

GREEN BUCHAREST: NATURE IN THE CITY EXECUTIVE SUMMARY

AABID PEERMOHAMMED, AINSLEY POOLE,
MICAELA TOURTELLOT, SYRENA PRYTKO



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COLLABORATOR:
PARÇUL NATURAL
VĂCĂREȘTI

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Introduction and background

Urban nature parks can have socio-economic, physical, psychological, and environmental benefits to city residents. This public space can help bring a community together, and it can increase local property values (American Planning Association, 2002b; (American Planning Association, 2002a). Urban parks provide a space for exercise and outdoor activities (Larissa Andrade, 2021), and in addition to these physical benefits, time spent outdoors has been proven to decrease anxiety and depression (Byeongsang Oh, 2017). Finally, having nature parks in urban areas reduces air pollution and provides a habitat for wildlife (Michael L. Morrison, 2009).

This project focused primarily on two nature parks in Bucharest, Romania: Văcărești Natural Park and Băneasa Forest. We collaborated with the Văcărești Natural Park Association (VNPA), a non-profit citizen group whose goals are to promote the benefits of these and other green spaces in the city, to contribute to the conservation of these areas, and to educate the people of Bucharest about the wildlife there. They host volunteering events that consist of picking up trash or planting local flora in the parks and Green Week events that educate local school children about the natural world. Such events help to entice more people to visit and engage with local parks.

Văcărești Natural Park (VNP), a key focus of the Association, was converted in 1988 from farm lands into an artificial lake by the communist leader Nicolae Ceausescu (Anastasiu, 2017). Construction finished in 1989; however, the lake's water disappeared as it seeped into foundational cracks (ibid). The project was abandoned just before the fall of the communist regime later that year and because of the poor construction was left abandoned for 27 years (Ianoș, 2016). The lack of human interaction during this time caused the native biodiversity to flourish, allowing the area to be declared a nature park in 2016, gaining the governmental protections that come along with the title (ibid; Simion, 2016; Anastasiu, 2017.)

VNP is home to 11 different habitats including grassy plains, forested areas, and marshes that have allowed for immense biodiversity: 331 species of plants (Mihalache, 2021), 176 species of birds (Văcărești Natural Park, n.d.), and 135 species of insects (Văcărești Natural Park, 2018). Fifty-six of the insect species and 172 of the bird species are on the International Union for the Conservation of Nature (IUCN) red list including the moss carder bee (considered vulnerable) and the red footed falcon (considered critically endangered) (ibid).

Băneasa Forest is located in the north of Bucharest and was estimated to be 80,000 hectares at one point, but private businesses have taken the land for deforestation and development, and now only 800 hectares remain open to the public. The forest is home to a large variety of wildlife and plant species including oak trees, european elms, and linden trees (Legutko-Kobus, 2023). Many species are considered invasive, including the tree of heaven and the Pennsylvania ash, and are predicted to overpopulate the forest in 20 years (ibid).

Methods

We learned from a previous survey conducted by the VNPA that some locals are misinformed about the parks and many do not take full advantage of their assets. To address this problem, our goal was to outline a mobile application for VNP and BF to promote their biodiversity and ultimately raise local residents' awareness of these green spaces. This goal was accomplished through four objectives, outlined in Figure 1.

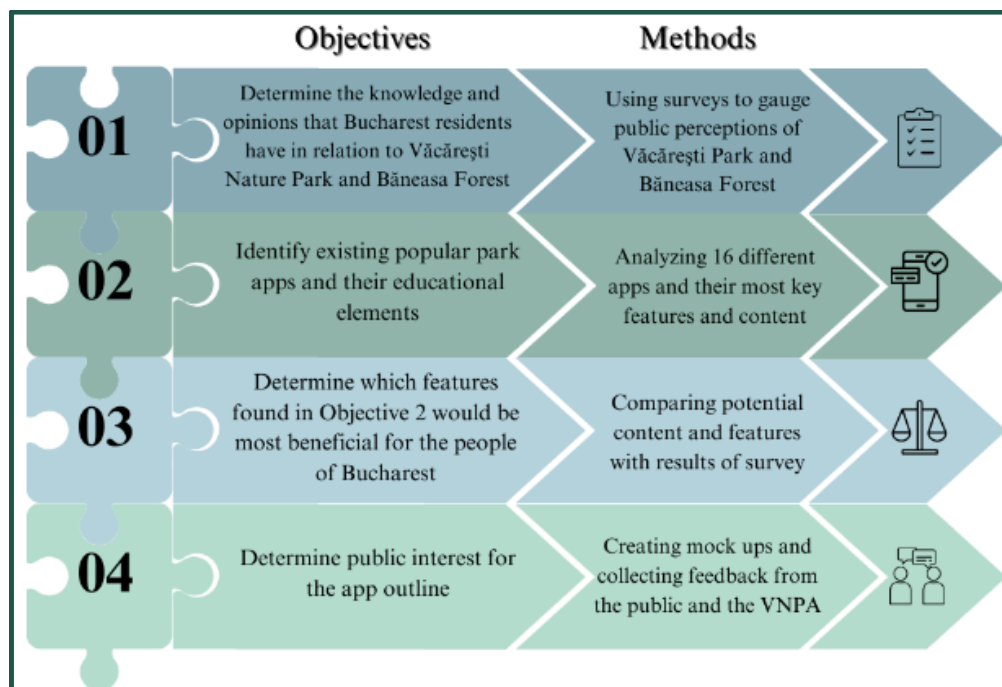


Figure 1: Objectives and methods that were used to accomplish the goal.

The 173 of completed surveys yielded information on how many actually visit the park and how often, what the participants know about the parks, what aspects of the park the visitor likes and dislikes, what they do when visiting the parks, and what aspects of the park they want to know more about. This research informed the content we chose for our app.

Examining 16 nature apps, we also identified common features and layouts that might be appropriate for our app in light of the above survey data.

Once we created the app mockup in Figma, the VNPA team and visitors to VNPA's social media site provided feedback so that we could make further refinements.

Results

The results obtained from the surveys in Objective 1 are summarized in Figure 2.

| KNOWLEDGE | | LIKES AND DISLIKES | | ACTIVITIES | | LEARN | |
|---|--|---|--|---|--|--|--|
| This further justified the need for this informational mobile application as many participants didn't know specific information about the park. | <ul style="list-style-type: none"> A variety of information is known about VNP The majority of participants know nothing specific about BF | Things like protection from threats like fires and the real estate business and keeping the park as natural as possible led us to decide to add a hazard reporting system to the app. | <ul style="list-style-type: none"> Participants in both parks like the wildness of the park Participants suggest more protection in both parks | <ul style="list-style-type: none"> The majority of people in both park participate in walking/running, observing plants, and observing animals | This data allows us to make the decision to add features that would educate the user about trails they could walk and the wildlife in the park they could observe. | <ul style="list-style-type: none"> The top five things people want to learn about are plants, animals, trails, maps, and events | This data allowed us to choose the following features: wildlife identification, trails, maps, and events |

Figure 2: The most common answers to each survey question and their conclusions for our application.

Sixteen different nature specific apps were identified through desktop research for Objective 2. The primary features we discovered in our analysis of other nature apps appear in figure 3. We closely examined those features that seemed most relevant to the interest our survey participants had identified and we used these to design our mockups. The features used are highlighted in green in Figure 3.

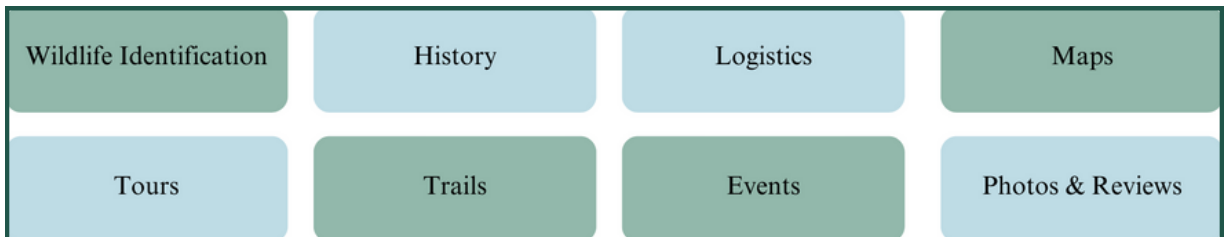


Figure 3: Apps and their various features

Initial mockups were reviewed by VNPA staff and a small group of users in the park's social media. Based on this feedback we redesigned the home page icons to be more intuitive and added a feature that alerts trail walkers when they are getting close to informational signage. Figure 4 displays the main sections of the app.

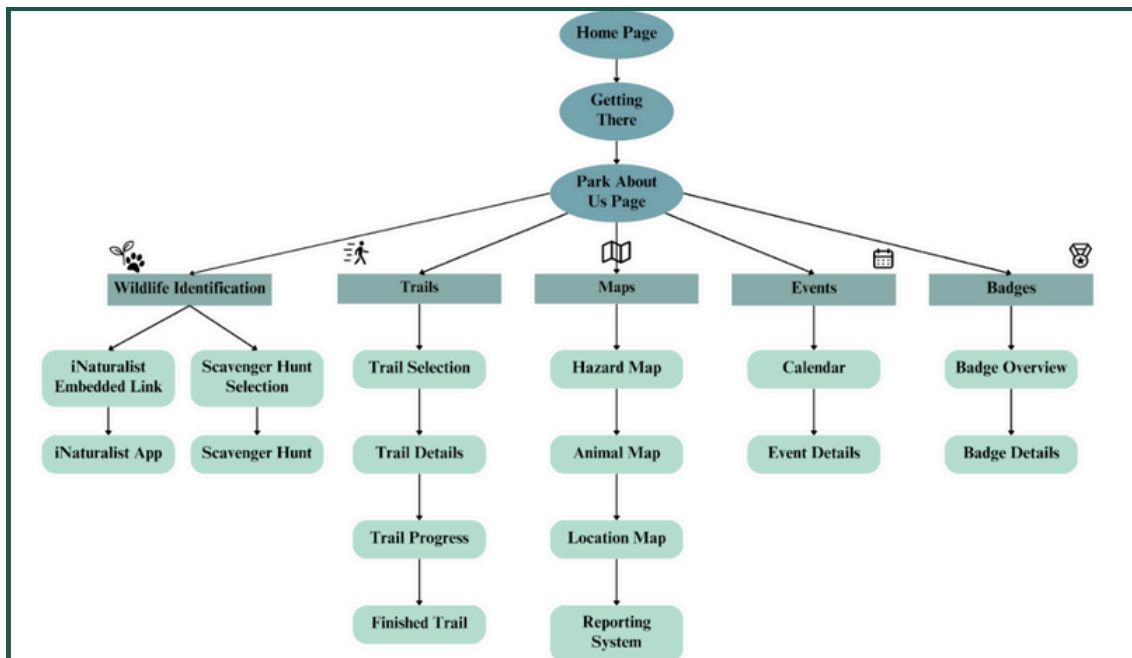


Figure 4: Sitemap for the app mockup

The trails feature allows the user to view trails and see statistics like the length of the trail and the elevation change. The app tracks your location as you make your way through the trail and shows a congratulatory screen once the trail is finished. Figure 5 shows a sample of the trails section that we designed.



Figure 5: Trails section of our app outline with explanations.

Conclusions and recommendations

Figure 6 is an overview of the changes that our team recommends enacting in the future.

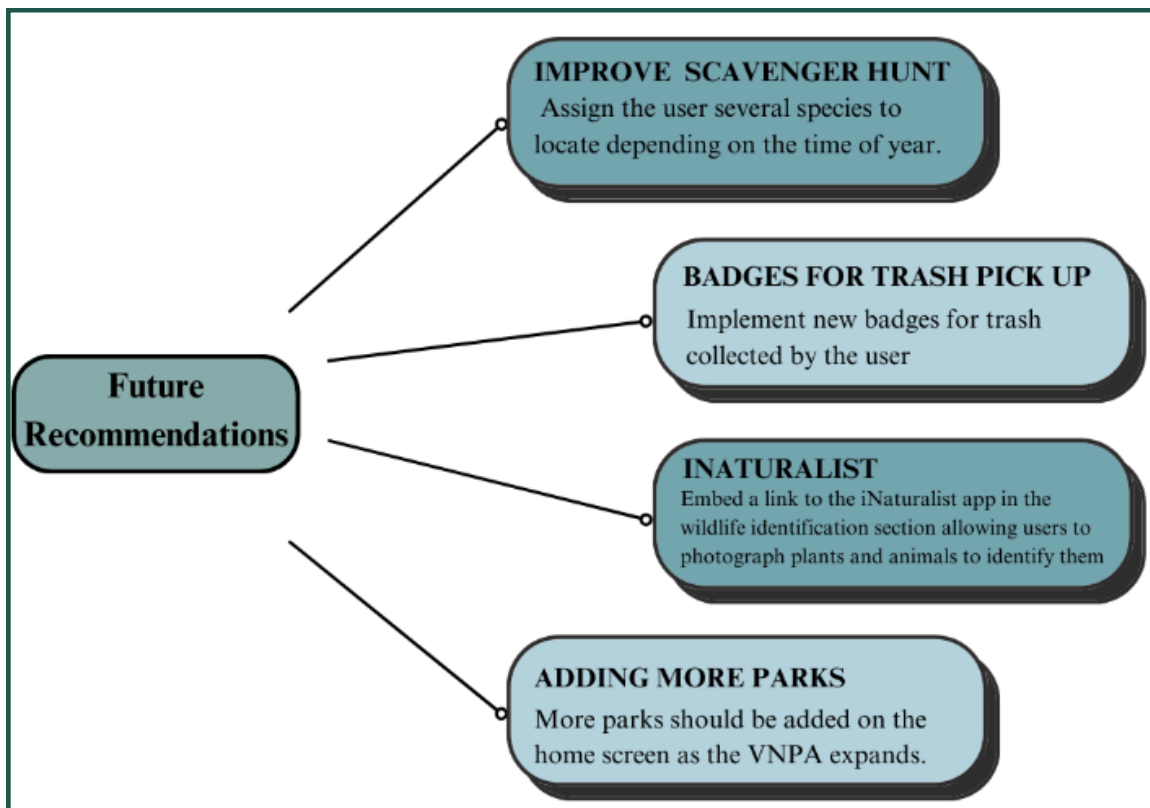


Figure 6: Future recommendations

In conclusion, this app outline should assist the VNPA in implementing this much needed tool that will help residents better understand and enjoy all the benefits these parks can provide.