139 Community science supported recreation data using a SMS chatbot

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Collecting data on visitors demographics, their experiences, and general use patterns at recreation sites, such as trails, requires significant effort and resources. Despite this information being highly valuable to recreation planners for decision-making, there is often a scarcity of data at the appropriate spatial and temporal scales.

To address this data gap, we developed a community science method, VisitorsCount!, to engage visitors in the data collection process. Visitors provide information about their recreation trip by interacting with a simple text-messaging chabot. This method allows visitors to submit data on recreation use and visitor experience with no prior training. We tested this method in the Mount Baker-Snoqualmie National Forest in Washington State, USA. We posted signs at trailheads asking visitors to send a text message to a project phone number and tell us the number of cars in the parking lot. After their initial SMS message, the chatbot then asked a set of additional questions about their visit.

Visitors choose to volunteer information at trailheads with and without cell service. In addition, visitors typically responded to most of the questions asked by our chatbot script. Response rates were generally higher at sites with fewer visitors. In addition, the chatbot was able to collect information from visitors recreating at sites outside of normal working hours of recreation management staff.

By enlisting visitors in a community science model through SMS texting, we are able to generate valuable data using far less resources than would be otherwise required. The SMS text chatbot is flexible in that it allows managers to ask and collect various types of data related to visitors and visitation use patterns. It also provides a cost effective opportunity to collect valuable data on visitation at low use sites that require greater efforts to monitor.