Can a Cell Phone App Truly “Trump” your Camping Impact Management Problems?

Dr. Jeff Marion  
USGS Virginia Tech Unit

Fletcher Meadema  
Virginia Tech Grad Student

Johanna Arredondo  
Virginia Tech Grad Student

Dr. Jeremy Wimpey  
Applied Trails Research
Presentation Objectives

➢ 1. Review recent advances in our ability to identify and/or create highly sustainable campsites.

➢ 2. How might technology assist managers in efficiently guiding visitors to these highly sustainable campsites?
Campsite Sustainability

Definition: A “sustainable” campsite can: accommodate the intended type and amount of use over time without unacceptable levels of expansion, degradation, maintenance, and social crowding or conflict.

Generally, a primary resource protection objective is to minimize the “aggregate” area of camping impact by minimizing campsite numbers and sizes.

Managers are experiencing more frequent problems in popular areas when camping is Unconfined, commonly known as Dispersed Camping.
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Unconfined / Dispersed Camping Impacts:

- 19 Campsites
- 43,063 ft² of impact

- 32 Campfire scars
- 137 Tree stumps
- 83 Damaged trees
- 159 Informal trails
- Litter
- Human waste
- Crowding / Conflicts

AT, Annapolis Rocks Mega-site
“Worst” AT “Mega-Site” in 2000
Unconfined Camping Impacts on the Pacific Crest Trail

Problems:
- Poor site selection – flat places!
- Campsite proliferation
- Campsite expansion
- Resource – highly impacted
- Social – crowding & conflicts

Twin Lakes Mega-site, OR
Mt. Hood Wilderness
48,142 ft² of impact
Excessive Campsite #'s = “Avoidable Impact”

Three Sisters Wilderness, OR
Willamette NF

Sunshine - Obsidian Falls area

Unconfined “Dispersed Camping” Impacts

Campsites: 269, 220,057 ft²

Mean nights/yr/site: 4.5
Visitors with freedom to camp anywhere often choose large flat areas where:

- Site expansion creates excessively large campsites,
- Site proliferation creates excessive #’s of unnecessary sites,
- Crowding occurs due to high campsite densities.

These impacts will be chronic over time and represent significant threats to Wilderness Character.

Solution: Areas with high visitation benefit most from a containment strategy that promotes camping on a reduced number of sustainable campsites.
Rationale for Pure Dispersal & Containment Strategies

45 sites, each w/1 night/yr

Impact is minimized by closing two campsites and tripling use on the third.
Impact increases on third site from “a” to “b” but aggregate impact is reduced from (3 x a) to (1 x b)

3 campsites each w/15 nights/yr

Close 2 campsites

1 campsite 45 nights/yr

Unregulated Camping

Dispersal

Containment

Campsite Impact

Nights/Year (#)
Dispersal vs. Containment Strategy

- **Disperse** use in low use areas, practice Pristine Site Camping just 1 night at each spot
- **Contain** use in high use areas on sustainable Established or Designated sites

Diagram:
- Dispersal (Pure)
- Containment (Concentration)

Y-axis: Campsite Impact
X-axis: Nights/Year (#)
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Note: Failure w/this strategy results in site proliferation as shown in the Three Sisters Wilderness slide. A risky policy!
Established or Designated Site Camping

From our AT and PCT research we have created and are refining the ability to use a combination of GIS and ground-based surveys to identify and select highly sustainable campsites.
Select Sustainable Campsites

Constrained by Topography
Rock & Rockiness
Non-vegetated Areas
Grass
Visitor Preferences
Sustainable Camping Management

Camping Management Toolbox of Best Management Practices:

➢ Implement camping Containment
➢ Select or construct sustainable campsites
➢ Move visitors to the sustainable campsites
➢ Close/rehab unnecessary campsites
Desolation Wilderness, Velma Lakes

How can visitors find and use only sustainable campsites?

▲ = Highly Sustainable
▲ = Somewhat Sustainable
▲ = Non-sustainable
Camping Containment

Remaining Management Challenge:

Promoting use of sustainable campsites, closing unsustainable campsites.

Possible Tools:

➢ Campsite signs
➢ Printed maps w/sites
➢ GPS coordinates
➢ GPS units
➢ Cell phones
➢ Push – Pull site work
Is Technology the Answer?

Proposed PCT Research at Desolation Wilderness

Create and post paper and digital maps with campsites color-coded for 2 sustainability ratings:

▲ = Highly Sustainable

▲ = Somewhat Sustainable

➢ Ask visitors to use only sustainable campsites and avoid non-sustainable and unnecessary sites.

➢ Digital maps can be used with smartphone apps (e.g., Avenza), GPS units (e.g., Garmins), or trail navigation phone apps (e.g., Guthook).
Cell Phone Apps

➢ Increasingly in use by wilderness visitors.

➢ Guides hikers directly to any depicted campsite with a moving dot.

➢ Could show tent pad #’s and ask groups to match w/their group size.

➢ Could also show distance to water and even site photos.

Guthook’s phone app
Only a subset of the most sustainable campsites would be shown. Camping setbacks from lake and trails could also be shown as “virtual fences.” Could be handy when writing violators tickets!
Rationale

➢ Numerous phone apps are already widely used by visitors (e.g., Guthook, Avenza) and today’s youth have no or few issues with using technology in the wilderness.

➢ Some managers may not find this “appropriate,” but:

   1) Managers are not able to prohibit cell phone use, and

   2) If you don’t use these new technologies your communication efforts will be increasingly ineffective.

➢ Benefits: Low implementation costs and updating digital campsite location and sustainability maps once a year can be done in hours and posted on websites for use by visitors and phone app makers.
Some Managers Have Already Started...

GPS Waypoints, Voyageurs National Park

This information is provided to assist in locating specific locations and is not provided for navigation.

Download a GPX file of waypoints for campsites within Voyageurs National Park. This file type is compatible with many GPS units.
Some Managers Have Already Started...

Okefenokee Swamp Wilderness, Wilderness Phone App, USFWS

Works directly from satellites to show you your position on a digital map, and all canoe routes and campsites.

App development was contracted by the USFWS and is available for free download and use by visitors on Apple or Android phones.
Some Managers Have Already Started…

Additional Cell Phone Capabilities

➢ Notify visitors of when they leave/enter unit boundaries or special management areas and changing regulations or low impact practices.

➢ Notify visitors of new nearby wildfires or bear management incidents.

➢ Include a “I camped here” button to store site locations with a “real-time” check against regulations.

➢ Anonymous site location data could be used by agencies to model and manage visitation.
Is Technology the Answer?

A Wilderness Character Dilemma

Supporting Actions:

1) Create new side-hill campsites in areas that lack enough sustainable sites.

2) Push-pull: Conduct maintenance work on sustainable campsites (create optimal tent pads and cooking spots), ice-berg expansion prone areas or use logs/rocks to define campsite borders. Close and recover unnecessary and unsustainable campsites.
All original campsites in flat terrain were closed, with camping shifted to 14 new constructed “side-hill” campsites in adjacent sloping terrain.

Approximately 800 side-hill campsites have been constructed along the AT since 2000, including within Wilderness.

Best when created in locations with few to no trees, but these small sites are much easier to protect against hazard trees.
Flat areas closed
Camping moved to side-hill sites

Annapolis Rocks, MD

Aggregate Sizes

Original sites:
Fall 2002: 43,097 ft²

Side-hill sites:
Fall 2012: 3,423 ft² (92% reduction)

Justifiable based on:
1) side-hill trail construction, and
2) minimum-tool to achieve such a sig. reduction in total area of camping disturbance.
Ice-berg rocks or create uneven ground in adjacent offsite areas that might be used for tenting.

Place logs/rocks along some campsite boundaries to visually define site borders.
Create several well-drained and smooth tent pads and anchored fire rings or stove rocks to attract and concentrate use.

Leave visitor-created seating when possible.
Managing camping in flat terrain requires considerable effort - less natural and may be ineffective. If you take a 500+ year perspective you would always move camping to topographically-constrained locations.
➢ Recreation ecology publications available on Google Drive link