

New ideas for monitoring visitors

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The aim of this project is to generate new ideas for identifying and monitoring visitors in recreational and natural areas by using crowdsourcing and location based data. A successful management of the use of recreational and natural areas begins with data about the visitor flows. It is important to know how many (and which) visitors use these areas, what the trends are and how the spatial distribution of visitors within these areas is and why. In this project we identify what methods and tools are already available and to what extent they are useful to generate and monitor location based visitor numbers. Four different methods are identified (on-site collecting, online collecting, modelling, tracking) but the focus in the project is on tracking.

On-site collecting

A traditional method is counting the amount of visitors at entrances, sometimes during a few days in a year or via electronic counting a whole year. Also counting with aerial shots is a method managers sometimes use. Also the amount of tickets sold at entrances can give information about the visitor flows, but a lot of recreational and natural areas are free of charge. Another way is counting the amount of sold parking tickets if a parking ticket is required. New technologies have been introduced by handing the visitor a GPS-device at the entrance to follow the visitor in his use of an area. On-site visitor data collecting are rather trustful, but costly. A result from a survey of nature and recreation managers in the Netherlands (Goossen et al, 2011) is that there are some, but limited recreation monitoring and/or counts of the visitor flows. The goal for those managers with these tools is that they want to have insight of yearly visits and/or opinions of recreationists about the quality of their areas. These tools consist of interviews, questionnaires on site, observations and sometimes counting the number of visits. Especially the managers of recreation areas are counting the visitor flows, mostly by parking tickets and sometimes with a traffic counter. Most organizations would like to have more precise data, especially the exact understanding of the number of visitors is desirable and how the internal spatial distribution of the visitors are. Organizations choose that method that is most in line with their targets. Other important argument is the price of monitoring and the practical usefulness of the method. Systematic counting is hardly done year around. Nevertheless, the interest of the organizations in location based visit numbers exists. It is therefore that seeking alternative innovative methods with limited budgets to collect such data is supported.

Online collecting

NBTC-NIPO Research asks the Dutch population about their leisure time in their continuous recreation activity survey (CVTO). Recreation activity is defined as a leisure activity during at least 1 hour, starting from home without an overnight stay and not including family and friends' visits. It could be an outdoor recreation activity, shopping, sporting or visiting a museum. The survey defines a total of 115 recreation activities. They use an online panel of 220.000 respondents. Every week about 350 respondents of that online panel are asked to fill in what kind of activities they have done during the last week. The survey time lasts one year (from May till April). From 2006 they collect data every two years (NBTC-NIPO Research, 2013). For the outdoor recreation activities the destination is asked. The destination is defined as the type of land use like a forest, a sea, a lake, a park or their own neighbourhood. The name of a forest is not asked, so the results are only useful to give insights into the popularity of the land use types. Visiting forests has been increased by 6% from 2006 till 2013. The results are important at national or provincial level because the investigation of the character of recreation activities and visitor flows at the destination level may

lead to insights into how recreational, tourism, spatial and mobility policies can be adjusted and specifically focused on these destination-specific recreation activities and visitor flows.

Modelling

Models of recreation behaviour in large protected areas have been developed to predict the amount of visitors and their spatial distribution, depending on usage and infrastructure. These simulations have emerged as a suitable tool to capture the complex spatial behaviour of visitors in natural areas and to analyse the consequences of recreational use and behaviour changes (Gimblett et al., 2001). The pool of studies that address the spatial and temporal distribution of recreation seekers with the use of simulations is growing rapidly (Gimblett & Skov -Petersen, 2008). Models as RBSim (Cole 2005), MASOOR (Jochem et al, 2008), kvintus.org (Skov -Petersen, 2005) are developed. The models are as good as the input (available data) is. They have proven to be useful for managers.

Tracking

The focus on the project is on an inventory of possibilities to use (open source) location-based data to count visitor numbers in specific areas. As the costs of technology continue to decrease, finding technological means to automate the tracking of visitors could not only lead to have insights into the total amount but also to understand the choices of visitors. An increasing number of visitors are bringing smartphones when visiting. Smartphone penetration levels are continually increasing. Counting visitor numbers on the basis of data from mobile telecommunications networks is an interesting method, but very restricted because of privacy laws. Mobility measurements and counts must be based on absolutely anonymous and aggregated counts. Only one company in the Netherlands has a contract with a provider to use their data. The first result is that it is useful to have insights into the total amount of visitors (also tourists from other countries) at a municipal, provincial or national level but not on a sight level.

With the Activity Recognition API of Google it is possible to track users if they are logged in to specific apps with wifi technologies like geofencing, ibeacons and augmented reality. In the project we analyse the usability of these new technologies to count the amount of visitors. The first result is that a visitor would only download an app if the app delivers something useful for the visitor.

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