

DISSERTATION

ENCOUNTERS, NORMS, CROWDING:

AN APPLICATION OF THE NORMATIVE THEORY AND METHODS IN TURKEY

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## ABSTRACT

### ENCOUNTERS, NORMS, CROWDING:

#### AN APPLICATION OF THE NORMATIVE THEORY AND METHODS IN TURKEY

National parks attract millions of visitors a year due to their natural and cultural importance (Manning, 2007). The number of visits to national parks has been rapidly increasing around the world (Manning & Krymkowski, 2010). The high level of visitation to these areas has generated concerns about sustaining appropriate levels of social and environmental impacts. Growing demand for access and participation in recreational activities in national parks can damage both the ecological integrity of the environment, as well as reducing the quality of visitor experiences. The quality of visitor experiences must be maintained at a high level for national parks to contribute their full potential to society (Manning, 2002). In the literature, the quality of the visitor experience has been addressed through the concept of carrying capacity (Manning, 2007).

In the United States, several planning frameworks have been developed and applied for National Parks relating to carrying capacity such as Limits of Acceptable Change (LAC), Visitor Impact Management (VIM), and Visitor Experience and Resource Protection (VERP). These frameworks share a common idea of identifying and establishing quantitative impact indicators and standards. National Parks in Turkey, however, have no such framework for monitoring the quality of both the natural environment and the visitor experience. Research on these issues is also very limited. The primary purpose of this dissertation is to examine the applicability of normative theory and methods in Turkey by addressing the interrelationships of visitor encounter norms and perceptions of crowding, resulting in the identification of appropriate indicators and standards of quality for management of the country's national parks.

This dissertation presents three manuscripts designed to contribute this area of inquiry. The first chapter focuses on one of the structural characteristics of norms (e.g. norm prevalence) and methodological considerations that influence norm prevalence. The following research questions examined in this manuscript: first, what percent of visitors will report a norm in a given setting (Rocky Mountain National Park-ROMO)? Does the survey response format influence norm prevalence? Among those reporting a norm, to what extent do normative evaluations differ between two different response formats (e.g. closed and semi-open format)? Results indicated that norm prevalence is higher when respondents are asked to circle a number from range of values presented on the survey (closed format) as opposed to writing in a number (semi-open format). Among those reporting a norm, the average norm tolerance levels for the closed and semi-open question formats are equivalent across all specific locations. This work demonstrate that survey response format influence norm prevalence (percentage of individuals reporting a norm) and the numerical value of the reported norm.

The second chapter examines the generalizability of the research findings from the ROMO study to Dilek Peninsula National Park-DPNP, in Turkey. The same research questions are asked in this second manuscript. First, what percent of visitors will report a norm in DPNP? Second, among those reporting a norm, to what extent do normative evaluations differ between semi-open and closed response formats? Results demonstrated that encounter norm prevalence (i.e., the percent of individuals who could specify a norm) is higher for the closed format of the survey as compared to the semi-open version. In addition, among those reporting a norm, the average tolerance levels were statistically higher in the semi-open format.

The third chapter focuses on relationships among encounters, norms, and crowding for both settings ROMO and DPNP examining following research questions; First, what are visitor's

norms regarding encounters with others at the site? Second, what proportion of visitors encounter fewer or more than their norm? Third, if they encounter fewer or more visitors than their norm, how does this affect visitors' perception of crowding? Fourth, to what extent does perceived crowding differ between ROMO and DPNP? Lastly, to what extent does the country of origin influence perceived crowding? Findings shows, in both settings, when visitors encountered more people than their norm, perceived crowding was higher compared to when individuals encountered less than their norms. The findings also showed that Turkish respondents felt more crowded than American visitors.

In total, this dissertation is intended to provide a deeper look at the applications of normative theory and methods between two countries the United States and Turkey to contribute management of parks and outdoor recreation.

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## RESPONSE FORMAT EFFECTS IN ENCOUNTER NORM QUESTIONS

### **Introduction**

Virtually all natural resource planning frameworks recommend identifying and establishing quantitative impact indicators and standards (e.g., the Limits of Acceptable Change [LAC], Stankey, Cole, Lucas, Petersen, & Frissell, 1985; Visitor Impact Management [VIM], Graefe, Kuss, & Vaske, 1990; Carrying Capacity Assessment Process [C-CAP], Shelby & Heberlein, 1986; Visitor Experience and Resource Protection [VERP], National Park Service 1997). *Indicators* are the biophysical, social, managerial, or other conditions that managers and visitors care about for a given experience (Manning, 2011; Needham, Ceurvorst, & Tyon, 2013). *Standards* restate management objectives in quantitative terms and specify the appropriate levels or acceptable limits for the impact indicators (i.e., how much impact is too much for a given indicator). “Standards identify conditions that are desirable (e.g., no litter, no trail erosion), as well as the conditions that managers don’t want to exceed (e.g., encounters with other people, human-wildlife conflict)” (Vaske, Whittaker, Shelby, & Manfredro, 2002, p. 145).

Setting standards requires an understanding of the point(s) where conditions are perceived as problematic by managers and/or visitors, or the management area has become degraded (Hall & Roggenbuck, 2002; Kim, Shelby, & Needham, 2014). A structural norm approach has emerged as a graphic strategy for conceptualizing and analyzing standards. The approach has been applied extensively to natural resource issues, often with respect to encounter norms, describing how many people are considered to be too many in a given setting (see Donnelly, Vaske, Whittaker, & Shelby, 2000; Manning, 2007, 2011; Manning, Lawson, Newman, Laven, & Valliere, 2002; Shelby, Vaske, & Donnelly, 1996; Vaske & Donnelly, 2002; Vaske, Shelby, Graefe, & Heberlein, 1986, for reviews). Other applications have extended this approach to different

indicators and impacts, such as campsite or site sharing (Heberlein & Dunwiddie, 1979; Shelby, 1981), fishing site competition (Martinson & Shelby, 1992; Whittaker & Shelby, 1993), instream flows for recreation (Whittaker & Shelby, 2002), discourteous behavior (Whittaker & Shelby, 1988, 1993; Whittaker, Vaske, & Williams, 2000), and resource indicators such as litter and campsite impacts (Shelby, Vaske, & Harris, 1988; Vaske, Whittaker, Shelby, & Manfredo, 2002). This approach has also been applied to examine encounters, crowding, and capacity issues in marine protected areas in Hawaii (Bell, Needham, & Szuster, 2011; Needham & Szuster, 2011; Needham, Szuster, & Bell, 2011; Needham et al., 2013), as well as in other marine environments such as the Florida Keys (Vaske, Heesemann, Loomis, & Cottrell, 2013), the Great Barrier Reef in Australia (e.g., Inglis, Johnson, & Ponte, 1999), Glacier Bay in Alaska (e.g., Manning, Johnson, & VandeKamp, 1996), and the Apostle Islands in Wisconsin (e.g., Kuentzel & Heberlein, 2003).

Much of the normative research is based on the work of Jackson (1965), who proposed a model that describes norms (evaluative standards) by means of a graphic device referred to as an impact acceptability curve (for complete discussion, see Vaske et al., 1986; Shelby et al., 1996). The curves describe social norms in terms of averages of individual evaluations. Impacts are displayed on a horizontal axis, with impact increasing from left to right (Figure 1.1). Evaluation is displayed on the vertical axis, with positive evaluations on the top, negative evaluations on the bottom, and a neutral category in between. The curve can be analyzed for various normative characteristics, including optimum conditions, the range of acceptable conditions, the intensity or strength of the norm, and the crystallization or level of agreement about the norm.

The high point of the curve shows the *optimum* or best situation receiving the most positive evaluation. The range of impacts where evaluations are above the neutral line defines the

*range of tolerable conditions*. The relative distance of the curve above or below the neutral line describes norms of higher or lower *intensity*. Finally, the variation among evaluations at each impact level shows the amount of agreement or *crystallization*. Evaluative standards for backpacking in a wilderness setting, for example, often have an optimum of zero encounters, a low range of tolerable contacts, high intensity, and high crystallization, while norms for hiking in a developed recreation area tend to show a greater tolerable range, lower intensity, and less agreement (Shelby & Vaske, 1991). For deer hunting (Figure 1.1), too few people can be evaluated as negatively as too many; hunters want enough people to move deer, but not so many as to compete for resources.

The percent of respondents giving a norm (i.e., norm prevalence) is another characteristic of norms (Donnelly et al., 2002). Prevalence can range from 0% to 100%. If norm prevalence is low, the issue may not be relevant to respondents, or the measurement technique may be confusing or difficult. If prevalence is high, the norm is probably salient for respondents.

Much of the debate in the normative literature (e.g., see Roggenbuck, Williams, Bange, & Dean, 1991; Shelby & Vaske, 1991; Shelby et al., 1996) can be traced to the concept of norm prevalence. This debate was stimulated by a study of boaters on the New River in West Virginia, a high use frontcountry river (Roggenbuck et al.). In that investigation, encounter norms were measured for three different river experiences: a wilderness whitewater trip, a scenic whitewater trip, and a social recreation trip. Depending on the type of experience, only 29–50% of the respondents specified an encounter norm. These findings led the authors to question the “existence” of norms and raise methodological questions about previous studies of norms.

In response, Shelby and Vaske (1991) presented data from several western rivers where the percent of visitors specifying encounter norms ranged from 73–84%. With findings so different from those on the New River, Shelby and Vaske pointed out that situational and methodological factors might have accounted for the low numbers in the New River study. When few respondents answer norm questions, either the norms are not relevant in that particular context, or measurement problems (e.g., using semi-open response formats in a frontcountry situation) make responding difficult (Manning, 2011; Shelby & Vaske, 1991).

A comparative analysis examined the prevalence of encounter norms across 56 evaluation contexts (Donnelly et al., 2000). Across the different contexts examined, nearly three-quarters of all respondents were willing to specify an encounter norm when asked. These analyses also identified both experiential and methodological variables influencing respondents' willingness to specify an encounter norm (norm prevalence). Differences in norm prevalence were suggested for: (a) types of recreation areas – frontcountry versus backcountry (e.g., Manning et al., 1996; Vaske, Beaman, Stanley & Grenier, 1996), (b) types of activities – consumptive versus nonconsumptive (e.g., Vaske, Donnelly, Heberlein, & Shelby, 1982), (c) types of encounters – conflict versus no conflict (Vaske, Donnelly, Wittmann, & Laidlaw 1995), and (d) variations in question response format (Hall & Roggenbuck, 2002; Hall, Shelby, & Rolloff, 1996; Roggenbuck et al., 1991).

Methodological considerations influence norm prevalence (Donnelly et al., 2000). Question wording or the context (e.g., frontcountry vs. backcountry) in which questions are asked can systematically influence responses (Schuman & Kalton, 1985). A typical question for measuring encounter norms asks respondents to give the highest number they would tolerate, or they can check the category “makes no difference to me.” Some investigations (Hall & Shelby,

1996; Hall, Shelby, & Rolloff, 1996; Manning et al., 1996; Roggenbuck et al., 1991; Vaske et al., 1995) have included a third response category. Rather than forcing a choice between “giving a number” or indicating that the number of encounters “makes no difference,” respondents may check a category “makes a difference but can’t give a number.” The comparative analysis (Donnelly et al., 2000) showed clear response effects for the 2 versus 3-category response options. For example, across the 56 evaluation contexts examined in that article, the average norm prevalence was highest for the 2-category format ( $M = 87\%$ ), and lowest for the 3-category response format ( $M = 52\%$ ). Of the different predictors (e.g., question wording, context) examined by Donnelly and associates, the response format used had the strongest influence.

In this article, the semi-open response format (fill in the blank) and closed response format (circle a number) were experimentally manipulated. The following hypotheses were examined:

H1 : Norm prevalence will be greater for the closed than the semi-open response format.

H2 : Among those reporting a norm, the average response will vary by response format.

## **Methods**

The data for this article were collected in Rocky Mountain National Park (ROMO). Randomly selected visitors completed the on-site, self-administered survey at three different locations: the Alpine Visitor Center (AVC), Bear Lake, and Longs Peak (response rate = 95%). The surveys at each location were similar with two notable exceptions. First, the questionnaires varied according to situational (e.g., on the trail vs. visitor center) concerns at the three locations (e.g., Glacier Basin shuttle lot, Longs Peak summit). Second, two response formats were used at each location. Respondents were randomly assigned to one of the two treatment conditions. In the surveys with a semi-open response format (treatment 1), respondents were asked to “write in

a number” for the acceptable number of other visitors (see Figure 1.2). Norm questions using the closed format (treatment 2) asked individuals to “circle a number” of acceptable encounters along a range of possible responses given on the survey. The range of potential response options was based on prior research (Basman, Manfredo, Barro, Vaske, & Watson, 1996) and a pre-test (the Discussion section elaborates on this decision process). In both treatment conditions, norm questions allowed respondents to indicate that the number of encounters “makes no difference,” or check a category “makes a difference but can’t give a number.” Approximately equal numbers of the two survey versions were completed at the Alpine Visitor Center (semi- open [n = 302], closed [n = 306]), Bear Lake (semi-open [n = 308], closed [n = 308]), and Longs Peak (semi-open [n = 207], closed [n = 212], Table 1.1).

### **Analysis Strategy**

For norm prevalence (hypothesis 1), the number reporting a norm (as opposed to “it doesn’t matter to me,” or “it matters but I can’t specify a number”) for the closed versus the semi-open response format was compared using Chi-squares. Cramer’s V was selected as the effect size measure. Following the logic and labels suggested by Vaske (2008), a Cramer’s V of .1 was considered “minimal,” .3 was “typical,” and .5 was labeled “substantial.” For hypothesis 2, the means for the closed versus open-ended response formats were compared using independent sample t-tests. Eta was used as an effect size indicator. An eta of .1 was considered “minimal,” .243 was “typical,” and  $>.371$  was labeled “substantial” (Vaske).

### **Results**

Differences in norm prevalence between the semi-open and closed response format conditions are examined in Table 1.2. In all six of the evaluation contexts, the closed version of the survey resulted in a statistically higher percentage of respondents giving a norm (i.e., norm

prevalence) than the semi-open treatment condition ( $\chi^2 > 14.0$ ,  $p < .001$ , in all cases). The Cramer's V for these analyses ranged from minimal (.184) to substantial (.508). At the Alpine Visitor Center, for example, half (51%) of the respondents reported a norm in the closed version of the survey compared to only 16% in the semi-open version. For the two Bear Lake scenarios (i.e., Glacier Basin shuttle lot, Bear Lake trail), more than two-thirds gave a norm in the closed treatment; 30% or fewer reported a norm in the semi-open treatment. The same pattern of results was noted for the three Longs Peak evaluation contexts (i.e., at the trailhead, on the trail, at the summit). In these three situations, between 57% and 59% gave a norm in the closed condition, while 30% to 42% reported a norm in the semi-open treatment. These findings support hypothesis 1.

Among those reporting a norm (Table 1.3), the average norm tolerance levels for the closed and semi-open question formats were statistically equivalent across all six specific contexts examined ( $t \leq 1.68$ ,  $p > .098$ , in all cases). In all cases, the effect sizes ( $\eta$ ) were minimal ranging from .049 to .165. Thus, while survey format statistically influenced norm prevalence, format did not have a statistical impact on the value of the norm provided by respondents. These findings do not support hypothesis 2.

## **Discussion**

Norms are a multifaceted concept that are defined and used differently within the social sciences (Vaske & Whittaker, 2004). One conceptual tradition, for example, examines the relationships between norms that are focused (Cialdini, Kallgren, & Reno, 1990) or become activated (Schwartz, 1977) and the resulting behavior. A second tradition hypothesizes that norms exert social pressure to influence behavior (Fishbein & Ajzen, 2010). A third tradition and the focus of this article emphasizes the structural characteristics of norms (e.g., prevalence, range of

tolerable conditions, intensity, crystallization), which provide a framework for evaluating behaviors (or conditions stemming from those behaviors) in a setting (Donnelly et al., 2000; Needham et al., 2011, 2013; Shelby et al., 1996; Vaske et al., 1986, 2002, 2013). For example, norm prevalence refers to the proportion of individuals in a population who can articulate a norm in a given evaluation context. Prevalence can range from 0% to 100%. If prevalence is high, the norm is probably relevant for respondents. If norm prevalence is low, the issue may not be as important to respondents. Past research (Donnelly et al., 2000; Hall et al., 1996; Hall & Roggenbuck, 2002; Roggenbuck et al., 1991) suggests that norm prevalence is influenced by the way the question is presented. Respondents at each of the study site locations in this article were randomly assigned to one of two survey versions. In the surveys with a “semi-open” response format, respondents were asked to “fill in the blank” for the acceptable number of other visitors. The other version of the survey with a “closed” response format, asked individuals to “circle a number” of an acceptable number of other visitors along a range of possible responses.

Norm prevalence was statistically and consistently higher when respondents were asked to circle a number from a range of values presented on the survey (closed version of the survey) as opposed to writing in a number (semi-open version of the survey). Among those reporting a norm, the average norm tolerance levels for the closed and semi-open question formats were statistically equivalent across all specific contexts (e.g., trailhead, trails, summit) examined.

The percent of respondents reporting a norm (i.e., norm prevalence) differed at specific locations (e.g., at the trailhead vs. on the trail). Similar to other frontcountry studies, the average tolerance levels were higher than those typically observed in backcountry research (Vaske & Donnelly, 2002). The number of acceptable encounters with other visitors ranged from approximately 90 at the AVC to 20 at the summit of Longs Peak. Given the frontcountry



character of the AVC and Bear Lake, such findings are as expected. Similarly, the summit of Longs Peak represents more of a backcountry experience and the average tolerance limit for seeing others was lower.

### **Implications for future research**

Findings here indicate that survey response format (i.e., semi-open vs. closed versions) influenced norm prevalence, but not the value of the norm given. Whether these results will replicate in other locations and contexts remains a topic for future investigation. However, empirical evidence from economics suggests that these findings may not always occur. Similar to the norms literature, economists have used a variety of formats to elicit a willingness-to-pay (WTP) for different goods and services, including (a) open-ended (OE), (b) payment card (PC), and (c) dichotomous choice (DC) (Gyrd-Hansenm, Jensen, & Kjaer, 2014). The open-ended response format is similar to the open-ended response used in this article (e.g., How much are you willing to pay for X? Please indicate: \_\_\_\_\_).

The payment card version of this question might read: “How much are you willing to pay for X?” with potential response categories \$0, \$5, \$10, \$20, or \$50. The dichotomous choice format might ask: Would you be willing to pay additional dollars for X?, with responses of “yes,” “no,” or “I don’t know.” Several comparative articles have found that response formats influences the mean willingness-to-pay (Cameron, Poe, Ethier, & Schultze, 2002; Champ & Bishop, 2006; Gyrd-Hansenm et al., 2014). Cameron et al., for example, found lower valuations for OE and PC methods than for DC methods. Others have shown that DC produces higher WTP estimates than OE (e.g., Ryan & Watson, 2009).

The dichotomous choice format is somewhat analogous to the visual approach for measuring norms (Manning, 2007). Using this methodology, respondents are presented with a

series of computer-generated slides that vary, for example, the number of people in the slide, and asked to evaluate the acceptability of each photograph (Manning & Freimund, 2004). The advantages to this approach include: (a) the standardization of conditions that are being evaluated by all respondents, (b) the potential to display conditions that are difficult to communicate numerically, and (c) the ability to depict conditions that are seldom seen in the field or that do not exist (Manning & Freimund, 2004). There are, however, some disadvantages to the visual method. First, placement of the people in the photo may influence evaluations of crowding. Data from Delicate Arch, for example, showed that individuals in the foreground reduced acceptability ratings more than people in the background (Manning, 2007). Second, the order in which the photos are presented (a.k.a., starting point bias) may influence the findings. This is similar to the WTP research where the initial monetary value presented to respondents can influence the ultimate value (Gyrd-Hansen et al., 2014). Third, the number of photographs evaluated could impact the results (i.e., a range effect). A recent study by Gibson et al. (2014) indicated photo presentation order and the people depicted at one time (PAOT) range, both had an effect on photograph acceptability ratings.

Gibson et al. (2014) offer a number of recommendations for dealing with issues related to the visual method to studying norms, for example, (a) present photographs in a nonsequential presentation order, (b) select a broad PAOT range that reflects management objectives, and (c) compare photograph evaluation trends rather than the mean acceptability ratings for each photo. Researchers using the open-ended and closed numeric approaches described in this article should consider a number of survey design issues. First, as shown in Figure 1.2, the highest response category in the closed format varied by location (i.e., > 75 at Longs Peak, >200 at the Alpine Visitor Center). These high-end values were based on researcher observations and pretests with

visitors at both sites. At other frontcountry locations, a value of 200 may not be large enough to make appropriate management decisions.

Second, the response options in the middle of the closed scale systematically increased by multiples of five (i.e., Longs Peak) or multiples of 10 (i.e., Alpine Visitor Center). Responses ending in 0 or 5 are sometimes referred to as number preference (Huttenlocher, Hedges, & Bradburn, 1990), digit preference (Tarrant & Manfreda, 1993), response heaping (Vaske & Beaman, 2006) or 0–5 prototypes (Beaman, Vaske, Schmidt, & Haun, 2015). The decision to use these increments was based on findings from the pretest and previous research in frontcountry settings (Basman et al., 1996). The Alpine Visitor Center is a true frontcountry site where visitors expected higher numbers of encounters and thus the larger incremental increase in response categories (i.e., 10). The shorter intervals (i.e., 5) were used at Longs Peak because the area is a mixture of backcountry (summit) and frontcountry (at the trailhead).

Table 1.1

*Number of completed surveys to each of the three study locations*

Survey version	Survey Locations*			Total
	Alpine Visitor Center	Bear Lake	Longs Peak	
Semi-open	302	308	207	817
Closed	306	308	212	826
	608	616	419	1643

\* Cell entries are numbers of responses from visitors to three locations (Alpine Visitor Center, Bear Lake and Longs Peak) in the Rocky Mountain National Park.

Table 1.2

*Encounter Norm Prevalence at the Different Locations in the RMNP*

Acceptable number of visitors at:	Response Format		$\chi^2$	<i>p</i> -value	Effect Size
	Semi-Open	Closed			
Alpine Visitor Center			83.9	< .001	.369
Reported a norm	16	51			
It doesn't matter to me	52	31			
It matters but I can't specify a number	32	18			
Bear Lake					
Glacial Basin shuttle lot			59.5	< .001	.508
Reported a norm	21	72			
It doesn't matter to me	66	20			
It matters but I can't specify a number	13	8			
Bear Lake trail			79.0	< .001	.371
Reported a norm	30	67			
It doesn't matter to me	45	18			
It matters but I can't specify a number	25	15			
Longs Peak					
At the trailhead			36.1	< .001	.289
Reported a norm	30	57			
It doesn't matter to me	50	25			
It matters but I can't specify a number	20	18			
On the trail			14.0	.001	.184
Reported a norm	38	57			
It doesn't matter to me	37	24			
It matters but I can't specify a number	25	19			
Summit of Longs Peak			17.4	< .001	.215
Reported a norm	42	59			
It doesn't matter to me	42	23			
It matters but I can't specify a number	16	18			

\* Cell entries are percentages of responses from visitors to two version of survey questionnaire.

Table 1.3

*Mean, Median and Standard Deviation Values at the Different Locations in the RMNP*

Acceptable number of visitors at:	Response Format		<i>t</i> -value	<i>p</i> -value	Effect Size
	Semi-Open	Closed			
Alpine Visitor Center					
Mean	105.04	79.19	1.68	.098	.165
Median	57.04	70.00			
<i>SD</i>	100.47	50.19			
Bear Lake					
Shuttle lot					
Mean	33.86	29.40	0.99	.326	.096
Median	30.00	30.00			
<i>SD</i>	24.59	17.10			
Along trail					
Mean	45.85	39.03	1.22	.226	.087
Median	30.00	30.00			
<i>SD</i>	46.69	30.52			
Longs Peak					
At the trailhead					
Mean	26.46	21.76	0.95	.345	.091
Median	15.00	20.00			
<i>SD</i>	37.09	14.56			
On the trail					
Mean	46.49	36.23	1.69	.095	.140
Median	30.00	30.00			
<i>SD</i>	51.39	19.08			
At the summit					
Mean	21.04	19.23	0.68	.500	.049
Median	15.00	15.00			
<i>SD</i>	23.25	13.23			

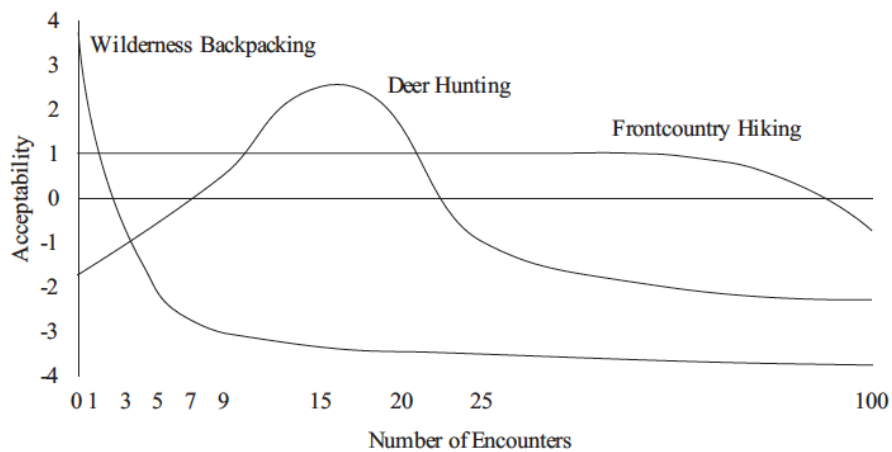


Figure 1.1. Hypothetical norm curves for three activities.

### *Semi-Open Response Formats*

What is an acceptable number of other visitors to see while you are **on the Longs Peak trail**?

*(Please fill in a number or check one of the other two options)*

- It is OK to see as many as \_\_\_\_\_ other visitors **on the trail**  
 It doesn't matter to me  
 It matters to me, but I cannot specify a number

What is an acceptable number of other visitors to see while you are at the **Alpine Visitor Center**?

*(Please fill in a number or check one of the other two options)*

- It is OK to see as many as \_\_\_\_\_ other visitors on the **Alpine Visitor Center**  
 It doesn't matter to me  
 It matters to me, but I cannot specify a number

### *Closed Response Formats*

What is an acceptable number of other visitors to see while you are **on the Longs Peak trail**?

It is OK to see as many as: *(Please circle a number or check one of the other two options)*

- 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 > 75 other visitors on the **trail**  
 The number of other visitors doesn't matter to me  
 It matters to me but I can't specify a number

What is an acceptable number of other visitors to see while you are at the **Alpine Visitor Center (AVC)**?

It is OK to see as many as: *(Please circle a number or check one of the other two options)*

- 0 5 10 20 30 40 50 60 70 80 90 100 150 200 > 200 other visitors at the AVC  
 The number of other visitors doesn't matter to me  
 It matters to me but I can't specify a number

Figure 1.2. Examples of Semi-Open and Closed Response Formats

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## ENCOUNTER NORMS AMONG VISITORS AT A NATIONAL PARK IN TURKEY

### **Introduction**

Outdoor recreation managers are interested in visitors' evaluations of social, resource and managerial conditions (Manning, 2011). Norm theory and related empirical methods have been developed as a useful way to measure and interpret these evaluations (Shelby, Vaske and Donnelly, 1996; Manning, 2007; Anderson, Manning, Valliere, and Hallo, 2010; Bell, Needham and Szuster, 2011; Needham, Szuster and Bell, 2011; Needham, Rollins, Ceurvorst, Wood, Grimm, and Dearden, 2011; Ceurvorst and Needham, 2012; Vaske, Heesemann, Loomis and Cottrell, 2013; Needham, Vaske, Whittaker and Donnelly, 2014). One line of research defines norms as standards that individuals use for evaluating activities, environments, conditions, or management strategies as good or bad, better or worse (Vaske, Shelby, Graefe and Heberlein, 1986).

Norms provide a basis for measuring indicators and standards of quality. Indicators are the biophysical, social, managerial, or other conditions that managers and visitors care about for a given experience (Manning, 2011; Needham, 2013; Needham, Ceurvorst and Tynon, 2013). Standards restate management objectives in quantitative terms and specify the appropriate levels or acceptable limits for the impact indicators (i.e., how much impact is too much for a given indicator) (Manning, Rovelstad, Moore, Hallo and Smith, 2015; Vaske, Donnelly and Bingül, 2016). "Standards identify conditions that are desirable (e.g., no litter, no trail erosion), as well as the conditions that managers do not want to exceed (e.g., encounters with other people, human-wildlife conflict)" (Vaske, Whittaker, Shelby and Manfredi, 2002, p. 145). Indicators and standards of quality are prominent in management and planning frameworks, such as Limits of Acceptable Change (LAC, Stankey, Cole, Lucas, Peterson and Frissell, 1985), Carrying

Capacity Assessment Process (C-CAP, Shelby and Heberlein, 1986), Visitor Impact Management (VIM, Graefe, Kuss and Vaske, 1990), Visitor Experience and Resource Protection (VERP, National Park Service, 1997) and Visitor Use Management (VUM, Interagency Visitor Use Management Council, 2016).

In outdoor recreation, reported encounters are subjective counts of the number of other visitors that an individual remembers seeing during their visit to a given location (Vaske and Donnelly, 2002; Needham et al., 2014). Encounter norms refer to standards that individuals use for evaluating their acceptance or tolerance of increasing numbers of encounters with other people (Shelby et al., 1996; Manning, 2007). Research has examined encounter norms or the maximum number of people that users will accept in a given setting (see Vaske, Donnelly and Shelby, 1992; Shelby et al., 1996; Donnelly, Vaske, Whittaker and Shelby, 2000; Manning, 2007, 2011; Bell et al., 2011; Needham et al., 2011; Vaske et al., 2013; Anderson and Manning, 2013; Randall and Rollins, 2013; for reviews). Other applications have extended this approach to different indicators and impacts, such as campsite or site sharing (Heberlein and Dunwiddie, 1979; Shelby, 1981), fishing site competition (Martinson and Shelby, 1992; Whittaker and Shelby, 1993), instream flows for recreation (Whittaker and Shelby, 2002), discourteous behavior (Whittaker and Shelby, 1988, 1993; Whittaker, Vaske and Williams, 2000), resource indicators such as litter and campsite impacts (Shelby, Vaske and Harris, 1988; Vaske, Whittaker, Shelby and Manfredo, 2002) and facility indicators (e.g., tramway, trail road) (Kim, Shelby and Needham, 2014).

Norm prevalence refers to the percent of respondents giving a norm, and can range from 0% to 100%. If norm prevalence is low, the issue may not be relevant to respondents, or the measurement technique may be confusing or difficult. If prevalence is high, the norm is probably

salient for respondents. Donnelly and colleagues (2000) found that question response format was one of several variables that influenced norm prevalence. Besides question response format, differences in norm prevalence were suggested for: types of recreation areas [frontcountry vs. backcountry] (e.g., Manning, Johnson and VandeKamp 1996; Vaske, Beaman, Stanley and Grenier, 1996), types of activities [consumptive vs. nonconsumptive] (e.g., Vaske, Donnelly, Heberlein and Shelby, 1982), and types of encounters [conflict vs. no conflict] (Vaske, Donnelly, Wittmann and Laidlaw 1995).

Methodologies for measuring norms have undergone a variety of transformations and refinements. The original method, based on work by Jackson (1965), asked respondents to evaluate the acceptability of varying levels of some impact, such as the number of encounters on a trail or the amount of bare ground at a campsite (Heberlein and Vaske, 1977; Shelby, Vaske and Harris, 1988). For example, a series of questions might be used to ask respondents if they could tolerate seeing 5, 10, 15, 20, 25 ... other individuals in a particular context (e.g., on a trail, or on a river). Answers have been coded on 5-point or 7-point scales ranging from “highly unacceptable” to “highly acceptable (i.e., closed-ended responses). This approach allows the researcher to assess the acceptability of a range of specific encounters; information that can be used to calculate an impact acceptability curve (See Vaske et al., 1986; Shelby et al., 1996; for reviews). A disadvantage of the methodology is that numerous questions are necessary, which can be problematic, especially if multiple indicators are included in the study (e.g., number of encounters, amount of bare ground).

To overcome this limitation, some researchers have adopted a semi-open, fill-in-the-blank-format (Hall and Roggenbuck, 2002; Manning, Lawson, Newman, Laven and Valliere, 2002). Using this approach, a typical question might ask respondents to give the highest number



of encounters they would tolerate (e.g., I would tolerate encountering no more than \_\_\_\_ other visitors), or to check a category, which says “makes no difference to me.” Some investigations (Roggenbuck et al., 1991; Vaske et al., 1995; Hall and Shelby, 1996; Hall et al., 1996; Manning et al., 1996) have included a third response category. Rather than forcing a choice between “giving a number” or indicating that the number of encounters “makes no difference,” respondents may check a category “makes a difference but can’t give a number.” This is especially important in frontcountry or high-density areas where respondents may find it difficult to specify exact numbers representing their acceptance or tolerance levels. In the Donnelly et al. (2000) comparative analysis, the average norm prevalence was highest for the 2- category format (M = 87%), and lowest for the 3- category response format (M = 52%) across the 56 evaluation contexts examined.

A recent experiment by Vaske et al. (2016) explored a variant of these two approaches. In the “semi-open” response format treatment, respondents “wrote in a number” for an acceptable number of visitor encounters. In the “closed” format treatment, individuals “circled a number” of acceptable encounters along a range of possible responses. In other words, in contrast to the initial work by Jackson (1965), only one encounter norm question was asked. As predicted, the percent reporting a norm was statistically higher in the “closed” as opposed to the “semi-open” treatment. A second hypothesis predicted that the mean tolerance level would differ for the two treatments. Results failed to support this hypothesis; the average tolerance levels for the closed and semi-open formats were statistically equivalent.

The Vaske et al. (2016) experiment was conducted in Rocky Mountain National Park (ROMO) in the United States. ROMO has a combination of backcountry and frontcountry landscapes. The article here replicates the Vaske et al. experiment in Dilek Peninsula Büyük

Menderes Delta National Park, in Turkey. The objective was to determine if the findings from the United States would replicate in a different country in a Turkish National Park, where the density of visitors is substantially higher than in the U.S. The following hypotheses were examined:

H1: Norm prevalence will be greater for the closed than the semi-open response format.

H2: Among those reporting a norm, the average response will vary by response format.

## **Methods**

### **Study Area**

Data for this article were obtained from visitors to Dilek Peninsula Büyük Menderes Delta National Park (DPNP), in Turkey. This area is located in the Aegean Region, Aydın City in Kuşadası and Söke Districts. The park consists of two different geographic areas; Dilek Peninsula (10,985 hectares) and Menderes Delta (41,224 acres). Dilek Peninsula has attractive sandy and clay beaches and Menderes Delta has lagoons and swamps. Swimming, sunbathing, and picnicking are common activities at the four beaches: Icmeler, Aydinlik, Kavakliburun and Karasu. Icmeler Beach is 320 m in length and is approximately 45,000 m<sup>2</sup> with a capacity of about 1,000 people (Kilicaslan, Deniz, Goktug, Kara and Kutsal, 2011). Icmeler Beach is the only sandy beach in the park and the closest beach to the main entrance. Aydinlik Beach is 860 m long and has 62,000 m<sup>2</sup> beach area; the estimated capacity of the beach is around 800 visitors. Kavakliburun beach is the longest beach, at 1,640 m and has 80,600 m<sup>2</sup> of beach area; the beach capacity is approximately 1,200 persons. Karasu Beach is 480 m long and is the farthest from the entrance. The beach area is 40,400 m<sup>2</sup> and has a capacity of approximately 400 visitors (Kilicaslan et al., 2011).

According to park statistics, the park hosts approximately 620,000 domestic and foreign visitors annually (General Directorate of Nature Conservation and National Parks, 2015).

#### Data Collection

Data were collected between June and August, 2014, from visitors to the Dilek Peninsula. Randomly selected visitors completed on-site, self-administered surveys at the four beaches in the park. In total, 968 visitors were approached and 917 completed the survey (response rate = 95%). Sample sizes at each location included 342 at İçmeler Beach, 237 at Aydınlık Beach, 201 at Kavaklıburun Beach, and 137 at Karasu Beach.

To measure reported encounters, visitors were asked, “Please estimate the number of other visitors you saw at the beach.” Responses were open-ended (i.e., fill-in-the-blank) and there was no limit on the number of people that a visitor could specify. This approach has been applied widely for measuring reported encounters in outdoor recreation (see Vaske and Donnelly, 2002; Manning, 2011; Needham, Haider and Rollins, 2016, for reviews). To measure encounter norms, visitors were asked, “What is an acceptable number of other visitors to see while you are using the beaches at the DPNP?” Two versions of the questionnaire were constructed. One version used a “semi-open” format, where respondents were asked to ‘write in a number’ for the acceptable number of other visitors. The second version used a “closed” format, where respondents were asked to ‘circle a number’ along a scale with numeric intervals, to specify their norms. In both versions, norm questions also allowed respondents to indicate: “it does not matter to me” or check a category “it matters but I cannot specify a number.” Both approaches for measuring encounter norms in recreation areas have been used extensively (e.g., Roggenbuck et al., 1991; Hall and Shelby, 1996; Hall et al., 1996; Manning, Valliere, Wang and Jacobi, 1999; Cole and Stewart, 2002; Vaske and Donnelly, 2002; Vaske et al., 2016).

Approximately equal numbers of the two survey versions were completed: 458 with the semi-open response category and 459 with the closed version. At İçmeler Beach, 51% of the surveys used the semi-open response [n=175], and 49% use the closed response [n=167]). Comparable figures for Aydınlık Beach, were 56% semi-open [n=132] and 44% closed [n=105]); at Kavaklıburun Beach, 41% semi-open [n=83] and 59% closed [n=119]); and at Karasu Beach, 50% of respondents answered the semi-open format [n=68], while the other 50% were asked the closed response question [n=68]) (Table 2.1).

## **Results**

Table 2.2 examines the number of reported encounters for visitors at the four park locations. At İçmeler Beach, 22% of respondents saw over 1,000 other visitors, and 43% reported seeing between 500 and 1,000 other people. At Aydınlık Beach, 81% of respondents reported that they saw between 100-500 people. Similarly, 70% of respondents at Kavaklıburun Beach and 59% at Karasu Beach reported that the number of people they saw was between 100-500.

Table 2.3 shows encounter norm prevalence for the ‘semi-open’ and ‘closed’ response format conditions. The closed version of the survey resulted in a statistically higher percentage of the visitors giving a norm than the semi-open version, in all locations. At İçmeler Beach, for example, 65% of the respondents reported a norm in the closed version, compared to 41% in the semi-open version. At Aydınlık Beach, 70% of the respondents reported a norm in the closed version, while 50% of visitors reported a norm in the semi-open version. The same pattern of results was noted for the other survey sites (at Kavaklıburun Beach, 64% and 42%; and at Karasu Beach, 71% and 47%, respectively). Norm prevalence at the four locations was consistently higher with the ‘closed’ format when compared to the ‘semi-open’ format. All chi-square tests

were statistically significant and the effect size (Cramer's V) was consistently between "minimal" (.1) and "typical" (.3) (see Vaske, 2008 for additional explanation). These findings support Hypothesis 1.

Tolerance levels for norms were based on means (M), medians and standard deviations (SD), (Table 2.4). Among those reporting a norm, the average norm tolerance levels for the closed and semi-open formats were statistically different across all four locations. For example, at İçmeler Beach, visitor norms for seeing others were statistically higher using the semi-open format (M = 381.7), compared to the closed format (M = 126.2,  $F = 44.9$ ,  $p < 0.001$ ), and the eta effect size was substantial ( $\eta = 0.449$  see Vaske 2008 for an explanation of the cut points for eta). At Aydınlık Beach, visitor norms were also statistically higher ( $F = 25.9$ ,  $p < 0.001$ ) using the semi-open format (M = 240.9) compared to the closed format (M = 110.8). The eta effect size was also substantial ( $\eta = 0.339$ ). Similar results were found at the other two beaches, supporting Hypothesis 2.

## **Discussion**

Studies to understand the impacts of visitor numbers in recreation settings have concentrated on normative explanations. This article examined response format effects on encounter norm questions in Dilek Peninsula Büyük Menderes Delta National Park. Respondents were randomly assigned to one of two survey versions. In the "semi-open" response format, respondents were asked to "fill-in-the-blank" with an acceptable number of other visitors. The "closed" response format version asked individuals to "circle a number" of acceptable other visitors along a range of possible responses given on the survey. Results demonstrated that encounter norm prevalence (i.e., the percent of individuals who could specify a norm) was significantly and consistently higher for the closed format of the survey as compared to the semi-

open version. In addition, among those reporting a norm, the average tolerance levels were statistically higher in the semi-open format.

A recent experiment (Vaske et al., 2016) conducted in Rocky Mountain National Park manipulated the same two treatment conditions ('semi-open' response format and 'closed' response format) as manipulated here. Similar to the study reported here, results indicated that a statistically higher percentage of the visitors reported a norm (i.e., norm prevalence) for the closed-ended response format of the survey compared to the semi-open treatment condition. Unlike our experiment where the average tolerance levels were statistically higher in the semi-open format, the ROMO study found that the average tolerance levels for the closed and semi-open formats were statistically equivalent. Several explanations might be offered to account for this difference.

First, the survey conducted in Turkey replicated the same endpoint (i.e., 200) as the ROMO survey for the closed version of the survey. Given the dramatically different densities between the beaches in Turkey and the survey sites in Rocky Mountain National Park, the highest value for the closed version in Turkey should have been much larger. For example, 92%, 56%, 38% and 34% of the visitors at Icmeler, Ayadinik, Karasu, and Kavakliburun, respectively, reported seeing more than 200 other visitors. By comparison, less than 4% of the visitors to any of the sites in ROMO reported seeing more than 200 other visitors. These findings highlight the importance of selecting scale values reflective of the research site, and not simply replicating earlier work.

Second, frequency of visitation might explain the differences in visitors' tolerance norms. Vaske, Donnelly, and Heberlein (1980), for example, demonstrated that the conditions that existed during a person's first visit to a setting influenced their evaluations of what is acceptable.

Similarly, Basman et al. (1996) found that as visitation to a setting increased, respondents' ability to recall their norm increased. In our survey in Turkey, many of the visitors were frequent visitors and were likely to have established a norm for what is an acceptable number of other visitors. The visitors in the Rocky Mountain National Park sample reflected a broader range of visitation patterns. For example, 46% of the ROMO visitors were first time visitors, who may not have had a well-established encounter norm for the park.

Third, cultural differences might have influenced visitors' ability to specify a norm in a giving setting. For example, in a cross-cultural comparison of visitors to the Columbia Icefield in Jasper National Park (Vaske et al., 1996), visitors from different countries varied in their ability to report an encounter norm. The percent of visitors giving a norm ranged from a low of 50% for American tourists to a high of 90% for British visitors. The Turkey beach visitors appear to be more like the British visitors.

Overall, this article has demonstrated that norm prevalence was consistently higher when respondents circled a number from a range of values (closed survey version), as opposed to writing in a number (semi-open survey version). Among those reporting a norm, the average norm tolerance levels for the closed and semi-open formats were statistically different across all four locations. These findings supported both hypotheses. Future research using different methodologies, cultural groups, and settings is necessary to determine whether this study's findings can be generalized.

Table 2.1

*Number of completed surveys to each of the four study locations*

Survey version	Survey Locations*			
	İçmeler Beach (n=342)	Aydınlık Beach (n=237)	Kavaklıburun Beach (n=201)	Karasu Beach (n=137)
Semi-open	51	56	41	50
Closed	49	44	59	50

\* Cell entries are percentages of responses from visitors to for locations (İcmeler Beach, Aydınlık Beach, Kavaklıburun Beach, and Karasu Beach) in the Dilek Peninsula Büyük Menderes Delta National Park.

Table 2.2

*Reported Encounters at the four locations in the DPNP*

Survey Locations	Number of other visitors seen*			
	< 100	100-500	500-1000	1001 +
İçmeler Beach (n=342)	1	35	43	22
Aydınlık Beach (n=237)	6	81	11	1
Kavaklıburun Beach (n=201)	25	70	4	1
Karasu Beach (n=137)	29	59	9	3

\* Cell entries are percentages of responses from visitors to for locations (İcmeler Beach, Aydınlık Beach, Kavaklıburun Beach, and Karasu Beach) in the Dilek Peninsula Büyük Menderes Delta National Park.

Table 2.3

*Encounter Norm Prevalence at the Different Beach Locations in the DPNP*

Acceptable number of visitors at:	Response Format <sup>1</sup>		$\chi^2$	Cramer's <i>V</i>
	Semi-Open	Closed		
İçmeler Beach (n=342)	(n=175)	(n=167)		
Reported a norm	40.6	65.3		
It doesn't matter to me	37.7	18.0	23.2**	0.259
It matters but I can't specify a number	21.7	16.8		
Aydınlık Beach (n=237)	(n=132)	(n=105)		
Reported a norm	50.0	69.5		
It doesn't matter to me	33.3	14.3	12.8*	0.228
It matters but I can't specify a number	16.7	16.2		



Kavaklıburun Beach ( <i>n</i> =201)	( <i>n</i> =83)	( <i>n</i> =119)		
Reported a norm	42.2	63.6		
It doesn't matter to me	25.3	21.2	10.9*	0.233
It matters but I can't specify a number	32.5	15.3		
Karasu Beach ( <i>n</i> =137)	( <i>n</i> =68)	( <i>n</i> =68)		
Reported a norm	47.1	71.0		
It doesn't matter to me	20.6	14.5	8.8*	0.252
It matters but I can't specify a number	32.4	14.5		

<sup>1</sup> Cell entries are percentages of responses from visitors to two versions of the questionnaire.  
\*  $p < 0.05$  \*\*  $p < 0.001$  based upon Chi-square analysis.

Table 2.4  
*Norm Tolerance Limits by Survey Version*

Locations	Mean	Median	SD	Range	<i>F</i> -value	<i>p</i> -value	$\eta$
<b>İçmeler Beach</b>							
Semi-open ( <i>n</i> =175)	381.7	250	387.1	2000	44.9	<0.001	0.449
Closed ( <i>n</i> =167)	126.2	150	75.9	200			
<b>Aydınlık Beach</b>							
Semi-open ( <i>n</i> =132)	240.9	200	202.8	1000	25.9	<0.001	0.399
Closed ( <i>n</i> =105)	110.8	100	77.0	200			
<b>Kavaklıburun Beach</b>							
Semi-open ( <i>n</i> =83)	182.2	100	191.1	795	8.26	0.005	0.267
Closed ( <i>n</i> =119)	109.4	100	74.5	195			
<b>Karasu Beach</b>							
Semi-open ( <i>n</i> =68)	219.8	175	213.3	1000	18.7	<0.001	0.438
Closed ( <i>n</i> =68)	77.9	50	69.8	200			

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# EVALUATING ENCOUNTERS, NORMS, AND CROWDING RELATIONSHIPS: A COMPARISON BETWEEN TURKEY AND THE UNITED STATES

## **Introduction**

The concepts of encounters, crowding and norms have dominated the recreation carrying capacity literature (see Kuss, Graefe & Vaske, 1990; Manning, 2011; Vaske & Shelby, 2008; for reviews). This emphasis reflects the generally accepted idea that capacity decisions include both descriptive and evaluative components. Recreation encounter measures describe the number of other visitors an individual remembers seeing during a trip or at a given location (e.g., campsite, on the trail or river), while crowding is a negative evaluation of those encounters (Shelby, Vaske, & Heberlein, 1989; Vaske & Shelby, 2008). Norms can be defined as evaluative standards regarding acceptable behaviors or conditions in a given context (Shelby, Vaske, & Donnelly, 1996). Theory predicts that when encounters exceed a visitor's tolerance limit (norm) for seeing others, crowding will increase (Vaske & Donnelly, 2002). Past research has repeatedly supported this relationship (Bell, Needham, & Szuster, 2011; Kim, Shelby & Needham, 2014; Needham, 2005, 2013; Needham, Rollins, & Wood, 2004; Needham, Vaske, Whittaker, & Donnelly, 2014; Vaske, Shelby, Graefe, & Heberlein, 1986). This article examined this hypothesis using two data sets; one from the United States and one from Turkey. Both data sets were obtained from National Park visitors. The goal was to see if the predicted relationship generalizes between different countries and cultures. We begin by reviewing the theoretical distinctions among the concepts and discussing their hypothesized relationships.

## **Conceptual Definitions and Distinctions**

Four concepts are defined here – actual density, reported encounters, crowding and norms. *Actual density* is a descriptive term that represents the number of individuals in a given

area. Actual density is an objective concept and is important because it can be directly manipulated by a managing agency. When use limits or restrictions are imposed, the actual density of visitors in an area is affected.

*Reported encounters* are the number of other people in a setting that visitors recall seeing. There is a relationship between actual density and reported encounters, but the strength of the association can be attenuated by the characteristics of: (a) the resource (e.g., winding river systems that limit the amount of time a person is in sight of others), (2) the activity (e.g., trout anglers who fish a particular section of a river cannot avoid encounters with individuals floating the river), (c) time of the visit (e.g., the day of the week a person visits the resource), and (d) the visitors themselves (e.g., people seeking a solitude experience are more likely to notice the presence of others than those for whom solitude is not a primary motivation). In studies that have examined the relationship between actual density and reported encounters, the correlations have ranged from .15 to .75, with an average of .49 (see Vaske 2008 for a review).

Theorists have recognized a difference between actual density / reported encounters and crowding. Density and reported encounters are descriptive terms referring to actual conditions or what was experienced, while *crowding* is a negative evaluation of the number of people the individual remembers seeing (Shelby et al., 1989; Vaske & Shelby, 2008). Crowding involves a value judgment that the number of people encountered is too many. The term *perceived crowding* is often used to emphasize the subjective or evaluative nature of the concept.

To illustrate these terms, suppose there are 10 people in a room one day and a 100 people the next. The density is clearly higher the second day, but is the room more crowded? If the room is a convention hall, even 100 people may not be a crowd, so it would be uncrowded both days. If it were a small office it might be crowded both times. Density is objective, but crowding

involves a value judgment requiring information about the setting, the desired activity, and the individual making the evaluation. For clarity, the word *crowd* should not be substituted for high density. Doing so confuses the objective impacts of larger numbers of people with the subjective evaluation of those impacts.

Perceived crowding combines descriptive information (the density or encounter level experienced by the individual) with evaluative information (the individual's negative evaluation of that density or encounter level). When people evaluate an area as crowded, they have at least implicitly compared the condition they experienced (impacts) with their perception of what is acceptable (standards). If they conclude that the area is crowded, the existing conditions exceeded their standard (one criterion for an area being over capacity).

*Norms* are standards that individuals use for evaluating activities, environments or management proposals as good or bad, better or worse (Vaske et al., 1986; Vaske & Whittaker, 2004). Norms define what people think behavior and conditions *should be* and thus are potentially a direct measure of visitors' standards. Since the initial application of norms to natural resource environments (Heberlein & Vaske, 1977), the approach has been used widely to understand *encounter norms* (see Patterson & Hammitt, 1990; Shelby & Vaske, 1991; Shelby et al., 1996; Manning, Valliere, Wang, & Jacobi, 1999; Donnelly, Vaske, Whittaker, & Shelby, 2000; Manning, Valliere, Wang, Lawson, & Newman, 2003, for reviews). Although encounter norms vary for different activities and different areas, there is some consistency in these norms for certain types of experiences (Manning, Johnson, & Vande Kamp, 1996a; Manning, Freimund, Lime, & Pitt, 1996b). For example, encounter norms for a wilderness experience are often quite low (4 or fewer encounters in most cases).

## Encounters Norms and Crowding

Theory predicts that when encounters exceed a visitor's norm (i.e., encounters > norms) for seeing others, crowding will increase. Vaske and Donnelly (2002) examined this relationship using data from 13 different studies ( $n = 10,697$ ) that included both high- and low-density study sites, and 12 different activities. Measures of recreation encounters asked respondents to indicate the number of people they remembered seeing in different contexts. Crowding was measured using a 9-point scale (Heberlein & Vaske, 1977; Vaske & Shelby, 2008). A tolerance norm was obtained by asking respondents to specify the highest number of encounters they would tolerate for a given situation. As hypothesized, mean differences in perceived crowding were significantly higher for individuals indicating more encounters than their norm ( $t = 12.70, p < .001$ ). Overall, when the number of encounters was less than the norm, crowding scores averaged 2.02 (i.e., not at all crowded). When encounters exceeded the norm, respondents felt "slightly" to "moderately" crowded with an average score of 4.01. Measures of effect size indicated that the strength of this relationship could be characterized as typical ( $r > .3$  to  $r < .5, n = 35$  correlations) to substantial ( $r \geq .5, n = 29$  correlations). This pattern of findings was observed for three predictor variables: (a) type of resource (backcountry vs. frontcountry), (b) type of activity (e.g., canoers, hikers, hunters, anglers) and type of encounter (conflict vs. no conflict). By contrasting identical measures of the same concept across a number of activities, resources, and evaluation contexts, the generalizability of the hypothesized relationship was more readily apparent. Since the Vaske and Donnelly (2002) article, this relationship has been reported by other researchers (Bell et al., 2011; Bentz, Rodrigues, Dearden, Calado, Lopes, 2015; Gibson et al., 2014; Kim et al., 2014; Needham, 2005, 2013; Needham et al., 2014; Needham, Rollins, & Wood, 2004; Randall & Rollins, 2013; Jurado, Damian, & Fernandez-Morales, 2013; Ziegler, Dearden, &

Rollins, 2016; Alazaizeh, Hallo, Backman, Norman, & Vogel, 2016) working in different countries (e.g., Canada, Korea, Mexico, United States), types of resources (e.g., marine protected areas, provincial parks, ski areas), and using different methodologies (e.g., direct questions vs. photographs).

### **Cultural Norms and Crowding**

Although past research has repeatedly shown that crowding increases when encounters exceed a visitor's norm for seeing others, different cultures have different distance preferences for interacting with people, which may influence crowding perceptions (Altman & Chemers, 1980; Choi, Mirjafari, & Weaver, 1976; Budruk, & Manning, 2003; Taylor, Grandjean, & Gramann, 2011; Sayan, Krymkowski, Manning, Valliere, & Rovelstad, 2013; Sun, & Budruk, 2015; Jin, Hu, & Kavan, 2016). Loosely defined, culture can be thought of as a set of shared values, beliefs and norms that are learned and socially transmitted (Rapoport, 1977). Cultural norms and orientations provide the foundations for behavior and perception (Simcox, 1993). For example, from infancy children learn that there are appropriate interaction distances in their culture (Hall, 1966). Distances that are appropriate for informal personal interaction differ from acceptable distances when communicating in formal public settings.

Culture has been suggested to define acceptable distance norms (LaFrance & Mayo, 1978; Engelbreston & Fullmer, 1970; Michener, DeLamater, & Schwartz, 1986). Latin Americans, Arabs, Greeks and the French, for example, typically use smaller interaction distances than Americans, British, Swiss and Swedes. Differences in distance norms may cause psychological stress or crowding in cross-cultural interactions. British tourists in the Middle East, for example, expressed considerable discomfort by the closeness of the interaction distances in public conversations with Arabs (Collett, 1971).

The consistency of these findings for interaction distances suggests that the cultural norms for appropriate interpersonal spacing are well defined and salient. Although distance or “proximity norms” have also been examined in the recreation literature (e.g., Martinson & Shelby, 1992), most recreation research has concentrated on researcher / manager defined norms (e.g., encounters) that are considered important indicators for management decision-making. At issue then, is whether violations of encounter norms influence an individual’s behavioral response and crowding perceptions similar to the way people react to intrusions to their personal space.

The evidence on differences between cultures regarding their adaptation to density (and by implication encounters with others) is largely impressionistic, but nevertheless noteworthy. Some authors, for example, have speculated that certain cultures can tolerate or adapt to higher levels of encounters better than others (Gove & Hughes, 1983; Gillis, Richard, & Hagan, 1986). Asians are often cited as being more tolerant of high density (Vaske, Donnelly, & Petruzzi, 1996). Anderson (1972), for example, observed that even in extreme high density situations, the Hong Kong Chinese did not exhibit any increase in social stress, and Schmitt (1963) suggested that the Chinese are, in general, tolerant of high densities and crowding. In Japan, where high density living has existed for an extended period of time, behavioral norms for interacting with others have become formalized into a hierarchy of prescribed behaviors (Homma, 1990; Rapoport, 1977). If people approach too close because of limited space, they might regulate the interpersonal distance by not looking into the eyes of another or by attempting to maximize the distance in deference to the person’s status (Altman & Chemers, 1980).

In comparison with Asians, the British may be particularly susceptible to high density (Gillis et al., 1986; Lowenthal & Prince, 1965; Rapoport, 1969). According to Hall (1966), the English, like the Germans, are an intensely private people. To cope with crowding, they avoid

eye contact, maintaining a reserved demeanor, and withdrawing psychologically when physical escape from high density situations is impossible (Altman & Haythorn, 1967). Whether these British coping strategies are as effective as those used by the Japanese seems doubtful. For example, in a study where room density was a predictor and psychological strain was an indicator of crowding, Gillis and associates (1986) found that Asians were most tolerant of high density, while respondents of British origin were least adaptable.

Not all researchers, however, come to this conclusion. Loo and Ong (1984), for example, reported that American raised Chinese and Hong Kong Chinese both evaluated high density living conditions quite negatively. In an experiment where subjects were placed in a room with varying levels of density (low, medium, high), Iwata (1974) found that higher densities produced higher perceived crowding for American Japanese than Caucasians; findings he interpreted to be associated with the Japanese cultural trait of introversion. In subsequent investigations conducted in Japan, Iwata (1977, 1978) asked subjects to indicate the maximum number of other people with whom they could share a room without feeling uncomfortable. When the number of people in the room exceeded the respondent's personal norm, crowding increased.

## **Hypotheses**

This article had two objectives (a) to investigate the relationship among encounters, norms and crowding in two countries: the United States and Turkey, and (b) to examine whether American and Turkish National Park visitors differed in their perceived crowding levels. The following hypotheses were addressed:

H<sub>1</sub>: Visitors who encounter more people than their normative tolerance will feel more crowded compared to those encountering fewer people than their norm.

H<sub>2</sub>: Irrespective of country, when encounters exceed norm tolerance limits, crowding will increase.

H<sub>3</sub>: Reporting more versus less encounters than a respondent's norm will interact with country of origin to influence perceived crowding.

## **Methods**

### Study Sites

#### Rocky Mountain National Park

Rocky Mountain National Park (ROMO) is located northwest of Denver, Colorado, within the Front Range of the Rocky Mountains. The park was established in 1915 under the Rocky Mountain National Park Act and encompasses 229,062 acres of mountainous landscape (Rocky Mountain National Park, 1984). The park allows visitors to experience its montane, subalpine, alpine tundra and riparian ecosystems and annually attracts approximately 4,150,000 visits. Hiking, fishing, rock climbing and camping are common activities in the park.

#### Dilek Peninsula Büyük Menderes Delta National Park

Dilek Peninsula Büyük Menderes Delta National Park (DPNP) is located in the Aegean Region, Aydın City in Kuşadası and Söke Districts. The park was established in 1994 and consists of two different geographic areas; Dilek Peninsula (27,144 acres) and Menderes Delta (41,224 acres). Dilek Peninsula has attractive sandy and clay beaches and Menderes Delta has lagoons and swamps. Swimming, sunbathing, and picnicking are common activities at the four beaches, situated on the Dilek Peninsula: Icmeler, Aydinlik, Kavakliburun and Karasu (Kilicaslan, Deniz, Goktug, Kara, & Kutsal, 2011). According to park statistics, the park hosts approximately 620,000 visitors annually (General Directorate of Nature Conservation and National Parks, 2015).



## Methods

Data for this article were obtained from visitors to Rocky Mountain National Park and Dilek Peninsula National Park. Surveys were conducted with random samples of visitors at ROMO ( $n = 817$ ) [locations: Bear Lake, and Longs Peak] and at DPNP ( $n = 458$ ) [locations: Icmeler, Aydinlik, Kavakliburun, and Karasu beaches]. In both locations respondents were asked to complete a one page, self-administered questionnaire (overall response rate = 95%). Reported encounters were measured by asking visitors to indicate the number of other visitors they saw. This was a fill-in-the-blank question. Crowding was measured by asking visitors “how crowded did you feel today?” with responses on a 9-point scale (Heberlein & Vaske, 1977; Shelby et al., 1989; Vaske & Shelby, 2008). A response of 1 or 2 indicated “not at all crowded”, 3 - 4 indicated “slightly crowded”, 5 - 7 indicated “moderately crowded”, and 8 - 9 indicated “extremely crowded” (Figure 3.1).

An individual’s tolerance norm was obtained by asking visitors to write in a number for the highest number of encounters they would tolerate. The norm questions also allowed respondents to indicate that the number of encounters “makes no difference,” or check a category “makes a difference but can't give a number.”

## Results

Table 3.1 shows the reported encounter-norm-crowding relationship for each survey location in Dilek Peninsula National Park. On average, across all locations, 69% of the respondents reported more encounters than their norm; 31% reported fewer encounters than their norm. This ratio was highest for Icmeler beach, where 90% of the visitors reported more contacts than their norm and 10% saw less than their norm. At all four beaches, a majority of visitors reported more contacts than their norm.

As predicted by Hypothesis 1, mean differences in perceived crowding were significantly higher for visitors indicating more encounters than their norm ( $t \geq 2.19, p < .05$ , in all cases at DPNP). Across all beaches, when the number of encounters was less than the norm, crowding scores averaged 4.29 (i.e., slightly crowded). When encounters exceed the norm, respondents felt ‘moderately’ crowded with an average score of 5.47 across all evaluation contexts. The effect size, eta, ranged from typical ( $\eta = .188$  at Icmeler Beach) to substantial ( $\eta = .388$  at Karasu Beach, see Vaske 2008 for an explanation of the cutpoints for eta).

Table 3.2 shows the findings for Rocky Mountain National Park. Across all locations, on average, 43% of respondents reported more encounters than their norm; 57% reported fewer encounters than their norm. This ratio was lowest at the Longs Peak trailhead (19% saw more than their norm, 81% saw less than their norm) and highest at the Longs Peak summit (59% saw more than their norm, 41% saw less than their norm).

The mean differences in perceived crowding were significantly higher for visitors indicating more encounters than their norm, as predicted by Hypothesis 1 ( $t \geq 3.53, p < .001$ , in all cases). Across all evaluation contexts, when the number of encounters was less than the norm, crowding scores averaged 2.69 (i.e. Not at all crowded). When encounters exceeded the norm, respondents felt ‘slightly’ to ‘moderately’ crowded with an average score of 4.82 across all evaluation contexts. The eta effect size was substantial ( $\eta \geq .365$ ) across all five locations. Consistent with Hypothesis 2, for both ROMO and DPNP, when encounters exceeded normative tolerance limits, crowding increased significantly.

A two-way ANOVA for country and the encounter-norm relationship (i.e., more or less encounters than the norm) is shown in Table 3.3. Both main effects (country,  $F = 75.1, p < .001$ ; encounter  $>$  or  $<$  norm,  $F = 278.1, p < .001$ ) and the interaction effect ( $F = 6.9, p = .006$ ) were

significant. The eta for the two main effects were substantial ( $\eta = .438$  for encounter > vs. < norm;  $\eta = .245$  for country) and minimal for the interaction effect ( $\eta = .077$ ). The interaction effect can be seen in Figure 3.2. The mean crowding scores were consistently higher for Turkey ( $M = 4.05$  and  $5.86$ ) than the USA ( $M = 2.58$  and  $5.08$ ) for saw less than or equal to the norm versus saw greater than the norm, respectively. These findings support Hypothesis 3.

## **Discussion**

This article examined the relationships among encounters, norms and perceived crowding in two national parks; one in the United States and one in Turkey. Descriptive information such as encounters help to describe existing conditions, and personal assessments such as perceived crowding provide an evaluative component. The normative approach helps define acceptable or unacceptable levels of use. Examining all three concepts provides a more complete understanding of how the existing conditions compare to visitor standards for the experience this is offered. This article showed that the relationships among encounters, norms and crowding were consistent with previous studies (Bell et al., 2011; Kim et al., 2014; Needham, 2005, 2013; Needham et al., 2004; Needham et al., 2014; Vaske & Donnelly, 2002;). More specifically, when visitors encountered more people than their norm, perceived crowding was higher compared to when individuals encountered less than their norms.

The findings also showed that DPNP visitors felt more crowded than ROMO visitors. DPNP visitors who had ‘more’ encounters than their norm reported a mean of 5.86 on the 9-point crowding scale, while ROMO visitors who had ‘more’ encounters than their norm had a mean crowding score of 5.08. In DPNP, visitors who had ‘fewer’ encounters than their norm had a mean of 4.05, while the mean for ROMO visitors who saw less than their norm was 2.58. Some of these mean differences can be attributed to the concentrations of people at each of the four

beaches in Turkey where the number of other visitors is clearly evident. ROMO attracts over 4 million visitors each year, but the mountainous and wooded landscape limits a person's ability to see others.

As noted in the introduction, another potential reason for the relatively high levels of crowding in DPNP may be cultural (Manning, 2011). The findings from this study suggest a number of conclusions and recommendations for future cultural and normative research. First, country of origin was used here as an indicator of culture. From a conceptual perspective, it is important to realize that any cultural classification is, at best, an over simplified view of a complex social system (Samover, Porter, & Jain, 1981). While some cultures are quite homogeneous (Gudykunst & Kim, 1984), all contain internal variation and contradiction (Simcox, 1993). The literature cited in the introduction of this article, for example, suggested differences among different sub-cultures within a given country (e.g., Hispanics, American Japanese) on variables (e.g., outdoor recreation participation patterns, preferences, and perceptions of crowding) of interest to natural resource managers.

Second, using country of origin as an indicator of cultural orientation represents only one methodology for studying cultural diversity. Alternatively, samples could be obtained from a variety of countries and the results compared across nations and cultures. While this latter approach may provide the data necessary to study within culture variation, it may have more academic than managerial appeal. Natural resource managers must cope with decisions pertaining to providing high quality recreation experiences for their client base. Knowing that the Japanese in Japan differ from the Japanese who visit national parks in the United States is theoretically interesting, but does not necessarily solve problems related to maintaining quality experiences for foreign visitors.

Third, the findings from these two national parks highlight some potential differences between respondents in the two countries. For example, the data suggest that respondents varied in their ability to report an encounter norm. On average, over two thirds of the Turkish visitors were able to report a norm, compared to about 40% of the ROMO respondents. Although the reasons for such differences cannot be determined from the available information, cultural differences may have had some influence.

Overall, the United States and Turkey visitors who encountered more people than their norm felt more crowded than those encountering fewer than their norm. However, the perceptions of crowding differed between two cultures. Turkish visitors felt more crowded than American visitors. Future research might conduct similar studies with different cultural groups using in different settings to obtain more comprehensive understanding of differences and to determine the generalizability of these findings.

Table 3.1

*Encounter Norms and Perceived Crowding at the Dilek Peninsula National Park (DPNP)*

Locations	Reported Encounters Compared to Norm* (%)		Mean Crowding Scores**		t- value	p- value	$\eta$
	Fewer Contacts	More Contacts	Fewer Contacts	More Contacts			
İçmeler Beach	10	90	5.81	7.02	2.30	.022	.180
Aydınlık Beach	36	64	4.02	5.10	3.02	.003	.260
Kavaklıburun Beach	41	59	3.58	4.55	2.19	.031	.219
Karasu Beach	39	61	3.76	5.22	3.57	.001	.388

\* Percent of visitors who encountered either fewer than or more than their norm.

\*\* Mean perceived crowding scores based on a 9-point scale from 1 'not at all crowded' to 9 'extremely crowded'.

Table 3.2

*Encounter Norms and Perceived Crowding at ROMO*

Locations	Reported Encounters Compared to Norm (%)		Mean Crowding Scores		t-value	p- value	$\eta$
	Fewer Contacts	More Contacts	Fewer Contacts	More Contacts			
Bear Lake							
Shuttle lot	71	29	2.56	3.96	3.53	.001	.365
Bear Lake trail	52	48	2.73	4.91	7.78	< .001	.500
Longs Peak							
At the trailhead	81	19	2.03	5.10	6.55	< .001	.539
On the trail	42	58	3.03	5.20	7.33	< .001	.467
At the summit	41	59	3.14	5.23	5.32	< .001	.469

\* Percent of visitors who encountered either fewer than or more than their norm.

\*\* Mean perceived crowding scores based on a nine-point scale from 1 'not at all crowded' to 9 'extremely crowded'.

Table 3.3

*Two-Way ANOVA for number of Encounters versus Norm and Country*

	<i>df</i>	MS	<i>F</i> -value	<i>p</i> -value	$\eta$
Encounter-norm <sup>1</sup>	1	1135.3	278.1	< .001	.438
Country <sup>2</sup>	1	306.6	75.1	< .001	.245
Encounter-norm * Country	1	28.1	6.9	.009	.077

<sup>1</sup> Encounter-norm was measured as 0 “Saw LE norm” and 1 “Saw GT norm”.

<sup>2</sup> Country was measured as 1 “Turkey” and 2 “USA”.

How crowded did you feel by the number of visitors? (Circle one number)

1	2	3	4	5	6	7	8	9
Not at all Crowded		Slightly Crowded		Moderately Crowded			Extremely Crowded	

Figure 3.1. Example of crowding response scale.

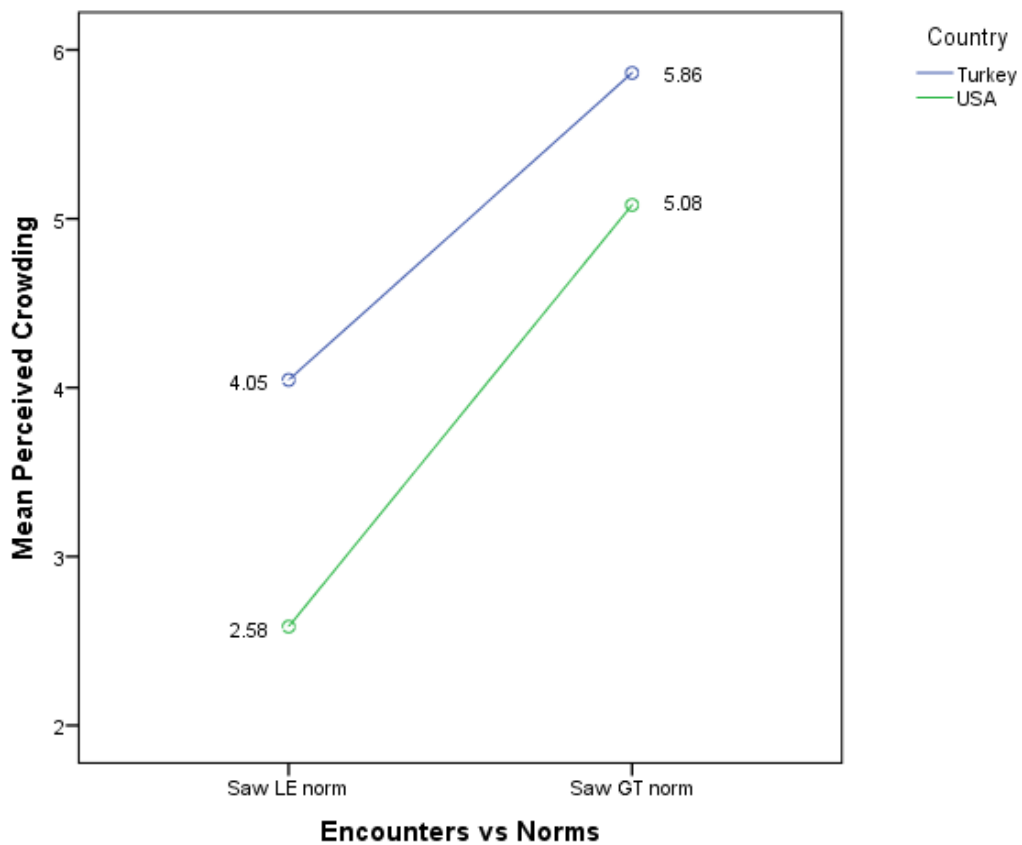


Figure 3.2. Plot of the mean crowding score for countries.



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