50/hour of studio time to record narration.<br>Replication of DVD. |
| *# of units* | 250 |
| *Shipping* | USPS |

| Vendor Contact Information | |
|---|---|
| *Company* | Government Printing Office |
| *Website* | www.gpo.gov |
| *Contact Person* | Chicago Regional Printing Office, Clint Mixon<br>Columbus Regional Printing Office, Aurelio E. Morales |
| *Email* | Chicago: infochicago@gpo.gov<br>Columbus: infocolumbus@gpo.gov |
| *Phone* | Chicago: 312- 353- 3916<br>Columbus: 614- 488- 4616 |
| **Evaluation** | |
| | Feedback and comments at HTLN annual meeting, from interpretation class at CSU, and from NPS Outreach Technical Advisory Group.<br>Number of downloads from HTLN Education & Outreach page. |

| Interpretive Service or Product: Radio Spots | |
|---|---|
| Target Audience: | External— Park visitors, local residents within park radio range, web traffic on the HTLN I&M Education and Outreach page. |
| **Interpretive intent and critical resource issues related to this individual service** | |
| *Interpretive intent* | Raise awareness, address issues and communicate benefits. |
| *Critical Resource issues* | HTLN<br>Natural Resource Challenge<br>Water quality<br>Invasive species<br>Threatened and endangered species |
| *Human Dimensions Component* | Water quality, invasive species, and threatened and endangered species are impacted by human actions. The first steps toward developing stewardship are to pique curiosity and raise awareness. These radio spots are intended to stimulate interest in HTLN and issues related to the network through compelling stories. |
| *Message* | **HTLN:** The fifteen parks within the HTLN protect significant cultural and natural resources. HTLN gathers credible scientific information and monitors resource vital signs and makes this information available to park personnel so that they can make sound management decisions that protect these resources for future generations.<br>**Natural Resource Challenge:** Legislation passed in Congress enables National Park Service managers to inventory park resources, monitor changes, and identify trends, enabling them to make scientifically sound decisions that ensure the future health of the parks.<br>**Water quality:** The HTLN is monitoring water quality and the species that depend on it.<br>**Invasive species:** Natural habitats and cultural histories are threatened by the spread of invasive plant and animal species.<br>**Threatened and endangered species:** Radio spots can be developed to focus broadly on the interdependence and connectedness of all species or on a particular species. |
| *Description* | Digitally recorded radio spots can be broadcast on park radio, downloaded from HTLN Education and Outreach webpage, and included in DVD media packages. |
| **Media and Methods** | |
| *Service Duration* | 30 seconds – 1 minute |
| *Logistics* | Access to internet. Operable park radio. |
| *Staff Time Commitment* | Minimal. |

| Set-up and Cost | |
|---|---|
| *Graphic Design* | N/A |
| *Artwork* | N/A |
| *Materials* | CD or DVD |
| *Installation* | Loading radio spot onto park radio and HTLN Education and Outreach website |
| *Set-up* | Writing script.<br>Recording radio spot onto digital media. |
| *Cost/unit* | $50/hour of studio time. |
| *# of units* | 30 (2 CDs per park) |
| *Shipping* | Via USPS to parks. |
| **Vendor Contact Information** | |
| *Company* | Government Printing Office |
| *Website* | www.gpo.gov |
| *Contact Person* | Chicago Regional Printing Office, Clint Mixon<br>Columbus Regional Printing Office, Aurelio E. Morales |
| *Email* | Chicago: infochicago@gpo.gov<br>Columbus: infocolumbus@gpo.gov |
| *Phone* | Chicago: 312- 353- 3916<br>Columbus: 614- 488- 4616 |
| **Evaluation** | |
| | Number of parks loading spots onto park radio.<br>Number of downloads from HTLN Education & Outreach webpage.<br>Scripts were distributed to HTLN for comments and suggestions. |

Sample Scripts:

## *Heartland Network and QuickTime Movie Narration*

In the Heartland of America there is a unique habitat that your National Park Service is working to preserve.

From Abraham Lincoln's boyhood home, where a young Lincoln took his first steps down the path of greatness.

To the farm where George Washington Carver's interest in science and the natural world was sparked;

From the hallowed grounds of Civil War battlefields where our country's destiny was decided,

To lands where Native Americans quarried their pipestone and buried their dead.

Upon the vast prairies where millions of bison once roamed, a nation built its dreams.

America's Heartland is home to our national heritage.

Today we are faced with the challenge of preserving this unique habitat…
As non-native plant and animals, air and water quality concerns, and the effects of development threaten to isolate and erode the historical record,
Scientists from the National Park Service
Heartland Network Resource Monitoring Program are working together to better understand these treasures.

Credible and accurate information gathered through their inventories

And monitoring of the ecological characteristics of these special places

Enables park managers to make better decisions and to preserve our irreplaceable inheritance for future generations.

The Heartland Network Resource Monitoring Program is ***Protecting the Habitat of Our Heritage.***

## *Natural Resource Challenge*

In 1803, Thomas Jefferson challenged Meriwether Lewis and William Clark to explore the reaches of our newly formed nation.

He instructed them to document their observations of the plants and animals they encountered—with great pains & accuracy.

During their three-year Journey of Discovery—Lewis & Clark recorded hundreds of species.

Their expedition opened the floodgates for Westward expansion.

Over the last two centuries, forest and prairie surrendered to axe and plow, and pushed many native species to the brink of extinction.

To preserve our cultural heritage, Congress issued the Natural Resource Challenge.

The Challenge empowers the National Park Service to inventory park resources, monitor changes, and identify trends that enable park managers to make scientifically-sound decisions for the future health of the parks.

Thanks to these efforts, as you travel across America's Heartland you can experience many of the plants and animals that Lewis and Clark encountered along their journey.

The 15 parks of the Heartland Network Natural Resource Monitoring Program are protecting the habitat of our heritage.

## *Invasive Plant Species (External Audience)*

Thomas Jefferson wrote in a letter to a friend, (1811)
"But though I am an old man, I am but a young gardener."

The land reveals its lessons—season by season—over the course of years.

Since 1916, the men and women of the National Park Service have been studying the lessons of the land.

They have learned that many uniquely American plants like the Missouri bladder pod and the Western Prairie fringed orchid live only within distinct habitats. These and other native species are being out-competed by invasive plants that spread rapidly and lack natural enemies.

Park Service scientists preserve our cultural landscapes by monitoring the health of the prairies, forests, and wetlands of America's Heartland.

An informed public can help. To find out more about what you can do to protect the habitat of our heritage visit www.invasivespecies.gov.

## *Threatened & Endangered Species - Ozark Hellbender (External Audience)*

Bert: DEEP SIGH

Ernie: What's wrong?

Bert: I'm worried about the Ozark Hellbender.

Ernie: Is that a Metal band?

Bert: No, it's an amazing creature. The Ozark Hellbender is the biggest salamander in this hemisphere. It can grow more than 2 feet long and live for 30 years or more. They're only found in a few clear rocky-bottomed rivers like the Current in the Ozark National Scenic Riverways.

Ernie: What's wrong with them?

Bert: The number of Ozark Hellbenders has dropped nearly 70% in the last 20 years, putting it in line for the federal list of endangered species.

Ernie: You're kidding me?

Bert: No, with defects like tumors and lesions becoming more common, their numbers may drop even more. Signs like these indicate unseen changes in the health of the Current River and its watershed.

Ernie: This is unacceptable! What's being done?

Bert: Scientists with the National Park Service Heartland Network Natural Resource Monitoring program are working to monitor the health of hellbender habitats and to develop plans for its recovery. For more information go to www.nps.gov and click your way to the Ozark National Scenic Riverways

| Interpretive Service or Product: Roadshow PowerPoint | |
|---|---|
| Target Audience: | Internal – Park staff |
| **Interpretive intent and critical resource issues related to this individual service** | |
| *Interpretive intent* | Raise awareness, educate, and inform park staff about HTLN and current I&M efforts/projects. Training seasonal interpretive staff. |
| *Critical Resource Issues* | History, structure, and purpose of I&M Program. Vital signs being monitored at each network park. |
| *Human Dimensions Component* | Information collected by the HTLN provides park managers with data to make sound decisions to protect their unit's critical resources.<br>Knowledgeable park staff can better communicate benefits of the program to park visitors.<br>Information gained through the I&M Program aids managers in making/defending complicated or controversial management actions and decisions. |
| *Message* | The Heartland Network Inventory & Monitoring Program is a source for current information about the status and trends of park- specific natural resource issues. |
| *Description* | PowerPoint presentation describes the history, structure, and purpose of the program, emphasizing the process and benefits of inventorying and monitoring. Park- specific slides are included for the presenter to include current information about projects and success stories. |
| **Media and Methods** | |
| *Service Duration* | 30 minutes |
| *Logistics* | Computer, LCD projector, trained staff to give presentation |
| *Staff Time Commitment* | 1 hour for presentation.<br>Updating park- specific slide. |
| **Set-up and Cost** | |
| *Graphic Design* | PowerPoint file provided on "Template CD." |
| *Artwork* | N/A |
| *Materials* | High resolution photographs supplied by HTLN staff. |
| *Installation* | N/A |
| *Set-up* | N/A |
| *Cost/unit* | N/A |
| *# of units* | N/A |
| *Shipping* | N/A |

| Vendor Contact Information | |
|---|---|
| *Company* | N/A |
| *Website* | N/A |
| *Contact Person* | N/A |
| *Email* | N/A |
| *Phone* | N/A |
| **Evaluation** | |
| | Feedback received at HTLN annual meeting.<br>Park staff will gain a stronger understanding of HTLN's role in providing information for park management. |

| Interpretive Service or Product: Traveling Exhibit-Science and Management | |
|---|---|
| Target Audience: | External –Park Visitors |
| **Purpose/Need** | |
| *Critical Natural Resource Issue* | The traveling exhibit will emphasize the role of science in park management. Topics for additional panels include preserving biodiversity, managing invasive species, restoring cultural landscapes and using prescribed fire. |
| *Human Dimension Component* | Strengthened connections and communications between the public, park scientists, and staff will enhance decision- making and engender support for the program. This process of raising awareness and increasing understanding is the first step toward encouraging stewardship. |
| *Goals & Objectives* | The goal of the traveling exhibit is to raise awareness of the role of science in management of natural resources. Viewers of the exhibit will learn that resource managers use information collected through inventorying and monitoring of resources to make and adapt management decisions.<br>• The traveling exhibit will have reached each network park dealing with the exhibit's theme within 2 years.<br>• 25% of viewers will read additional materials (brochures, fact sheets, research summaries) about the topic.<br>• 10% of viewers of the exhibit will ask park staff about the topic to learn more. |
| **Product Summary Information** | |
| *Description /Summary (including duration)* | The traveling exhibit will include 3' x 7' vertical display panels (indoor) to be used to provide for general information about the role of science in park management and related resource issues. The visually- appealing panels will link resource issues and HTLN project benefits. |
| *Message/Theme* | HTLN gathers credible scientific information and monitors resource vital signs and makes this information available to managers so that they can make sound management decisions. The HTLN is engaged in a variety of activities that benefit network parks.<br>Theme: Science is the basis for resource stewardship. |
| *Making Connections* | Understanding the role of science in resource management will help park visitors better understand how the NPS is managing parks and why certain decisions are made. |
| **Product Development** | |
| *Materials* | 3'x7' *Nimlock* vertical panels, |
| *Graphic Design & Artwork* | High resolution images (photos), must be at least 100 dpi at 100%, best photos incorporate a person with NPS identification in action. The size of these panels emphasizes the importance of the visual element. Visual elements should be used to communicate the story. Text must be limited to 150 words or less. If more text is necessary, another medium is recommended. |
| *Installation/* | Transport between Heartland Network Parks - variable |

| | |
|---|---|
| *Set-up &/or Distribution* | |
| *Staff Time Commitment* | Minimal for set- up.<br><br>Development, Considerable –Research, writing and design. |
| *Background* | **Science and Management** – The National Park Service (NPS) has organized parks with significant natural resources into 32 networks linked by geography and shared natural resource characteristics as part of the nationwide Inventory and Monitoring Program. These networks are charged with creating inventories of their species and natural features as well as monitoring trends and issues. Information collected from networks is applied in the adaptive management process to:<br><br>*Develop/refine management goals: Identify desired conditions*. Inventories provide a baseline on the distribution and abundance of plants, animals, and ecological communities. Desired conditions can be determined from potential community structure, based on current environmental factors and historically existing communities. Vital signs monitoring of selected park natural resources provides long- term information on ecological health and changes.<br><br>*Compare current conditions to desired conditions*. Vital signs monitoring reports current status of selected park resources for comparison with a target status that represents desired conditions. Monitoring over time allows trend analysis as conditions change. Scientists can assess trends over time only if they use a consistent approach to data collection and analysis with scientifically- reviewed protocols.<br><br>*Develop and implement management strategies to achieve desired conditions.* Understanding the dynamic behavior of populations and communities in relationship to the environmental factors and management actions provides a scientific basis for developing management strategies. Program expertise and background information contribute to management strategies and are available to park management.<br><br>*Monitor trends in resource condition and evaluate management effectiveness*. Resource attributes selected as Vital Signs have associated thresholds or trends established that indicate healthy," deteriorating, or "impaired" conditions. When a threshold is reached or a harmful trend detected, management actions are implemented to maintain or restore resource condition.<br><br>*Adapt management to achieve desired conditions*. Vital signs monitoring may act as a report card on the effects of management actions. As current conditions change as indicated by Vital Signs monitoring, managers can determine if their actions work in attaining or maintaining desired conditions. |
| *Timeline/Steps* | 1. Discuss purpose, goals and visual concept of banner. Research Graphic Identity requirements for banner. (http://www.nps.gov/hfc/products/waysides/index.htm)<br>2. Draft text for review (150 words or less). Initiate development of visual elements (photos and artwork).<br>3. Review and revise drafts until complete, including pictures and captions. Share final revision with larger group of reviewers. Finalize second stage draft text with pictures and captions. |

| | |
|---|---|
| | 4. Seek FINAL approval on text. Revise until final text is approved by highest authority.<br>5. Graphic designer will develop a draft with graphics, text, and placement.<br>6. Print to banner size for review.<br>7. Review draft and suggest revisions. Pictures and captions must be approved at this stage.<br>8. Graphic designer will make revisions if necessary.<br>9. Seek final approval.<br>10. Send digital banner to printer. |
| *Additional Resources* | For further information regarding current monitoring projects, visit the HTLN monitoring website and associated links:<br>http://www.nature.nps.gov/im/units/htln/monitoring/projects/projects.htm |
| **Cost** | |
| *Development Cost* | Based on staff time and graphics used. |
| *Cost/unit* | Single sided with printing, hardware, and carrying bag lists at approximately $595. Double sided with same specifications is approximately $750.<br>Those prices are for photo- ready graphics provided. If you want someone to do layout (graphic design), then it runs between $50 and $100 each extra. |
| *Shipping Costs* | Transport costs between HTLN sites dependent on type and frequency of delivery. |
| *Total Estimated Cost* | TBD |
| **Evaluation** | |
| | • A history of the traveling exhibit should be recorded: park, length on time on display.<br>• Parks should submit a paragraph on the impact of the banners on visitors, and the level of interest from visitors.<br>• Viewers can be asked informal questions regarding the HTLN. Feedback for improvement and effectiveness can also be sought. |
| **Vendor Contact Information** | |
| *Company* | Nimlok, display and exhibit solutions worldwide. |
| *Website* | http://www.nimlok.com/solutions/portables/banner- displays.aspx |
| *Contact Person* | Local Nimlok dealer: http://www.nimlok.com/company/find_local_partner.aspx |
| *Email* | info@nimlok.com |
| *Phone* | Toll free: 800- 233- 8870; Phone: 847- 647- 1012 |

# Science in Parks

# The Basis of Resource Stewardship

## Preserving Our Nation's Heritage

Listen to the wind rustle through prairies that staged battles and provided landscapes of opportunity for indigenous people and European settlers. Explore creeks and rivers that were the highways of our past.

Native grasses in the wind at Tallgrass Prairie National Preserve.

Early morning fog over the Upper Mississippi River, Effigy Mounds National Monument. NPS Photo by Ken Block.

These landscapes and the plants and animals within them compose our inheritance, our legacy to future generations, and an inspiration to all generations. The National Park Service uses science and scholarship as the basis for resource stewardship, to ensure that the beauty and value of these places will remain unimpaired for this and future generations.

## Monitoring Trends

At the epicenter of a Civil War battlefield, a small plant battles for survival. The Missouri bladderpod, a species threatened with extinction, grows in open cedar glades at Wilson's Creek National Battlefield. Scientists monitoring the Wilson's Creek population have found that the number of plants has increased since 1997. Managers use these data to evaluate the effectiveness of their management actions in protecting the bladderpod.

Missouri bladderpod (*Lesquerella filiformis*), Wilson's Creek National Battlefield.

Monitoring Missouri bladderpod populations at Wilson's Creek National Battlefield.

National Park Service scientists determine trends in the condition of park resources. This information provides the basis for sound management decisions that protect the habitat of our heritage.

## Science for Parks

Vast prairies, oak savannahs, winding rivers, and natural springs were settings for our cultural heritage and now provide solace and inspiration for visitors. These places also support a wide variety of plants and animals that depend on diverse habitats for food and shelter.

Field scientist surveying prairie vegetation at Tallgrass Prairie National Preserve.

Monitoring aquatic invertebrates at George Washington Carver National Monument.

National Park Service scientists systematically identify the plants and animals found in parks and document changes in their numbers and distribution. Park managers use this information to understand park resources under their care.

## Science for Stewardship

Long-term monitoring and groundbreaking research help park managers develop solutions to challenges facing the forests, prairies, rivers and other natural systems in their care. Scientific research also provides learning experiences for people of all backgrounds, allowing visitors to understand the natural processes that occur in our parks. Science is the basis of resource stewardship.

Visitors canoeing on the Upper Jack's Fork in the Ozark National Scenic Riverways.

Monitoring smallmouth bass populations in the Buffalo National River.

*Artwork by Paul Klein*

Heartland Network
Natural Resource Monitoring

# Appendix D

## Matrix of Interpretive Product Options

| Product | Audience<br>*Message* | Purpose | Issue | Cost/unit | Page number |
|---|---|---|---|---|---|
| Bird checklist Brochure | External | Awareness | Bird species | Printing | 57 |
| | *HTLN is inventorying bird species throughout the network and monitoring the health of the species.* | | | | |
| Education Curriculum | External | Awareness<br>Issues | Park-specific Issues | Printing | 63 |
| | *Park scientists use many different methods to understand park resources and examine how and why they might change over time.* | | | | |
| Jr. Ranger Component | Children | Awareness<br>Issues<br>Benefits | Preserving park resources | TBD | 65 |
| | *Scientists of the HTLN are inventorying and monitoring natural resources within the National Parks to understand how the resources are changing over time and how to better protect them.* | | | | |
| Patch | External<br>Children | Awareness | N/A | TBD | 69 |
| | *N/A* | | | | |
| Wayside Exhibit | External | Awareness<br>Issues<br>Benefits | HTLN resource issues | TBD | 71 |
| | *HTLN gathers credible scientific information and monitors resource vital signs and makes this information available to managers so that they can make sound management decisions.* | | | | |
| Bookmarks | External | Issues<br>Benefits | | TBD | 79 |
| | *By monitoring natural resources, the HTLN is protecting the habitat of our heritage.* | | | | |

| Interpretive Service or Product: Bird Checklist | |
|---|---|
| Target Audience: | External –Park visitors |
| **Purpose/Need** | |
| *Critical Natural Resource Issue* | Bird species, especially those that are Threatened and Endangered and/or monitored by the HTLN |
| *Human Dimension Component* | Birding is a popular, non- consumptive experiential activity in which people observe and study a number of species located in an area. Bird species are most often threatened by habitat loss caused by development. Birders could be engaged in the monitoring process by encouraging them to report observations of birds that HTLN is monitoring observation and study of species could be used to engage them in the monitoring process by encouraging them to report birds that the HTLN is monitoring to park staff or directly to HTLN via email. |
| *Goals & Objectives* | Goal: Increase awareness of the bird species within the Heartland Network, those that are threatened and endangered, and how the HTLN conducts monitoring activities to understand changes in the bird populations.<br>• Disseminate checklists through visitor center displays and an online version.<br>• Recipients will develop an appreciation for the diversity of bird species within the HTLN.<br>• Recipients will be concerned about the wellbeing of native bird species. |
| **Product Summary Information** | |
| *Description /Summary (including duration)* | A tri- fold brochure listing a variety of bird species found in the area. Birds monitored by the HTLN will be highlighted in some manner (e.g., italics, bolded). The brochure will provide an explanation of how these birds are monitored and contain a message about the purpose of monitoring these species. Contact information will be included to guide the reader to more information about the HTLN and its inventory and monitoring activities. |
| *Message/Theme* | HTLN is inventorying and monitoring the health of the bird species throughout the network.<br>Theme: Protecting our feathered friends by teaming sound science and management. |
| *Making Connections* | Bird species have been a subject of awe for many cultures throughout the world. Images of birds can be found on everything from stamps to wine labels to currency. The bird shows up in mythology and story telling in many religions and is often associated with mysticism and magic. |

| Product Development | |
|---|---|
| *Materials* | 8 ½" x 11" paper or cardstock 4"x11" (portrait) |
| *Graphic Design & Artwork* | Layout and design of the brochure should include the logo and at least one graphic (line drawing) of a bird found within the network.<br>Prototype design file provided in Publisher, see "Template CD." |
| *Installation/ Set-up &/or Distribution* | Two sided 2- color printing + black<br>Distribution via visitor center and website. |
| *Staff Time Commitment* | Developing or collecting bird checklists from each network park and compiling information. |
| *Background* | Birds are animals that have feathers and wings and lay eggs however, not all birds can fly. There are more than 10,000 species of birds world- wide and over 2,000 of them in North America. Birds can be found over all major land masses, oceans, seas, and islands. Since the 1600's, over 100 species of birds have gone extinct due mainly to human impacts including development, purposeful extirpation and the pet trade.<br>Sightings of birds are an important part of monitoring and visitors are always encouraged to share their observations of rare or anomalous birds. Long- term monitoring helps establish trends in bird populations over time. Monitoring of North American bird populations helps scientists and managers understand the status and changes in bird populations offers a glimpse into the health of the natural environment.<br><br>There are many scientists today studying birds and species are often lumped or split with new advancements in DNA research. Scientists also talk about "races" or "tribes" of species just like we see with humans. The same species of bird may look different on the West coast than on the East.<br>There are many tips to help novices identify birds:<br>1. Determine visual clues such as:<br>a. Size – How big is the bird? Is it fat or skinny? Long or short? Use a reference object.<br>b. Shape – Is the bird's bill long or short, thick or thin, curved or straight? What about its tail? Are the bird's wings pointed or curved? Long or short?<br>c. Color – What colors are the bird's major body parts? Are there any special markings? Wing bars, eye- rings, or a patch of color on the rump?<br>d. Habitat – Where was the bird sited? What's the climate? Is the bird swimming, wading, climbing trees, on the ground?<br>e. Behavior – Does the bird wag its tail a lot? Does it fly straight or fly up and down?<br>2. Carry a pair of binoculars.<br>3. Learn to identify bird calls and songs. Often times it is easy to hear, but not see a bird. |

| | |
|---|---|
| | *Note: Field guides could be available for checkout from the visitor center to accompany the checklists. Some suggested books are:<br>• Petersons Field Guides: A Field Guide to the birds of Eastern and Central North America<br>• National Geographic Field Guide to the Birds of North America, 4th edition<br>• For Younger Audiences: Peterson First Guide to Birds of North America |
| *Timeline/Steps* | 1. Bird checklists from all 15 network parks (maintaining a checklist) should be collected and checked for accuracy using NPSpecies.<br>2. Using these lists as a reference point, an overall HTLN bird checklist could be compiled of birds common to parks throughout the network and those species being monitored by HTLN staff. (Lists should be of manageable size and suitable for beginning to intermediate birders - those seeking more in- depth and specialized lists should refer to park-specific lists.)<br>3. Graphics, including line drawings, should be sought based on the checklist species.<br>4. The checklist should include the following information about species: abundance, habitat, seasonal information, arrival and departure times. A suggested format for checklist information can be found in Andrews, Righter & Carter's article "A Proposed Format for Local Bird Checklists" (citation below).<br>5. Following the attached template, species information and graphics should be organized in a logical, legible and visually pleasing format.<br>6. A draft of the checklist should be proofed by HTLN scientists. |
| *Additional Resources* | Igl, Lawrence D. 1996. Bird Checklists of the United States. Jamestown, ND: Northern Prairie Wildlife Research Center Online. (Version 12MAY03).<br>www.npwrc.usgs.gov/resource/othrdata/chekbird/chekbird.htm<br>www.nps.gov/oia/NPSBirds.html<br>www.nature.nps.gov/biology/migratorybirds/<br>Hot Springs Bird Checklist: www.nps.gov/hosp/expanded/newhotsprings/students/birds.htm<br>USGS bird checklists for the US including NPS units:<br>www.npwrc.usgs.gov/resource/othrdata/chekbird/chekbird.htm<br>Avibase: A world bird database: www.bsc-eoc.org/avibase/avibase.jsp?pg=home&lang=EN&id=undefined&ts=undefined<br>Gough, G.A., Sauer, J.R., Iliff, M. *Patuxent Bird Identification Infocenter*. 1998. Version 97.1. Patuxent Wildlife Research Center, Laurel, MD.<br>www.mbr- pwrc.usgs.gov/id/framlst/infocenter.html<br>www.birding.com/Bird_Identification.asp<br>www.birder.com/<br>www.ornithology.com/<br>Bird Poems:<br>www.usd.edu/%7Etgannon/bird3.html |

| | |
|---|---|
| | americanbirding.org/index.html<br>www.earthlife.net/birds/intro.html<br>Andrews, Bob, Bob Righter, and Mike Carter. 1992. A proposed format for local bird checklists. Colorado Field Ornithologists' Journal 26(1):12- 18. Jamestown, ND: Northern Prairie Wildlife Research Center Online. (Version 15NOV2000).<br>www.npwrc.usgs.gov/resource/othrdata/chekbird/format.htm<br>Winkler, Robert. 2003. Going Wilde: Adventures with Birds in the Suburban Wilderness. National Geographic. |
| **Cost** | |
| *Development Cost* | Staff time to compile checklist details and artwork. |
| *Cost/unit* | TBD |
| *Shipping Costs* | TBD |
| *Total Estimated Cost* | TBD |
| **Evaluation** | |
| | • Dissemination measured by the number of checklists requested by visitors to the park. A counter for the online version will show how many individuals visit the site.<br>• Measure the number of birders contacting park staff about species seen on checklist and/or requesting further information about birding.<br>• Recipients will request further information regarding threatened and endangered bird species. Measure the number of brochures, fact sheets, etc. taken, an increase may indicate a greater awareness of the subject. |
| **Vendor Contact Information** | |
| *Company* | Government Printing Office |
| *Website* | www.gpo.gov |
| *Contact Person* | Chicago Regional Printing Office, Clint Mixon<br>Columbus Regional Printing Office, Aurelio E. Morales |
| *Email* | Chicago: infochicago@gpo.gov<br>Columbus: infocolumbus@gpo.gov |
| *Phone* | Chicago: 312- 353- 3916<br>Columbus: 614- 488- 4616 |

| Species | Spring | Summer | Fall | Winter |
|---|---|---|---|---|
| **Grouse, Ptarmigans (Family Phasianidae)** | | | | |
| ___ Northern Bobwhite * (*colinus virginianus*) | C | C | C | C |
| **Plovers (Family Charadriidae)** | | | | |
| ___ Killdeer (*charadrius vaciferus*) | U | U | U | R |
| **Sandpipers (Family Scolopacidea)** | | | | |
| ___ Spotted Sandpiper (*Actitis macularia*) | U | U | U | R |
| ___ American Woodcock (*Scolopax minor*) | O | O | O | - |
| ___ Common Snipe (*Gallinago gallinago*) | O | - | O | - |
| **Pigeons, Doves (Family Columbidae)** | | | | |
| ___ Rock Dove # (*Columba livia*) | R | R | R | R |
| ___ Mourning Dove * (*Zenaida macroura*) | C | C | C | C |
| **Swifts (Family Apodidae)** | | | | |
| ___ Chimney Swift (*Chaetura pelagica*) | U | U | U | - |
| **Hummingbirds (Family Trochilidae)** | | | | |
| ___ Ruby- Throated Hummingbird * (*Archilochus colubris*) | O | C | C | - |
| **Kingfishers (Family Alcedinidae)** | | | | |
| ___ Belted Kingfisher (*Ceryle alcyon*) | C | C | C | C |

Heartland Network
Natural Resource Monitoring

*....protecting the habitat of our heritage*

For more information about birding at XYZ park go to:

For more information about the Heartland Network, please visit our website at:
**www.nature.nps.gov/im/units/htln**

For more information about Vital Signs Monitoring and the 32 networks, please visit:
www.nature.nps.gov/protectingrestoring/IM/inventoryandmonitoring.htm

**National Park Service**
**U.S. Department of the Interior**

Heartland Network Inventory and Monitoring Program

# Bird Checklist

## You can help!

The Park Vital Signs Monitoring Program, established in the late 1990s, organized all parks with significant natural resources into 32 networks, including the Heartland Network, to conduct long- term monitoring for key indicators of change, or 'vital signs'. Such efforts will help provide early detection of potential problems enabling park managers to take action to restore ecological health of park resources.

Sightings of birds are an important part of monitoring and visitors are always encouraged to share their observations of rare or anomalous birds. Long- term monitoring helps establish trends in bird populations over time. Monitoring of North American bird populations helps scientists and managers understand the status and changes in bird populations and it offers a glimpse into the health of the natural environment.

***Note: This checklist should include a list of birds common to parks of the Heartland Network.***

### Tips to help identify birds:

1. Determine visual clues such as:
   a. **Size** – How big is the bird? Is it fat or skinny? Long or short? Use a reference object.
   b. **Shape** – Is the bird's bill long or short, thick or thin, curved or straight? What about its tail? Are the bird's wings pointed or curved? Long or short?
   c. **Color** – What colors are the bird's major body parts? Are there any special markings? Wing bars, eye- rings, or a patch of color on the rump?
   d. **Habitat** – Where was the bird sited? What's the climate? Is the bird swimming, wading, climbing trees, on the ground?
   e. **Behavior** – Does the bird wag its tail a lot? Does it fly straight or fly up and down?
2. Learn to identify bird calls and songs. Often times it is easy to hear, but not see a bird.

**Observations**

Date: _____

Location: _____

Weather: _____

Observers: _____

**Key to Status Symbols**
A - Abundant - Common species, very numerous
C - Common - Almost certain to be seen in a suitable habitat
U - Uncommon - Present but not readily seen
R - Rare - Seen at intervals of 2- 5 years
O - Occasional - Seen now and then
* - Indicates species known to nest in the park
+ - Indicates birds on the Federal List of Endangered Species
^ - Indicates birds on the **Missouri (insert your state)** List of Endangered Species
# - Exotics - An introduced, non- native species

| Species | Spring | Summer | Fall | Winter |
|---|---|---|---|---|
| **Herons (Family Ardeidae)** | | | | |
| ___ Great Blue Heron (*Ardea herodias*) | C | C | C | C |
| ___ Green Heron (*Butoridesstratus*) | U | U | - | - |
| **Swans, Geese, Ducks (Family Anatidae)** | | | | |
| ___ Canada Goose (*Branta canadensis*) | U | U | U | U |
| ___ Mallard (*Anas platyrhynchos*) | U | - | - | U |
| ___ Blue- Winged Teal (*Anas discors*) | - | - | U | - |
| ___ Green- Winged Teal (*Anas crecca*) | R | - | - | R |

| Species | Spring | Summer | Fall | Winter |
|---|---|---|---|---|
| **American vultures (Family Cathartidae)** | | | | |
| ___ Turkey Vulture (*Cathartes aura*) | C | C | C | C |
| **Cuckoos, Anis (Family Cuculidae)** | | | | |
| ___ Yellow- Billed Cuckoo * (*Coccyzus*) | A | A | C | - |
| ___ Black- Billed Cuckoo (*Coccyzus erythropthalmus*) | - | R | - | - |
| **Owls (Families Tytonidae & Strigidae)** | | | | |
| ___ Eastern Screech Owl (*Otus asio*) | R | - | - | R |
| ___ Barred Owl * (*Strix varia*) | - | C | C | - |
| **Nightjars (Family Caprimulgidae)** | | | | |
| ___ Whip- poor- will * (*Caprimulgus vociferus*) | - | C | - | - |
| **Kites, Hawks, Eagles (Family Accipitidae)** | | | | |
| ___ Bald Eagle +,^ (*Haliaeetus leucocephalus*) | - | - | U | U |
| ___ Sharp- Shinned Hawk ^ (*Accipiter striatus*) | U | U | U | U |
| ___ Cooper's Hawk (*Accipiter cooperii*) | R | R | - | - |
| ___ Red- Tailed Hawk * (*Buteo jamaicensis*) | C | C | C | C |
| ___ Broad- Winged Hawk (*Buteo platypterus*) | - | R | O | - |
| ___ Prairie Falcon (*Falco mexicanus*) | - | - | R | - |

| Interpretive Service or Product: Education Curriculum | |
|---|---|
| Target Audience: | External – School groups, children |
| **Purpose/Need** | |
| *Critical Natural Resource Issue* | The education curriculum will help audiences understand how scientists detect the status and trends of park- specific resource issues. |
| *Human Dimension Component* | Park scientists participate in a variety of activities to protect the resources within parks. These ideas can be used to help children understand how the NPS protects park resources and learn about some of the tools and processes used for monitoring. |
| *Goals & Objectives* | The goal of the education curriculum is to raise awareness about how the HTLN conducts inventories and monitoring activities and preserves resources.<br>• Specific objectives are contained in each lesson plan. |
| **Product Summary Information** | |
| *Description /Summary (including duration)* | An array of curriculum and activity guides was reviewed for ideas/activities which pertain to the monitoring efforts of HTLN scientists. This product is a catalogue of education materials collected from peer- evaluated curriculum such as Project WET, Project WILD, and Project Learning Tree. Activities included in the guide should relate to park- specific resources that are being monitored. |
| *Message/Theme* | Park scientists use many different methods to understand park resources and examine how and why they might change overtime.<br>Themes (this should be specific to the curriculum chosen):<br>"Discover the clues of your national parks!"<br>"Become a scientist and investigate the secrets of your national parks!"<br>"Discover the natural treasures your national parks provide!"<br>"Uncover clues to discover the treasure of natural wonders!" |
| *Making Connections* | Children often come to national park units as part of a school group. With the increase in standardized testing, students and teachers are charged with learning specific material, by offering outlined educational programs, parks may be able to link park priorities with local and state learning objectives. Children engaging in hands- on learning activities can also develop a sense of stewardship as well as spark discussions between parents and children about park resources. |
| **Product Development** | |
| *Materials* | List of education activities broken down by priority area. Access to Project WET, Project WILD, Project WILD Aquatic and Project Learning Tree. |
| *Graphic Design & Artwork* | N/A |
| *Installation/ Set-up &/or Distribution* | Dependent on the activity chosen, there may be some set- up of materials. |
| *Staff Time Commitment* | Dependent on length of chosen activity. |
| *Background* | Environmental education (EE) definitions often articulate goals of fostering attitudes, motivations, and commitments toward the environment. The field of |

| | |
|---|---|
| | education has an important responsibility in providing the public with the necessary knowledge and skills to participate in solving environmental issues. Strong partnerships between school districts and HTLN parks can provide an opportunity for students to learn outside the classroom and help shape future stewards of the environment and constituents of the parks. Environmental Education is often integrated into science education and can easily be incorporated into outreach and education programs offered at network parks. Students often recognize the importance of civic and personal actions if they are involved in relevant, local environmental problems. Different approaches to EE may have an impact on how students form positive environmental attitudes and affect how engaged students feel.<br><br>Parks that wish to work collaboratively with local school districts should maintain a copy of local school district and state standards in order to develop appropriate programs.<br><br>The Environmental Education lessons included in this matrix have been found in nationally printed, widely available activity books sponsored by the Council for Environmental Education. These books include: Project WILD, Project Wild Aquatic, and Project Learning Tree. Other CEE books that may be useful include: WET in the City, Project Food, Land, People, and Project WET. A day of training is required to acquire these materials, but training sessions are presented nationwide and are a valuable experience. |
| *Timeline/Steps* | 1. Collection and evaluation of curriculum and activities to determine relevance of activity and issue to HTLN and network parks.<br>2. Choose an activity and follow the steps outlined. |
| *Additional Resources* | www.plt.org<br>www.projectwild.org<br>www.councilforee.org |
| **Cost** | |
| *Development Cost* | N/A |
| *Cost/unit* | N/A |
| *Shipping Costs* | N/A |
| *Total Estimated Cost* | Costs will be associated with the supplies needed to conduct each activity. |
| **Evaluation** | |
| | Evaluation techniques for specific activities are often included with the activity.<br>Evaluations of the usefulness and relevance of activities should be conducted by park staff to determine if the activity reaches its intended goals of increasing awareness about how the HTLN monitors park resources. |
| **Vendor Contact Information** | |
| *Company* | N/A |
| *Website* | N/A |
| *Contact Person* | N/A |
| *Email* | N/A |
| *Phone* | N/A |

| Interpretive Service or Product: Junior Ranger Component | |
|---|---|
| Target Audience: | External—Children visiting the park, K- 8 |
| **Purpose/Need** | |
| *Critical Natural Resource Issue* | Understanding the activities involved in preserving park resources. |
| *Human Dimension Component* | Park scientists participate in a variety of activities to protect the resources within parks including counting, detecting changes, and observing the plants and animals. Children can role- play as scientists and examine some of the resources within the parks. Interested students can complete a series of activities during their park visit, share their answers with a park ranger, and receive an official Junior Ranger badge or patch and Junior Ranger certificate. This HTLN component would augment existing park junior ranger programs. |
| *Goals & Objectives* | The goal of the junior ranger component is to stimulate thought and conversation in children in regards to activities conducted by the HTLN.<br>**Objectives:**<br>• Disseminate the component through all parks with existing junior ranger programs.<br>• Increase the number of children completing the junior ranger component.<br>• Participants will gain knowledge about the science and management actions required to protect natural areas. |
| **Product Summary Information** | |
| *Description /Summary (including duration)* | 8.5" x 11" two- fold brochure. This project will provide an experiential learning opportunity that broadens the scope of existing Junior Ranger programs by adding a "naturalist" component. The booklet will include interactive, experiential, and multi- sensory learning activities for children to promote an understanding of ways that the NPS and HTLN are protecting network parks through natural resource monitoring activities. Activities should be developed to communicate complex issues and guide children towards a sense of stewardship for their national parks. The attached template can be used as a guideline. |
| *Message/Theme* | Scientists of the HTLN and park managers are inventorying and monitoring natural resources within the National Parks to understand how the resources are changing over time and how to better protect them.<br>"Discover the clues of your national parks!"<br>"Become a scientist and investigate the secrets of your national parks!"<br>"Discover the natural treasures your national parks provide!"<br>"Uncover clues to discover the treasure of natural wonders!" |

| | |
|---|---|
| *Making Connections* | Junior Ranger Programs are designed to provide participants with the flexibility to see and interact with the park at their own pace and within the limits of their own time. Junior Ranger programs can be a first step in garnering student excitement and commitment to environmental education programs. Many National Parks offer visitors the opportunity to join the National Park Service Family as Junior Rangers. The junior ranger component can expand on individual parks' scheduled programs. These experiences are meant to increase understanding about how the NPS protects parks and can lead children to develop a sense of stewardship as well as spark discussions between parents and children about park resources. |
| **Product Development** | |
| *Materials* | Booklet, HTLN patch |
| *Graphic Design & Artwork* | A graphic design/print company such as Eastern National will develop junior ranger components including the design and artwork. |
| *Installation/ Set-up &/or Distribution* | Hand out booklet with unit's Junior Ranger component. |
| *Staff Time Commitment* | Considerable. The booklet is intended to complement existing Junior Ranger programs, thus each park will need to tailor the template to fit their needs. Children will receive a patch or badge (available through HTLN, while supplies last) after completion of the booklet. |
| *Background* | Most of the HTLN parks have a Junior Ranger program based on the focus of the park. These programs do not always contain information on the natural resources of the park. A Junior Ranger Naturalist program serves as an add-on module for students who wish a fuller park experience.<br><br>The HTLN is composed of 15 NPS units located in eight Midwestern states. These parks contain a wide variety of natural and cultural resources. Tallgrass prairies, oak savannas, hot springs and scenic riverways provide the backdrop for sites focused on commemorating civil war battlefields, Native American heritage, westward expansion, and our U.S. Presidents.<br><br>The nation- wide I&M Program bridges the gap between science and management with a third of its efforts aimed at making information accessible. Heartland Network scientists work cooperatively with other agencies (federal, state, and local), universities, and other organizations to conduct research. The Network is charged with creating inventories of its species and natural features as well as monitoring trends and issues in order to make sound management decisions. Critical inventories help park managers understand the natural resources in their care while monitoring programs help them understand meaningful change in natural systems and to respond accordingly. Monitoring priorities for the network include: biological integrity, geology & soils, water, air & climate, and landscapes. The Heartland Network helps to link natural and cultural resources by protecting the habitat of our history.<br><br>Children in grades K- 8 are often fascinated with science and enjoy participating in hands on activities. Many junior ranger activities can simulate the experiences of scientists conducting research in the HTLN in addition to presenting basic natural resource information and activities. Monitoring and measuring activities can be demonstrated through picture comparisons, |

| | |
|---|---|
| | observations, and critical thinking games. These activities may include two drawings of the same image were children would be directed to look for a number of things that have changed between the two pictures, simulating a monitoring exercise. A word search can be employed to introduce children to key terms and concepts related to HTLN activities. Pictures of flora and fauna can be used to demonstrate inventory activities by having children identify local inhabitants. Other activities could also include measuring and listening exercises demonstrating how NPS scientists are learning about resource change. |
| *Timeline/Steps* | 1. Combine HTLN junior ranger "naturalist" template and park specific junior ranger program ideas. Some customization of the program must be done at each park, and can build off of the template HTLN has developed as a basic structure for the program and recommended activities.<br>2. Determine appropriate activities that would compliment the existing program.<br>3. Gather or solicit appropriate pictures, illustrations, or line drawings needed for activities.<br>4. Design HTLN naturalist component combining artwork and activities as it will augment existing junior ranger programs.<br>5. Send component to printer or print in- house. Contact HTLN for availability of badge or patch.<br>6. Distribute to appropriate sites. |
| *Additional Resources* | www.nps.gov/webrangers/<br>www.nps.gov/learn/juniorranger.htm<br>science.nature.nps.gov/im/index.cfm<br>www1.nature.nps.gov/im/units/htln/index.htm |
| **Cost** | |
| *Development Cost* | TBD. Dependent upon the graphics resources used (outside designer), paper quality, number of pages, and the total quantity requested. |
| *Cost/unit* | TBD |
| *Shipping Costs* | TBD |
| *Total Estimated Cost* | TBD |
| **Evaluation** | |
| | • Number of parks distributing HTLN Junior Ranger Booklet in addition to existing program materials<br>• A record of the number of children successfully completing the Booklet can be taken.<br>• A measure of knowledge can be taken by assessing students' successfully completed booklet for accurate information. |

| Vendor Contact Information | |
|---|---|
| *Company* | Eastern National |
| *Website* | www.easternnational.org |
| *Contact Person* | Cathy Ervin- Nagle, Great Lakes Regional Office Manager<br>Jason Scarpello |
| *Email* | jasons@easternnational.org |
| *Phone* | 1- 800- 355- 5566 – Eastern National<br>Extension 159 – Jason Scarpello<br>419- 447- 0031 – Cathy Ervin- Nagle |

| Interpretive Service or Product: Patch | |
|---|---|
| Target Audience: | External –HTLN volunteers, Children (participants of Junior Ranger program) |
| **Interpretive intent and critical resource issues related to this individual service** | |
| *Interpretive intent* | Raising awareness through visual identity. |
| *Critical Resource issues* | N/A |
| *Human Dimensions Component* | The patch could be distributed with completion of the Junior Ranger booklet or given to volunteers participating in HTLN activities. |
| *Message* | N/A |
| *Description* | Design elements should be discussed among park and HTLN staff. The patch could represent the parks within HTLN and include the big bluestem grass as part of the logo. The patch could be in the shape of a water drop with a big-bluestem in the center to represent both water and land- based parks. |
| **Media and Methods** | |
| *Service Duration* | N/A |
| *Logistics* | N/A |
| *Staff Time Commitment* | N/A |
| **Set-up and Cost** | |
| *Graphic Design* | TBD |
| *Artwork* | TBD |
| *Materials* | TBD |
| *Installation* | N/A |
| *Set-up* | TBD |
| *Cost/unit* | TBD |
| *# of units* | TBD |
| *Shipping* | TBD |

| Vendor Contact Information | | | |
|---|---|---|---|
| *Company* | Sienna Pacific<br>Carlsbad, CA | Black Sea Promotions<br>Hillard, OH | American Patch & Emblem Company<br>Villanova, PA |
| *Website* | www.siennapacific.com | www.blackseapromo.com | www.americanpatch.com |
| *Contact Person* | TBD | TBD | TBD |
| *Email* | sales@siennapacific.com | sales@blackseapromo.com | info@americanpatch.com |
| *Phone* | 800- 394- 5111 | 614- 519- 5965 | 800- 752- 1667 |
| Evaluation | | | |
| | N/A | | |

| Interpretive Service or Product: Wayside Exhibit | |
|---|---|
| Target Audience: | External audience—Park visitors |
| **Purpose/Need** | |
| *Critical Natural Resource Issue* | The wayside exhibit can cover an array of park- specific issues such as water quality, invasive species, threatened & endangered species, adjacent- land use and air quality, including information about Heartland Network and I&M Program as a means to address these issues. These issues are long- term and thus appropriate for a more permanent exhibit. |
| *Human Dimension Component* | The wayside exhibit can identify and promote actions visitors can take to mitigate their impact on the landscape as well as make audiences aware of the benefits of the I&M Program and Heartland Network to gain institutional support for the program. |
| *Goals & Objectives* | The goal of the wayside exhibit is to raise awareness of Heartland Network issues and park- specific or I&M- wide issues to a broad audience.<br>• Wayside exhibits will be placed within each network park within X years.<br>• Viewers of the exhibit will be knowledgeable about the HTLN and some of its monitoring projects.<br>• Viewers of the exhibit will support HTLN programs. |
| **Product Summary Information** | |
| *Description /Summary (including duration)* | Wayside exhibits are roadside or trailside display panels, their size and shape can vary widely. Successful wayside exhibits inspire a connection between the visitor and the resource. Because they are located directly adjacent to features on the landscape, they foster an immediate and direct association of information and place. |
| *Message/Theme* | HTLN gathers credible scientific information and monitors resource vital signs and makes this information available to managers so that they can make sound management decisions.<br>Theme: The Heartland Network is protecting the habitat of our heritage. |
| *Making Connections* | Waysides give focus to significant features on the landscape and facilitate their connection to larger meanings. They foster a direct interaction between visitors and park resources. Outdoors, the physical landscape within the viewing area of the visitor, is the "original object" and waysides are the caption (HFC). |
| **Product Development** | |
| *Materials* | TBD |
| *Graphic Design & Artwork* | • High resolution images provided by park service staff and/or illustrations from artists at least 6.3MP (megapixel) or above, minimum requirement.<br>• Images should be captured in **raw** format (maximum **jpg** or **tiff** if raw is not available).<br>• Digital SLR (changeable lenses) recommended. |

## Design help from Harpers Ferry:

Start with the Site

Understand Visitor Experience

Visitors are out of their cars and on the move. What is the best location to capture their attention, encourage them to pause, and provide an interpretive moment? Envision yourself standing before a significant feature along a trail. Why did you stop where you did? If you have 3 seconds to grab a visitor's attention, what will spark a connection to the site? Do not expect anyone to read your carefully crafted text until they have some desire to read. There are some who will read every word you put before them, but aim for those visitors who are charging headlong through a park hoping to have a great time. Consider young children and non- English speakers. As they charge through, grab a moment of their time by grabbing their attention. Take 30 seconds to keep them engaged with a dynamic visual presentation that makes an immediate connection to the landscape. Use carefully crafted words to reveal that, yes, this is the site, the actual place, the "original object." But do not keep their attention away from the landscape too long by expecting them to read in-depth information or get the whole story because, after all, their experience should be of the park itself. Seek to interpret – spark the questions, and let them move on up the trail to further their firsthand experience.

**Find a Connection**

Assume you are standing in some special place with a group of visitors and can have anything you want to help reveal the meaning of the site. If you are standing before FDR's library, you might want FDR with you holding his architectural drawings. On a battle site, you might want the soldiers around you, guns at the ready. In a desert landscape you might like to have all the creatures that call the place home. In front of a historic building you might like to peek inside and see the original occupants going about their business. Or perhaps you need to fly above the site to see the differences in vegetation. What will reveal the meaning of the place?

**Think large.**

With this exercise, you have begun visualizing what you will need to develop an effective wayside exhibit. How do you convert these ideas into a visual form? Think about the graphic that will speak a thousand words. Put the soldiers back on the battlefield by developing an illustration of the site at the time of the battle. Is there a photograph of FDR in front of the library with his drawing in hand? Gather all the creatures of the desert together in a series of photographs, or perhaps develop a new illustration. Is there a photograph of the interior space of the historic building, a drawing, or portraits? Look for an aerial photo from above the site to give focus to a subtle landscape detail. As you consider graphic selection, keep the wayside purpose and context in clear focus. It is important to remember that the landscape is part of the design solution.

**Sketch Thumbnails**

While your team (subject matter expert, writer, designer, interpreter) is on site get your ideas on paper so you can share them with others. Make a thumbnail sketch yourself, or have a designer do the drawing to help facilitate the discussion. Sketch small to encourage simplicity and focus. Have actual graphics on hand but do not be limited by them. Brainstorm ideas and draw

| | |
|---|---|
| | them all. The quality of the drawing is not as important as the ability to show ideas, hierarchy of information, and graphic options.<br><br>**Develop the Graphic Layout**<br>Up to this point, the design process has not involved expensive or sophisticated software programs, nor the need to scan images or develop layouts. After you have sketched your wayside ideas and have agreed on what the interpretive focus will be, then you can move forward to consider panel size, reproduction methods, typography, graphic elements etc. This web site is loaded with helpful information and PDF downloads that can be helpful throughout the process.<br><br>**Look for Patterns**<br>One of the tools used by the National Park Service is an underlying grid. The purpose of the grid is to create a consistent recognizable format for organizing and presenting information to the public. Another added benefit is that it helps to streamline the process of producing hundreds of new waysides each year. The grids are not templates like those found on the graphic identity web site; they do not contain picture boxes, text boxes and other preset features. The NPS wayside grids along with the National Park Service identity standards, editorial standards, map standards, consistent work processes, and long- term maintenance help keep costs down and visitor confidence in the wayside media at a high level. |
| *Installation/ Set-up &/or Distribution* | Variable (dependent upon site location) |
| *Staff Time Commitment* | Considerable –Research and design, exhibit construction, maintenance and upkeep. Maintaining current information - Staff will also be required to produce new and updated information as needed. |
| *Background* | Current monitoring projects for the Heartland Network include:<br><br>1. **Adjacent Land Use** – Network scientists are trying to determine whether the species, communities and ecological processes of small remnant and restored prairies are sustainable in the face of adjacent habitat loss and fragmentation. The relatively small Prairie Cluster parks are bordered by adjacent land uses ranging from cattle grazing of native rangeland, to cultivated agricultural fields, to rapid urban development. A key aspect of measuring the effects of isolation and fragmentation is documenting past and current land uses and analyzing rates of land use change.<br><br>2. **Aquatic Macroinvertebrates** - Urban and agricultural run off, treated sewage, and changes in hydrology all threaten water quality in small prairie streams. Concerns over declining surface water quality have led to the development of many techniques to assess stream water quality.<br><br>Biomonitoring uses living organisms to measure stream water quality along a gradient of conditions from unimpaired (pristine) to severely impacted (heavily polluted and/or disturbed). As such, the National Park Service has implemented monitoring of aquatic macroinvertebrates to track trends in and identify conditions affecting stream water quality. |

3. **Fish Communities** – The trends and status of many fish communities in the Heartland Network are unknown. The Topeka Shiner, a federally listed endangered species and a network inhabitant, is currently being monitored by the HTLN. Network parks may provide some of the least degraded low order stream habitat remaining in the historic range of the Topeka shiner, and may be critical to recovering the species.
4. **Grassland Birds** - North American grasslands once covered vast areas of the continent. However, at present most have been altered or have ceased to exist as functioning prairie ecosystems with their full compliment of plant and animal species. Initial grassland bird inventories have shown that most parks within the network have insufficient grassland habitat to support large numbers of grassland birds.
5. **Invasive Non- Native Plants** - Invasive non- native plants are often of concern given their abilities to reproduce prolifically, to rapidly colonize new areas, to displace native species, to alter ecosystem processes, and to detract from the interpretive value of park resources. A wide range of plants that invade grasslands and forests are known to occur in or near all Heartland Network parks. Invasive non- native plant monitoring on network parks will involve two approaches: 1) identification of existing plant invasions that require management and monitoring and 2) early detection of invasive plant establishment.
6. **Local Climate** - Monitoring local weather and climate conditions associated with rare plant habitats may help to explain fluctuations in population number. The HTLN is monitoring the interaction of weather and physical site conditions including information about soil moisture and temperature, drought, frost cycles, and precipitation as several network parks.
7. **Missouri Bladderpod** – The habitat of the Heartland Network native, Missouri bladderpod, a threatened annual wildflower, is in jeopardy due to urban development, agriculture, wildfire suppression, and invasive species encroachment.
8. **Plant Communities** – The native Midwestern tall grass prairie ecosystem is in jeopardy due to fragmentation, disturbance of natural grazing and fire regimes, and invasive species. These native prairies provide the backdrop for understanding the historical and cultural influences of the landscape.
9. **Prairie Dogs** – The black- tailed prairie dog's historical population has been reduced to only 1% of its original range. Managers are making efforts to maintain viable populations of this keystone species.
10. **State- listed Rare Plants** – The Heartland Network is dedicated to preserving populations of native plant species of concern on a local, regional, and state level. Scientists are determining if park rare plants are able to persist over time and the issues influencing their traditional habitats.
11. **Western Prairie Fringed Orchid** – The Western Prairie Fringed Orchid, a threatened species under the Endangered species act, is a native to the tallgrass prairies of the Heartland Network. As the prairies are threatened, so too is the existence of this wildflower.

| | |
|---|---|
| | Current monitoring priorities for Heartland Network parks can be broadly categorized:<br>1. **Biological Integrity** – Including native, threatened or endangered species, ecosystem structure, and invasive species.<br>2. **Geology & Soils** – Including geomorphology and erosion control.<br>3. **Water** – Including spring and stream discharge, macroinvertebrates, and water quality issues such as pollutant metals or pathogens.<br>4. **Air & Climate** – Including air quality issues such as ozone, particulate matter, and deposition. As well as climate and weather issues.<br>5. **Landscapes** – Including land/waterway adjacent use and management. |
| *Timeline/Steps* | 1. Contact Harpers Ferry Center: Harpers Ferry Center will provide assistance with media development strategies and cost estimates. Call or email them to learn more about funding a wayside exhibit project, to obtain wayside exhibit cost estimates, to get answers to your wayside exhibit questions, or for HFC assistance in developing and producing wayside exhibits.<br>2. Secure the Funding: Based on the work plan and cost estimate, identify the funding source and secure the funds needed to accomplish the project.<br>3. Approve the Project Agreement: Harpers Ferry Center will draft a Project Agreement based on your work request. A Project Agreement identifies background and objectives, a work plan, the roles and responsibilities of each team member including the park staff, an outline of the project schedule, and the project budget. The draft Project Agreement will be provided for your review and approval.<br>4. Execute the Project Agreement: Now it is time to begin the project. The wayside work process details the tasks and products in seven distinct phases. See HFC website for further information. |
| *Additional Resources* | For further information regarding current monitoring projects, visit the HTLN monitoring website and associated links:<br>www.nature.nps.gov/im/units/htln/monitoring/projects/projects.htm<br>The following are a list of resources for some of the top network- wide issues that could be used to develop text/graphics for the exhibit.<br>**Biological Integrity:**<br>Endangered species<br>www.endangeredspecie.com/<br>www.fws.gov/endangered/wildlife.html<br>www.fws.gov/endangered/kids/index.html<br>www.panda.org/about_wwf/what_we_do/species/index.cfm<br>**Non- native species:**<br>www.invasivespeciesinfo.gov/other/main.shtml |

invasivespecies.nbii.gov/

www.invasive.org

www.nps.gov/plants/alien/moreinfo.htm

tncweeds.ucdavis.edu/

www.fws.gov/contaminants/Issues/InvasiveSpecies.cfm

www.epa.gov/glnpo/greenacres/nativeplants/index.html

**Prairies:**

www.museum.state.il.us/muslink/prairie/htmls/re_websites.html

www.inhf.org/prairiemgmt.htm

www.michigandnr.com/publications/pdfs/huntingwildlifehabitat/Landowners_Guide/Habitat_Mgmt/Grassland/Prairie_Restorations.htm

**Geology and Soils:**

en.wikipedia.org/wiki/Geomorphology

www.geomorphology.com/

www.ieca.org/

www.usgs.gov/

**Water quality:**

water.usgs.gov/

www.nal.usda.gov/wqic/

www.epa.gov/water/kids/waterforkids.html

www.epa.gov/water/index.html

**Air & Climate:**

www.epa.gov/ebtpages/air.html

airnow.gov/

www.usgcrp.gov/usgcrp/Library/nationalassessment/overviewmidwest.htm

yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/SHSU5BPKL7/$File/chicago.pdf

www.nsc.org/ehc/climate/ccu0700.htm

**Landscapes:**

en.wikipedia.org/wiki/Habitat_fragmentation

| Cost | |
|---|---|
| *Development Cost* | TBD |
| *Cost/unit* | **Variable:** In addition to funding fabrication costs, parks are charged $750 per wayside exhibit panel to assist with increased design service costs. |
| *Shipping Costs* | TBD |
| *Total Estimated Cost* | TBD |
| **Evaluation** | |
| | • The first objective can be measured by the presence or absence of the sign.<br>• Visitor knowledge can be measured through a survey or through staff observation.<br>• Visitors will request more information about the HTLN and their associated programs. |
| **Vendor Contact Information** | |
| *Company* | Harper's Ferry: Wayside Technical Assistance Program* |
| *Website* | http://www.nps.gov/hfc/products/waysides/index.htm |
| *Contact Person* | Program manager: Winnie Frost |
| *Email* | Winnie_Frost@nps.gov |
| *Phone* | 304- 535- 6043 |

# *HFC Technical Assistance Program

The technical assistance program focuses on small wayside projects (**no more than six panels**) for which parks have available funds and well- developed content, typically draft text and graphics. The goal of the program is to speed the delivery of wayside exhibits while ensuring that NPS editorial, design, and production standards are maintained.

Parks must submit a Wayside Exhibit Technical Assistance Application (PDF) and an HFC Direct Charge Authorization Form (PDF), along with a resource package (text, graphics, sketch and site location photo). Technical Assistance requests are accepted on a first- come, first- served basis. Parks that require original art will need a two- year cycle for completion: one year for art development and the second year for wayside design and fabrication.

The Technical Assistance Program requires that a park be willing to make a significant investment of time and effort in planning its exhibits. As the subject matter expert, the park is responsible for preparing draft text for each wayside, acquiring support graphics, preparing maps (HFC can supply suggestions for map contractors), and sketching a rough layout that reflects the exhibit's interpretive intent. These items (text, graphics, maps, rough layouts, and a photo of each wayside site location) constitute the resource packages from which the exhibits are developed.

Several factors will be considered when determining if a project is suitable for the Technical Assistance Program.

All proposed exhibits should be consistent with the park's overall wayside exhibit goals. If a park wide wayside exhibit proposal (an approved list of wayside exhibit subjects, locations, and purposes) does not exist, you will be encouraged to develop one before acquiring exhibits that may not be appropriate to long- term interpretive goals.

Resource packages for each exhibit should be complete at the time of submission.

Submissions should be limited to no more than **six exhibits**. The intent of the program is to provide a rapid response on projects of limited size. Larger projects are better accomplished through traditional planning and design procedures.

Project funding must be secured by the park. A completed HFC Direct Charge Authorization Form must be on file. **In addition to funding fabrication costs, parks are charged $750 per wayside exhibit panel** to assist with increased design service costs. For example, if you are doing **two panels** add **$1,500** to the cost.

Projects that require the creation of original art and/or maps will be reviewed for their complexity and appropriateness.

| Interpretive Service or Product: Bookmarks | |
|---|---|
| Target Audience: | External – Park visitors<br>Internal – Park staff |
| **Purpose/Need** | |
| *Critical Natural Resource Issue* | Issues and benefits of HTLN – these can be park specific. |
| *Human Dimension Component* | This bookmark will convey short messages about the issues addressed by the HTLN. Succinctly communicated messages can be a good first start to spark interest in the work that the HTLN conducts. |
| *Goals & Objectives* | Goal: Increase awareness of HTLN programs and benefits.<br>• Disseminate bookmarks through visitor centers and promotional materials.<br>• Recipients will seek further information regarding the HTLN. |
| **Product Summary Information** | |
| *Description /Summary (including duration)* | Bookmarks will be 2"x 7 ½ ". Information will include inspiring quotes, current monitoring efforts and benefits. The quotes and high quality images will be used to link messages about park specific critical resources. |
| *Message/ Theme* | By monitoring natural resources, the HTLN is protecting the habitat of our heritage. |
| *Making Connections* | High quality bookmarks can also be sold as a collectable item. Visitors could collect bookmarks from each network park. In this way, they can be introduced to the variety of monitoring activities that occur throughout the network. |
| **Product Development** | |
| *Materials* | Prototype provided in Microsoft Publisher, see "Template CD."<br>Cardstock<br>Information on bookmarks may be time sensitive. Updating information regularly ensures distribution of accurate information. |
| *Graphic Design & Artwork* | High quality images. |
| *Installation/ Set-up &/or Distribution* | No installation required.<br>Distribution via visitor center gift shops and informational/promotional packets. |
| *Staff Time Commitment* | Medium (time to place in appropriate venues and time to update bookmarks to ensure information they are covering is current with issues addressed at the time.) |
| *Background* | Preserving the national parks unimpaired for the enjoyment of future generations is the fundamental purpose of the National Park Service. Critical to this endeavor is knowing the condition of natural resources in the national parks. National Park |

managers across the country are confronted with increasingly complex and challenging issues that require a broad- based understanding of the status and trends of each park's natural resources. This information serves as a basis for making decisions, working with other agencies, and communicating with the public to protect park natural systems and native species. To provide park managers with the information they need the National Park Service has embarked on a new era of science- based management. The NPS has initiated a service- wide, network- based natural resource Inventory and Monitoring Program (I&M) to address the lack of credible scientific information available to parks. An essential component of this strategy is park vital signs monitoring, a national effort to characterize and determine trends in the condition of park natural resources. Trend information is essential to assess the effectiveness of management and restoration activities, and to provide early warning of impending threats.

The five goals of the I&M Program are to:

1. Inventory the natural resources and park ecosystems under National Park Service stewardship to determine their nature and status.
2. Monitor park ecosystems to better understand their dynamic nature and condition and to provide reference points for comparisons with other, altered environments.
3. Establish natural resource inventory and monitoring as a standard practice throughout the National Park system that transcends traditional program, activity, and funding boundaries.
4. Integrate natural resource inventory and monitoring information into National Park Service planning, management, and decision making.
5. Share National Park Service accomplishments and information with other natural resource organizations and form partnerships for attaining common goals and objectives.

When fully operational, monitoring programs will provide important feedback between natural resource condition and management objectives, which can serve both to trigger management actions and to evaluate managerial effectiveness. By developing this type of sound technical information on park resources and ecological processes, the Natural Resource Inventory and Monitoring Program will improve NPS' natural resource stewardship capabilities.

Bookmarks could serve as the lead- in for a host of issues.

Current monitoring projects for the Heartland Network include:

12. Adjacent Land Use
13. Aquatic Macroinvertebrates
14. Fish Communities
15. Grassland Birds
16. Invasive Non- Native Plants
17. Local Climate
18. Missouri Bladderpod
19. Plant Communities
20. Prairie Dogs
21. State- listed Rare Plants
22. Western Prairie Fringed Orchid

| | |
|---|---|
| | Current monitoring priorities for Heartland Network parks include:<br>1. Exotic Forest Species<br>2. Land Use/Land Cover<br>3. Forest Community Structure, Composition, and Diversity<br>4. Breeding Bird Communities<br>5. Chemical- Stream Core Elements<br>6. Physical- Stream Discharge<br>7. Climate- Weather Patterns<br>8. Stream macroinvertebrates<br>9. Chemical- Nutrient Loading<br>10. Air Quality- Chemical & Physical |
| *Timeline/ Steps* | 1. Determine desired monitoring issue, benefit, or program to communicate.<br>2. Locate appropriate image and quote (a listing of some quotations can be found in the appendix below).<br>3. Using bookmark template, format text and objects.<br>4. Send to printer! |
| *Additional Resources* | Nature quotes:<br>www.wisdomquotes.com/cat_nature.html<br>www.naturenode.com/quotes/quotes.html<br>www.brainyquote.com/quotes/topics/topic_nature.html<br>www.quotegarden.com/nature.html<br>en.thinkexist.com/quotations/nature/<br>Information on current Heartland Network Projects:<br>www.nature.nps.gov/im/units/htln/monitoring/projects/projects.htm |
| **Cost** | |
| *Development Cost* | TBD |
| *Cost/unit* | TBD |
| *Shipping Costs* | TBD |
| *Total Estimated Cost** | TBD |
| **Evaluation** | |
| | • Dissemination measured by the number of requests by parks for additional bookmarks to distribute.<br>• Evaluate the number of purchased bookmarks and the number of recipients requesting further information about bookmark issues. |

| Vendor Contact Information | |
|---|---|
| *Company* | Government Printing Office |
| *Website* | www.gpo.gov |
| *Contact Person* | Chicago Regional Printing Office, Clint Mixon<br>Columbus Regional Printing Office, Aurelio E. Morales |
| *Email* | Chicago: infochicago@gpo.gov<br>Columbus: infocolumbus@gpo.gov |
| *Phone* | Chicago: 312- 353- 3916<br>Columbus: 614- 488- 4616 |

# Quotation Appendix

## Nature Quotes:

*Those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts.*
Rachel Carson

*Not only does nature sustain us physically, it can also engender in us, if we allow it, a... sense of wonder so indestructible that it would last throughout life, as an unfailing antidote against... alienation from the sources of our strength.*
Rachel Carson

*In the end we will conserve only what we love; we will love only what we understand; and we will understand only what we have been taught.*
Baba Dioum

*When one tugs at a single thing in nature, he finds it attached to the rest of the world.*
John Muir

*Look deep into nature, and then you will understand everything better.*
Albert Einstein

*Joy in looking and comprehending is nature's most beautiful gift.*
Albert Einstein

*The violets in the mountains have broken the rocks.*
Tennessee Williams

*One touch of nature makes the whole world kin.*
William Shakespeare

*To waste, to destroy, our natural resources, to skin and exhaust the land instead of using it so as to increase it's usefulness, will result in undermining in the days of our children the very prosperity which we ought by right to hand down to them amplified and developed.*
Theodore Roosevelt

*Anything else you're interested in is not going to happen if you can't breathe the air and drink the water.*
Carl Sagan

*Rivers are magnets for the imagination, for conscious pondering and subconscious dreams, thrills and fears. People stare into the moving water, captivated, as they are when gazing into a fire. What is it that draws and holds us? The rivers' reflections of our lives and experiences are endless. The water calls up our own ambitions of flowing with ease, of navigating the unknown. Streams represent constant rebirth. The waters flow in, forever new, yet forever the same; they complete a journey from beginning to end, and then they embark on the journey again.*
From Lifelines by Tim Palmer

*When we save a river, we save a major part of an ecosystem, and we save ourselves as well because of our dependence- - physical, economic, spiritual,- - on the water and its community of life.*
Tim Palmer

*Filthy water cannot be washed.*
West African Proverb

*What good is a house, if you haven't got a decent planet to put it on?*
Henry David Thoreau

*Water is the driving force of all nature.*
Leonardo da Vinci

*Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has.*
Margaret Mead

*If future generations are to remember us with gratitude rather than contempt, we must leave them something more than the miracles of technology. We must leave them a glimpse of the world as it was in the beginning, not just after we got through with it.*
President Lyndon B. Johnson, on signing the Wilderness Act of 1964

*High quality water is more than the dream of the conservationists, more than a political slogan; high quality water, in the right quantity at the right place at the right time, is essential to health, recreation, and economic growth.*
Edmund Muskie, U.S. Senator

*Water is the most critical resource issue of our lifetime and our children's lifetime. The health of our waters is the principal measure of how we live on the land.*
Luna Leopold

## George Washington Carver Quotes:

- I wanted to know the name of every stone and flower and insect and bird and beast. I wanted to know where it got its color, where it got its life - - but there was no one to tell me.
- Young people, I want to beg of you always keep your eyes open to what Mother Nature has to teach you. By so doing you will learn many valuable things every day of your life.
- Reading about nature is fine, but if a person walks in the woods and listens carefully, he can learn more than what is in books, for they speak with the voice of God.
- Nothing is more beautiful than the loveliness of the woods before sunrise.

- I love to think of nature as an unlimited broadcasting station, through which God speaks to us every hour, if we will only tune in.
- Our creator is the same and never changes despite the names given Him by people here and in all parts of the world. Even if we gave Him no name at all, He would still be there, within us, waiting to give us good on this earth.
- Education is the key to unlock the golden door of freedom.
- Since new developments are the products of a creative mind, we must therefore stimulate and encourage that type of mind in every way possible.
- How far you go in life depends on your being tender with the young, compassionate with the aged, sympathetic with the striving and tolerant of the weak and strong. Because someday in your life you will have been all of these.
- Ninety- nine percent of the failures come from people who have the habit of making excuses.
- When you do the common things in life in an uncommon way, you will command the attention of the world.
- Where there is no vision, there is no hope.
- When our thoughts - which bring actions - are filled with hate against anyone, Negro or white, we are in a living hell. That is as real as hell will ever be.
- Fear of something is at the root of hate for others, and hate within will eventually destroy the hater.
- We have become ninety- nine percent money mad. The method of living at home modestly and within our income, laying a little by systematically for the proverbial rainy day which is due to come, can almost be listed among the lost arts.
- When you do the common things in life in an uncommon way, you will command the attention of the world.

zaadz.com/quotes/authors/george_washington_carver/
en.thinkexist.com/quotes/george_washington_carver/

## Herbert Hoover Quotes:

- About the time we think we can make ends meet, somebody moves the ends.
- America - a great social and economic experiment, noble in motive and far-reaching in purpose.
- Engineering is a great profession. There is the satisfaction of watching a figment of the imagination emerge through the aid of science to a plan on paper. Then it moves to realization in stone or metal or energy. Then it brings homes to men or women. Then it elevates the standard of living and adds to the comforts of life. This is the engineer's high privilege.
- Words without actions are the assassins of idealism.

en.thinkexist.com/quotes/herbert_hoover/
www.saidwhat.co.uk/quotes/h/herbert_hoover_1283.php
www.brainyquote.com/quotes/authors/h/herbert_hoover.html

## Abraham Lincoln Quotes:

- I like to see a man proud of the place in which he lives. I like to see a man live so that his place will be proud of him
- It often requires more courage to dare to do right than to fear to do wrong.
- America will never be destroyed from the outside. If we falter and lose our freedoms, it will be because we destroyed ourselves.
- Every blade of grass is a study; and to produce two, where there was but one, is both a profit and a pleasure.
  - - From the September 30, 1859 Address before the Wisconsin State Agricultural Society

## Mark Twain Quotes:

- There is something fascinating about science. One gets such wholesome returns of conjecture out of such a trifling investment of fact.
- If we hadn't our bewitching autumn foliage, we should still have to credit the weather with one feature which compensates for all its bullying vagaries —the ice- storm: when a leafless tree is clothed with ice from the bottom to the top — ice that is as bright and clear as crystal; when every bough and twig is strung with ice- beads, frozen dewdrops, and the whole tree sparkles cold and white, like the Shah of Persia's diamond plume. Then the wind waves the branches and the sun comes out and turns all those myriads of beads and drops to prisms that glow and burn and flash with all manner of colored fires, which change and change again with inconceivable rapidity from blue to red, from red to green, and green to gold —the tree becomes a spraying fountain, a very explosion of dazzling jewels; and it stands there the acme, the climax, the supremest possibility in art or nature, of bewildering, intoxicating, intolerable magnificence. One cannot make the words too strong.
- It is just like man's vanity and impertinence to call an animal dumb because it is dumb to his dull perceptions.
- Warm summer sun, shine kindly here; Warm southern wind, blow softly here; Green sod above, lie light, lie light — Good night, dear heart, good night, good night.

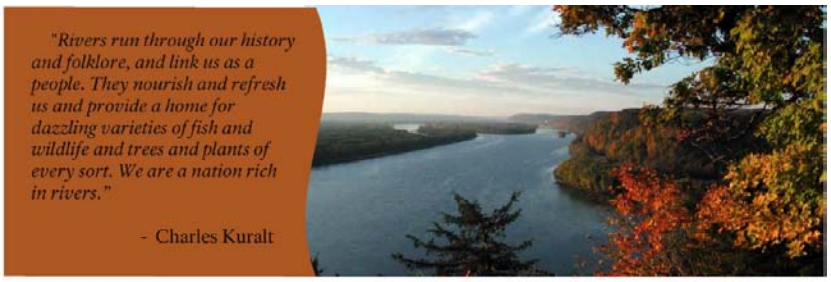
## Aldo Leopold Quotes

- A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise.
- A land ethic ... reflects the existence of an ecological conscience, and this is turn reflects a conviction of individual responsibility for the health of the land. Health is the capacity of the land for self- renewal. Conservation is our effort to understand and preserve this capacity.
- ON THE ANCIENT BATTLE BETWEEN THE PRAIRIE AND THE OAKS: But the average battle line between prairie and forest was about where it is now, and the net outcome of the battle was a draw. One reason for this was that there were allies that threw their support first to one side, then to the other. Thus rabbits and mice mowed down the prairie herbs in the summer, and in winter girdled any oak that survived the fires. Squirrels planted acorns in the fall, and ate them all the rest of the year. June beetles undermined the prairie sod in their grub stage, but defoliated the oaks in their adult stage. But for this geeing and hawing of allies, and hence of the victory, we should not have today that rich mosaic of prairie and forest soils which looks so decorative on the map." (pp. 29 and 31).

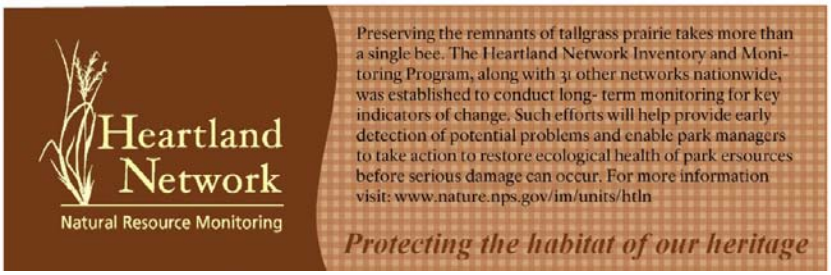
- In the 1840's a new animal, the settler, intervened in the prairie battle. He didn't mean to, he just plowed enough fields to deprive the prairie of its immemorial ally: fire. Seedling oaks forthwith romped over the grasslands in legions, and what had been the prairie region became a region of woodlot farms. If you doubt this story, go count rings on any set of stumps on any "ridge" woodlot in southwest Wisconsin. All trees except the oldest veterans date back to the 1850's and the 1860's, and this is when fires ceased on the prairie." (p. 31).
- ON THE DEATH OF A REMNANT PRAIRIE PLANT (SILPHIUM): "Hereftofore unreachable by scythe or mower, this yard- square relic of original Wisconsin gives birth, each July to a man high stalk of compass plant or cutleaf Silphium, spangled with saucer- sized yellow blooms resembling sunflowers. It is the sole remnant of this plant along this highway, and perhaps the sole remnant in the western half of our county. What a thousand acres of Silphiums looked like when they tickled the bellies of the buffalo is a question never again to be answered, and perhaps not even asked." (p. 49).
- "When I passed this graveyard again on 3 August, the fence had been removed by a road crew, and the Silphium cut. It is easy now to predict the future; for a few years my Silphium will try in vain to rise above the mowing machine, and then it will die. With it will die the prairie epoch." (p.49).
- "If I were to tell a preacher of the adjoining church that the road crew has been burning history books in his cemetery, under the guise of mowing weeds, he would be amazed and uncomprehending. How could a weed be a book?" (p. 50).
- Conservation is a state of harmony between men and land.

## Book mark 1

Front




Back




## Bookmark 2

Front

Back

## Book Mark 3

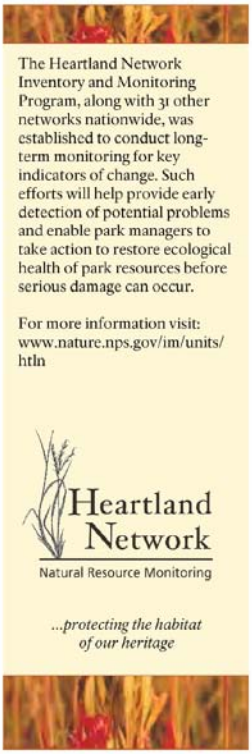
Front

Back

## Bookmark 4

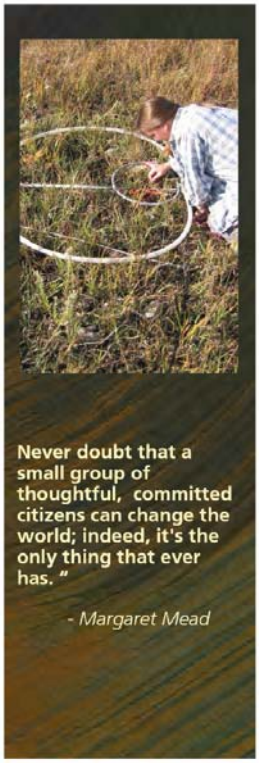
Front

Back



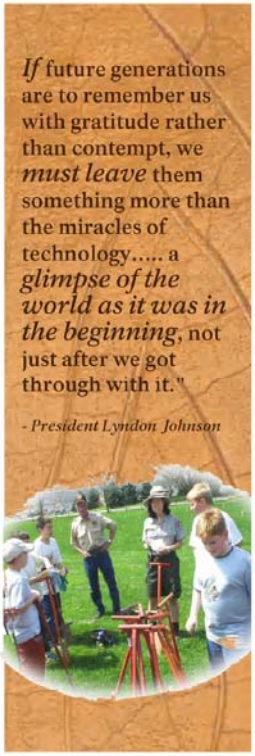

## Bookmark 5

## Bookmark 6



## Bookmark 7

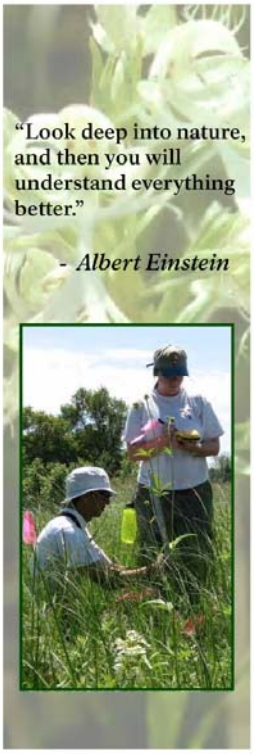
Front




Back

## Bookmark 8

Front




Back