

clean bathrooms, and technologies such as satellite and cell phone reception. Future developed forest campers will likely continue to demand these types of amenities.

Developed forest campers perceived many benefits related to family functioning and identified family functioning as an important meaning associated with developed forest camping experiences. Quality family interaction was in part attributed to the opportunities camping afforded families to have some “down time.” This additional quality family time was used for unscheduled time together as well as to participate in organized programs, campfires, and self-guided trails associated with the campgrounds and nearby facilities and attractions.

Despite a plethora of “indoor” conveniences, campfires continue to be a center for social experiences in the campsites and were the catalyst for the expression and sharing of stories and even traditions. Sharing and hearing stories about camping was seen as a particularly valuable component of the social interactions among campers. Managers may want to consider ways to enhance these types of experiences through site construction, visitor interpretation, and organized programming. As one example, interpretive sites and trails can incorporate more electronic communications technologies to help attract younger participants.

Given what we learned from researchers investigating developed forest camping in the 1960s, it is apparent that the technology campers take with them has evolved, while the experiences and meanings have remained largely the same. People continue to look to developed camping as a way to comfortably contact nature and to satisfy important human needs for personal restoration and social bonding. The motivations that led campers to escape and to travel in social groups to less populated areas for the restorative effects of a camping trip are still very much present. Coupled with meanings like emotional attachments to special camping places, the strengthening of social family relationships through memories and stories, and the enhancement of a general appreciation of nature, developed forest camping continues to play an important role within the larger context of outdoor recreation experiences.

End Invited Paper

Invited Paper

Geocaching: Form, Function, and Opportunity

by Ingrid E. Schneider and Deborah J. Chavez⁷



Ingrid E. Schneider



Deborah J. Chavez

The role technology plays in outdoor recreation is evolving and of ongoing interest. One technology-related activity in particular emerged at the start of the 21st century: geocaching. Geocaching involves using a handheld GPS device to find hidden caches in areas based on clues posted on the Internet. Geocaching.com, the primary source for geocachers, provides information and guidelines for participating in the activity. In 2010, geocaching celebrated its 10th birthday heralded by nearly 100,000 geocaching.com members and nearly 1,000,000 active caches around the world. The current estimate of the percent of population of people in the United States of age 16 and older who participate in geocaching is 3.5 percent (based on sampling for the NSRE described earlier). This is roughly 8 million participants of this age in the United States based on the Bureau of Census population estimate for 2008. Since this is an activity popular with youth, there obviously are many more participants than this 8 million.

In its simplest form, a geocache is a small, waterproof container with a logbook. The logbook contains information from the cache hider and notes from its finders. A logbook might contain information about nearby attractions, coordinates to other unpublished (not posted on the Internet) caches, and even jokes. Those who take information from the logbook then leave some information too, at least providing the date and time they visited. The geocaching.com Web site notes that geocaching is deceptively easy; it is one thing to see where an item is

⁷ Ingrid E. Schneider, Ph.D., Professor, Forest Resources, University of Minnesota, St. Paul, MN; Deborah J. Chavez, Ph.D., Supervisory Research Social Scientist, USDA Forest Service, Riverside, CA.



Example of cache contents. (USDA Forest Service file photo)



Example of a micro (small) cache. (USDA Forest Service file photo)

on the GPS unit, but it is a different story to get there. After finding the cache, participants are asked to place it back where and how they found it. After returning home, the cache finder posts an email to the cache owner via geocache.com to let them know the cache was found and comments on the condition of the cache. Appropriately placed and well-maintained caches are recommended by www.geocaching.com.

With emergent activities come new challenges and opportunities for land managers and planners, e.g., off-trail travel, disturbed natural areas, abandoned property, and more visitors. Although geocaching has existed for a decade, few empirical studies of geocachers exist (Chavez and others 2004, O'Hara 2008). As such, little is known about this user group, their behaviors, and preferences. Thus, the

purpose of this project was to profile geocachers and their activity. Notably, the samples reported are small and not representative of all geocachers across the United States. However, many of the issues identified in these studies can help in better understanding this growing user group and their impact on public lands.

Methods

To find out more about geocachers, an electronically administered survey was developed and disseminated to geocachers in Minnesota (MN) and Michigan (MI) in 2003 and 2004, respectively. Potential respondents were geocachers drawn from the appropriate State Geocaching Association (n=235 in MN and n=480 in MI). Due to the few Minnesota association members at that time, that list was supplemented by cachers who found a cache in the seven county metropolitan Minnesota area, as was listed online at www.geocaching.com.

A questionnaire was designed, pre-tested, and electronically implemented via Zoomerang® using a modified Dillman (2000) technique. The questionnaire addressed experience with geocaching, preferences for geocaching experiences, environmentally appropriate behaviors, and demographics. Demographics included age, gender, income, and education level.

More than 50 percent of geocachers responded to the questionnaires (MN 62 percent response rate, MI 52 percent response rate). Descriptive analysis provided means, standard deviations, and frequencies.

Findings

The respondents ranged in age from 18 to 70 years, with a mean age near 40 (39 years in MN, 43 years in MI). The vast majority of survey respondents were male (85.6 percent in MN, 72 percent in MI) and White (96.1 percent in MN, 97 percent in MI), highly educated (47.7 percent college degree, 14.4 percent advanced degree in MN, 39 percent college degree, 16 percent advanced degree in MI), and reported an income > \$75,000 in MN and > \$50,000 in MI.

At the time of the survey, respondents most frequently indicated they had participated in geocaching for 1 to 2 years. Respondents were typically with members of their immediate family when geocaching (48.1 percent in MN, 52.8 percent in MI) or alone (24.8 percent in MN, 20.8 percent in MI). The majority of respondents indicated they always found caches (66.9 percent in MN, 66.3 percent in MI). Almost half had hidden at least one cache (48 percent

in MN, 55 percent in MI).

The majority of respondents in both States agreed on the most important motivations for geocaching and that it increased their visitation to parks. At least 80 percent of respondents in both States agreed that important motivations for geocaching were to experience nature, get away from the usual demands of life, get physical exercise, and test their skills. More than 95 percent of respondents in both States agreed or strongly agreed that geocaching had increased their number of visits to parks and recreation areas.

Regarding environmentally responsible behavior, the vast majority of geocachers in both States (85 percent) concurred that it was important to pack out everything they brought in, remove dog feces, and control pets. However, a lower number of cachers (65 percent) identified that it was important to stay on trails.

Implications for the Future

Results from the electronically administered questionnaire indicate that Midwestern geocaching participants are similar to outdoor recreationists in other activity groups, although more male dominated (Cordell and others 1999). These results are also comparable to the computer gaming area, where males have dominated as technology emerges (Bryce and Rutter 2003). If the gender divide continues in geocaching, it will be interesting to follow and compare with Internet and computer gaming participation where, as the innovation diffuses, the female presence has grown (Schumacher and Morahan-Martin 2001).

Among these respondents, geocaching has led to an increased use of public lands. Knowing more about the increase in visitation in terms of number of visits or duration would be meaningful. Further information on the caching experiences would also be helpful, such as better understanding the importance of the hunt, factors influencing positive experiences, and duration of experiences. Similarly of interest is determining what percent of geocachers are new outdoor recreationists, and whether new use of technology in the outdoors may result in visitor conflicts. Further, the fact that geocachers typically go off trail at some point may result in negative feelings toward them. Subsequently, the impact of this new experience opportunity on visitor conflict levels deserves attention.

Motivations for geocaching are similar to other outdoor recreation activities, and hold promise for physical activity opportunities. O'Hara's (2008) interviews with English geocachers indicated that this activity motivated respondents

to get out and walk, as well as to push themselves physically to find the cache. Given the obesity epidemic in the United States and emphasis on physical fitness by government and non-government organizations, geocaching participants' motivation for exercise is very promising. Participants' physical health changes, if any, and the realized health benefits would be of interest in future research.

Communication and programming implications are evident with this activity. First, electronic communication is almost mandatory with geocachers, given the internet dependency for cache coordinates. While typical communication methods of onsite signs and brochures may be of use, immediate and real-time messages can be delivered on management Web sites, through www.geocaching.com, and a local geocaching organization Web site if one exists. The use of caches themselves for information or education may be of interest. For example, the use of the Register of Big Trees (which are maintained by public forestry agencies describing the location of the largest specimens of various tree species) as caches may improve people's understanding and appreciation of the trees (Wright 2003). Research on optimizing messaging and delivery will be essential as this, and other, technologically-driven activities evolve. Second, given the male dominance of the activity, single-sex programming could provide opportunities to overcome constraints related to technology as well as the outdoors for women.

As geocaching appears to be a family activity, social group research is of interest. Research documents that family leisure and recreation enhances family satisfaction (Orthner 1975, 1976) as well as couple satisfaction (Holman and Epperson 1984; Holman and Jacquart 1988). However, the leisure experience within groups varies among group members by age and family role (Martinson and others 2002). Thus, understanding if and how leisure is experienced within geocaching family groups is of interest. O'Hara (2008) positively notes the flexibility of geocaching for participation and inclusivity to create a positive social environment, regardless of group. Similarly, understanding if and how technology-based group leisure is experienced is of interest. The integration of technology may dramatically change the outdoor recreation experience. GPS use could cross over generational divides associated with technology and enhance family opportunities in the outdoors. Also, as geocaching brings decisions regarding directions, technology, as well as hand-held controls, the opportunity for marital and family conflict presents itself (Imber-Black 2001). As such, exploring the actual effect of geocaching experiences on family cohesion and group dynamics would be enlightening. Beyond the family, the socialization and patterns of the geocaching e-community deserves attention

(Scott and Johnson 2003).

Our research indicates that geocaching takes several forms, is linked to technology (e.g., Internet, GPS), is of growing interest, gets people outdoors and active, and has the potential to change how lands are used by members of the recreating public. As such, geocaching provides challenges and opportunities to those managing lands the geocachers use. A number of research opportunities similarly exist to better understand the activity, the geocachers, and offer advice to the resource managers who provide the lands for this technology dependent activity.

End Invited Paper

Invited Paper

Wildlife Festivals in North America: Growth and Economic Importance

by Glen T. Hvenegaard⁸

Introduction



Glen T. Hvenegaard

Festivals are annual public celebrations of local features of interest lasting a short time (Getz 1997). Wildlife festivals can focus on all wildlife or on particular groups or species (e.g., birds, mammals, fish, and invertebrates). Festivals attract mostly local and regional visitors, are facilitated by volunteers, and offer a variety of social, recreational, and educational activities. Organizers host wildlife festivals for a number of reasons usually including enhancement of a community's image, generation of economic impacts, providing recreational opportunities, developing a local sense of community, and helping conserve wildlife (Polson 1993,

Hvenegaard and Manaloor 2007, Romero and Stangel 1996).

Methods

This paper reviews the growth, economic impacts, and conservation orientation of wildlife festivals. Data were obtained from a comprehensive literature review, analysis of Internet sites, and personal participation in some studies (e.g., Hvenegaard and Manaloor 2007).

Results

Recently, wildlife festivals have grown rapidly in number. In North America, from 1992 to 2002, the number of known festivals grew from 10 to 240 (Decray and others 1998, DiGregorio 2002, Lawton 2009). In Canada, over 80 wildlife festivals were offered in 2009. Wildlife festival tourists are generally older, more educated, and more affluent than the general population (Lawton 2009).

Table 4.14 summarizes the expenditures generated by visitors within a given local area of several North American wildlife festivals. While formal economic impact studies should include only new spending in a local area by non-residents (see Kim and others (1998), and Chambliss and others (2009) for good models), a number of the studies used data and methods inconsistent with this standard.

Regardless, total local expenditures per festival ranged from about \$10,000 to more than \$1 million USD. Average expenditures per person per trip ranged from \$8 to \$761 USD. Significant drivers of local economic impact include the number of participants, need to stay overnight, length of stay, affluence of participants, types of activities, and ability of local communities to meet visitor needs (Hvenegaard and Manaloor 2004).

A few studies have expanded economic analyses. Rockport, Texas hosts the Hummer/Bird Celebration each year in September. The 4,500 festival visitors spend an average of \$383.70 USD per person, for a total of \$1,276,548 USD in the local county (Kim and others 1998). Of visitors, 71 percent were non-residents (spending \$344.94 USD per person) and 29 percent were residents (spending \$133.69 USD per person). Using a regional input-output model, Kim and others (1998) estimated a total economic multiplier (the number of times that money is spent over again in the local area) of 2.28. Thus, the county received an additional \$144,638 USD in indirect expenditures (businesses

⁸ Glen T. Hvenegaard, Professor of Environmental Studies and Geography, University of Alberta's Augustana Campus, Camrose, Alberta T4V2R3 Canada.