1. Introduction

1.1. Overview

Cartografr is a web-based tool intended to transform the way people record and share information about trails and features / hazards located on trails within natural spaces like national forests and parks. At it’s core, Cartografr seeks to make the conversations between individuals about natural spaces more open and accessible, allowing both experienced professionals and novices alike the chance to share information and grow from one another’s experiences.

1.2. Phases of Planning:
Within our original research, we discovered that the process of gathering information related to natural spaces broke down into these three categories: as the project developed, we determined that these categories would form the core actions of our system.

- **Searching**: determining the location of various resources.
  - **EX**: Using Google to find relevant sites.
- **Evaluating**: Reading the information on the site and evaluating its content using specific personal values based on need or comparing information to things they might already know from previous experience.
  - **EX**: Looking at the overall design of a website as a way of evaluating it’s authenticity; examining a series of press releases on a site that looked suitably authoritative.
- **Deciding**: Choosing to accept or reject a particular resource based upon how well it performed against their own needs / expectations.
  - **EX**: Rejecting a site because it appeared too commercial or too poorly-designed.

1.3. Cartografr & Social Justice:

Individuals without knowledge / experience are effectively marked, resulting in a form of systemic marginalization in which a series of factors effectively prevent under-experienced individuals from accessing and enjoying government-owned parks.

1.4. What does Cartografr do?

Cartografr is a system intended to streamline user access to socially-oriented information about publicly-owned natural spaces through interactions between users and user-created data in the form of individually-authored trails and individually-created points along those trails. The goal of these interactions is to allow users to create and edit information about trail and trail features in order to emphasize timely information about these spaces.

Currently, Cartografr users may engage in five key actions:
Review / Create and maintain personal profiles: Through the profile, users will be able to advertise their interests as well as their location and levels of experience. From their profiles, users will also be able to access their trails, notes, and pins as well as monitor their buddy list as well as their whuffie title.

Review / Create Trails: Using data from a GPS device, an external database such as MapMyHike or TrailGuru, or by clicking individual GPS co-ordinates, users will be able to plot their own unique trail or copy existing trails in order to add their own features to them. Each trail will feature a unique name, and users will be able to set permissions at the level of the trail that will allow it to be globally visible or private, and will be able to restrict editing rights to their friends or to the entire community of users.

Review / Drop Pins: Users will be able to drop individual “pins” along their own trails or those of their friends. Pins may include information about specific points of interest along the trail, or may contain information regarding hazards along the trail. Users will also be able to add to the information of pins along trails they have editorship rights to, and users at all levels will have the ability to “vote” on information contained within pins all along globally visible trails.

Review / Post to the Corkboard: The corkboard catalogues information contained on objects within the system, allowing users to indirectly access information contained within these objects; they will also be allowed to post information directly to the corkboard without first dropping a pin or creating trails.

Evaluate Pins / Notes / Trails: Under the whuffie system, users will be able to “vote up” good information or “vote down” less timely information on either globally-visible trails or trails in which they have editorship rights. These votes will determine that only the best information is the most visible, while less-helpful information is moved to the bottom.

1.5. Project Goals:
Cartografr seeks to address the social justice issue described in 1.2 by transforming the activities described in 1.1. To accomplish this, we determined that the three component elements of the planning process needed to be transformed in the following ways:

- **Searching:**
  - Users at this stage need more on-point, high-quality information returned per search. By limiting the kinds of responses users see to those that are considered relevant and that contain information the target user group would consider helpful, we can facilitate both the novice and experienced user’s overall goal of planning a safe trip.

- **Evaluation:**
  - This stage needs to be transformed so that the information under evaluation is straightforward, easy to assess, and its usefulness is easily determined. Informational elements should be standardized so that more time is spent reading the text than reading the page it appears on.

- **Decision:**
  - This phase should be transformed in such a way that the actors have a stronger sense of reliability from sources with which they engage. In order to do this, users will need to know that the information they are reviewing is timely, experiential, and socially-oriented.
2. Users

2.1. Who will use it?
We anticipate that users of Cartografr will be individuals who already have access to technologies such as internet-enabled computers and mobile devices and use them in planning and executing trips to national parks, or are using them to find information about getting started on finding natural spaces. We anticipate that these individuals will be familiar with the features of other, similar social sites and will be able to adapt to our system quickly.

2.2. User Categories
- Novice – limited knowledge of both outdoor practice (things like hiking, camping, etc), and space (doesn’t know where resources are or how to get to them). Few users fall into this category.
- Resident – Knows space (a good example is someone like myself who lives in an area and knows where some of these things are, but doesn’t have enough knowledge to make use of them). We anticipate a lot of our target audience fits into this category.
- Disconnected – Knows what to do, just doesn’t know where to go.
- Expert – Knows both practice and space.

3. Specifications:

3.1. User Roles & Planned Interactions

3.1.1. Users within our system (represented by unique user names) will be assigned one of three roles:

3.1.1.1. Creator:
- May create and modify their individual USER PROFILE. (See: View 8.2.1 – Profile Management View)
- May create, modify or delete TRAIL container objects. (See: View 8.4 – Trail Creation View)
  - May set visibility rights on trails
    - Private: Trail is visible only to user
    - Friends: Trail is visible to friends.
    - Global: Trail is visible to all users
  - May set editor rights on trails
    - Private: Editorship rights (adding pins) set to Creator only.
    - Friends: Friends may add / edit PIN content
Global: All users may add / edit PIN content to trails

- May view the profile of other users. (See: View 8.2 – Public Profile View)
- May add other users to their BUDDY LIST. (See: View 8.2.1 – Profile Management View)

3.1.1.2. Editor

- May create and modify their individual USER PROFILE. (See: View 8.2.1 – Profile Management View)
- May view the profile of other users. (See: View 8.2 – Public Profile View)
- May view and offer feedback or commentary upon PIN objects (View: 8.5 – Pin View)
- May drop new PIN objects onto trails in which they have editor rights. (View: 8.5.1 – Pin Creation View)
- May rate NOTE objects within the CORKBOARD, evaluating them as “very helpful” or “less helpful” (View: 8.6.2 – Note View)
- May post NOTE objects with the CORKBOARD (View: 8.6.2 – Note View)
- May add other users to their Buddy List (See: View 8.2 – Public Profile View)

Addendum:

Roles are not assigned at the account level - they only serve to help the system differentiate between who is capable of doing what at the interactional level - therefore, it is possible for a user to act as a planner by creating a “trip” (1 to n relationship), then become an advisor by commenting upon another user’s trip (1 to n).

4. Features List

4.1.1. Map View (View: 8.3 – Map View)

4.1.1.1. View Map

- View Trails (View: 8.4 – Trail Creation View)
  - Vote Trail Up or Down (View: 8.4 – Trail Creation View)
    - Link to user who created report (Links to View: 8.2 – Public Profile View)
      - Send Buddy Request
4.1.1.1. View Pins (View: 8.5 – Pin View)
- Vote Pins Up or Down
  - Link to user who created report (Links to View: 8.2 – Public Profile View)
- Send Buddy Request
4.1.1.2. Edit Trails (View: 8.4 – Trail Creation View)
4.1.1.3. Create Trails (View: 8.4 – Trail Creation View)
- Set Visibility
  - Set Global
  - Set Local
- Set Editorship Rights
  - Set Friends
  - Set Verified
  - Set All
4.1.1.4. Drop Pins (View: 8.5.1 – Trail Creation View)

4.2. Corkboard (View: 8.6 – Corkboard)
4.2.1. Post New Global Note (View: 8.6.2 – Note View)
4.2.2. View Global Notes (View: 8.6.2 – Note View)
  4.2.2.1. Link to Relevant Location: (View: 8.3 – Map View)
  4.2.2.2. Link to Note Creator (View: 8.2 – Public Profile View)
  4.2.2.3. Vote Up / Down Global Note (see 5.2 – Editors)
  4.2.2.3.1. Post New Subnote (View: 8.5.1 – Pin Creation View)
  4.2.2.3.2. View Subnote (View: 8.5 – Pin View)
  4.2.2.3.2.1. Link to Note Creator (View: 8.2 – Public Profile View)

4.3. Public Profile Page (View: 8.2 – Public Profile View)
4.3.1. View Pictures (no view)
4.3.2. Send Friend Request (Confirmation Request)
4.3.3. Send Message (Similar to View: 8.5.1 – Pin Creation View)
4.3.4. Link to Buddy Profiles (View: 8.2 – Public Profile View)

4.4. Profile Management View (View: 8.2.1 – Profile Management View)
4.4.1. Modify / Edit Trails (View: 8.4 – Trail Creation View)

1 This process uses the same tools as the CREATE TRAILS (4.1.3)
4.4.1. Share Trail (Confirmation Prompt)
4.4.2. Add New Trail (View: 8.4 – Trail Creation View)
4.4.3. Edit Profile (Similar to View: 8.1.1 – Signup View)

5. Whuffie:

5.1. Description:
Though not a directly-observable object within the system, WHUFFIE serves as the primary method by which we hope to encourage positive user interaction. Similar to “kharma”-based forum systems, both ADVISORS and PLANNERS will be able to rate the product of either party along the lines of how helpful it is - we believe this facilitate our design goal of making it easier for users to assess and evaluate sources of information, while at the same time encouraging users to participate in the system constructively.

Unlike other points-based systems (like Kharma or Xbox Live’s “rep” system) users will not be able to “lose” points if their feedback is not considered helpful, its visibility in the relevant areas of the site (either on individual reports or within CORKBOARD sections) will be reduced.

Additionally, users will not be made aware of the numerical value of their individual WHUFFIE scores - instead, users will be given titles that imply progress without an explicit hierarchical relationship between each level.

5.2. Planned Interaction:

Creator Whuffie can be gained through the following actions:
- Creating a TRAIL
  - Results in small whuffie gain
- Commenting on a TRAIL
  - Results in small whuffie gain
- Creating a PIN
  - Results in small whuffie gain.
- Posting to Corkboard
  - Results in small whuffie gain
- Commenting on CORKBOARD posts
  - Results in small whuffie gain

Editors can affect Creator Whuffie through the following actions:
- Voting UP a Trail
• Results in increase in trail visibility on map view
• Results in higher whuffie score for Creator.
• Voting DOWN a Trail
  • Results in decrease in trail visibility on map view
  • No whuffie loss.
• Voting UP a Pin
  • Results in increase in pin visibility on map view
  • Results in higher whuffie score for user.
• Voting DOWN a Pin
  • Results in increase in pin visibility on map view
  • No whuffie loss.
• Voting UP a CORKBOARD post
  • Results in increase post visibility in corkboard.
  • Results in higher whuffie score for Creator.

6. Implementation:
- Anticipate system will build on top of existing functionality of Google Maps API
- Initial Users:
  o Current system favors information / organization methods of expert users:
    ▪ Will add value to system with expert knowledge
    ▪ More likely to find immediate utility
  o System structures designed with novice-to-intermediate users in mind
    ▪ Laid out in easy-to-understand ways.
- Expert / Disconnected users will find the most utility in the system at launch (already having conversations around / about natural spaces / national parks)
  o ALREADY USING THESE TOOLS
    ▪ TrailGuru
    ▪ RoadGuardian
  • We see these as both proof that our concepts work and that people are already interested in sharing information. Where our project differs is that users won't simply record information (which is a practice of experienced users), they'll be able to USE that information to plot their own trips on the same site and instantly share that information with friends, relatives, or other users within the system.

7. Subsequent Iterations:
- Work of Subsequent versions of Cartografr will be:
• Expand points of access to include mobile versions of the service (Apple/Windows/Android-based smartphone site report apps)
  • Current scenario maps on top of pre-existing practices and technologies (GPS devices, etc), expanding this will allow novice users to use their pre-existing tools with little to no cost.
  • Might be a good idea to piggyback onto another service’s already existing databases, apps rather than try to reinvent the wheel.
• Developing a suite of community-based teaching tools (similar to a wikispace) that will allow users of various levels of expertise to talk across categories.

8. Wireframe
  8.1. Login View
    8.1.1. Signup View
  8.2. Profile View
    8.2.1. Profile Management View
  8.3. Map View
  8.4. Trail Creation View
  8.5. Pin View
    8.5.1. Pin Creation View
  8.6. Corkboard View
    8.6.1. Corkboard Hierarchy
    8.6.2. Note View
8.1 Login View

This is prompted on the map or corkboard view when a user wants to leave a comment on a note, vote a note up or down, drop a pin or simply sign in.

Sign up asks for data for measuring demographics and making sure each user has a unique log in identity.
8.1.1 Signup View

sign up

name: 
age: 
state: 
region: 

username: 
password: 
confirm: 
e-mail: 
confirm: 

create account
8.2 Profile View (Public)
Accessible through user profile or through notes / pins / trails.

A user's profile page displays their unique user name and whuffie title, a profile picture of their designation, a brief biography if they so choose, what region of the county they are in, aggregate the pictures that the user has posted, and their buddy list.

On the profile users can also choose to send other users messages or requests to become buddies.
8.2.1 Profile Management View

Accessible through toolbar (not pictured) on map view (8.3). Requires authenticated session. Unauthenticated session will send user to signup view (8.1.1)

A user's profile page displays their unique user name and whuffie title, a profile picture of their designation, a brief biography if they so choose, what region of the county they are in, aggregate the pictures that the user has posted, and their buddy list.

On the profile users can also choose to send other users messages or requests to become buddies.
8.3 Map View
Essentially the map view contains pins and trails which can be expanded to see the note view of those objects. But the purpose of this view is to organize this information spatially. Through navigating the map view, the user is able to easily organize the information. By zooming in to an area, or using the search bar to find a region, the user zeros in on information relevant to them, filtering out irrelevant data.
8.4 Trail Creation View

This view will double as both the editing and creation screen – it is accessible through the following views:

- (View: 8.3 - Map View)
- (View: 8.2.1 - Profile Management View)

NOT PICTURED:

Users will be prompted when creating a new trail as to whether they want to upload from an existing database (such as MapMyHike or TrailGuru), or upload trail data from an existing device.

Once the trail is created, returning Creator-level users will be able to revise the authorship rights of individual users, as well as set permissions for the whole trail.
8.5 Expanded Pin View

Pins will be visible along trails that have been set to global or to which user has editorship rights. Pins are represented in the map view by a graphic of a red pushpin - clicking on them results in an expanded view of the information contained in the trail Below is the expanded version of the note view. Images are scrollable along the bottom using the arrow tools.

rock that looks like jesus

ron.m. : padfoot
check out this sweet rock i found, it totally looks like jesus

wesly303 : trailmaster
wow it really does!
8.5.1 Pin Creation View

From the Map view, users can drop a pin on the map by first clicking the drop a pin button and then clicking the location on the map. If this location is near a trial the system will ask if the user intends to associate the pin with that trial. When a pin is dropped the system then creates a note for that pin and positions it accordingly in the corkboard structure. Then the user can add comments to that note.
8.6. Corkboard View
Accessible through toolbar on map view (8.3)
8.6.1 Corkboard Hierarchy

The Corkboard is an intentionally chaotic space populated with competing notes. What notes are represented on the board, as well as how notes overlap and are layered, is determined by their relevance to the users profile, and by the whuffie of the note.

Notes on the Corkboard are either 1) associated with objects that exists elsewhere in the system (trials, pins), 2) larger categories designed to contain and organize other notes (parks, states, regions), or 3) user generated topics that do not exist elsewhere in the system (“how do I repair a tent?”).

Notes are organized with a nested structure and contain links to other notes contained by the note.

For example, the Illinois note (which is not associated with an object in the system) would contain a note on Argyle State Park (also not associated with an object), which would contain notes on a trails in that park (an object in the map view), which would contain notes on a pins associated with those trails.

From the Corkboard, users can select a note, which will provide an expanded view of that note. They can then open the expanded view of a note within the first note. Users can also close an open note, returning the user to the previous note.

On the Map view, users create notes indirectly by dropping pins, but on the Corkboard, users create notes directly, but unlike notes created on the map view, these notes are not associated with geodata and only appear on the Corkboard. While this is not the core function of the site, it is still useful because it behaves more like a traditional forum, allowing users to create content that does not fit anywhere else in the system.
8.6.2 Note View

The primary purpose of the notes, and the structure of both the corkboard and the map view is to contain and organize user discussion of the points in the system. To meet this purpose, note views contain 1) a forum about either the object that the note is associated with, the category that organizes notes, or the user generated subject, and 2) links to notes that this note contains.

While the corkboard structure is a powerful tool to organize user discussion, we will also need tools within the forum structure. For this we will utilize the whuffie system, creating a forum where all the responses are visible, but the response that is voted most useful by the users will be promoted to a special position at the top of the note, much like how a sponsored link is positioned on a Google search page.

Because visual information is so useful when planning trips, we are conceptualizing these forums as image boards such as 4chan, where users can post photos as well as text. While most notes follow the same structure, there are a few variations depending on the other objects associated with those notes. Notes corresponding to objects in the system (pins, trails) will also provide the geodata associated with those objects and a link to those objects on the map, while notes that correspond only to categories will have not geodata. Also, as pins are the smallest block in the system, notes corresponding to pins do not contain other notes and will not have links to them.