RISK PERCEPTION AS A MEDIATOR OF THE EFFECTS OF FOREST FIRES AND DESTINATION IMAGE ON TOURIST VISIT INTENTION AT WAY KAMBAS NATIONAL PARK

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Abstract

Forest fires in conservation areas can disrupt ecotourism by damaging landscapes and by changing how prospective visitors judge the safety of a destination. This study examines whether perceived risk mediates the effects of forest fire awareness and destination image on visit intention at Way Kambas National Park, Lampung, Indonesia. A cross-sectional survey was completed by 100 respondents who had previously visited the park and were recruited through purposive sampling; visit intention is defined as the intention to visit the park again. Each construct was measured with three Likert-scale indicators, and the data were analysed with PLS-SEM in SmartPLS 4. Forest fire awareness raised perceived risk ($\beta = 0.614$, $p < 0.001$) but had no significant direct effect on visit intention ($\beta = -0.081$, $p = 0.643$). Destination image had a significant positive direct effect on visit intention ($\beta = 0.481$, $p < 0.001$) and no significant effect on perceived risk ($\beta = 0.161$, $p = 0.086$). Perceived risk was positively related to visit intention ($\beta = 0.434$, $p = 0.018$), so the indirect path from fire awareness was positive ($\beta = 0.267$, $p = 0.019$) and opposite in sign to the direct path. The data therefore do not show that perceived risk lowers visit intention. Because two constructs have modest reliability (Cronbach's alpha 0.569 and 0.611), the sample is small and non-random, and the design is cross-sectional, the findings are exploratory. Destination image remains the clearest correlate of visit intention among past visitors, so image maintenance should accompany open fire-risk communication while the direction of the risk effect is re-tested in a larger sample.

***Keywords**: Forest fires, Destination image, Risk perception, Visit intention, Way Kambas National Park*

INTRODUCTION

The tourism sector plays an important role in driving regional and national economic growth because it can increase economic activity and regional development. Bank Indonesia (BI) considers tourism to be one of the most effective sectors for increasing the country's foreign exchange earnings (Rahma, 2020). This is because of the availability of resources that support its development, in terms of both human resources and geographical factors. Indonesia has a large territory and a wealth of nature, culture, cuisine, and historical heritage that attract both domestic and international tourists.

In the digital economy era, the tourism sector has undergone a major transformation, particularly through the use of digital marketing strategies that expand market reach and speed up interaction with consumers. This development has been shown to make a very significant contribution to national economic resilience, as seen in the surge in tourism foreign exchange earnings and the increase in the added value of the creative economy (Harefa, 2025; Afrilian, 2025).

Nevertheless, the tourism industry is highly vulnerable to various external disruptions, especially environmental disasters that can drastically damage a destination's image; this poses a particular challenge for the industry in terms of crisis management and image recovery (Utama et al., 2024). This is in line with the coverage of various national mass media outlets, which report that fluctuations in tourist visits are often triggered by negative reporting on environmental crises or on destination infrastructure that is not yet fully prepared for disaster mitigation (Kompas, 2026).

Tourism contributes to regional and national economic growth, among other things through foreign exchange earnings (Rahma, 2020). In ecotourism, this contribution rests on two things: the condition of the natural landscape and visitors' sense of safety, both of which are disrupted when forest fires occur. Forest fires damage the landscape, cause smoke haze, and can change a destination's image within a very short time. According to Andrade et al. (2026), forest fires can reduce visits to and the attractiveness of a destination; however, perceived risk in protected areas has rarely been studied. Information and news about fires can now spread very quickly through online media, both news outlets and social media. Prospective visitors' assessment of a destination's safety can be formed by news coverage before they arrive, so that events on the ground can shape prospective tourists initial perceptions.

Lampung Province is known for its abundant natural resources and culture, which gives it great potential to be developed into a leading tourism destination. The region offers stunning natural panoramas, ranging from green

hills with cool air to a rich diversity of flora. In addition to its natural charm, its wealth of local traditions and customs adds a distinctive appeal for travelers.

In practice, the use of tourism potential in Lampung is not yet fully optimal compared with the overall wealth of its resources, so many natural and cultural destinations still need further development. Geographically, Lampung occupies a very strategic position as a hub for tourist travel. It can be reached in about 1.5 hours from Bakauheni Port and only about 30 minutes from Radin Inten II Airport (Marcelina et al., 2018). The short distances between attractions, from coastal areas, mountains, forests, and rivers to cultural sites, allow tourists to enjoy a variety of activities such as diving and fishing more easily and conveniently, and offer a dynamic and varied travel experience.

Table 1. Number of Domestic Tourist Trips to Lampung Province

Year	Number of Tourists	Change (%)
2019	17,022,530	Base Year
2020	8,525,722	-49.92%
2021	9,176,866	7.64%
2022	10,925,704	19.06%
2023	13,760,697	25.95%
2024	17,875,613	29.90%

Source: www.opendata.lampungprov.go.id

Table 1 above gives an overview of tourist travel at the provincial level as general context, not as a measure of visits to a single destination, and it shows that the number of tourists visiting Lampung Province has an increasing trend, although it declined significantly in 2020, during the Covid-19 pandemic. The year-on-year increase in the number of tourists in Lampung Province is a sign that the province's tourism has good potential to be developed and managed sustainably.

Lampung Province holds very rich and diverse tourism potential. One of the region's flagship and proudest tourism icons is Way Kambas National Park (TNWK), located in East Lampung Regency. It is known internationally as a center for the protection and conservation of endangered animals such as the Sumatran elephant, the Sumatran rhino, and various rare bird species. As a leading ecotourism destination, TNWK offers not only natural attractions and conservation education of high value to domestic and international tourists, but also serves as an important driver of local economic growth and environmental conservation in Lampung Province.

Table 2. Number of Domestic Tourist Trips to East Lampung Regency

Year	Number of Tourists	Change (%)
2019	1,654,173	Base Year
2020	700,809	-57.63%
2021	745,733	6.41%
2022	915,745	22.80%
2023	1,209,392	32.07%
2024	1,558,163	28.84%

Source: www.opendata.lampungprov.go.id

The data in the table above show an increasing trend in domestic tourists visiting East Lampung Regency, one of whose leading tourist destinations is Way Kambas National Park. As a widely known tourism destination, this increase is a good opportunity for the government to develop in order to raise the number of visiting tourists, which can increase the province's Regional Own-Source Revenue (PAD) and boost the local economy of communities that benefit from tourist visits.

In the current digital era, changes in tourists' behavior in searching for destination information require tourism managers to rely not only on natural beauty but also to make optimal use of digital platforms. Digital promotion plays a crucial role in delivering information to prospective tourists interactively, quickly, and widely. Nevertheless, a good destination image and good digital promotion must be supported by efforts to build tourist trust in order to create strong visit intention or revisit intention.

Way Kambas National Park (TNWK), as one of the leading ecotourism destinations, often faces serious challenges in the form of seasonal forest fire incidents, which not only threaten the preservation of the protected wildlife ecosystem but also reduce tourist arrivals. In 2026, up to September 2026, forest and land fires (karhutla) occurred three times, namely on 25–26 January, 21–22 August, and 18–23 September, as shown in the following table.

Table 3. News of Forest Fire Incidents in Way Kambas National Park in 2026

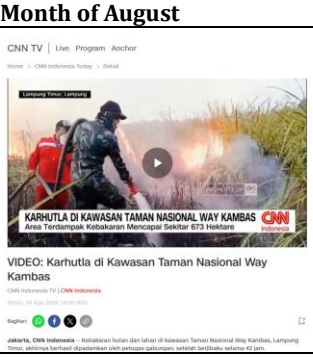
Month of September	Month of August	Month of January
		
Main Content of the Reports: "TNWK burns again; extinguishing efforts still underway at the time of publication."	Main Content of the Reports: "Affected area about 673 ha; fire put out by joint personnel after 42 hours"	Main Content of the Reports: "2,685 ha of land burned; there are signs of deliberate action that need to be investigated"
Source: www.news.detik.com	Source: www.cnnindonesia.com	Source: www.inilampung.com

Table 3 above gives an overview of news reports on forest fire incidents throughout 2026 in Way Kambas National Park, which in this case were verified by the National Disaster Management Agency (BNPB) on 21 August 2026 and by the Ministry of Forestry on its news portal (https://www.bnpb.go.id/berita/bnpb-dan-tim-gabungan-lanjutkan-pemadaman-karhutla-di-taman-nasional-way-kambas and https://nu.or.id/nasional/karhutla-lahap-673-hektare-taman-nasional-way-kambas-lampung-bxLwg). However, as of November 2026, neither BNPB nor the Ministry of Forestry has released valid figures on the impact of the forest fires in TNWK; according to information the researcher has gathered, the actual data on this impact will be published in early 2027.

Various national media reports also highlight that forest fire incidents in conservation areas often trigger widespread public concern, particularly regarding safety, smoke haze disruption, and the loss of travel comfort. Such coverage can influence public opinion and prospective tourists' vigilance when planning a trip to tourist destinations, especially Way Kambas National Park.

According to Andrade et al. (2026), risk perception is a prospective tourist's subjective assessment of the likelihood and severity of losses that may occur during a trip; this assessment covers physical, health, psychological, and financial risks as well as anxiety while traveling to the tourist destination. Various other studies state that, in the context of tourism crisis management, intense negative media coverage can create a high risk perception in prospective tourists' minds (Sihombing et al., 2021). This risk perception covers physical, psychological, and financial concerns if they insist on visiting an area that has recently experienced an environmental disaster (Prasetyo et al., 2025). If it is not anticipated promptly through appropriate recovery communication strategies and destination image management, such high risk perception can lead to a drastic decline in tourists' visit intention (Utama et al., 2024). Therefore, tourism managers are required to use digital-based recovery promotion strategies to effectively restore public (tourist) trust (Manan et al., 2025; Harefa, 2025).

Previous studies can be grouped into three. First, a systematic review of forest fires and tourism reports that fires can reduce visits to and the attractiveness of a destination, with much of the evidence coming from Southern Europe, while research on visitors' risk perception in protected areas remains scarce (Andrade et al., 2026). Second, a study of disaster-prone coastal destinations in Indonesia positions destination image and risk perception as determinants of revisit intention, but the threat studied is a tsunami, not forest fires (Rahmafitria et al., 2024). Third, a post-disaster study in Japan positions destination image as the mediator between perceived risk and revisit intention (Chew & Jahari, 2014), so the mediating role in that model is held by destination image, not risk perception. From this review, the author has not found a study that tests risk perception as a mediator of the effects of forest fires and destination image on visit intention in a national park in Indonesia; this statement is limited to the author's literature search.

Although a number of studies have extensively discussed tourism recovery after conventional disasters, research that specifically examines the mediating role of risk perception in the impact of forest fires in conservation areas such as Way Kambas National Park remains very limited. Based on this empirical gap, this study aims to test (1) the effects of awareness of forest fire incidents and of destination image on risk perception and visit intention, and (2) the mediating role of risk perception in both relationships among TNWK visitors. Its contribution is empirical and limited: preliminary evidence from one national park, with a small, non-random sample, which can serve as a point of comparison for subsequent studies.

RESEARCH METHODS

Conceptual Framework

The development of a conceptual framework aims to explain the structure of relationships among variables in a study. Referring to the concept put forward by Sugiyono (2026), a conceptual framework is a conceptual synthesis that links theoretical review with the key variables at the core of the research problem. The visualization of the conceptual framework in this study is presented in Figure 1.

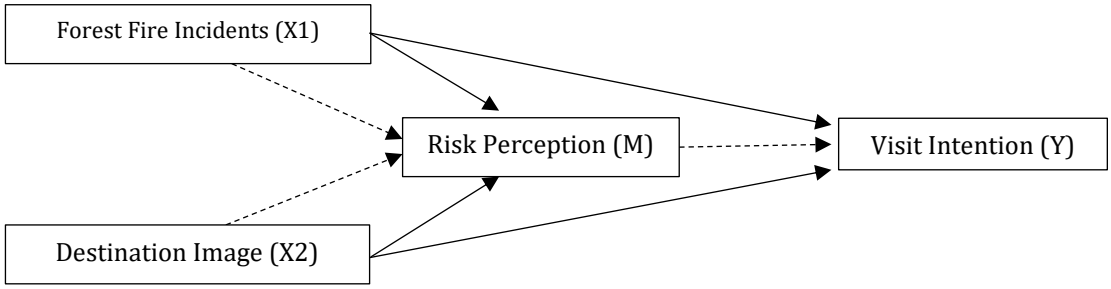


Figure 1. Research Framework

Operationalization of Variables

The variables in this study are defined conceptually to ensure that the direction of measurement is accurate and consistent with the theoretical model. The independent variables in this study are Forest Fire Incidents (X1) and Destination Image (X2), with Risk Perception (M) as the mediating variable and Visit Intention as the dependent variable. The definitions, indicators, reference periods, and score directions of each variable are shown in Table 4 below.

Table 4. Operationalization of Variables

Variable	Operational Definition	Indicators and Questionnaire Items	Score Direction and Reference Period	Item Source
Forest Fire Incidents (X1)	Respondents' awareness and perception of the frequency, information, and impact of forest fire incidents in the Way Kambas National Park (TNWK) area in 2026.	**X1.1:** I know information about forest fire incidents in TNWK throughout 2026 through mass/social media. **X1.2:** Forest fires in TNWK have a harmful impact on the sustainability of the ecosystem and the habitat of protected wildlife. **X1.3:** News coverage of forest fires makes me aware of the potential threats in the area.	**High score =** Higher awareness/perception of the incidents. **Reference period:** Forest fire incidents in TNWK over the past 1 year (2026).	Adapted from studies on environmental crisis management and tourism: Andrade et al. (2026); Sihombing et al. (2021).
Destination Image (X2)	Respondents' beliefs, overall impressions, and cognitive and affective evaluation of TNWK as an attractive conservation ecotourism destination.	**X2.1:** TNWK has a unique appeal as a conservation center for Sumatran elephants and rhinos. **X2.2:** The environment and natural landscape in TNWK generally remain beautiful and worth visiting. **X2.3:** The management	**High score** = The destination image is perceived as more positive. **Reference period:** Overall impression during or after the visit to TNWK.	Adapted from the tourism destination image evaluation framework: Rahmafitria et al. (2024); Husna & Novita (2020); Marcelina et al. (2018).

Variable	Operational Definition	Indicators and Questionnaire Items	Score Direction and Reference Period	Item Source
		and tourism facilities in TNWK give me a positive impression.		
Risk Perception (M)	Respondents' subjective assessment of the likelihood, uncertainty, and severity of physical, health, or psychological harm when visiting TNWK.	**M.1:** I am worried about potential health problems (such as smoke haze) if I visit TNWK at present. **M.2:** I feel there is a physical safety risk for visitors due to forest fire incidents in the conservation area. **M.3:** Visiting TNWK at present makes me anxious about travel discomfort (*Favorable* item/risk item).	**High score =** Higher perceived risk. **Reference period:** Risk assessment when planning a post-fire visit.	Adapted from risk psychology and crisis tourism theory: Andrade et al. (2026); Prasetyo et al. (2025); Utama et al. (2024); Sihombing et al. (2021).
Visit Intention (Y)	Respondents' intention or behavioral tendency to plan a revisit to Way Kambas National Park in the future.	**Y.1:** I have a strong desire to revisit TNWK in the near future. **Y.2:** I will make TNWK my top choice for my next nature tourism destination. **Y.3:** I intend to recommend a visit to TNWK to other people or relatives.	**High score =** Stronger visit intention. **Reference period:** Visit plans within the next 6 months to 1 year.	Adapted from the *Theory of Planned Behavior* and the ecotourism context: Manan et al. (2025); Harefa (2025); Rahmafitria et al. (2024).

Research Hypotheses

Based on the conceptual framework and the operationalization of variables, the relationships among variables are tested both directly and indirectly. This study tests direct paths evaluating the effects of Forest Fire Incidents (X1) and Destination Image (X2) on Risk Perception (M) and Tourist Visit Intention (Y). The indirect paths, meanwhile, test the role of Risk Perception (M) as a mediator bridging the effect of the exogenous variables on Tourist Visit Intention (Y). The hypotheses in this study are built on three foundations. Risk perception is understood as a subjective assessment of the likelihood, severity, and loss (Andrade et al., 2026). In the theory of planned behavior, extended with risk perception, risk perception influences travel intention both directly and through attitude (Teng et al., 2025); in this case, attitude is initiated by destination image, and risk assessment by risk perception. Post-disaster studies position risk and destination image as determinants of revisit intention (Harefa, 2025; Sihombing et al., 2021). The research hypotheses are formulated as follows:

H1: Awareness of Forest Fire Incidents (X1) has a positive effect on Risk Perception (M);

H2: Awareness of Forest Fire Incidents (X1) has a negative effect on Visit Intention (Y);

H3: Destination Image (X2) has a negative effect on Risk Perception (M);

H4: Destination Image (X2) has a positive effect on Visit Intention (Y);

H5: Risk Perception (M) has a negative effect on Visit Intention (Y);

H6: Risk Perception (M) mediates the effect of X1 on (Y) with a negative indirect effect;

H7: Risk Perception (M) mediates the effect of X2 on (Y) with a positive indirect effect.

A hypothesis is considered supported if the coefficient is significant at the 5% level and in the expected direction. A coefficient that is significant but in the opposite direction is not counted as support.

Population, Sample, and Sampling

The population in this study is all tourists who have visited Way Kambas National Park (TNWK). Because the exact size of the population is unknown (infinite), the sample was determined using a non-probability sampling approach with a purposive sampling technique, that is, a technique for determining the sample based on certain considerations or criteria (Sugiyono, 2026). The inclusion criteria for determining the sample in this study were (a) respondents who had visited TNWK, (b) respondents aged at least 17 years, and (c) respondents who knew about the forest fire incidents that occurred in TNWK in 2026.

The sample size set in this study was 100 respondents. Based on the methodological guidelines for Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis by Hair et al. (2022), a minimum sample size of 100 respondents is adequate for testing a structural model with a moderate level of path complexity and meets the criteria for sufficient statistical power.

Instruments, Data Collection, and Data Analysis Techniques

The main data were primary data collected by distributing a questionnaire using a Likert scale (scale of 1–5) to respondents who met the sample inclusion criteria in this study, in order to measure respondents' perceptions of the variables of forest fire incidents, destination image, risk perception, and visit intention. As explained by Sugiyono (2026), a questionnaire is very appropriate when the population is large and spread over a wide area. The questionnaire in this study was developed by the author based on the data in Table 4 and was distributed online through Google Forms from September to October 2026. Respondents were considered eligible if they passed the screening question according to the sample inclusion criteria.

The collected data were analyzed using Partial Least Squares (PLS)-based Structural Equation Modeling (SEM). This method was chosen because it can analyze relationships among latent variables and is considered suitable for predictive and exploratory research (Hair et al., 2022).

RESULTS AND DISCUSSION

Results

The object of analysis in this study, Way Kambas National Park (TNWK), is one of the oldest and most important nature conservation areas in Indonesia, located in East Lampung Regency, Lampung Province. Historically, the area was first designated as a protection forest and wildlife sanctuary before officially becoming a national park. Ecologically, TNWK covers approximately 125,621.31 hectares, dominated by lowland forest, freshwater swamp forest, and riparian areas.

As a flagship conservation destination, TNWK is known nationally and internationally for its vital role in protecting various endangered wildlife species. The area contains an Elephant Training Center, which functions as a rehabilitation center and a facility for mitigating human–wildlife conflict, as well as the *Sumatran Rhino Sanctuary*, an important site for efforts to save the Sumatran rhino. Besides being a habitat for the Sumatran tiger and hundreds of rare bird species, TNWK has also been developed as a leading ecotourism destination that offers natural attractions and conservation education, while serving as a main driver of local economic growth in Lampung Province amid the various environmental management challenges it faces (Marcelina et al., 2018).







Figure 2. Way Kambas National Park

As a destination open to the public, perceptions of the service quality and physical condition of Way Kambas National Park can be observed through the record of tourist reviews on various online platforms. These evaluations and reviews from visitors give a real picture of the destination image and of their level of satisfaction during their visit.

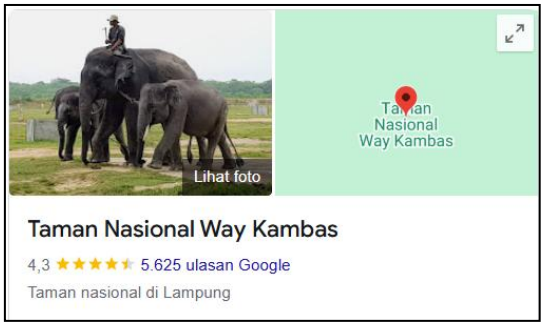


Figure 3. Google Reviews of Way Kambas National Park
Source: www.google.com

Public assessment of Way Kambas National Park on Google is good, with a rating of 4.3/5 from a total of 5,625 Google Maps user reviews. In addition, there are good reviews on other platforms such as TripAdvisor and Trip.com, shown below:

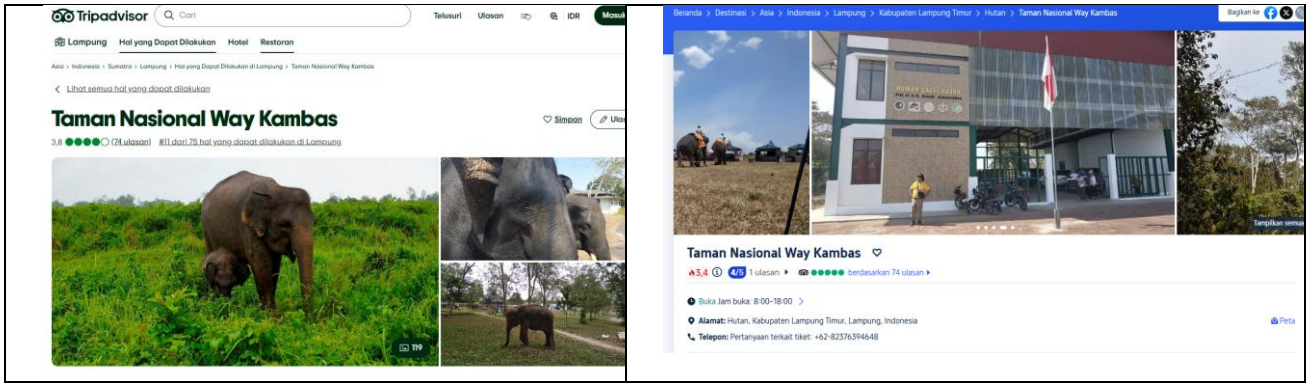


Figure 4. TripAdvisor and Trip.com Reviews of Way Kambas National Park

Reviews on TripAdvisor give an average rating of 3.8 from a total of 74 visitor reviews, placing Way Kambas National Park 11th out of 75 recommended tourist activities in Lampung Province.

The first analysis conducted was a descriptive analysis, which aims to describe the characteristics of the respondents and to give a general picture of respondents' perceptions of each research variable in the Way Kambas National Park conservation area. Next, validity and reliability tests were conducted to ensure that every indicator used in the questionnaire measures the research constructs accurately and consistently. This study also tested discriminant validity through the HTMT (*Heterotrait-Monotrait Ratio*) test and the Fornell-Larcker test to ensure

that each variable is truly distinct from the others in the research model. The next stage was the R-square (R^2) test, used to determine the extent to which the independent variables explain the dependent variable in the research model. The path coefficient test was conducted to identify the strength and direction of relationships among variables in the structural model. In addition, this study also conducted a mediation test to examine the role of tourist trust in mediating the relationship between destination image and digital promotion and the intention to visit Way Kambas National Park. Through this series of tests, the study aims to provide a comprehensive understanding of the relationships among variables in the research model of this nature tourism setting.

Table 5. Descriptive Analysis of Respondents

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	46	46%
	Female	54	54%
Age	< 20 Years	15	15%
	20-30 Years	35	35%
	31-40 Years	38	38%
	> 40 Years	12	12%
Occupation	Student	16	16%
	Private Employee	24	24%
	Entrepreneur	31	31%
	Civil Servant	14	14%
	Others	15	15%
Visitor Origin (Lampung Province)	Bandar Lampung	27	27%
	East Lampung	33	33%
	Pringsewu	10	10%
	North Lampung	15	15%
	Tanggamus	5	5%
	Others	10	10%
Total Respondents		100	100%

Source : Processed Data (2026)

The respondent characteristics table above gives an overview of the profile of the tourists who made up the sample in this study, with a total of 100 respondents. By gender, respondents were dominated by women, at 54 respondents (54%), while men numbered 46 respondents (46%). By age, the 31–40 age group accounted for the largest proportion with 38 respondents (38%), followed by those aged 20–30 with 35 respondents (35%), the group under 20 years with 15 respondents (15%), and respondents over 40 years with 12 respondents (12%). This shows that most visitors are in the productive adult age group, which has a high interest in nature conservation tourism.

By occupation, most respondents were entrepreneurs, at 31 respondents (31%), followed by private employees at 24 respondents (24%), students and the other category at 16 and 15 respondents (16% and 15%), respectively, and civil servants at 14 respondents (14%). By visitors' origin within Lampung Province, most respondents came from East Lampung with 33 respondents (33%), followed by Bandar Lampung with 27 respondents (27%), North Lampung and other regions with 15 and 10 respondents (15% and 10%), respectively, Pringsewu with 10 respondents (10%), and Tanggamus with 5 respondents (5%). This indicates that most visitors come from the nearest surrounding regencies and the provincial capital, which shows that geographical proximity and accessibility play an important role in the level of tourist visits.

All respondents were visitors who had previously come to TNWK; therefore, Visit Intention is read as Revisit Intention, and the results do not reflect prospective visitors who have never visited or tourists from outside Lampung Province.

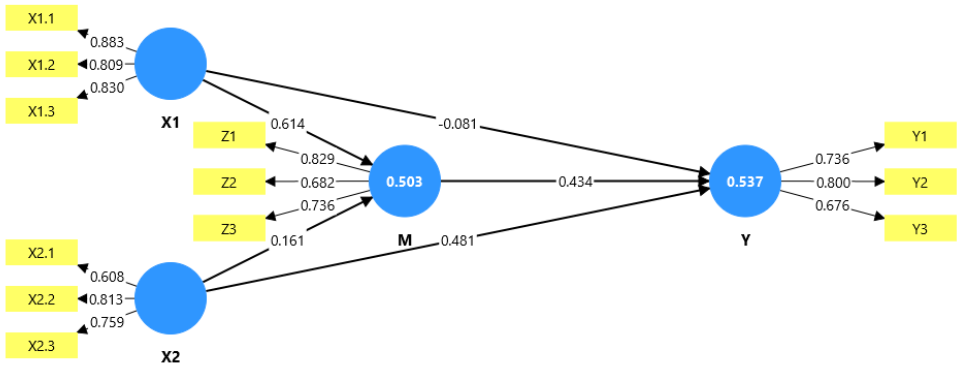


Figure 5. Validity and Reliability Test

Table 6. Validity and Reliability Tests

Code	Outer loading	Cronbach's Alpha	Average Variance Extracted (AVE)	Information
X1.1	0.883	0.793	0.708	Valid and Reliable
X1.2	0.809			Valid and Reliable
X1.3	0.830			Valid and Reliable
X2.1	0.708	0.569	0.536	Valid; Reliable and Moderate
X2.2	0.813			Valid; Reliable and Moderate
X2.3	0.759			Valid; Reliable and Moderate
Y.1	0.736	0.793	0.546	Valid and Reliable
Y.2	0.800			Valid and Reliable
Y.3	0.776			Valid and Reliable
M.1	0.829	0.611	0.565	Valid; Reliable and Moderate
M.2	0.782			Valid; Reliable and Moderate
M.3	0.736			Valid; Reliable and Moderate

Source : Smart PLS 4

Based on the outer model results presented in Table 6, all outer loadings are above the ideal threshold of 0.70, so they are considered to adequately represent their constructs. For Cronbach's alpha, most indicators and variables in this study are stated to have met the validity and reliability criteria. Although Cronbach's alpha for Destination Image (0.569) and Risk Perception (0.611) is below the ideal threshold of 0.70, the composite reliability of all constructs has met the minimum required for exploratory research (Hair et al., 2022), so it can be concluded that each indicator represents the research constructs well.

In addition, the evaluation of construct reliability shows satisfactory results. Cronbach's alpha for all variables is above the acceptable range, namely 0.793 for X1, 0.569 for X2, 0.793 for Y, and 0.611 for M. The Average Variance Extracted (AVE) of each variable also exceeds the minimum value of 0.50, namely 0.708 for X1, 0.536 for X2, 0.546 for Y, and 0.565 for M. These AVE values show that each variable can explain more than 50% of the variance of its indicators, so all indicators and constructs are considered convergently valid. AVE does not indicate reliability; reliability is assessed separately in Table 7 below:

Table 7. Internal Consistency Reliability and Convergent Validity of the Constructs

Construct	Cronbach's α	Composite reliability (ρc)	AVE	α assessment
Forest fire incidents (X1)	0.793	0.823	0.708	≥ 0.70
Destination image (X2)	0.569	0.701	0.536	< 0.70 (below 0.60)
Visit Intention (Y)	0.793	0.852	0.546	≥ 0.70
Risk perception (M)	0.611	0.739	0.565	< 0.70

Source: SmartPLS 4

Internal consistency reliability needs to be read more carefully than the initial claim that all constructs are reliable. Cronbach's alpha for X1 (0.793) and Y (0.793) meets the 0.70 threshold, whereas X2 (0.569) and M (0.611) fall below it; the alpha for X2 is even below 0.60. Alpha tends to be low for constructs with three indicators and assumes that all indicators are weighted equally, so composite reliability (ρc) is also reported (Hair et al., 2022). The ρc values for X2 and M are 0.701 and 0.739, assessed against the 0.70 threshold. Because the alpha of both constructs remains below 0.70, both are noted as limitations: greater measurement error can weaken or change the path coefficients involving X2 and M.

Table 8. Heterotrait-Monotrait Ratio (HTMT) Test

Code	M	X1	X2	Y
M				
X1	0.812			
X2	0,766	0,774		
Y	0.781	0,662	0.790	

Source: Smart PLS 4

Table 8 presents the results of the discriminant validity test using the Heterotrait-Monotrait Ratio (HTMT). HTMT values are used to evaluate whether the constructs in the model are clearly distinct from one another. Based on the test results, all HTMT values are below the required threshold (that is, below 0.85), which indicates that each construct in this study has adequate discriminant validity, with no problem of overlap between constructs (Hair et al., 2022).

Table 9. Fornell-Larcker Criterion Test

Code	M	X1	X2	Y
M	0.751	-	-	-
X1	0.696	0.841	-	-
X2	0.475	0.512	0.732	-
Y	0.607	0.468	0.646	0.739

Source: Smart PLS 4

Table 9 above shows the results of the discriminant validity test using the Fornell-Larcker criterion. Based on this evaluation, the square root of the *Average Variance Extracted* (AVE) for each construct, namely Risk Perception (0.751), Forest Fire Incidents (0.841), Destination Image (0.732), and Tourist Visit Intention (0.739), is greater in every case than the correlation between that construct and the other constructs in the model. This indicates that each construct has very good discriminant validity, in that the indicators of a construct represent their own construct better than they represent the other constructs (Hair et al., 2022).

Table 10. R-Square and Adjusted R-Square Test

Code	R-Square	R-Square Adjusted
M	0.503	0.493
Y	0.537	0.523

Source: Smart PLS 4

Based on the coefficient of determination (R-Square) test in Table 10, the R-Square for Risk Perception is 0.503, which shows that 50.3% of the variation in Risk Perception can be explained by Forest Fire Incidents and Destination Image. Meanwhile, the R-Square for Tourist Visit Intention is 0.537, which indicates that 53.7% of the variation in visit intention can be explained by the constructs in the model. These values reflect a moderate explanatory power of the structural model (Hair et al., 2022).

Direct and indirect path hypotheses were tested using a bootstrapping resampling procedure with 5,000 subsamples at the 5% significance level (alpha = 0.05), by evaluating path coefficients, t-statistics, p-values, and bias-corrected confidence intervals.

Table 11. Path Analysis and Mediation Test Results

Information	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T statistics (|O/STDEV|)	P values
M->Y	0.434	0.399	0.183	2.373	0.018
X1->M	0.614	0.616	0.093	6.606	<0.001
X1->Y	-0.081	-0.056	0.174	0.463	0.643
X2->M	0.161	0.172	0.093	1.720	0.086
X2->Y	0.481	0.506	0.107	4.511	<0.001
X1->M->Y	0.267	0.241	0.114	2.344	0.019
X2->M->Y	0.070	0.061	0.043	1.612	0.107

Source: Smart PLS 4

Table 11 presents the path coefficients from bootstrapping; p-values originally reported as 0.000 are reported as $p < 0.001$. Forest fire incidents (X1) have a positive and significant effect on risk perception (M) ($\beta = 0.614$; $t = 6.606$; $p < 0.001$), but no significant effect on visit intention (Y) ($\beta = -0.081$; $t = 0.463$; $p = 0.643$). Destination image (X2) has no significant effect on M ($\beta = 0.161$; $t = 1.720$; $p = 0.086$) and has a positive and significant effect on Y ($\beta = 0.481$; $t = 4.511$; $p < 0.001$). Risk perception (M) has a significant effect on Y with a positive coefficient ($\beta = 0.434$; $t = 2.373$; $p = 0.018$); this positive sign is opposite to the hypothesized negative direction.
The indirect effect X1→M→Y is 0.267 ($t = 2.344$; $p = 0.019$) and is significant, whereas the indirect effect X2→M→Y is 0.070 ($t = 1.612$; $p = 0.107$) and is not significant. The direct, indirect, and total effects are detailed in Table 12 below:

Table 12. Direct, Indirect, and Total Effects on Visit Intention

Path	Direct effect	Indirect effect	Total effec	Mediation type
X1 → Y	−0.081 (not significant	0,267 (p = 0,019)	0.186	Indirect-only mediation; the sign of the indirect effect is positive
X2 → Y	0,481 (p < 0,001)	0.070 (not significant)	0.551	No mediation (direct effect only)

Source: Smart PLS 4

On the X1→Y path, the direct effect is not significant while the indirect effect is significant; according to the criteria in Hair et al. (2022), this is classified as indirect-only mediation, often called full mediation. Two notes need to be added. First, the indirect effect is positive and the total effect (0.186) is also positive, so this mediation does not explain a decline in visit intention. Second, the direct and indirect effects have opposite signs; this may reflect a suppression effect or the influence of the high correlation between X1 and M (HTMT 0.812) and therefore needs to be confirmed with other data. On the X2→Y path, the direct effect is significant and the indirect effect is not significant, so there is no mediation.

Table 13. Summary of Hypothesis Testing

Hyp.	Path	Sign	β	t	p	95% CI	Decision
H1	X1 → M	+	0.614	6.60	< 0.00	[0.432; 0.765]	Supported
H2	X1 → Y	–	−0.08	0.46	0.643	[-0.391; 0.210	Not supported
H3	X2 → M	–	0.161	1.72	0.086	[-0.020; 0.342	Not supported
H4	X2 → Y	+	0.481	4.51	< 0.00	[0.271; 0.670]	Supported
H5	M → Y	–	0.434	2.37	0.018	[0.075; 0.750]	Not supported (significant, but in the positive direction)
H6	X1 → M → Y	–	0.267	2.34	0.019	[0.042; 0.510]	Not supported (significant, but in the positive direction)
H7	X2 → M → Y	+	0.070	1.61	0.107	[-0.015; 0.160	Not supported

Source: Smart PLS 4

Discussion

Based on the results of data analysis using Partial Least Squares (PLS)-based Structural Equation Modeling (SEM), the empirical findings of this study provide a comprehensive explanation of the relationships among forest fire incidents, destination image, risk perception, and visit intention at Way Kambas National Park (TNWK). A detailed discussion of each hypothesis-testing path is presented below.
Awareness of forest fire incidents (X1) is strongly associated with risk perception (M), so H1 is supported. Respondents who are more aware of the fires in TNWK judge the risk of visiting to be higher. This pattern is in line with risk perception theory, which positions information about hazards as a trigger of threat appraisal (Sihombing

et al., 2021; Andrade et al., 2026). Concerns about safety and smoke haze highlighted in the news are a plausible explanation, but the content of respondents' concerns was not measured in this study.

Awareness of fires has no direct effect on visit intention, so H2 is not supported; the coefficient is small and negative. With 100 respondents, this test can reliably detect only effects of about 0.25 and above, so smaller effects cannot be ruled out. This result may also be related to the characteristics of respondents who have visited before and are more familiar with conditions in the area, but this was not tested here.

Destination image (X2) is not significantly associated with risk perception, so H3 is not supported, but it is positively and significantly associated with visit intention, so H4 is supported. This pattern is in line with studies that position destination image as a determinant of tourists' behavioral intention (Rahmafitria et al., 2024; Manan et al., 2025). Online reviews on Google Maps (4.3 out of 5; 5,625 reviews) and TripAdvisor (3.8 out of 5; 74 reviews) give a picture of a fairly positive image of TNWK (Figures 3 and 4), but these reviews are not research data and were not used to test the hypotheses.

The findings on the mediating role of risk perception make an interesting theoretical contribution. The indirect path from forest fire incidents through risk perception to visit intention proved significant. Contrary to the common assumption that risk always suppresses intention negatively, the positive indirect path coefficient indicates that, for respondents who are past visitors, awareness of fire risk does not automatically reduce the intention to revisit. This can be explained by strong place attachment and by confidence in the ecosystem recovery efforts carried out by the national park managers. Therefore, future management strategies should focus on open mitigation of environmental crises, stronger digital communication for restoring the destination image, and public education to sustain conservation tourism in Way Kambas National Park.

CONCLUSION

The limitations of this study are: a small sample (n = 100) taken non-randomly; respondents who are only past visitors; alpha reliability of X2 and M below 0.70; measurement based on respondents' self-reports at a single point in time; the possibility of a coding-direction problem in the risk perception construct; and context data that are not specific to TNWK.

Future research could: (1) use a larger and more diverse sample, ideally with a sampling frame drawn from TNWK visitor ticket data so that random sampling is possible; (2) compare prospective visitors who have never visited with repeat visitors, for example through multigroup analysis; (3) add measurement items to improve the reliability of X2 and M and verify the coding direction of risk perception; (4) add other relevant constructs, such as trust in the managers, visit experience, and exposure to information on social media; and (5) use a longitudinal or experimental design to test causal direction.

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