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Developing a Tourism Opportunity Spectrum Scale

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Developing a Tourism Opportunity Spectrum Scale **Cover Page Footnote** The authors would like to acknowledge the Sustainable Tourism students at Radford University, spring 2014 for their assistance in the groundwork for this project.

Summary

The Tourism Opportunity Spectrum (TOS) is a valuable tool for assessing tourism viability and host community-visitor relationships (Butler & Waldbrook 2003). TOS is based tangentially off of the Recreation Opportunity Spectrum (ROS) and relies on important tourism conditions of site access, compatibility of other uses, regimentation, tourism impacts, onsite management, and social perceptions of visitors and hosts.

TOS certainly has its merits for application, but sometimes suffers from limited practical use in the field. This is in part because there is no field inventory sheet or measurement protocol like those that have been developed for both ROS and the Water Recreation Opportunity Spectrum (WROS).

This paper will describe the process of creating a similar field-ready, inventory protocol for TOS, and present the statistical results of the field testing of the instrument. The scale that has been developed is based off of the components established in the TOS literature (Butler & Waldbrook, 1991) and uses the layout of the WROS inventories (Carroll, 2009) as a design guide. After development of the TOS protocol was established, the instrument was then field-tested at a unique tourism destination along the New River in Southwestern Virginia. A series of 10 TOS inventories were conducted by individuals using the newly developed scale, and analyzed across raters using inter-correlations and Chronbach's alpha.

Results of the correlation analysis across raters at various sites indicate that this newly-developed TOS field inventory scale is capturing the elements of TOS appropriately, and that raters are acting consistently across sites. It appears that raters are interpreting the questions on the TOS scale in the same way, leading to consistent results during field use. This newly developed TOS scale may prove useful for researchers, tourism operators, and site management personnel in the field of tourism management and planning. Though initial results look promising, it is important to acknowledge that this was one specific use of the scale, and additional testing is encouraged.

1.0 Introduction

The need for an effective planning and management tool regarding tourism sustainability is evident. The tourism field has expanded faster over the past 50 years than almost any other (Gossling, 2002). With this expansion there have

been both positive (e.g., employment, pleasure, variety, rest, recreation) as well as negative (e.g., destruction of pristine environments, pollution, threatened local cultures, devaluation of the characteristics that made a site desirable in the first place) aspects to contend with (Gossling, 2002). The issues that tourism raises are of critical and vital importance throughout the world (Roe, Leader, & Clayton, 1997).

Both tourists and local community members can leave drastically large impacts on any tourism or natural site through their actions and activities. The nature of these impacts will depend upon their predictability, frequency and magnitude (Roe, Leader, & Clayton, 1997). The impact is also related to the type of activity or level of tourist development. Because tourists and their impacts are not homogeneous, there have been a number of studies of tourist typologies which illustrate a sequential change in the type of visitors to a particular site, beginning with a stage of "explorers", and ending with "mass tourists" (Roe, Leader, & Clayton, 1997). These attempts to classify tourism types are aimed at understanding their motivations, site characteristics, and potential impacts.

Efforts have been made to ensure that tourism does not negatively affect a culture or geographic region. Zoning of mass tourism has been adopted as a deliberate policy by host countries. For example, tourists in the Maldives are confined to self-contained, purpose built resorts on isolated, often formerly uninhabited islands, in order to avoid a culture clash between bikini-clad tourists and the conservative, Islamic islanders (Roe, Leader, & Clayton, 1997). Similarly, enclave tourism has been used to limit environmental impacts, sometimes by default rather than design (Roe, Leader, & Clayton, 1997). In order to limit the negative effects of tourism, a method of classifying the broad spectrum of tourism site characteristics can be a key component.

One tool that is used to help categorize a tourism site is the Tourism Opportunity Spectrum (TOS) (Butler & Waldbrook, 1991). It works in much the same way that the Recreation Opportunity Spectrum (ROS) or the Water Recreation Opportunity Spectrum (WROS) are used to measure particular attributes of a site. Whereas the ROS uses the six characteristics of access, management, social interactions, non-recreational resource uses, acceptability of impacts from visitor use, and acceptable levels of control of users (Clarke & Stankey, 1979); (Boyd & Butler, 1996), TOS uses tourism site conditions of site access, compatibility of other uses, regimentation, tourism impacts, onsite management, and social perceptions of visitors and hosts (Butler & Waldbrook, 1991). In ROS, these factors combine to give an overall "score" or numerical

rating of a site, for each factor. These scores are then characterized into six different classes and range from *Urban* (*U*), *Suburban* (*S*), *Rural Developed* (*RD*), *Rural Natural* (*RN*), *Semi-Primitive* (*SP*), and *Primitive* (*P*).

1.1 ROS, WROS, and TOS

ROS evolved over time, and its application has been wide spread across areas such as National Forest use in White Mountains of Alaska (Fix, Carroll, & Harrington, 2013), to the San Juan mountains of Colorado (Flanagan & Anderson, 2008). More recently, a water-based version of ROS has been developed and the Water Recreation Opportunity Spectrum (WROS) was born (Haas et al., 2004). This worked in much the same way as ROS, measuring site attributes of a water recreation site such as the *physical*, *social*, and *managerial* setting. This also yielded six classes the same as ROS ranging from *Urban* to *Primitive*, and has been used in various sites across the US (Carroll, 2009).

A tourism version of this classification system also emerged - the Tourism Opportunity Spectrum (TOS). It also attempts to help classify tourism sites, to facilitate management and planning decisions. It does this by classifying different attributes of a tourism site, and then depicting where on the spectrum of opportunities they fall. This is important because development of tourism sites is almost impossible to reverse once a destination has changed to meet the demands of mass tourism, and consequently the explorers and early adventurers will not return (Butler & Waldbrook, 2003), this idea is similarly supported by (Christaller 1963, Plog 1972, & Cohen 1972). TOS acts to classify the spectrum of tourism site conditions, and then utilize this information to illustrate the importance of protecting these varying opportunities to meet the needs of non-homogenous tourists and ecological conditions.

Though very important and useful, TOS has been somewhat limited in practical use in the field because it requires all tourism setting types and characteristics on the TOS to be defined and accepted by planners and managers before assessment can begin (Dawson, 2008). This often leaves investigators at a loss for where and how to begin, and as to what information should be sought.

Because there is no established protocol or guidelines on how to complete a TOS inventory, the usefulness of TOS is sometime underutilized, or not utilized at all. Therefore, the goal of this paper is to describe the process of developing a field-ready measuring protocol for TOS.

2.0 Methods

By using the established measurement instrument of WROS as a guide, and the information presented in the seminal paper on TOS introduced by (Butler & Waldbrook, 1991), a scalar measure was created. The layout and measurement of the scale was developed similarly to the WROS inventory sheet (Carroll, 2009). It used the same number of categories, classification system, and percentage scores/weights, but incorporated the site conditions presented in the (Butler & Waldbrook, 1991) paper. The wording of each site condition measurement was written precisely to resemble the original paper from which TOS emerged, and the measurement scoring mimicked the WROS system and design.

This measure went through series of revisions, integrating comments and input by a group of 15 analysts. Most of these revisions focused on word choice and flow of the scale items. For example, an earlier version of the scale for the *Shopping and Entertainment* measure read "how blended are these with the site" and there was no space for "not applicable". After some use of the scale, comments were made that the wording wasn't quite right and there should be a space for a rater to put "NA" for those sites where there were no shopping or entertainment options available. Based on this type of revision, the wording for *Shopping and Entertainment* was revised to read "how well do these fit with the natural tourism site" and an "NA" category was added.

Once a final version was agreed upon, the scale (see Appendix A) was ready for field testing. Field testing occurred at four different tourism sites along the New River in Southwestern Virginia. Each site was chosen because of slightly varying characteristics across the TOS spectrum from Urban to Primitive. Each of the six tourism site conditions (i.e., site access, compatibility of other uses, regimentation, tourism impacts, onsite management, and social perceptions of visitors and hosts) were measured at each inventory site. Using 10 different raters, a series of 10 separate TOS inventories were conducted by individuals at the same four sites during the same time, and results were analyzed using intercorrelations and Chronbach's alpha. The results of these correlations were used to interpret the degree to which raters were interpreting the questions (as group) in the same way, and whether or not raters were reacting consistently to the scale across varying sites.

Inter-correlations between raters (e.g., rater 1:2,3,4,5...; rater 2:1,3,4,5,...) were calculated using the following formula:

Mean inter-correlation: sum/k*(k-1)

The standardized Chronbach's alpha was calculated using the following formula: (k*mean inter-correlation)/(1+(k-1)*mean inter-correlation)

3.0 Results and Discussion

During the analysis, two cases had to be dropped because of missing data, leaving the total number of raters at n = 8. The missing data were errors on the part of the data collectors who simply missed placing a score for one or more items. For initial pilot testing of the instrument, this was believed to be a reasonable sample size.

Each rater's score was calculated and correlated with each other rater's score, and from this the standardized Chronbach's alpha was calculated at .89 (Table 1). This indicates that raters are reacting consistently to the scale, and that they are scoring the sites nearly the same for the six TOS conditions.

	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8
Row 1	1							
Row 2	1	1						
Row 3	0.29	0.29	1					
Row 4	0.38	0.38	0.31	1				
Row 5	0.55	0.55	0.49	0.61	1			
Row 6	0.55	0.55	0.55	0.86	0.60	1		
Row 7	0.57	0.57	0.39	0.54	0.88	0.58	1	
Row 8	0.23	0.23	0.58	0.26	0.20	0.59	0.22	1
	3.56	2.56	2.33	2.27	1.67	1.17	0.21	
Mean inter-								
correlation	0.49							
Alpha	0.89							

Table 1. Intra-Class Correlation results of 8 different raters across the Tourism Opportunity Spectrum attributes using the newly developed TOS Scale

It appears that the scale is capturing the elements of the TOS in this case. How it may behave in other conditions or at other sites is a case for further use and analysis. Also, each of the raters used in the measurement were of similar age, with similar experience and background with TOS. This homogeneity within the group could be leading to some of the high correlation results. Therefore it is

important to allow for use of the TOS scale across multiple types of raters and at various sites to develop its usefulness over time. Similarly to use of the WROS scale, a briefing period or short training session may be required to ensure proper use of the TOS scale.

4.0 Conclusions and Implications

The type of information gathered from a TOS inventory should provide a useful platform for tourism planning, management, and decision making. By categorizing various tourism sites by these conditions there are several direct benefits. First, a planner can see a range of the tourism opportunities available to visitors (Dawson, 2008) laid out on a visual, color coded map (see Appendix B). This allows for a "big picture" view that can highlight the amount and types of different site conditions available to visitors. For example, a TOS inventory on an island destination may reveal that the tourism site provides mostly urban tourism opportunities, with little or no primitive or semi-primitive opportunities. This information may alert planners to a need for diversification into more nature or cultural based tourism, especially if the area has the resources and settings for these types of experiences. TOS information affords this type of overall view that facilitates proactive planning and management.

Second, TOS information can then be used in planning to help diversify the offerings across a site or region, or to point to a need for changes in the current tourism site conditions. For example, TOS information can be seen visually not only for the overall attributes, but also for individual attributes. By looking at *Site Access* (see Appendix C), a planner would be happy to find that the Site Access for the site is consistent with the types of tourism opportunities available. That is to say that the overall scores and the Site Access scores are all within the Rural Developed to Semi-primitive range. If, however, the overall site was scored in the Urban range, and the Site Access attribute was scored in the Semi-primitive range, this may indicate a need for better access to the site.

If the goal of the tourism planning effort is to provide opportunities for a broad spectrum of experiences, TOS information can point to a need for greater development, a different style of development, or no development. It helps planners identify the types of new tourism development that will be most compatible with current conditions (Dawson, 2008). Finally, TOS information can also be used to help market a destination in a general way. The information can be built into a marketing plan to highlight the characteristics of a site or sites,

to help visitors find the attributes that they most clearly seek. This type of promotion can help ensure satisfaction for visitors, and ultimately success of a tourism destination.

Future research with the TOS scale should involve continued use of the instrument, with subsequent analyses to re-measure consistency across raters in varying conditions and sites. Additionally, further refinement of the scale items may be deemed necessary as the scale is used in alternative sites. It is important to note that this is the first use of this instrument, in one type of location, and its usability at other sites has not yet been realized. Future use and testing of the TOS scale will provide valuable insight into the likelihood of it potential success and application in the tourism planning and management field.

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Appendix A

Tourism Opportunity Spectrum Scale/Inventory Sheet

This is a Tourism Opportunity Spectrum (TOS) inventory sheet. It is used to try and describe nature-based tourism sites and the experiences that are offered. Please circle the box in each row that most closely fits your interpretation of the site.

Tourism Site / Onsite Management

More Nature-Dependent Tourism ← Less Nature-Dependent Tourism

	Nature – Immersed Tourism		Nature – Based Tourism		Nature – Packaged Tourism	
Amount of Site Alterations (facilities, non-native vegetation, traffic barriers, signage)	0-3% Very minor, very little, or rare	3-10% Minor, little	10-20% Occasional but infrequent	20-50% Common, or apparent	50-80% Persistent, widespread across site	80-100% Great deal, pervasive throughout site
Accommodations (how altered from natural are accommodations? Hotels, resort, campgrounds)	Very natural, primitive camping	Mostly natural, camping, rustic	Somewhat natural, blended with landscape, cabins, cabanas, etc.	Accommodations may or may not blend with natural tourism site	Accommodations show little attention to blending with natural landscape, hotels, resorts, casinos	Accommodations show little or no attention to blend with natural landscape, dominated by large hotels, resorts, casinos
Shopping & Entertainment (how do these fit with the natural tourism site?)	Extremely well, N/ seamless, A part of the natural experience	Very well blended with natural site	Good fit, some noticeable inconsistencies	Attempts for blending, some inconsistencies	Not well blended, little noticeable attempts to blend with natural site	Not blended, no apparent attempts to blend with natural site

Site Access

More Nature-Dependent Tourism
Less Nature-Dependent Tourism

	Nature – Imm	ersed Tourism	Nature – Based Tourism		Nature – Pac	kaged Tourism
Difficulty of Access – roads (paved or unpaved), airlines, trains, gravel, guided/wild trails, rivers, signs, maps	Very Difficult: (no road access, few or no distinct trails, wild rivers, wilderness)	Difficult: (trails, wild rivers, dirt roads, paved roads more than 2 miles away)	Moderately Difficult: (distinct trails and rivers, gravel paths, unimproved roads)	Moderately Easy: (paved & unpaved roads & trails, signage, easily navigable waters, little public transportation)	Very Easy: (paved roads, signage, easy access waters, some public transportation)	Exceptionally Easy: (paved highways, airlines & trains within 25 miles, multitude of public transportation)
Convenience of Travel – what is the ease of access to this site? How logistically feasible is it to get here?	Very Difficult: (very costly, time consuming, burdensome, requires much planning)	Difficult: (costly and time consuming, somewhat burdensome, requires planning)	Moderately Difficult: (somewhat costly, time consuming, and burdensome, some planning needed)	Moderately Easy: (a little costly, and time consuming, planning advised)	Very Easy: (average cost and time required, planning optional)	Exceptionally Easy: (low cost and time required, little or no planning ok)
Marketplace – who (if any) is providing access to the site?	Individuals (little or no commercial options)		Retailers (some commercial information available)	Retailers - wholesalers (retailers and wholesalers)		Wholesalers (Major packaging of tourism experience)
Information Access – how are travel arrangements made?	Independent travel arrangements, little outside information, word of mouth		General some information access via books, internet, commercial operators	Broad information access via books, internet, websites, commercial operators		Vast information access via books, internet, commercial operators, tours, onsite, billboards

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Compatibility of Other Non-Adventure Uses

More Nature-Dependent Tourism Less Nature-Dependent Tourism

	Nature – Im	mersed Tourism	Nature - Based	Nature – Based Tourism		Nature – Packaged Tourism	
Man-made Elements (Presence of buildings, dams, structures, roads, other constructed elements)	Very minor, very little, or rare, 0 % - 3%. Mostly compatible	Minor, little, or seldom 3% - 10%. Slightly incompatible	Occasional, infrequent, or periodic 10% - 20%. Occasionally incompatible	Prevalent, common or apparent 20% - 50%. Often incompatible	Very prevalent or widespread 50% - 80%. Largely Incompatible	Extensive, dominant or a great deal 80% - 100%. Completely incompatible	
Natural Resource Extraction (Amount of timber collection, mining, or other extractive uses)	Very minor, very little, or rare 0 % - 3%. Barely incompatible	Minor, little, or seldom 3% - 10%. Slightly incompatible	Occasional, infrequent, or periodic 10% - 20%. Occasionally incompatible	Prevalent, common or apparent 20% - 50%. Often incompatible	Very prevalent or widespread 50% - 80%. Largely Incompatible	Extensive, dominant or a great deal 80% - 100%. Completely incompatible	
Non- Aesthetic Distractions (Amount of factories, ruins, dilapidated lands, barges, etc.)	Very minor, very little, or rare, 0 % - 3%. Mostly compatible	Minor, little, or seldom 3% - 10%. Slightly incompatible	Occasional, infrequent, or periodic 10% - 20%. Occasionally incompatible	Prevalent, common or apparent 20% - 50%. Often incompatible	Very prevalent or widespread 50% - 80%. Largely Incompatible	Extensive, dominant or a great deal 80% - 100%. Completely incompatible	
Non-compatible activity- how often do visitors see, hear, or smell other non- compatible activities (planes, trains, traffic, farms, factories, etc.)	Very little or never 0-3%	Rare, seldom 3- 10%	Occasional 10-20%	Common 20- 50%	Widespread 50- 80%	Dominant 80- 100%	

Social Inventory

More Nature-Dependent Tourism

_	Less Nature-Dependent Tourism
	zess randre zependent rednism

	Nature – Ir	nmersed Tourism	Nature – Ba	ased Tourism	Nature – Packaged Tourism	
Visitor to Visitor contact - how often do visitors encounter other visitors at site?	Very little or never 0- 3%	Rare, seldom 3- 10%	Occasionally 10- 20%	Often 20-50%	Very often 50-80%	Always 80-100%
What is the quality of this contact?	Very friendly, often happy to see one another	Friendly, usually happy to see one another	Usually friendly, though some may feel indifferent	Sometimes friendly, though some may feel displeased	Indifference, some feel displeased or unwelcome	Indifferent, often displeased or unwelcome feeling
Visitor to Host contact - degree to which visitors encounter hosts at site	Very little or never 0- 3%	Rare, seldom 3- 10%	Occasionally 10- 20%	Often 20-50%	Very often 50-80%	Always 80-100%
What is the quality of this contact?	Very friendly, often happy to see one another	Friendly, usually happy to see one another	Usually friendly, though some may feel indifferent	Sometimes friendly, though some may feel displeased	Indifference, some feel displeased or unwelcome	Indifferent, often displeased or unwelcome feeling

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Acceptability of Visitor Impacts

More Nature-Dependent Tourism

,	→	Less Nature-Dependent Tourism
1		.

	Nature – Immersed Tourism		Nature – Bas	ed Tourism	Nature – Packaged Tourism		
Degree of impact (amount of impacts to site)	0-3% Very minor	3-10% Minor	10-20% Light to moderate	20-50% Moderate to medium	50-80% Moderate to heavy	80-100% Very heavy	
Prevalence of impact (frequency of impact to site)	0-3% Very seldom, or never	3-10% Seldom, very infrequent	10-20% Occasional, infrequent	20-50% Common, somewhat often	50-80% Persistent, wide spread, often	80-100% A great deal, prevalent, very widespread, almost always	

More Nature-Dependent Tourism ← Less Nature-Dependent Tourism

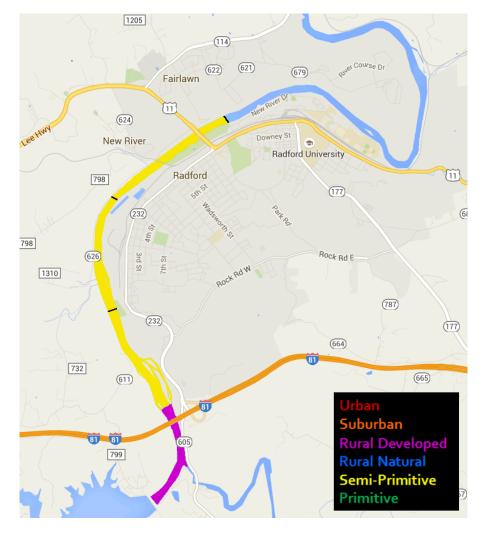
	Nature – Immersed Tourism		Nature – Ba	sed Tourism	Nature - Packaged Tourism	
Lodging- Are facilities limited in choice and price?	- No reservations or camp sites - Free range - Little or no charge - Wilderness/ Primitive layout - Own equipment required	- Camp sites without hook ups - Natural layout - Little or no charge - Semi-primitive layout	- Camp sites with hookups - Rural natural layout -Fee	-Sites with hookups and facilities -Cabins -Reservations may be needed -Fees	-Early reservations -Hotels -Resorts -Costly	-Reservations required in advance -Expensive
Sustenance- Are facilities limited in choice and price?	-Bring/ provide your own food -Use your own equipment	-Offsite places to buy food - Mostly bring/ provide your own food -Use own equipment to prepare	- On & offsite places for food /bring your own - Use your own equipment or its provided	-On and offsite places for food -Equipment provided -Reservations may be needed	- Onsite places for food - Equipment provided - Reservations may be needed - Can be costly	- Places for food onsite only -Equipment provided - Reservations required -Costly
Expeditions- Are opportunities available to group/individual Array of choices?	-No reservations -No rentals -No guides - Total flexibility in experience	- Some signage & posted rules - No rentals - No guides - Flexibility in experience	- Guided trips available but not required - Rentals or use own equipment - Less flexibility	- Guided trips available -Small or large groups - Rent equipment - Little flexibility	- Guides often required - Reservations often required - Sizes of group vary only slightly -Rentals available - Semi-controlled	- Guided destinations only - Reservations made in advance - Group participation required - Very controlled
Time- Opportunities available night	- 24 hour availability - Full area access	- 24 hour availability - Signage	- Day & night availability - Passes required	- Day & night availability - Passes/ tickets	- Time restricted access - Passes required	- Time restricted access - Passes required

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vs. day vs. 24	provide	es limited	required	- Guides	- Guides required
hours, guides	access t	to certain	- Guides	recommended	- Reservations
for certain	areas		available	- Reservations	required
activities or own				recommended	
freedom?					

Appendix B

Tourism Opportunity Spectrum Results Map for Overall Attribute Scores



Appendix C

Tourism Opportunity Spectrum Results Map for *Site Access* Attribute Scores

