

The Relationship between Wildfires and Tourist Behaviors in Florida: An Exploratory Study

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Introduction

Florida is a popular national and international tourist destination with 74.3 million visitors in 2000, and slightly more than half of these visited natural and protected areas (Visit Florida, 2001). However, in recent years, notably in 1998 and 2001, drought conditions have led to wildfires that affected large parts of the state, lead to smoke closure of interstate highways and air quality alerts (Albright, 1998; Davis, 1998; Dillon, 1998, Drummond, 1998, Farrington, 2001; Woodman, 1998a, 1998b). These conditions have become an increasing issue for recreational and leisure travelers as well as destination promoters and managers. In 1998, Florida's tourism industry was severely affected as approximately 500,000 forest acres burned predominantly in 18 northeastern counties, resulting in forced evacuations from many tourist destinations, notably the Daytona Beach area (Hays, 1998). Butry and associates (2001) estimated that the 1998 fires resulted in a gross loss of \$61 million to the lodging industry and \$77.2 million gross loss in other business sectors, especially in Orange, Volusia, St. John's and Brevard counties (these are the Orlando and Central Florida east coast areas). Since 1998, the numbers of fires in the subsequent years has increased and are of concern to the tourism industry, as sustained negative economic impact does not bode well for the tourism dependent economy of Florida.

The impact of fire on tourism and subsequent economic losses are also evident in various western states of the country (Cogswell, Lehmann, & Milligan, 2000; Enis, 2000; Hardy-Short & Short, 1995; Ruggless, 2000; Wilkinson, 2000; Yeh, 2000). The recent summer fires of 2002 had a major negative impact in the tourism industry at numerous tourism dependent communities and states. In Colorado, the fires at Pike National Forest (40 miles southwest of Denver) had a negative impact on the tourist business in the local communities. Similarly, fires affected the tourism industry in the Durango region, and businesses throughout the state were affected due to the public's perception of wildfires affecting the entire state (Yancey, 2002). In South Dakota, residents and tourists were forced to evacuate from Deadwood, a tourist dependent community located in the Black Hills (Kafka, 2002). In New Mexico, small business owners in the northern region of the state reportedly expected sales to decline by 50% due to wildfires (Earnest, 2002). Similar economic losses have occurred in Arizona and Oregon as mandatory evacuations, closure of roads, smoke conditions, and the constant national media attention influenced tourists to substitute their respective destinations (Hogan, 2002; Kim, 2002). Recently, the devastating October 2003 fires in Southern California had a detrimental impact on the tourism industry as major attractions were closed, with San Diego's tourism industry experiencing the hardest impact (California Travel and Tourism Commission, 2003).

Clearly, wildfires are an increasing problem for tourist destinations; with substantial economic consequences for host communities. In addition, the wildfire season often coincides with the peak tourist season and further creates economic hardships, especially for nature-based operators and suppliers depending on tourist business during the summer months. The severity of wildfire situations are further perpetuated by the media, which deters potential visitors who may then go on to chose alternate destinations, resulting in loss of income to the original destination (Hays, 1998; Wilkinson, 2000). Collectively, the mandatory evacuations, smoke conditions, road closures and negative media limelight usually contributes to the economic repercussions in tourist dependent communities. Although the displacement of tourists and the negative economic impact to the tourism industry due to wildfires has been anecdotally reported in the popular media, empirical studies about tourist behaviors are rare. Therefore, the purpose of this exploratory study was to better understand the relationship between wildfires and tourist behaviors in Florida.

Methods

The sample for this study was drawn from January 2001 to December 2001 mailings to non-resident overnight leisure travelers that had visited selected counties in Florida. The sample was screened to target tourists that had visited

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destinations/counties that had been impacted by fire. However, since the number of fires reported in 2001 encompassed all counties except one (Hamilton county), a more stringent criterion was used. More specifically, counties that had wildfire and received fire suppression funds (Florida Department of Forestry, 2002) were chosen (n=26) to represent the strata of counties substantially affected by wildfires in 2001.

A four-page mail-back questionnaire was developed and sent out to a random sample of known tourists aged 18 or over. The total attempted sample was 1,160 with 771 responding for a 66.5% response rate. Respondents were asked to rate the perceived level of risk they associated with wildfires that could affect their future decisions about traveling to various States. Subsequently, they were asked to agree or disagree with 12 statements about travel safety, destination decisions and wildfires. Finally, respondents were asked to report how they would change their travel behavior if faced with 14 different wildfire related situations, which some might interpret as potentially disruptive.

Results

Surveys were mailed to the head of the household and demographic characteristics of all household are reported below. In general, about 88% of the households were comprised of at least two adults, and 30% had four or more members of the household, 50% of the households had incomes between \$50,000 and \$99,999, 82% of the households were predominately white, 10% black and 8% Hispanic, 77% of respondents were women and 23% men, 82% were homeowners, 18% were renters, 76% were married and 14% were singles who had never married. Respondents were residents of 41 different states, with larger segments of the sample representative of New York, Pennsylvania, Georgia, Texas and Maryland.

Most respondents in this sample were not novices to Florida as 90% were repeat visitors, while about 10% were on their first trip. About 38% had visited Florida between 2-4 times in the past 5 years, and about 55% of the respondents spent seven days or more during their last trip to Florida. Respondents traveled to various counties in Florida, the mode destination being the Orlando area (24%) in Orange County. The rest of the sample was widely distributed around the state. Respondents represented visits during all twelve months of the year, with 48% visiting between December and March while February was the mode month with 16%. The primary mode of transportation was commercial airlines for most visitors (57%) while personal vehicles represented 34% and supplemented by rental vehicles for an additional 4%. Generally, travel groups were small, ranging from 2-5 (73%), with 39% being two person groups. Almost two-thirds (63%) of the travel parties included only adults over 18 years of age, 13% included one child, and 16% included two children. Three-fourths (74%) of the travel groups were comprised of family, 13% were friend-based groups and 9% represented a combination of friends and family. The most popular activities participated were shopping (55%) followed by visiting the beach (53%), visiting friends and relatives (46%), and visiting theme parks (30%). The most frequently mentioned primary reason for visiting Florida was: visiting friends or relatives (36%), visiting theme parks (20%) and visiting the beach (11%). About 44% of the respondents noted visiting some form of designated outdoor park, forest or refuge, with local (20%) or state parks (13%) being visited more often than federal lands (11%).

Perceived Level of Risk (States)

Respondents were asked to rank selected States according to the perceived risk to travelers from wildfires. In descending order, the percent of respondents who perceived states to be either “unsafe” or “very unsafe” were: California 25%, Colorado, Florida and Montana, each at 6%, Texas and Wyoming 5%, Arizona, New Mexico and Washington, each at 4%, Georgia and Tennessee, each at 2%. In descending order, the proportions of respondents rating a selected state as either “very safe” or “safe” in terms of threats from wildfires were: Tennessee 54%, Georgia 53%, Florida 51%, Colorado 49%, Arizona, Texas, Washington at 48%, New Mexico at 46%, and California at 33% (see Table 1)

Table 1 - Perceived Level of Risk to Pleasure Travelers in Terms of the Threat of Wildfires*

State	Rating %						Mean ¹ (Total N)
	Very Safe	Safe	Neither Safe/nor Unsafe	Unsafe	Very Unsafe	Don't Know	
Arizona	12.2 (91)	36.1 (269)	26.7 (199)	3.2 (24)	0.8 (6)	20.9 (156)	2.3 (589)
California	6.4 (48)	26.8 (200)	30.0 (224)	23.3 (173)	1.6 (12)	12.0 (90)	2.85 (657)
Colorado	11.3 (84)	37.4 (279)	27.1 (202)	4.7 (35)	1.1 (8)	18.4 (137)	2.35 (608)
Florida	9.1 (68)	41.7 (312)	31.8 (238)	5.1 (38)	1.3 (10)	11.0 (82)	2.41 (666)
Georgia	11.9 (89)	41.5 (310)	25.7 (192)	1.2 (9)	1.3 (10)	18.3 (137)	2.25 (610)
Montana	9.0 (67)	34.1 (254)	27.5 (205)	5.1 (38)	0.9 (7)	23.4 (174)	2.41 (571)
New Mexico	9.1 (68)	37.0 (275)	27.2 (202)	3.1 (23)	0.7 (5)	23.0 (171)	2.34 (573)
Tennessee	14.3 (107)	39.9 (298)	24.3 (181)	0.4 (3)	1.2 (9)	19.8 (148)	2.18 (598)
Texas	10.3 (77)	37.5 (279)	26.6 (198)	4.0 (30)	0.9 (7)	20.6 (153)	2.34 (591)
Washington	12.0 (90)	36.1 (270)	25.3 (189)	3.3 (25)	1.3 (10)	21.9 (164)	2.31 (584)
Wyoming	9.9 (74)	34.7 (258)	26.7 (199)	4.4 (33)	0.7 (5)	23.5 (175)	2.36 (569)
Other ²	45.0 (20)	10.0 (20)	15.0 (49)	25.0 (156)	0.0 (307)	5.0 (224)	(17)

*The following States are potentially influenced by wildfires. Please rate the States according to the level of risk you believe they present to pleasure travelers in terms of the threat of wildfires. (Circle one for each state)

¹Means calculated based on 5-point scale, very safe (1) to very unsafe (5).

²Other vacation destinations participants would avoid due to the probability of wild fires included Utah (N=3), New Jersey (N= 2), Oregon (N= 2), Maine (N=1), Massachusetts (N=1), Maryland (N=1), North Carolina (N=1), Virginia (N=1), Alabama (N=1), Arkansas (N=1), Idaho (N=1), Alaska (N=1), and Hawaii (N=1).

Travel Perceptions

Respondents were also asked to agree or disagree with 12 statements about travel safety, destination decisions and wildfires. About 23% of the sampled travelers indicated safety was not an important consideration in choosing between Florida destinations while 36% were neutral on this issue. There were 40% of respondents that disagreed with safety as the deciding factor in deciding between destinations while 26% agreed. About 14% of the respondents disagreed that wildfires were a factor in evaluating travel destinations while 61% agreed. A majority (80%) of the respondents noted that wildfires in Florida had not influenced their decision to travel, while 9% said it had an influence in their decision to travel. About 70% reported that they would not let wildfires keep them from traveling to their final destination in Florida, while 9% said wildfires might keep them from traveling to that destination. Only 2% said that negative news about wildfires discouraged them from traveling to Florida, while 82% reported otherwise. There were 11% of respondents that said they would choose an alternative state to travel to if their destination state had active wildfires, while 52% said they would not switch. Only 8% reported that they would only travel to Florida if they believed it was safe from wildfires, and

60% noted that they would travel. About 79% said the possibility of wildfires did not discourage them from traveling to Florida while 3% said it would. Three additional variations on these questions were asked and results are presented in Table 2. Overall, 80-90% of the respondents were either neutral or undeterred by the possibility or presence of fires at Florida destinations, and less than 20%, and usually less than 10% were concerned or would take evasive action due to wildfires.

Table 2 - Travel Perceptions*

Statement	Strongly Disagree	Disagree	<u>Rating %</u> Neither Agree/nor Disagree	Agree	Strongly Agree	Mean (Total N)
Safety is the deciding factor when I'm considering which destination in Florida to travel to	17.6 (133)	21.9 (166)	34.1 (258)	21.4 (162)	5.0 (38)	2.74 (757)
Safety is not an important consideration when I'm evaluating different destinations in Florida to travel to	8.6 (65)	33.1 (250)	35.5 (268)	16.0 (121)	6.8 (51)	2.79 (755)
Safety is the most important attribute that destinations in Florida can offer	5.5 (41)	14.8 (111)	52.9 (398)	21.4 (161)	5.5 (41)	3.07 (752)

When I'm evaluating destinations to travel, wildfires are not a factor	4.2 (32)	9.4 (71)	25.5 (193)	39.4 (298)	21.5 (163)	3.65 (757)
Wildfires in Florida have never influenced my decision to travel there	4.1 (31)	4.5 (34)	11.3 (85)	37.2 (280)	42.8 (322)	4.10 (752)
Other people's negative experiences with wildfires in Florida do not influence my decision to travel	3.7 (28)	6.3 (47)	20.6 (155)	39.1 (294)	30.3 (228)	3.86 (752)
I would not let wildfires keep me from traveling to my final destination in Florida	2.6 (20)	6.5 (49)	20.6 (156)	40.6 (307)	29.6 (224)	3.88 (756)

When I am trying to decide between destinations in Florida and other States, I would choose the one which does not have active wildfires	29.1 (220)	32.6 (246)	27.0 (204)	9.9 (75)	1.3 (10)	2.22 (755)
If a particular destination in Florida has experienced wildfires in the past, I will not travel there	35.8 (271)	42.5 (322)	19.4 (147)	1.7 (13)	0.5 (4)	1.89 (757)
I'd like to travel to Florida but negative news about wildfires discourages me	40.4 (304)	41.8 (315)	15.8 (119)	1.2 (9)	0.8 (6)	1.80 (753)
The possibility of wildfires in Florida discourages me from traveling there	37.5 (281)	41.8 (313)	18.2 (136)	1.9 (14)	0.7 (5)	1.86 (749)
I will only travel to Florida if I believe it is safe from wildfires	27.3 (206)	32.3 (243)	32.1 (242)	7.2 (54)	1.2 (9)	2.23 (754)

*Please indicate your level of agreement or disagreement with each of the statements. (Circle one for each item).

Reactionary Behavioral Change

Respondents were asked to report how they would change their travel behavior if faced with 14 different wildfire related situations, which some might interpret as potentially disruptive. All but four of the situations induced a range of responses from more than two-thirds of the respondents. The four situations that generated widespread agreement on the type of response were proportions ranging from 69% to 86% who indicated they would not change their travel plans if: 1) there were multiple fires in the state but not at their vacation region (86%); 2) there were prescribed fires by natural resource managers outside their vacation region (81%); 3) fire was present in an adjacent region but not in their vacation region; and 4) an unattractive burned landscape from a past fire was present at their destination (69%), with only 16% saying they would cancel their trip or change destination in this last instance.

Three situations resulted in at least 10% of the respondents stating they would cancel their trip, and between 32% and 43% additionally changing their destinations, resulting in a range of 55% to 45% who would make substantial alterations to their trip. The situations were: 1) the presence of high fire danger conditions (15% cancel, 33% change destinations, 25% no change); 2) reported health problems from smoke and ash (13% cancel, 32% change destinations, 16% no change); and, 3) spread of fire to nearby vacation region (12% cancel, 43% change destinations, 17% no change).

Three situations resulted in at least 33% of the respondents stating they would change the destination they were planning to travel to on their trip: 1) smoke from a current fire was in the destination area (38% change destination, 18% no change, 9% cancel trip); 3) if there was the threat of road closures (37% change destination, 21% no change, 5% cancel trip); and, 4) if there were automobile accidents due to smoke (36% change destination, 22% no change, 5% cancel trip).

Finally, there was four situations where the reported changes in behavior were rather varied; 1) when there was negative news from the media about wildfires (20% don't know what they would do, 65% would make no change; 4% would change their activity; 8% change their destination and 4% would cancel their trip); 2) where there were prescribed controlled fires in their vacation region (16% don't know what they would do, 45% would make no change; 13% would change their activity; 21% change their destination and 4% would cancel their trip); 3) if there were two-hour traffic back-ups due to fire detours (13% don't know what they would do, 23% would make no change; 31% would change their activity; 30% change their destination and 3% would cancel their trip); and, 4) there was the smell of burned wood in the air (8% don't know what they would do, 61% would make no change; 16% would change their activity; 14% change their destination and 2% would cancel their trip) (see Table 3).

Table 3 - Reactionary Behavioral Changes to Specific Wildfire Related Situations*

Fire Related Situations	Rating %				
	Cancel Trip	Change Destination	Change Activity	No Change	Don't Know
Two-hour traffic back-ups due to fire detours	3.4 (26)	30.4 (231)	31.1 (236)	22.6 (172)	12.5 (95)
Automobile accidents due to smoke	4.9 (37)	36.3 (275)	23.9 (181)	22.3 (169)	12.7 (96)
Threat of road closures	4.8 (36)	37.2 (281)	25.1 (190)	21.2 (160)	11.8 (89)
Smell of burned wood in the air	1.9 (14)	13.5 (102)	16.2 (122)	60.7 (458)	7.7 (58)
Health problems from smoke and ash reported	13.3 (101)	32.1 (243)	24.6 (186)	16.1 (122)	13.9 (105)
High fire danger conditions	15.3 (116)	32.9 (249)	15.9 (120)	24.7 (187)	11.1 (84)
Smoke from current fire in destination area	8.7 (66)	38.3 (289)	22.1 (167)	17.5 (132)	13.4 (101)
Unattractive burned landscape from past fire at destination	1.5 (11)	13.7 (103)	8.4 (63)	69.3 (522)	7.2 (54)
Spread of fire to nearby vacation region	11.5 (83)	43.2 (327)	14.7 (111)	16.6 (126)	14.5 (110)

Table 3 (continued)- Reactionary Behavioral Changes to Specific Wildfire Related Situations*

Fire in an adjacent region but not in your vacation region	2.6 (20)	8.3 (63)	5.7 (43)	73.0 (553)	10.4 (79)
Multiple fires in the state but not in your vacation region	2.0 (15)	3.2 (24)	1.6 (12)	86.3 (655)	7.0 (53)
Prescribed controlled fires in your vacation region	4.1 (31)	21.3 (164)	13.3 (101)	44.6 (338)	16.4 (124)
Prescribed fires by natural resource managers outside your vacation region	1.5 (11)	4.5 (34)	3.3 (25)	81.1 (615)	9.6 (73)
Negative news from the media about wildfires in Florida	3.8 (29)	7.5 (57)	3.8 (29)	64.8 (494)	20.1 (153)

*If you were planning a trip to Florida, and the following situations came to your attention, what would you do: Cancel your trip; Change your destination; Go to your destination but change your intended activity (refers to what you were planning to do, i.e., going to the beach, hiking, or visiting theme parks, etc.); or No change in your activity or destination? (Circle one for each item).

Summary and Conclusion

The respondents in this sample were familiar with Florida, with 90% on return trips for a mean 5 trips to Florida. The number of days they stayed in Florida was representative of what previous studies have shown and destinations seemed roughly consistent with previous studies with the Orlando, Southeast Florida and Tampa-St. Petersburg areas as leading destinations. Season of visit, mode of transportation to Florida, types of accommodation, type of travel group and activities participated in were also consistent with previous studies (Coggins, 1997; Visit Florida, 2000). About 15% of this sample listed visiting some form of natural area or participating in an activity based on a natural area (e.g., fishing, boating, hiking, etc.) as their primary reason to visit Florida, while 2% to 53% mentioned participating in specific outdoor settings or activities as a primary or secondary part of their Florida trip. About 11% reported visiting a federal natural area (forest, park or refuge), 13% visited a state park and 20% visited a local park. Plus, even activities not counted in those percentages such as visiting a theme park or sightseeing imply spending some time outdoors, so substantial segments of this sample had the potential to experience the effects of wildfires.

At the actual travel experience level, it appears the effects of wildfire have had a minimal impact on past Florida trips for a few people and no impact on the vast majority. Most of the respondents would have been assessing a 2001 trip to Florida and in 2001, Florida had a relatively low number of wildfires, compared to previous years, though ~3.6 million acres burned. Compared with other states, only 6% of the respondents said they thought Florida was unsafe for travel due to wildfires, the same percentage as Colorado and Montana. In contrast, California was rated unsafe by 25% and about 51% said they thought Florida was either safe or very safe for travel with little or no danger from wildfires.

About 61% agreed that wildfires were a factor in evaluating travel destinations while 70% reported that they would not let wildfires keep them from traveling to their final destination in Florida. A majority (80%) of the respondents noted that wildfires in Florida had not influenced their decision to travel, while 9% said it had an influence in their decision to travel. Only 2% said that negative news about wildfires discouraged them from traveling to Florida, while 82% reported they were neutral or that such negative news did not discourage them. Overall, 80-90% of the respondents were either neutral or undeterred by the possibility or presence of fires at Florida destinations, and between 10 and 20% were concerned or would take evasive action due to wildfires on a future trip.

Based on reactionary behavioral change as a result of wildfires in Florida, for four of the issues, between 69% and 86% of the respondents said they would not change their travel plans if there were multiple fires in the state but not at their vacation region; if there were prescribed fires by natural resource managers outside their vacation region; if fire was present in an adjacent region but not in their vacation region; or if an unattractive burned landscape from a past fire was present at their destination. The first three statements seem to indicate that these experienced Florida tourists understand that Florida is a geographically large state and that fires can exist in the state that do not affect the area they will be in. Most do not seem to be detracted by burned over landscapes, perhaps because the majority will stay in urban settings or visit beach areas, which would not be expected to have large burned areas. Three situations resulted in a range of 45% to 55% who would make substantial alterations (cancel or change destinations) to their trip. The situations were the presence of high fire danger conditions; reported health problems from smoke and ash, and, the spread of fire to a nearby

vacation region. Three other scenarios resulted in at least 33% of the respondents stating they would change the destination they were planning to travel to on their trip (with relatively few (<9%) saying they would cancel their trip), specifically, if smoke from a current fire was in the destination area; if there was the threat of road closures, or if there were automobile accidents due to smoke.

Finally, there were other situations where the reported changes in behavior were rather varied, such as when there was negative news from the media about wildfires or if there was the smell of burned wood in the air; where there were prescribed controlled fires in their vacation region, and if there were two-hour traffic back-ups due to fire detours. However, Destination and State Promotion Agencies have been aggressive in portraying positive spins via press releases and especially the Internet in order to counteract the negative burning image. For example, the Colorado Tourism Office website offered current updates of wildfires and information about affected regions (Yancey, 2002). Other states like Arizona have injected financial resources for marketing campaigns to lure back tourists in order to combat the economic losses in tourism. The Arizona Office of Tourism allocated approximately \$1 million of its \$9 million budget as matching grants to cities and various communities for advertising and promotional activities (Hogan, 2002). Similar approaches have recently been initiated by California lure tourists back to the region (California Travel and Tourism Commission, 2003). Overall, promotional agencies in various fire-affected states have been aggressive with new marketing campaigns and press releases to make tourists aware that their respective states are still open for business.

In conclusion, wildfires do not seem to have significantly impacted many Florida tourists in the recent past, nor is Florida perceived by the vast majority of tourists to be a state where the threat of wildfires is a major concern. Although more than half of the respondents said that wildfires were a factor they would consider in choosing destinations, 70% said they would not let wildfires keep them from traveling to their final Florida destinations. This still leaves 30% for whom it might, and 30% represents potentially 20 million tourists. There does seem to be general acceptance of the possibility and acceptability of wildfires that are not close to a destination they are traveling to, so emphasizing the distance away from wildfires, might be a good strategy to reduce cancellations or destination substitution.

In severe situations where fire is present in the immediate destination area, smoke and ash are causing reported health problems or officials are declaring a high fire danger situation, visitor reactions are, as to be expected, more disruptive to local businesses, meaning about 50% would cancel their trip or change their destination. This is what would be expected in any crises situation such as a hurricane or major snowstorm. About 15% of these are cancellations and 35% are changed destinations, so from a statewide perspective, there is opportunity to still capture most of these in other parts of the state, so there should be a procedure or marketing efforts to offer alternatives. From the local destination perspective, it would be a substantial economic loss to lose 50% of the expected tourists.

The impacts are projected to be almost as bad for destinations disrupted by high levels of smoke, automobile accidents due to smoke or road closures, with about 40% of the tourists saying they would either change destinations (36%-38%) or cancel their trip (5% - 9%). Similarly, efforts to offer alternatives in the region or state should allow the recapturing of most of this business. Moderately less severe, but still real impacts would be associated with traffic snarls due to fire detours with about 33% changing destinations or canceling the trip, 25% canceling or changing destinations for controlled burns occurring in the area, the smell of burned wood in the air with 16% making those adjustments, and only 12% canceling or changing destinations due to negative media reports about fires.

The present study is one of the few studies of tourist's perceived level of risk, travel perceptions and reactionary behaviors to encountering wildfires or smoke on their trip, and as far as we are aware, the first such study of Florida tourists. Previous wildfire attitude studies have been conducted only with residents. We believe the results of this study are based on a representative sample of Florida tourists, with demographic characteristics fairly proportional across age, number of people in household, income, origin, race and marital status categories. This exploratory study offers an initial assessment of the relationship between wildfires and tourist behaviors in Florida, however future research have an opportunity to build upon this study on a broader geographical scale to provide a better understanding of tourists behaviors and subsequently help in marketing efforts during crises situations.

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