

# Could Ecotourism be an Effective Tool for Wetland Conservation in Florida?

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## Introduction

FLORIDA IS IDENTIFIED AS ONE OF THE STATES WITH THE GREATEST SHARE OF WETLAND LOSS IN the U.S., and only about one fifth of the existing wetlands are currently under the protection of the park and reserve system (Mitch and Gosselink 2000). At the same time, with rich biodiversity and valued ecosystems, Florida has become one of the most popular nature-based tourism destinations in the USA, and tourism has become its major source of tax revenue. For its focus on tourism-conservation symbiosis, ecotourism has been advocated internationally as an alternative economic activity benefiting wetland conservation since the last decade (Das and Syiemelieh 2009; Lim and McAleer 2005). First, considering ecotourism an alternative tool of environmental management (Jamal and Stronza 2009; Kay and Alder 2005), it is important to assess whether ecotourism involvement is significantly associated with major stakeholders' conservation contribution. Second, for the goal of collaborative and adaptive management, it is critical to know what incentives drive major stakeholders' (e.g., ecotourism industry) active engagement in natural resource management (Stein 2003). Natural resource managers will be better informed in applying proper measures to engage important stakeholders' participation during planning and management processes. While empirical studies focusing on the above topics are relatively lacking in the wetland conservation field, this research intends to fill this gap by testing whether ecotourism involvement and different groups of perceived benefits can encourage tour operators' pro-environmental behaviors in Florida.

## Methodology

**Sampling and data collection.** A web-based survey was conducted to collect cross-sectional data from a total of 318 commercial tour operators, drawn from the VISITFLORIDA website.

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**Citation:** Weber, Samantha, ed. 2012. *Rethinking Protected Areas in a Changing World: Proceedings of the 2011 George Wright Society Biennial Conference on Parks, Protected Areas, and Cultural Sites*. Hancock, Michigan: The George Wright Society.  
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Dillman's (2007) modified Total Design Method (TDM) was employed in the survey, and one e-mail invitation and five e-mail reminders with a questionnaire link were sent to the non-respondents every 7–10 days after the previous reminder. During the period of seven weeks spanning November and December, 2010, a total of 97 responses were received. Based on the Response Rate 2 Calculator in the Standard Definitions of American Association for Public Opinion Research (AAPOR), a response rate of 31%.

**Questionnaire structure.** This study included six constructs which consisted of items comprehensively discussed in the past studies.

**Control variables.** There were three control variables—the size of the company, the frequency of wetland visits, and the environmental values of respondents.

**Independent variables:**

- *The factor of economic benefits.* This group of five 5-scale Likert-type items was utilized to ask potential respondents about their perception of general economic benefits brought by nature-based tourism such as marketing, stabilized revenues, local tax revenues, and development of related businesses (Stronz and Pêgas 2008; Wunder 2000; Zambrano et al. 2010).
- *The factor of conservational benefits.* The series of six 5-scale Likert-type items were used to assess the respondents' perceived conservational benefits of nature-based tourism according to the past literature (Orams 1995; Hill and Gale 2009).
- *The factor of socio-cultural benefits.* The survey incorporated eight 5-scale Likert-type items to evaluate respondents' perception of socio-cultural benefits heavily discussed by the previous researchers (Jamal, Marcos, and Stronza 2006; Stronza and Pegas 2008).
- *Ecotourism involvement.* The survey asked potential respondents to estimate their tour-related revenues derived from ecotourism.

**Dependent variable.** Conservation behaviors of planning and management approaches. There were eight 5-scale Likert-type items incorporating the shared concepts of participatory nature resource management in collaborative ecotourism and ecosystem management to investigate the activeness of potential respondents in wetland conservation activities (Brody 2008; Buckley 2009).

**Data analysis**

Multiple Regression Linear (MRL) models were employed to examine the effects of independent variables on tour operators' active wetland conservation actions. The independent variables included tour operators' ecotourism involvement, perceived socio-cultural benefits, perceived conservation benefits, and perceived economic benefits. In addition, the models incorporated several control variables such as the size of the company, the frequency of wetland visits, and the business manager's environmental awareness considered associated with respondents' active conservation behaviors, based on past literature.

**Results**

**Scale testing.** The reliability of the scales in economic benefits, socio-cultural benefits, conservational benefits, and conservation behaviors in the research indicated that those scales were ideal with the Cronbach's alpha values of .92, .93, .90, and .90, respectively. In order to identify the factor structure underlying those observed variables, and increase the interpretability of the identified factor, exploratory factor analysis (EFA), using principal component analysis (PCA), was employed for all four scales. The Kaiser-Meyer-Olkin (KMO) test of sampling adequacy, and Bartlett's Test of Sphericity suggested that the data were appropriate for the factor analysis. The

Factor (item)	Eigenvalues	% of variance	KMO	Bartlett's Test of Sphericity	Reliability ( $\alpha$ )
Economic benefits (5 items)	3.76	75.15%	0.80	$p < 0.001$	0.92
Socio-cultural benefits (8 items)	5.40	67.52%	0.90	$p < 0.001$	0.93
Conservational benefits (6 items)	3.99	66.57%	0.86	$p < 0.001$	0.90
Conservation behaviors (8 items)	4.68	58.54%	0.83	$p < 0.001$	0.90

**Table 1.** Factor analysis results and Cronbach's alpha for four factors.

results of EFA showed that those items could be loaded on the four specific factors. Table 1 summarizes the information described above for the four scales used in the research.

**Descriptive statistics.** Based on the responses to the scales with the anchors “very well” = 5 and “not at all” = 1, the composite mean scores of economic benefits, socio-cultural benefits, and conservational benefits were 3.53, 3.33, and 3.59, respectively. First, the results showed that respondents perceived the conservational benefits of nature-based tourism activities greater than economic benefits and socio-cultural benefits. Second, of the economic benefits, “bringing economic opportunities to other businesses” had the highest mean score while providing “stable business revenues” was the item with the lowest score. Third, of the socio-cultural benefits, the array of items relevant to enhancing the sense of place was substantially perceived by respondents. Fourth, the mean scores of perceived conservation benefits reported by respondents ranged from 2.82 to 3.98. Among them, “wildlife protection” was rated as the greatest item while “long-term conservation efforts” was least identified. Table 2 illustrates the responses to all items of these three composite factors.

In the factor of wetland conservation behaviors, six management activities, including direct financial support, policy lobbying, land development, land use planning, water resource and recreation management, and natural resource inventories or monitoring relevant to wetland conservation, received considerably less respondent participations than the other two activities, including environmental education and physical conservation activities and events (Table 3).

**Regression analysis.** The results of MRL models (Model 1) indicated that the degree of ecotourism involvement was a significant predictor of respondents' wetland conservation actions. In addition, respondents' participation in active wetland planning and management activities was significantly associated with perceived economic, socio-cultural, and conservational benefits. The cross-model (Model 2, 3, and 4) comparison revealed that socio-cultural benefits had greater effects on wetland-related conservation actions than conservational benefits and economic benefits, holding ecotourism involvement, the size of the company, the frequency of wetland visits, and the environmental awareness variables constant. Table 4 shows the results of regression analyses.

## Discussion

The research found that the degree of ecotourism involvement would influence the activeness of tour operators' environmentally responsible behaviors in Florida. Strong engagement in ecotourism activities encouraged tour operators' conservation efforts, which would become an effective tool to significantly contribute to wetland management. The research suggests that continuously promoting the concepts and practices of sustainable tourism and ecotourism among the industry is critical through the collaborative efforts of agencies, departments, and organizations in order to ensure the favorable environmental outcomes.

Items of three factors	Mean	SD.	1	2	3	4	5
<b>Economic benefits</b>							
Opportunities to other businesses	3.75	1.28	6.7%	11.2%	22.5%	19.1%	40.5%
Local tax revenues	3.47	1.31	10.1%	12.4%	27.0%	21.3%	29.2%
Increasing business revenues	3.60	1.26	8.2%	11.8%	21.2%	29.4%	29.4%
Stable business revenues	3.35	1.30	11.8%	14.1%	23.5%	28.2%	22.4%
Business marketing	3.48	1.26	9.4%	14.1%	18.8%	34.1%	23.5%
<b>Socio-cultural benefits</b>							
Preserving local cultures or heritages	3.19	1.40	15.7%	16.9%	24.7%	18.0%	24.7%
Decision-making in the local tourism policies	2.91	1.32	22.4%	14.1%	24.7%	28.2%	10.6%
Decision-making in the local environmental policies	2.75	1.24	22.4%	17.6%	29.4%	23.5%	7.1%
Knowledge and training about natural resources	3.26	1.27	12.9%	12.9%	28.2%	27.2%	18.8%
A greater sense of pride of the community	4.11	1.13	5.9%	3.5%	12.9%	29.4%	48.3%
A stronger sense of belonging to the community	3.80	1.29	7.1%	11.8%	16.5%	23.5%	41.1%
A greater appreciation of the community	3.78	1.24	5.9%	12.9%	15.3%	29.4%	36.5%
Greater resident interaction	3.55	1.26	8.2%	12.9%	22.5%	28.2%	28.2%
<b>Conservational benefits</b>							
Less pollution	3.71	1.23	6.7%	9.0%	25.8%	23.7%	34.8%
Wildlife protection	3.98	1.23	7.9%	5.6%	12.4%	29.2%	44.9%
Natural landscape or habitat protection	3.90	1.23	9.0%	4.5%	12.4%	35.9%	38.2%
Increase of environmental awareness	3.62	1.28	9.0%	9.0%	25.8%	23.6%	32.6%
Long-term conservation efforts	3.53	1.20	7.9%	10.1%	28.1%	29.2%	24.7%
Enhanced dataset of natural resources	2.82	1.22	20.2%	12.9%	30.4%	25.8%	6.7%

**Table 2.** Responses to the items of 3 factors. Note: 1 represents “not at all” and 5 represents “very well” on the 1-to-5 rating scale.

Items	Mean	SD.	1	2	3	4	5
Cash donation	2.52	1.25	27.4%	21.4%	31.0%	11.9%	8.3%
Conservation events or activities	3.10	1.31	16.7%	14.3%	28.6%	23.8%	16.6%
NGO's government policy lobbying	2.02	1.24	51.2%	15.5%	16.6%	13.1%	3.6%
Zoning or land development projects	2.64	1.31	25.0%	11.9%	37.0%	19.0%	7.1%
Comments to land use planning officials	2.71	1.24	26.1%	19.0%	31.0%	17.9%	6.0%
Comments to water use and recreation management officials	2.58	1.22	35.8%	22.6%	19.0%	11.9%	10.7%
Environmental inventories or monitoring	2.39	1.36	35.8%	22.6%	19.0%	11.9%	10.7%
School or community environmental education	3.19	1.36	15.5%	15.5%	25.0%	22.6%	21.4%

**Table 3.** Responses to the items of active conservation behaviors. Note: 1 represents "never," 2 represents "rarely," 3 represents "sometimes," 4 represents "very often," and 5 represents "always."

	Model 1 (Beta)	Model 2 (Beta)	Model 3 (Beta)	Model 4 (Beta)
Ecotourism Involvement	0.319***	0.276**	0.250**	0.235**
Economic Benefits		0.221**		
Conservation Benefits			0.307***	
Socio-cultural Benefits				0.355***
Company Size (log)	0.186*	0.151	0.200**	0.149
Environmental Values (log)	0.154	0.140	0.150	0.092
Visit Frequency (log)	0.163	0.153	0.137	0.079
(Constant: coeff.)	1.708***	1.531***	1.316**	0.854
	N= 80 F(4,75)= 6.80 Prob.>F=0.000 Adj.R <sup>2</sup> =0.227	N= 80 F(5,74)= 6.68 Prob.>F=0.000 Adj.R <sup>2</sup> =0.265	N= 80 F(5,74)= 8.08 Prob.>F=0.000 Adj.R <sup>2</sup> =0.309	N= 80 F(5,74)= 8.36 Prob.>F=0.000 Adj.R <sup>2</sup> =0.318

**Table 4.** Results of MRL models to predict wetland conservation behaviors (\* <0.1 level, \*\* <0.05 level, and \*\*\* <0.01 level).

However, the results also indicated that the input of tour operators in the actions that could contribute to long-term positive environmental outcomes was relatively unenthusiastic in Florida. First, respondents were comparatively inactive in wetland relevant planning and management activities with the frequency of participation mostly lower than “sometimes.” Second, the research found that the activities that were more knowledge-centered and required long-term commitments attracted, on average, less participation of tour operators. Those include NGOs’ policy lobbying and environmental inventory and monitoring. The evidence suggests that land and nature resource management agencies or departments need to expand their partnerships with major stakeholders through sharing information, providing professional knowledge and skill training, and creating more ecological volunteer programs.

The study also revealed that tour operators in Florida would be significantly driven to participate in wetland relevant planning and management activities if they perceived greater socio-cultural benefits in nature-based tourism. The cross-model comparison showed that the incentive of conservational benefits, next to socio-cultural benefits, was greater than economic benefits to encourage tour operators’ active conservation behaviors. Surprisingly, the socio-cultural benefits worked better than the economic benefits on galvanizing tour operators’ actions to conserve wetlands. In conclusion, the comprehensive measurement of this study lends supports to the theory that the social-cultural-environmental paradigm illustrates humans’ commitments and attitudes to the natural landscape that supports their social fabrics (Jamal, Marcos, and Stronza 2006). Management agencies or departments should enhance community-based conservation initiatives and improve disclosure and interpretation of scientific information in order to promote participatory ecological governance.

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