



gaps in translation

AT YELLOWSTONE NATIONAL PARK



YELLOWSTONE STATS

average park visitation	-----	3.8 million/year
number of international visitors	-----	652,000
number of wayside exhibit signs	-----	400+
number of diverse visiting countries	-----	25+
visitors who prefer to speak a language other than english	-----	13%
official yellowstone publications or signage available in every language	-----	0

With such a wide diversity of visitors coming to Yellowstone every year, there is no guarantee that there will be a cohesive understanding from park visitors about the safety and behavior guidelines of the park, due to general cultural and language barriers.

A new visual language designed for mobile devices that isn't dependent on the user's native language, echoed also through physical signage placed throughout the park, will likely have an affect on the greatest number of visitors.

This language used in combination with current location-based technology available for mobile devices will help to greatly increase visitor awareness for safety, and provide new avenues for information to be directed to park guests.



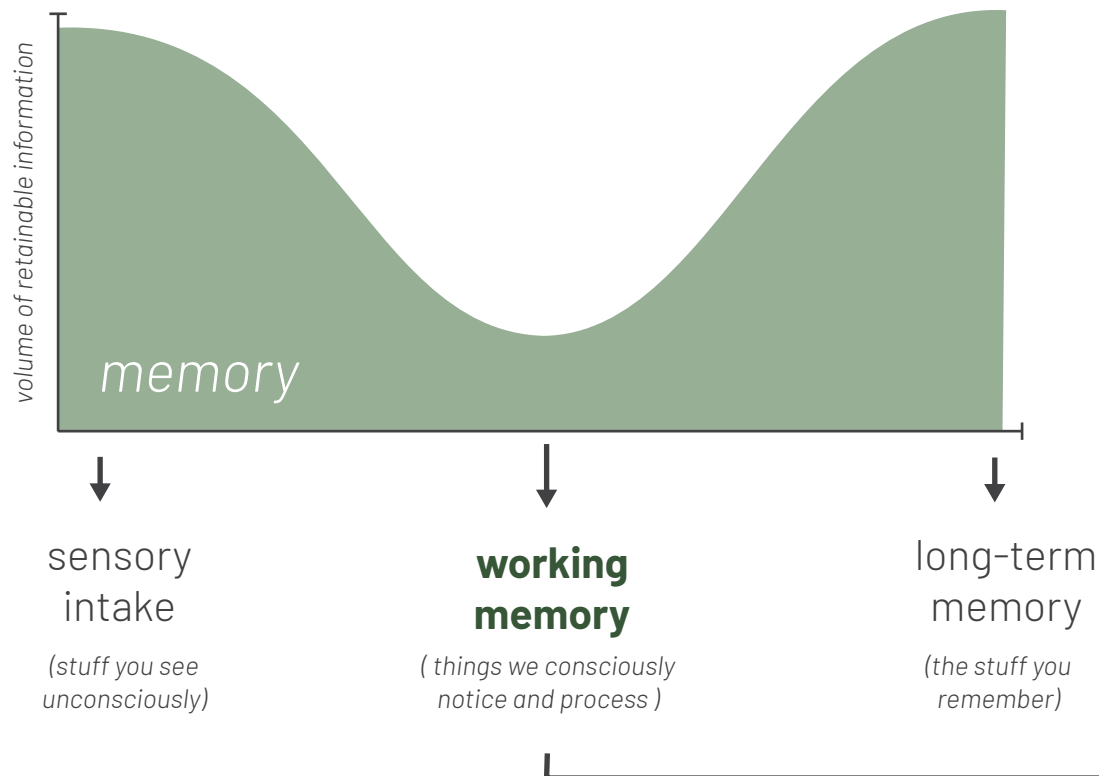
so how do people
see signs?



how people remember things

classification of memory and retention

A design is only as good as it's impact on the user, so how do you make the information stick?



Working memory is short term and highly **volatile**, so any new information is easily lost.



How to make information stick:

Minimize cognitive load, utilizing pre-existing data, for effective understanding, which encourages retention and real results.

or

Keep new information simple and incorporate things the user already knows.

setting graphic standards

based upon current international signage patterns

Observing and categorizing current signage patterns can allow for design standards to begin to be set.

graphic intervention space

current international signage patterns

In order to design a system to fit these standards, an audit of current signage at Yellowstone, layed out in comparison to current and common signage standards of the diverse visiting international countries, helps begin to identify patterns and commonalities.

observed / international signage & iconography (2)

	Yellowstone	America	China	Italy	Germany	Australia	Canada	Czech Rep.	Japan	UK
do not throw stuff in (do not litter)										
handicap accessible										
no drones										
wildlife warnings										
general information										
restrooms										
phone										

graphic intervention space

derivation and distillation of signage patterns

From the above signs, we can distill down basic design elements (like shape, color, contrast, etc.) and begin to set standards for an idealized system that will find common ground amongst all of these differing countries.

color / shape classification of signage

	Yellowstone	America	China	Italy	Germany	Australia	Canada	Czech Rep.	Japan	UK	Majority
no walking / do not enter											
do not touch											
no biking											
no smoking											
no pets											
no swimming											
danger: thermal area (caution hot)											

color / shape classification of signage (2)

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do not throw stuff in (do not litter)											
handicap accessible											
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general information											
restrooms											
phone											

On the previous pages are charts listing current signage at Yellowstone National Park, layed out in comparison to current, common signage standards of the diverse international countries that most often visit Yellowstone. From these signs, we can extract commonalities in basic design elements, and begin to set standards for an idealized system that will find common ground amongst all of these differing countries.

Below are the building blocks for three overarching categories of signage: Prohibitive, Cautionary, and Informational.

prohibitive



colors



shape



icon

using icons for: do not walk, do not touch, no biking, no smoking, no pets, no swimming, no drones

contrast



cautionary



colors



shape



icon

using icons for: thermal area, do not throw in items, wildlife warnings

contrast



informational



colors



shape



icon

using icons for: handicap, information, restrooms, telephone

contrast



yellowstone app

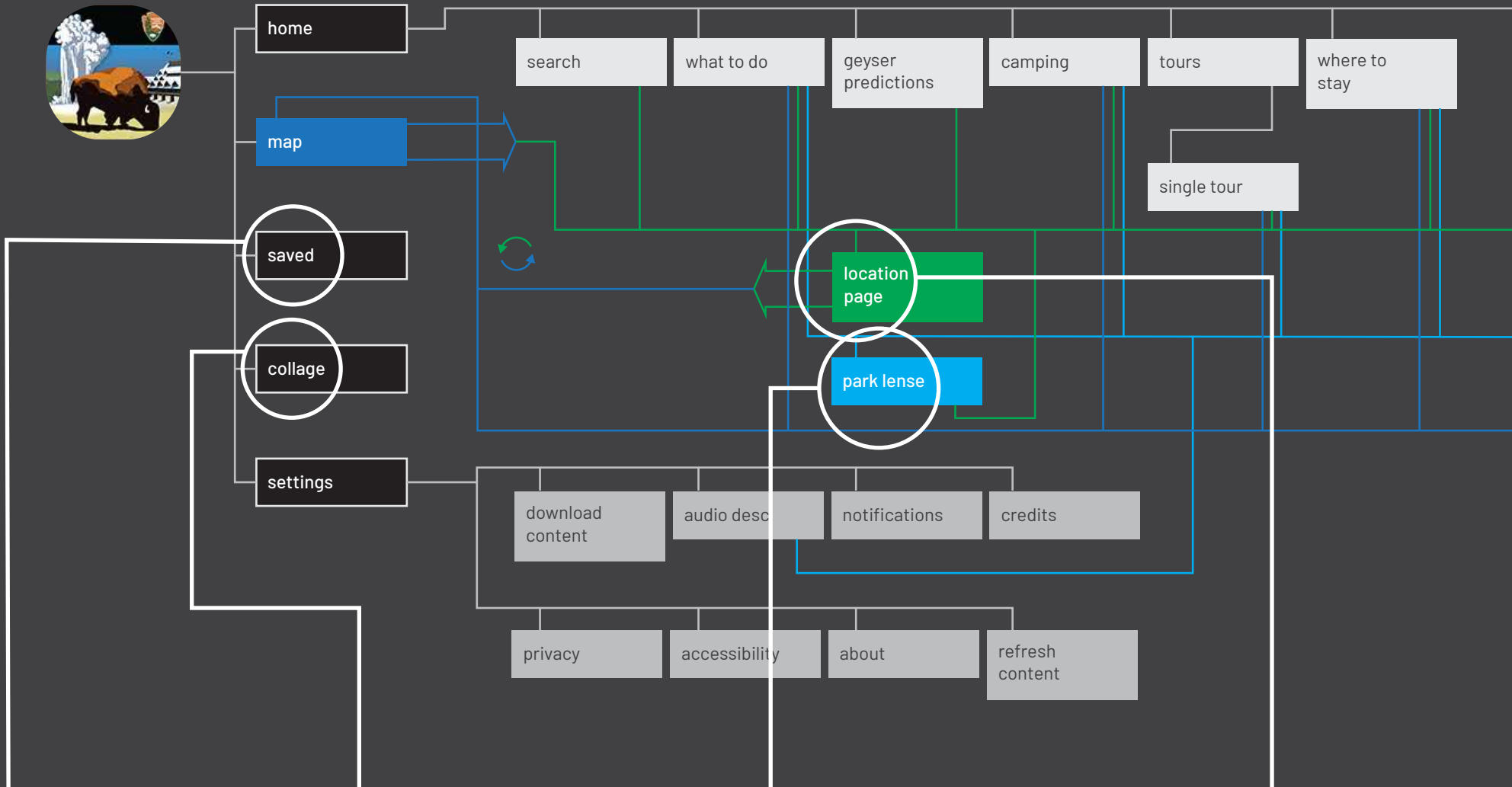
intervention space

In order to keep up with the evolving visitor population, YNP designed and released an app as a resource to help visitors be more connected with the park. It allows for visitors to view a map of the park, learn about what sights to see, save and plan their trip, and be up to date with park closures and other important information.

The platform provides important online and offline functionality that allows for a comfortable park experience where cell service is limited, but is also open enough to allow for growth and expansion.

Utilizing the yellowstone app, making a few minor adjustments to help user flow, and providing a way for all users to access the app will help to create an effective tool for visitor experience.

app audit



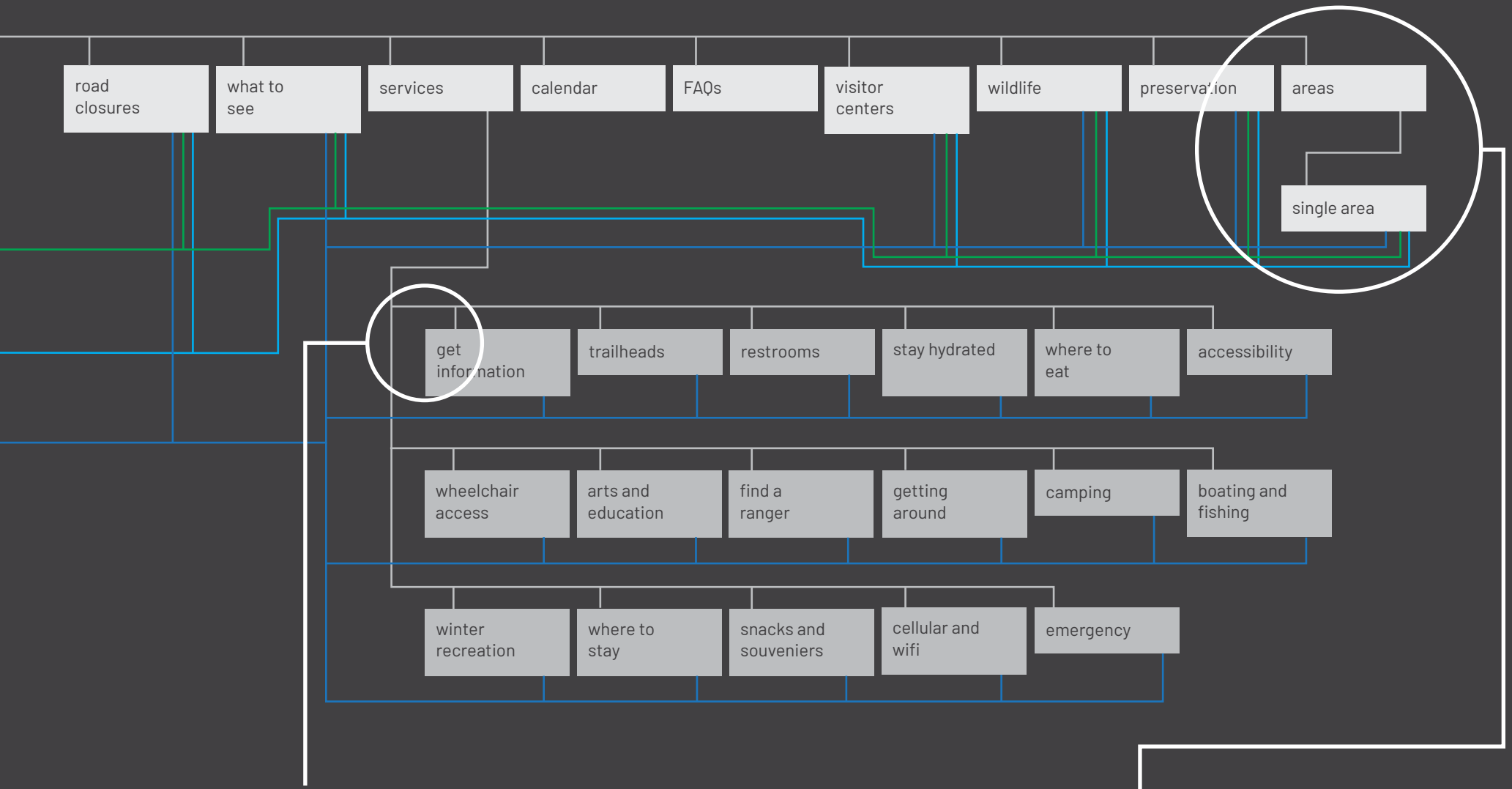
"saved" page is not clear as to purpose or function

"collage" functionality seems unnecessary and could be replaced with park ticket

"park lense" is difficult to access while providing a unique experience

location pages are very difficult to locate and search functionality is not easily accessible

app audit (2)



all services are just links to map filters, make functionality more clear on map itself

entire home menu organization seems scattered and not prioritized, potentially reorder

opportunity spaces

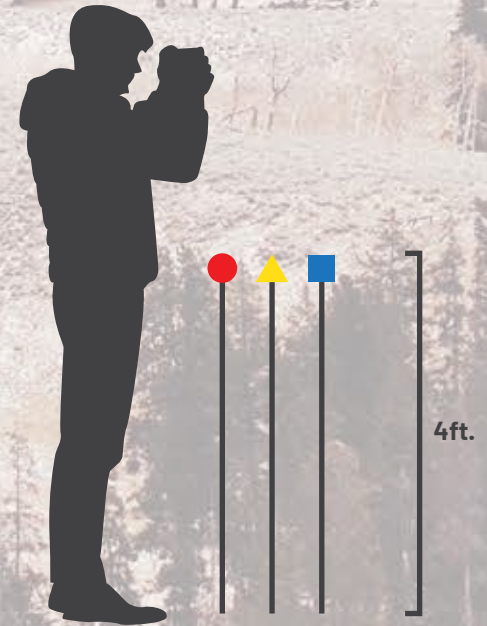
- users will need to be encouraged to use the app, incorporate area for park ticket to be included digitally
- user settings will need to allow for the selection of different levels of notification
- search functionality needs to be more available on all levels of the app and not just on the homepage
- provision needs to be made for all users to be able to use the app, potentially incorporate a check-out system of devices for visitors without a smart device or who have not pre-downloaded the app
- app should also be promoted vocally at park entrances and online to encourage downloads and active useage

a new visual language

Taking into account international signage patterns and the existing Yellowstone application, a new visual language for warnings can be designed for mobile use, while incorporating physical markers to drive home the visual reminder of each category of signage.

Using the three categories mentioned above (prohibitive, cautionary, and informational), basic design elements can be assigned to each category with the intent of alerting the greatest number of visitors possible to specific dangers and pieces of information.

This is done not only through the integrated changes on the mobile app, but is also echoed through physical markers designed through the same system that will be strategically placed near trailheads and on pathways, according to their meaning.



prohibitive

This category of signage is meant to alert park guests about prohibited activities that are not allowed in specific site areas. This category includes signage for:

- do not walk / enter**
- do not leave boardwalk**
- do not touch**
- no biking**
- no smoking**
- no pets**
- no swimming**
- no drones**

After pulling from international signage patterns, prohibitive signage utilizes circular elements and is most recognizable by the colors red, white, and black.



cautionary

This category of signage is meant to caution visitors about nearby danger or potential damage to be caused by human interaction. This category includes signage for:

fragile thermal areas

re-growth area

wildlife warnings

- **bison**
- **wolves**
- **moose**
- **elk**
- **bears**

After pulling from international signage patterns, cautionary signage utilizes triangular elements and is most recognizable by the colors yellow, red, and black.

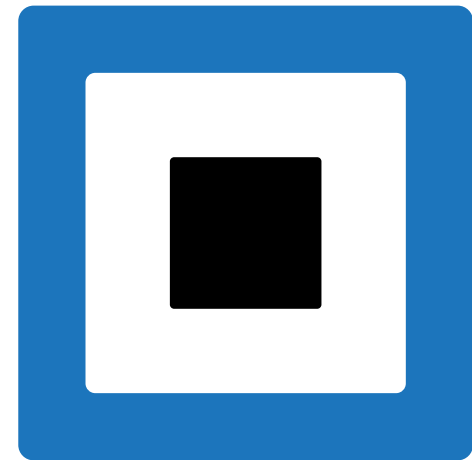


informational

This category of signage is meant to help guide park guests toward amenities or park information. This category includes signage for:

- handicap / accessibility**
- park information**
- restrooms**
- telephone**
- emergency services**

After pulling from international signage patterns, informational signage utilizes square elements and is most recognizable by the colors white, blue, and black.



technology

utilizing location-based technology

*utilizing the technology currently
available in every smartphone, users
can be notified at the right time*

GPS geofencing

Geofencing is a system of set GPS coordinates that create digital boundaries which directly relate to the user's location. It is already being used in Yellowstone to help coordinate research efforts in the park, and a similar system is used in the YNP app to alert users as to when they are near specific park attractions.



BTLE beacons

Bluetooth Low Energy (BTLE) beacons send out low energy signals at short range, up to around 40m, that can be detected by the user's device and can be located inside strategically placed category markers.



NFC touch-to-read

Near Field Communication (NFC) tech, or touch-to-read functionality, will allow users to approach each marker and physically touch their device to learn more about what danger is present, or to learn more about the specific feature or sight.



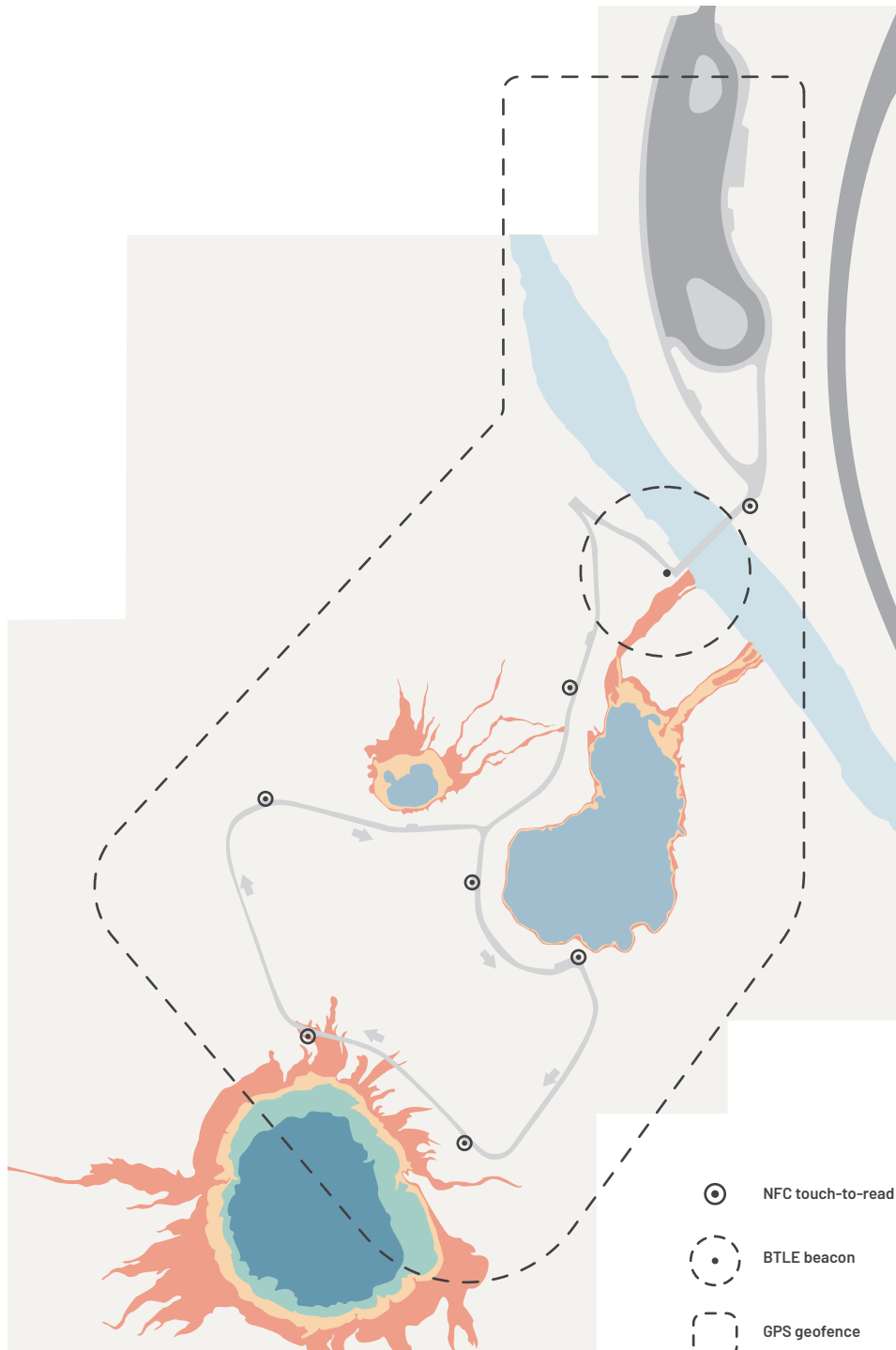
park integration

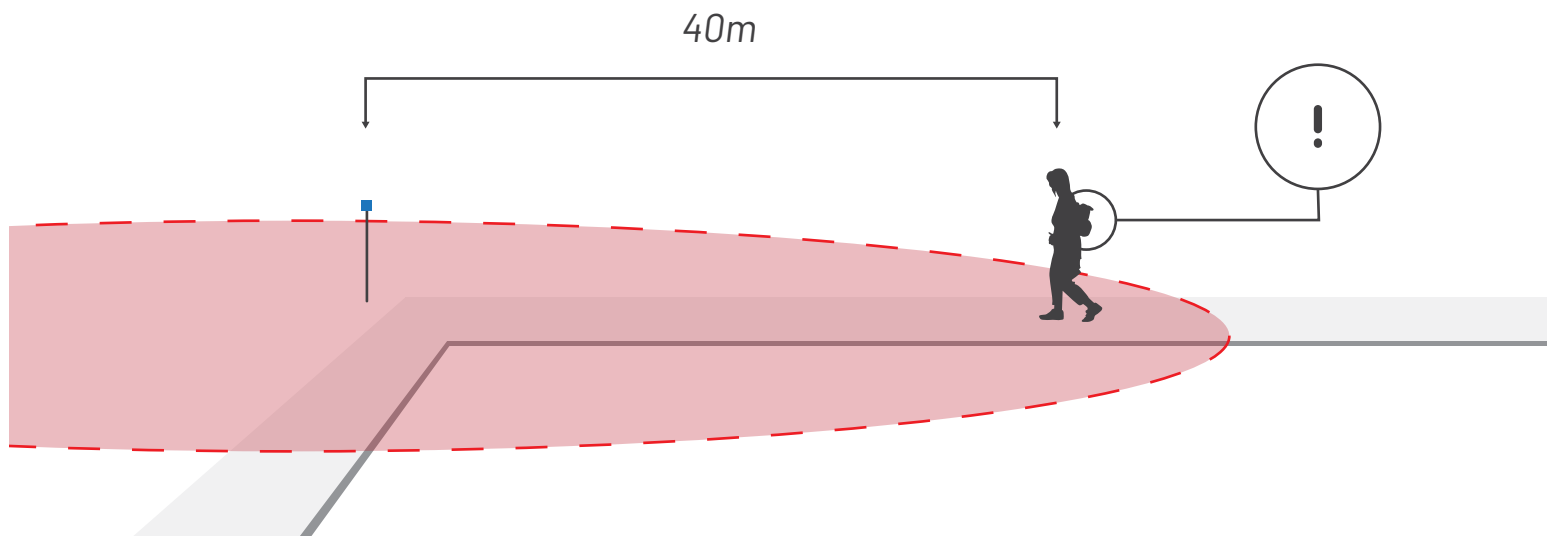


grand prismatic spring

The Grand Prismatic Spring is a major attraction in Yellowstone National Park. Thousands of visitors move through its boardwalk system but not everyone understands the fragile nature of the thermophillic ecosystem that makes the spring as beautiful as it is.

BTLE beacons placed strategically at the single entrance to the spring's boardwalk system will notify users vis push notification of the importance of staying on the path, both for environmental reasons and physical safety reasons, as they walk in this specific area.





INTEGRATION: In order for beacon push notifications to be active, users will need to opt-in while being onboarded to the app. After that, all functionality already exists, the user's device only needs to search for specific signals being output by the beacons.

**DOWNLOAD
YELLOWSTONE
APP**

USER OPT-IN

Users opting in to receiving push notifications about where they are is essential to keeping them and others safe in the park.

**ENTER IN
GEOFENCED
AREA**

**TOP-LEVEL
NOTIFICATIONS
RECEIVED**

Top Level notifications in the Grand Prismatic area would consist of reminders about conservation and drone usage.

**ENTER IN
BTLE BEACON
RADIUS**

**PUSH
NOTIFICATION
ABOUT AREA**

**PROXIMITY TO
NFC
TAP-TO-READ**

**READ MORE
ABOUT LOCATION
INFORMATION**

**WARNINGS
WHEN THEY
MATTER.**

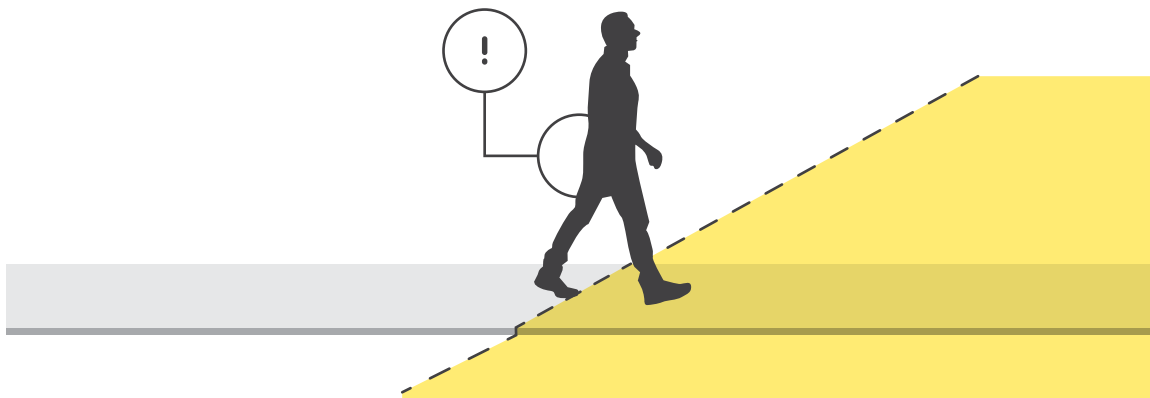


lamar valley

Lamar Valley is a major park attraction that brings in a high volume of visitors every year due to its likelihood of seeing wildlife. However unlike other park attractions, Lamar Valley covers a large geographic area and can't really be wrangled in via boardwalks and guard rails, especially regarding wildlife.

GPS geofencing is a great way to help keep visitors alert to present animal danger via top-level warnings that are easily accessible to the user from any point in the app.

INTEGRATION: When users enter within each geofenced area, they will receive a minor visual notification or reminder of the area's dangers, with the option of reading more on the topic or dismissing it and proceeding onward with thier experience undistracted.





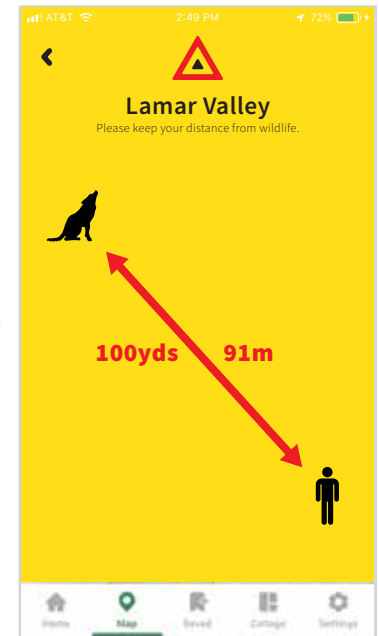
top level notifications are subtle, notifying the user via visual cue on the map icon



since geofencing notifications have to do with your location, they are located on the map screen above the menu



in the case of lamar valley, reminding users of safe distances from wildlife is key, especially when not everyone speaks english



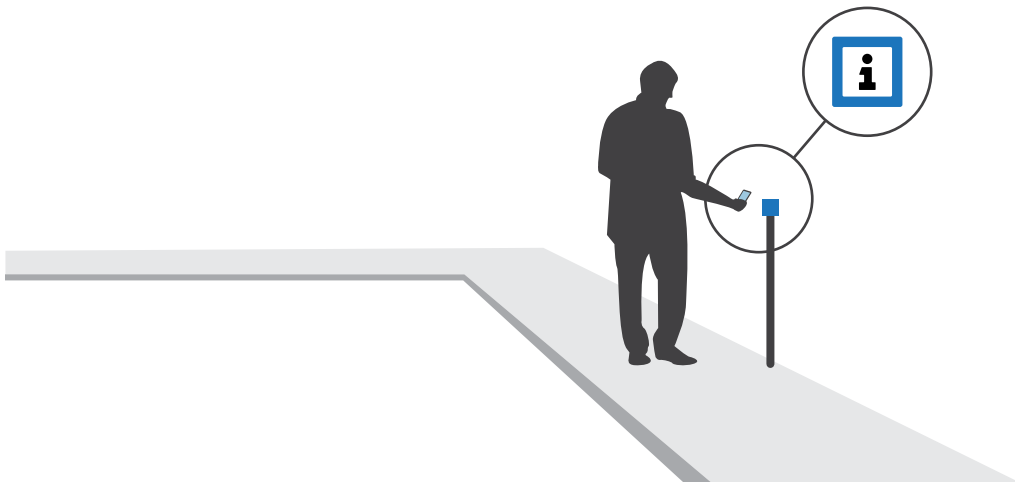
utilizing basic animal icons and universally recognized number and distance units allow for everyone to understand

gibbon falls

Gibbon Falls is a lower traffic and lower visit time attraction in the park. It's located immediately off the side of the highway and has a short paved trail system that allows for visitors to stroll down, take a look at the falls, and return to their vehicles.

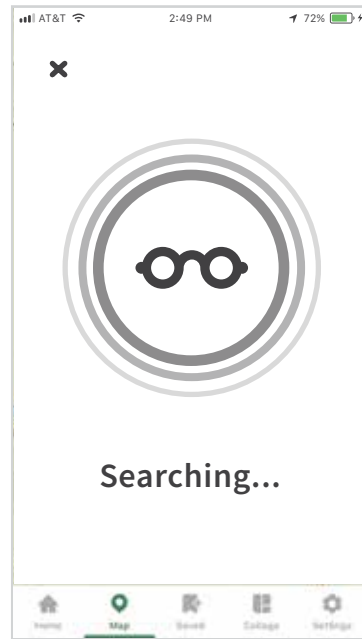
The area itself is fairly protected in terms of physical safety restraints for park goers, due to the stark cliffs that sit immediately adjacent to the trail, but information regarding how the falls were formed is fairly unique.

INTEGRATION: Activating NFC touch-to-read technology only requires enabling the functionality within the app, no opt-in is required.

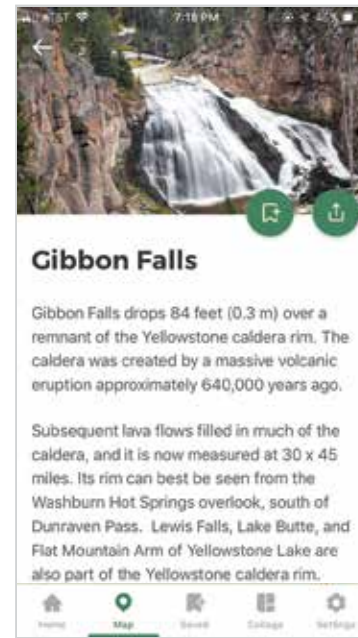




adding in a new button within the map will allow users to easily access touch-to-read technology and all information already available within the app



touch-to-read functions within a short range and needs to be activated intentionally by the user to search for the signal



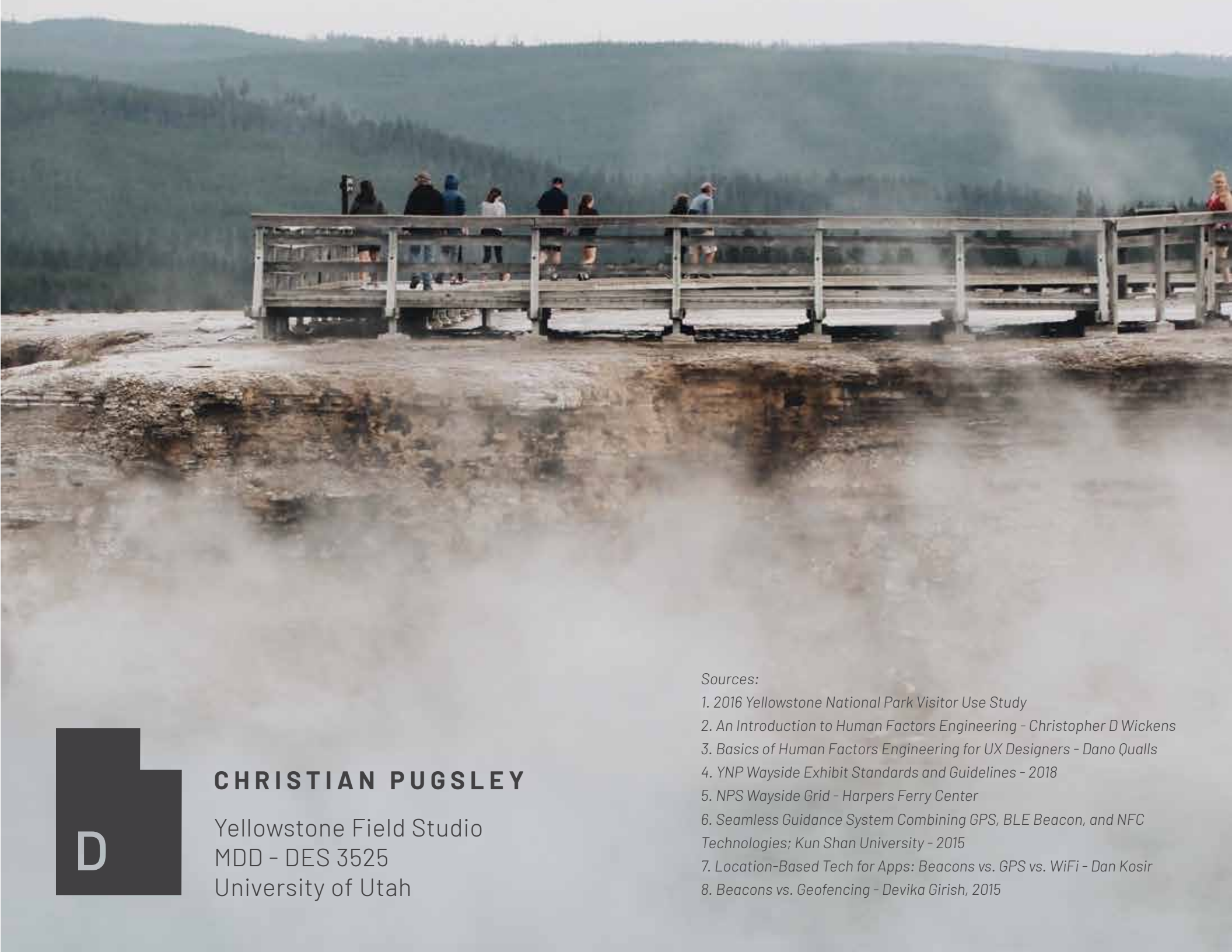
when the user's device detects the signal output by the nearby location marker, it will automatically direct the user to information already housed within the app



nfc touch-to-read technology also has the capability of transferring small files, allowing for additional external resources to be viewed, like sound or video

conclusion

Smart devices are now, and will continue to be, a part of Yellowstone National Park for the foreseeable future. Utilizing these devices and each incorporated technology mentioned above is a way to ensure that YNP has the greatest chance of protecting not only park visitors, no matter where they originate from, but the entire ecosystem of the park and the wildlife within.



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Sources:

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6. *Seamless Guidance System Combining GPS, BLE Beacon, and NFC Technologies; Kun Shan University - 2015*
7. *Location-Based Tech for Apps: Beacons vs. GPS vs. WiFi - Dan Kosir*
8. *Beacons vs. Geofencing - Devika Girish, 2015*