



**BERGEN SWAMP
PRESERVATION SOCIETY**

HEURISTIC REPORT

2017



EXECUTIVE SUMMARY

Bergen Swamp preservation society is an educational institution whose purpose is to conserve the flora and fauna of its Upstate New York properties. The institution currently has a website where the users, volunteers and donors can have access to the relevant information needed. The heuristic evaluation is being carried out for the website considering the 15 Heuristic principles followed in HCIN-630 class. The main principles that were being violated on the site were external consistency, internal consistency, selection of design patterns and error prevention in some cases. Each principle is discussed below in detail stating the reason of why it is being violated. The document discusses the product, the methodology for the evaluation, the heuristics in detail and conclusion.

PRODUCT DESCRIPTION

Bergen Swamp Preservation Society is a New York State living museum that focuses on conserving the flora and fauna on the 5 upstate properties. The swamp is a private land trust that is taken care of by volunteers and trustees who work to upkeep the land preserves as nature intended, since 1936.

This site was devised to make the swamp more accessible for interested visitors and donors, who could simply look up information about the swamp, establish communication with the community, visit the properties, become members of the society, and possibly donate to aid the preservation of these estates.

SALIENT FEATURES:

Previous version of this site used to contain simple HTML code that gave basic information about the rich flora and fauna residing in the swamp, the member and visitor policies.

The revamped version of the site gives in depth information about:

- The swamp and its neighbouring properties
- The research conducted on the preservation site
- Latest events and news
- Their collaborations with other communities
- Links to their social media accounts
- Send visitor requests
- Donate money via PayPal
- View photos of the sites
- Contact if have any request or questions

Some of the best ways to gain attention for a site like this is to update social media accounts where photographs and events happening in and around the Bergen Swamp. The more the posts are shared and liked on these pages, the more likely it is for the site to gain members, researchers, and donors.

INDUSTRY/ MARKET SEGMENT:

Bergen Swamp was established as a private land trust in 1936 where the organisation consists of only volunteers and trustees who are not paid for their services rendered to the swamp. The expenses incurred for the upkeep of the site is financed through donations given by the members of the society and they do not get government funding. The trustees of the BSPS are listed on the site and they have a few hundred members that are a part of this organisation.

The site is looking to gain more attention from the nature lovers and the scientific community since they are the ones who can donate, conduct researches and volunteer in the swamp. The swamp also has a lot of cultural value since there are a lot of folk tales and stories that make the visit to the swamp all the more exciting.

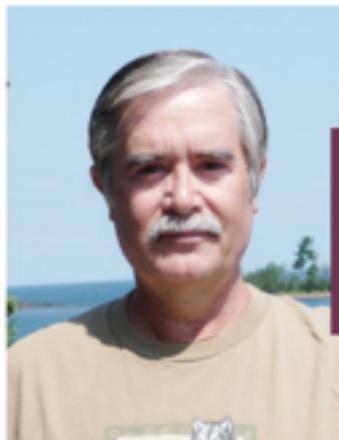
EXPECTED ENVIRONMENT OF USE:

This website can be used across almost all platforms, computers, tablets, and mobile devices. Since this is a site that will be accessed by the user when they are the most leisure, they will be accessing the website from the comfort of their home. The researchers might look into the website from their work station.

TECHNOLOGY USED IN THE PRODUCT:

HTML5: setup basic elements of the website
CSS3: style the interface
Bootstrap: create responsive mobile pages
SQL: collect data entered by the user in various forums around the site

USER PROFILES



Joe Biden

Retired Police Officer - NYPD

"My idea of a good vacation is hiking around a scenic location and taking pictures of flowers and animals. I also am an avid bird-watcher, I write down the names of every type of bird I identify."

ABOUT JOE

Age: 61

Language: English

Residence: Fairport, NY

Status: Married

DESCRIPTION

After retirement Joe opened up a small bakery in Fairport where he sells his infamous 'pumpkin pie'. On the weekends he likes to spend time with his grandchildren. He helps his grandson train for the small league baseball team and in turn his grandson helps him use the iPad. Joe now uses his iPad to share pictures of the birds he finds around his backyard to his likeminded friends.

Computer Literacy



Internet Connectivity



Social Media Activity



BRANDS





Regina Mills

Sophomore - James Monroe High School

"My mother is an archaeologist and she has always romanticized folklore and cultural artifacts. I get my love for exploring land masses that is untouched by man from her. The stories I hear from the locals in these places feeds to my imagination and get my creative juices flowing for my own stories."

ABOUT REGINA

Age: 16

Language: English, Spanish

Residence: Rochester, NY

Status: Single

BRANDS



DESCRIPTION

Regina has a deep rooted interest in English Literature and creative writing. She also shares her mother's passion for history. Regina spends her holidays accompanying her mom in expeditions and visit local treasures on long weekends. She also likes to share details of her visit with her friends and family through social media.

Computer Literacy

Internet Connectivity

Social Media Activity



Liza Pozzi

Senior Lecturer (Botany) - Cornell University

"A preservation land trust is a botanist's treasure cove where there is an abundance of research material. Us botanists, are tight-knit, we share a lot of information about our research site for fellow researchers and blossoming botanists on our official website."

ABOUT LIZA

Age: 53

Language(s): English, Italian

Residence: Ithaca, NY

Status: Married

BRANDS



DESCRIPTION

Liza is a seasoned botanist who is now a senior lecturer for the Department of Agricultural and Life Sciences. She has 17 years of experience as a researcher in botany and zoology. She encourages her students to bring in new research ideas about the fauna found in their own backyard. That is the beauty of nature, it finds new ways to surprise us! She shares interesting facts and findings on Facebook.

Computer Literacy

Internet Connectivity

Social Media Activity

METHODOLOGY

VERSION OF PRODUCT TESTED:

The product we tested was the Bergen Swamp Preservation Society website. We observed a couple of changes in the product, limited to the calendar and events, during the duration of the test. The following images show the current version of the product.

<http://www.bergenswamp.org/>



Home Page

EVALUATION DURATION:

The evaluation was conducted between February 16th, 2017 and February 23rd, 2017 with multiple run throughs to account for any changes made to the website between the start and end dates.

METHOD FOLLOWED DURING EVALUATION:

The team had a video call with the client and came up with a set of user profiles and personas. These user profiles were created to understand the potential users of the website. Each member of the team evaluated the website as one of the user we profiled. The most common use case indicated that the user would probably use the website on their tablets, desktop or laptop computers and hence we evaluated on screen sizes ranging from 10 inches to 23 inches. The heuristics evaluation of each member was shared with the team via Google Drive and the results were discussed and added into the report.

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HEURISTIC USED:

- **EXTERNAL CONSISTENCY**

The system uses interactions and design patterns that are consistent with the platform and analogous systems.

- **WIDGETS AND LABELS NEAR TARGETS**

Place widgets (controls) adjacent to their respective targets of operation and labels on, or directly adjacent to, their associated controls.

- **GROUP LIKE WIDGETS/FUNCTIONS**

Use the gestalt principles of proximity, similarity and closure to group widgets with similar functionality.

- **FREQUENTLY USED FUNCTIONS OPTIMIZED**

The system minimizes the user's cognitive load by keeping only the most salient information and signifiers visible. Frequently used functions are highly visible while infrequently used functions do not pollute the interface. The workflow is optimized for the most common use-cases.

- **SPEAK THE USER'S LANGUAGE**

The system "speaks" to the user in their native language using signifiers that are contextually relevant (e.g. health care iconography in an application used by medical professionals). The system uses terminology familiar to the user rather than technical jargon.

- **PERCEPTIBILITY OF FEEDBACK**

User interaction with the system must result in immediate, perceptible, and interpretable feedback.

- **PERCEPTIBILITY OF SYSTEM STATE**

The user must have the ability to perceive the state of the system at any given moment. The key question to ask yourself is, "If you were to walk up to the system, after having been away from it for an extended period of time, would you be able to properly interpret its current state?"

- **INTERNAL CONSISTENCY**

Words, phrases, signifiers and design patterns are used in a consistent manner throughout the system.

- **APPROPRIATE SELECTION OF DESIGN PATTERNS**

Are the optimal design patterns used within the system? For example, is progressive disclosure used for long data entry forms? Is the application using design patterns appropriate for the platform (e.g. mobile vs desktop)? Are wizards used where appropriate?

- **MINIMIZE KNOWLEDGE IN THE HEAD**

Does the system display the appropriate amount of information to the user? If the application uses a wizard design pattern, is the user forced to remember information from one or more previous steps in the wizard or is all the information necessary to complete each step displayed concurrent with the step

- **USER CONTROL AND FREEDOM**

The system should be configurable by the user and not force users to alter behavior in order to adapt to the system. The system should provide accelerators for more experienced users (e.g. keyboard shortcuts and context menus)

- **ERROR PREVENTION**

Where appropriate, the system should prevent the user from making an error via the appropriate implementation of constraints. Note: Sometimes, error recovery is preferred over error prevention and vice versa.

- **ERROR RECOVERY**

Where error prevention is not feasible or desired, the system should provide graceful mechanisms to help the user recover from either system or user errors. It should provide: undo and redo capability; error messages that are written using terminology understandable to the user that describe both the problem and remedial action.

- **NOVEL INTERACTIONS EASILY LEARNED AND RECALLED**

Novel interactions are easily learned and remembered because they take advantage of natural mappings and external consistency.

- **HELP & DOCUMENTATION**

Help should be easily accessible. Help may take the form of printed or electronic documentation, a knowledgebase, a wiki or a live chat system.

HEURISTIC EVALUATION

- EXTERNAL CONSISTENCY

- a. Dark Grey Visited Links

Universally, designers have sought to color the inactive links, widgets and functions, grey. The designer has chosen dark grey color for visited links as marked in figure 1. The dark grey links may suggest that they are inactive rather than visited to a novice user or anyone who is used to that type of system. This is not externally consistent with other websites.



Figure 1: Links in the header

- b. Vague Research Link Icon

Each of the icons can be externally mapped to real world entities or depiction of the link, except the 'research' link (figure 2). The research icon is not externally consistent with what may be perceived as research to many users. Generally, the frequently used icons are a microscope, a magnifying glass looking at a sheet, atomic structure of an element, etc. Since most research conducted here is going to be either botanical or zoological, an image that depicts one of these fields could be used as an icon.



Figure 2:Links in Favorite Links Section

c. Dark grey color of Icon for printable form

The icon is externally consistent with images that are used for a document, however the dark grey color and the proximity to the text around the icon make it look like a disabled button (Figure 3). The color is externally consistent with other disabled buttons and a new user might not click on the link. The text could be aligned together and the document icon could be placed underneath to make it look like a link.

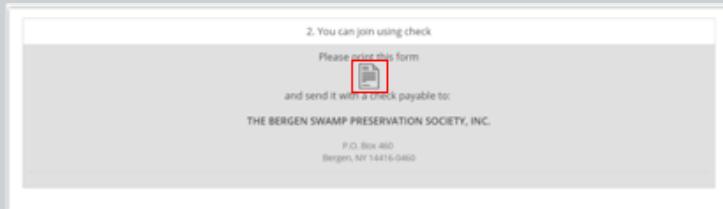


Figure 3: Icon for Membership Form

• WIDGETS AND LABELS NEAR TARGETS

Previous and Next buttons under Latest News

The next and previous buttons are used to view the events in Latest News section. On smaller screens, the distance between the events and the buttons are negligible but on wider screens, the buttons move away from the target. This is shown in figure 4.

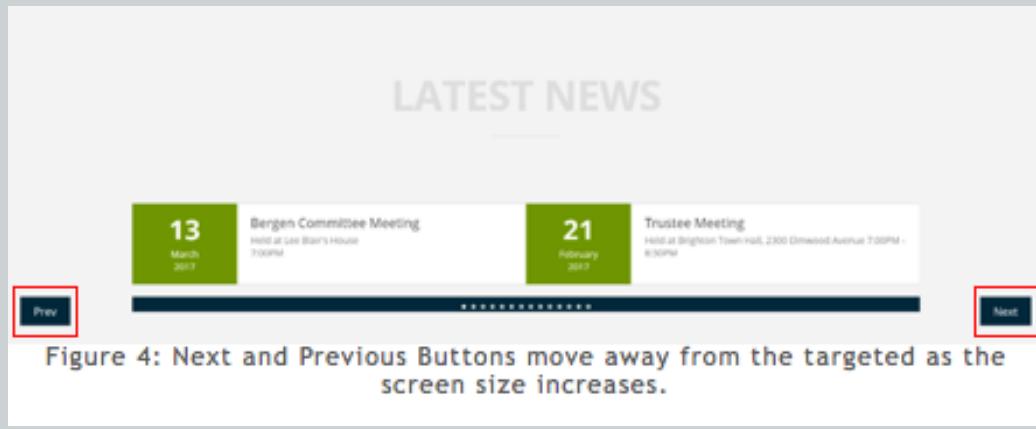


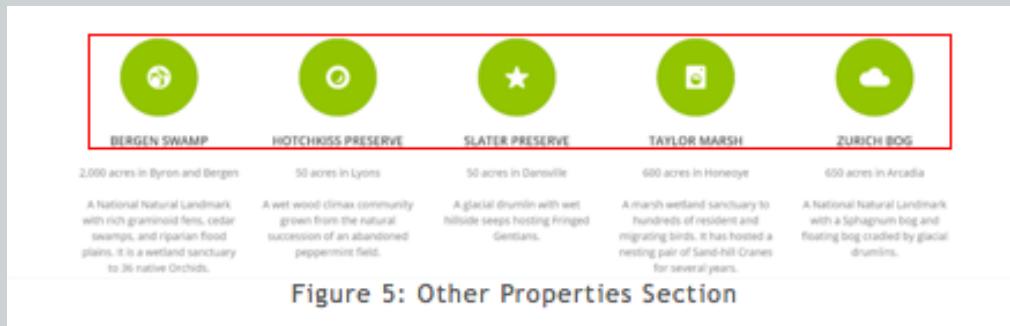
Figure 4: Next and Previous Buttons move away from the targeted as the screen size increases.

- **GROUP LIKE WIDGETS/FUNCTIONS:**
No defects were found for this heuristic.
- **FREQUENTLY USED FUNCTIONS OPTIMIZED:**
No defects were found for this heuristic.
- **SPEAK THE USER'S LANGUAGE:**
No defects were found for this heuristic.
- **PERCEPTIBILITY OF FEEDBACK:**
 - No feedback on submission of visitor request form**
Once the visitor request form is filled by the user, on click of the submit button, no feedback is given to the user to indicate that the form has successfully been submitted. The page seems to reload and all the fields are cleared. It might lead the user to believe that there is an error in submission of the form.
- **PERCEPTIBILITY OF SYSTEM STATE:**
No defects were found for this heuristic.

• INTERNAL CONSISTENCY

a. Other Properties Section

The images that depict the various other preserves in Upstate New York are internally consistent to the clickable icons on the rest of the page, however these are not clickable (Figure 5)



b. Address Field in Visitor Request Form

The labels on the fields in the visitor request form are arranged above the textboxes however the address fields are arranged below the textboxes. This is not internally consistent with the remaining fields.

Group Leader Contact Information

First Name

Last Name *

Street Address *

Address Line 2

City *

State / Province / Region *

Postal / Zip Code *

Phone - -
(xxx) xxx xxxx

Email *

What is your previous experience as a group leader?

Figure 6: The Address fields in the visitor request form

c. Text on Visitor policy page

The visitor policy page explains the rules the visitors should follow and asks the visitor to fill out a form. However, there is no form or link to the form present on the page. This violates the internal consistency heuristic.

Become a Member | ENG | Our Visitor Policy | Visitor Request

BERGEN SWAMP
PRESERVATION SOCIETY

Our Visitor Policy

Bergen Swamp properties are special places where you will find unique associations of plants and animals. Bergen Swamp and Zurich Bog are listed on the National Registry of National Natural Landmarks. All Bergen Swamp properties are owned by the Bergen Swamp Preservation Society. They are open to the public by permission of the society. The chief goals of the Society are the protection and management of these unique communities, the education of the public about these areas and scientific research.

Please fill out the form below and submit your request for a visit.

In keeping with these goals, the properties of the Society are open to visitors interested in learning more about these unique communities. For the safety of visitors and the protection of the flora and fauna of these properties, we require visitors to adhere to the following guidelines:

- Groups of six or more are not allowed on the properties without prior written permission from BSPS.
- No collecting or damage to plants or animals is permitted.
- No harassing of animals is allowed.
- No releasing of plants or animals is permitted.
- No pets are permitted, other than those registered as service dogs.
- No "gathering" for photography will be allowed.
- No littering.
- Visitors must stay on trails. This is to protect the visitor from getting lost and to protect fragile habitats from damage.
- Please respect marked research sites; do not touch, move or damage research equipment or barriers.
- Visitors are responsible for their own safety. Poisonous Massasauga rattlesnakes may be encountered in Bergen Swamp. Both Bergen Swamp and Zurich Bog have unstable soils, so visitors should watch their footing. The Society recommends that visitors not walk on trails alone.

Figure 7: Text on Visitor Policy page is not consistent with the content of the page.

- APPROPRIATE SELECTION OF DESIGN PATTERNS

- a. Date and Time Textboxes

The Date of visit and Time of Visit entries in the Visitor request form uses regular textboxes. This is not an optimal design for quick selection of dates and time. Further, filling the form using a mobile device on a small screen would be difficult.

- b. Off Trail Reason Textbox

The textbox that request reason for going off trail is always displayed irrespective of the choice. This might confuse users and prevent them from filling the form further. Progressive disclosure could be used to depending on the user's choice.

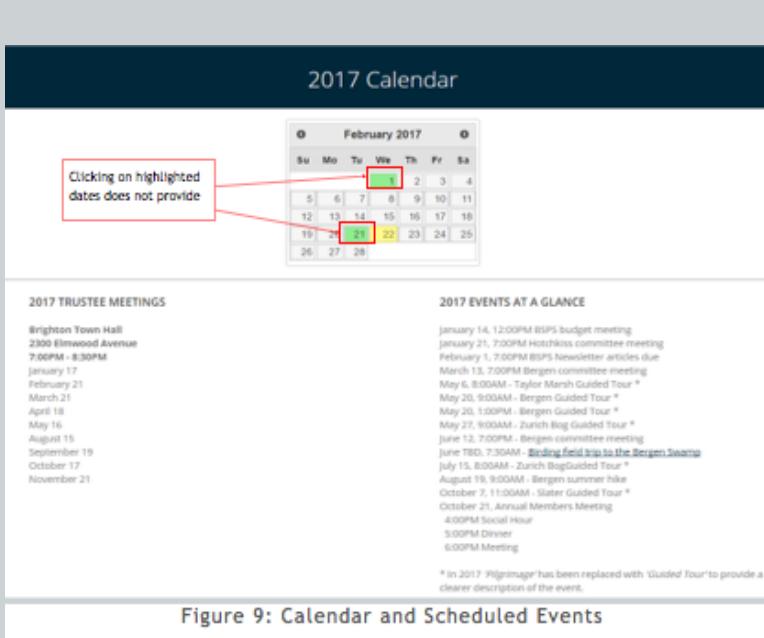
The figure shows a screenshot of a visitor request form. At the top left, there are two stacked text input fields labeled 'Date of visit *' and 'Time of visit *', both enclosed in a red rectangular border. Below these is a single-line text input field labeled 'Purpose of visit *'. In the center, there is a section labeled 'Do you need to go off trail? *' containing two radio buttons: 'Yes' and 'No'. This entire section is also enclosed in a red rectangular border. At the bottom, there is a single-line text input field labeled 'Reason for going off trail'.

Figure 8: Textboxes in the Visitor Request Form

- MINIMIZE KNOWLEDGE IN THE HEAD

- a. Calendar and Events

The calendar section displays all the events that are coming up in the current year and lists them out under the calendar widget. The highlighted dates indicate the date of the event, however clicking on the highlighted date does not show details of the event. The user has to manually check the even listed under it with the corresponding date.



• USER CONTROL AND FREEDOM:

No defects were found for this heuristic.

• ERROR PREVENTION:

a. Validation on Visitor Request form

The visitor request form accepts alphanumeric values for all fields and there is no validation on email field (Figure 10 b). On click of the submit button, the values are not validated and no error prevention step is taken. Figure 10 a shows the fields that have been filled with incorrect value.

Number of people in your group
A lot

Figure 10 a: No validation on character in number field

Email *
abc@abc.com

Figure 10 b: No validation on email field in Visitor Request form

- **ERROR RECOVERY**

- a. **Reason to go off trail not validated**

The Visitor request form asks the visitor to fill a reason if they wish to go off the marked trail. The visitor may forget to enter this but there is no validation step taken to inform the user of this error when the form is submitted.

The screenshot shows a portion of a web form. At the top, a yellow-highlighted section contains the question "Do you need to go off trail? *". Below it are two radio buttons: one labeled "Yes" and another labeled "No". Underneath this section is a white input field with the placeholder text "Reason for going off trail".

Figure 11: Missing Off Trail Reason is not validated.

- **NOVEL INTERACTIONS EASILY LEARNED AND RECALLED**

No defects were found for this heuristic.

- **HELP AND DOCUMENTATION**

- a. **Validation on Visitor Request form**

There is no information as to what it entails to be a member in the Bergen Swamp Preservation Society. There are some certain questions that could be answered like:

What does it mean to be a member?

What are the perks or duties that come with being a member?

Does a visitor have to become a member to visit/to do research?

DEFECT LISTING

The defects listed here are in order of high severity to low severity in relation to each other.

- 
1. Feedback missing when Visitor Request form is submitted
 2. Missing validation on Visitor Request Form for email
 3. Fields in Visitor Request form accepts all values.
 4. Off Trail Reason field accepts blank value when 'Yes' radio button is selected.
 5. Missing link to Visitor Request form on Visitor Policy page.
 6. No documentation provided for advantages or reasons to become Member.
 7. Dark grey icon used for printable membership application form.
 8. Dark grey color used for visited links.
 9. Date & Time fields in Visitor Request form are Textboxes.
 10. Off Trail Reason field is always displayed.
 11. Address field labels are placed below the textboxes
 12. Calendar dates and event details need to be referred separately.
 13. Previous and Next buttons are not near the intended target on wider screens.
 14. Icons used for "OUR UPSTATE NEW YORK PROPERTIES" seem clickable
 15. Vague icon used for Research in "Favorites" section.

CONCLUSION

The Bergen Swamp Preservation Society website is easy to navigate, and contains most of the information to accomplish its objective. However, a detailed heuristic evaluation based on fifteen principles revealed a number of specific usability problems. These problems have been listed and ranked in order from highest severity to lowest, based on functionality and essential appearance. Few of the problems are related to functionality while a majority of them are cosmetic and easily fixed.

By tackling these problems and implementing user-centred solutions, the already functioning and well-designed website can be improved.