

Ensuring the Sustainability of Urban Greenspaces: Mt. Kessler Greenways

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THE PROBLEM

The Mt. Kessler area has been recognized for its ecological uniqueness since the 1920's, and had been used as a recreational resource since the 1980's, when local mountain bikers began developing trails. In February of 2014, multiple stakeholders purchased the Mt. Kessler property on behalf of the City of Fayetteville, in order to establish the property as a public park and ecological reserve. Since that time, the City has been engaging 18 stakeholder groups and members of the public in order to develop a "master plan" for the Mt. Kessler property. Each of these stakeholder groups has a distinct set of core values, and these values translate to potentially conflicting visions as to how the Mt. Kessler property should be managed.

Mt. Kessler can be understood as a Social-Ecological-System, or SES. An SES is a type of resource that can be described in terms of the complex interaction between resource users (understood in social terms), and the resource itself (understood in environmental terms). Elinor Ostrom's SES framework divides SESs into four units: the resource system itself, resource units, resource users, and a governance system. In order to assess the sustainability of an SES, Ostrom argues that we must first understand the complex relationships between these four parts of the system. We can then craft institutions which relate to actions that reinforce central sustainability goals.

THE PROJECT

How can we design institutions that sustain Mt. Kessler Greenways, while respecting the diverse values, goals and activities of resource users?

Stakeholder Groups

Association

Preservation Groups

"Within 36 hours, we had found 532 species on Kessler Mountain...The incredible biodiversity that we uncovered in this short period is surely just a glimpse of the vast variety of organisms that call Kessler Mountain home." -Amber Tripodi, Fayetteville Natural Heritage

Conservation Groups

"The urban forest that cloaks Mount Kessler is incredibly valuable for water quality in both watersheds and provides countless ecosystem services to our region. The mature oaks, maples, and other hardwoods have well-established root systems that hold soil in its place and prevent erosion. They intercept storm water and recharge our groundwater supply, which also alleviates the effects of flooding during major rain events. They provide shade, food, and habitat for local wildlife, creating a natural migration corridor." -Lauren Ray, Upstream Matters 5

Landowners

"The area presents approximately 376 acres of undeveloped land to the public for a variety of recreation including hiking, birding, mountain biking, nature watching and relaxing."

-Fayetteville Parks and Rec ⁶

"The first phase of construction will include six soccer fields, three lighted baseball diamonds, two concession stands, parking spaces, and associated infrastructure." -Fayetteville Flyer 7

soil quality...

Social Monitoring

Assess user population trends, user

satisfaction, user conflict

Recreation Groups

"Northwest Arkansas is already considered a 'hotspot' for outdoor recreation and preserving the Mt. Kessler Reserve would add to this reputation." -

Richard N Cook, Director of Development,

"The proximity of Mt. Kessler to our members has only heightened our excitement over the prospect of having mountainous hiking trails available."

-Mike R. Lemaster, President OHTA ³

Shared Goals

Open Access that encourages Diverse **User-groups**

No Tolerance for **Environmental Degradation**

> **Continued viability of Ecosystem Services**

Construction of Educational Infrastructure

Continuation of Recreation opportunities

Sources of Conflict

Which resource user actions are environmentally degrading, and how?

Where to locate new trails and infrastructure?

Sustainability:

Sustainability occurs when conflict resolution and stakeholderresponsive design inform the design of management solutions in urban greenspaces

Education Groups

"I see much potential for a partnership between Fayetteville Public Schools (FPS) and Mt. Kessler Greenways. Mt. Kessler Reserve offers numerous outdoor learning opportunities. FPS students from kindergarten through 12th grade will be able to utilize this space for hiking, studying flora and fauna, learning about various rock formations, identifying native species, and understanding the importance of protecting the environment." - Jenny Gammill, FPS ⁴

Management Solutions

- Re-routing existing trails and designing future trails to avoid ecologically sensitive areas
- Development of softsurface, multi-use trails on the eastern slopes of Mt. Kessler for educational purposes
- Construct sports fields, parking lots, and amphitheater in ways that respect wildlife and the underlying watershed
- Signage to educate users to appreciate ecologically sensitive areas, and do so responsibly
- Signage to educate users on Leave No Trace principles and other ecological stewardship initiatives
- Allow recreational resource users to participate in management plan design and implementation
- Encourage resource users to take part in caring for the health and sustainability of the recreational resource

SUSTAINABILITY

THE OUTCOME

Kessler. Then, I categorized these stakeholders

visions and potential sources of conflict. These

management plan for Mt. Kessler Greenways.

Once this management plan is enacted, we

must make sure to consistently monitor the

health of the resource, and can make

management adjustments as necessary.

Applying the SES framework helps categorize

the ways individuals and groups relate to the

geographical and social landscape of Mt.

into broad groups. Next, I researched what

goals and central values these groups held.

Then, I could sort these goals into shared

ideals help inform the development of a

Recreational resources are an interesting topic of study because they are one point at which the social world meets the environmental world. In many cases, urban greenspaces such as Mt. Kessler are one of the primary ways people in urban areas get to connect with the natural world. This is why ensuring the sustainability of places like Mt. Kessler is of utmost importance.

This project gave me a chance to apply philosophical and sociological concepts to a real-world example in our own backyard. Interpreting the various stakeholders' goals was informed by philosophical studies on various concepts of environmental valuation. My research in environmental sociology helped me construct a model that employed aspects of Common-Pool Resource management, Social-Ecological-Systems, and the Institutional Analysis and Development framework. I was able to take these concepts out of the classroom, and apply them to a current and local case study.

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Ecological Monitoring Asses water quality, biodiversity,

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