

Monarch Butterfly Ecotourism Route in the municipality of Donato Guerra, State of Mexico, Mexico, 2021-2023

Ruta Ecoturística de la mariposa monarca en el municipio de Donato Guerra, Estado de México, México, 2021-2023

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Abstract

The Ecotourism Route was developed within the town of El Capulín, municipality of Donato Guerra, State of Mexico, Mexico; According to the National Institute of Statistics and Geography (INEGI, 2023), it is a locality with a high degree of marginalization. The Ecotourism Route begins from an ecotourism inn at the Monarch Butterfly Sanctuary, in the El Capulín ejido in Cerro Pelón, called Macheros (PN1. GCS: 19°21'51.76"N. 100°17'23.97"O. Elevation: 2,451 meters). The route continues until reaching the final point where the monarch butterfly hibernates (PN7. GCS: 19°23'18.31"N. 100°15'37.21"W. Elevation: 3279 meters). The intermediate points cover areas where the monarch butterfly lives on a large scale, where the sanctuaries of this species that exist in the municipality of Donato Guerra contribute to the economic benefits of the El Capulín town. Based on the above, the staging of an Ecotourism Route could increase the tourist flow in the region; and could contribute directly to the care of natural resources, being beneficial for the area.

On October 9, 1986, the Sanctuary was decreed as a protected natural area, because it serves as a hibernation and reproduction site for the monarch butterfly, and on November 10, 2000, it was declared a Biosphere Reserve by UNESCO (Governing Body of Protected Areas) (SEMARNAT, 2023). Visitors must respect nature with criteria for alternate trails for route regeneration. The objective of the project was to develop and trace an Ecotourism Route focused on the monarch butterfly species within the town of El Capulín, with the aim of generating an economic benefit for the local population, with which it could be possible to place the Biosphere Reserve as a site with ecotourism potential recognized worldwide. The methodology used was mixed: quantitative (surveys and statistical data), qualitative (focus groups are used), descriptive (the key elements of the project are described), using a socio-critical/reflexive critical paradigm (the individual constructs his or her reality), and from there transforms her as a reflective critical creative subject).

The results reflect the viability and profitability of the project (market study, market survey, interviews with locals, implementation of social media 5.0, pilot test of the route, financial study, among others); For this reason, it will be implemented in practice. The academic value is significant, and the practical implications will generate a regional economic benefit.

Marginalization, Ecoturism, Sanctuaries, Biosphere, Paradigm

Resumen

La Ruta Ecoturística se desarrolló dentro del poblado de El Capulín, municipio de Donato Guerra, Estado de México, México; Según el Instituto Nacional de Estadística y Geografía (INEGI, 2023) es una localidad con un alto grado de marginación. La Ruta Ecoturística inicia desde una posada ecoturística en el Santuario de la Mariposa monarca, en el ejido El Capulín en Cerro Pelón, llamado Macheros (PN1. GCS: 19°21'51.76"N. 100°17'23.97"O. Elevación: 2,451 metros). La ruta continúa hasta llegar al punto final donde hiberna la mariposa monarca (PN7. GCS: 19°23'18.31"N. 100°15'37.21"O. Elevación: 3279 metros). Los puntos intermedios abarcan zonas donde habita a gran escala la mariposa monarca, donde los santuarios de esta especie que existen en el municipio de Donato Guerra contribuyen a los beneficios económicos del poblado El Capulín. Con base en lo anterior, la realización de una Ruta Ecoturística podría incrementar el flujo turístico en la región; y podría contribuir directamente al cuidado de los recursos naturales, siendo beneficioso para la zona.

El 9 de octubre de 1986 el Santuario fue decretado como área natural protegida, debido a que sirve como sitio de hibernación y reproducción de la mariposa monarca, y el 10 de noviembre de 2000 fue declarado Reserva de la Biosfera por la UNESCO (Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura) (SEMARNAT, 2023). Los visitantes deberán respetar la naturaleza con criterios de senderos alternos para la regeneración de rutas. El objetivo del proyecto fue desarrollar y trazar una Ruta Ecoturística enfocada en las especies de mariposa monarca dentro del poblado de El Capulín, con el objetivo de generar un beneficio económico a la población local, con lo cual se podría ubicar la Reserva de la Biosfera. como un sitio con potencial ecoturístico reconocido a nivel mundial. La metodología utilizada fue mixta: cuantitativa (encuestas y datos estadísticos), cualitativa (se utilizan grupos focales), descriptiva (se describen los elementos clave del proyecto), utilizando un paradigma crítico sociocrítico/reflexivo (el individuo construye su realidad)., y a partir de ahí la transforma como sujeto creativo crítico reflexivo).

Los resultados reflejan la viabilidad y rentabilidad del proyecto (estudio de mercado, sondeo de mercado, entrevistas a locales, implementación de social media 5.0, prueba piloto de la ruta, estudio financiero, entre otros); Por este motivo se implementará en la práctica. El valor académico es significativo y las implicaciones prácticas generarán un beneficio económico regional.

Marginalización, Ecoturismo, Santuarios, Biosfera, Paradigma

Introduction

The subsequent research, called: "Ecotourism Route of the monarch butterfly in the municipality of Donato Guerra, State of Mexico, Mexico 2021-2023"; has as its main objective the mapping, delimitation and development of the Ecotourism Route with the Global Positioning System (GPS), which is carried out manually. It is worth mentioning that the State of Mexico is rich in fauna diversity in general, and specifically the monarch butterfly is a recurrent animal of the same, it travels more than ten thousand kilometers from Canada to the Oyamel forests of the State of Michoacán de Ocampo and Mexico, an area considered a Natural World Heritage Site.

For the execution of the field research it was planned to make a tour through the areas where the species lives, which can be done by walking or horseback riding to access remote areas, with the objective of marking strategic points for the design of the Ecotourism Route of the monarch butterfly, in which the outstanding areas of the area are indicated, which will later be indicated as tourist attractions included in the route.

It is important to point out that the Ecotourism Route to be implemented is integrated by three circuits: A, B and C; which are distributed strategically through the total area of the ejido El Capulín, with respect to this, each one will contemplate different attractions previously established, for the design of each one of the circuits to be carried out, it will be indispensable the study of the zone, combining the theoretical information with which it is counted together with the practice, in such a way that each one fits and represents the least possible impact to the natural spaces on which it will be developed.

In order to gather concrete and assertive information, it is contemplated to obtain it through direct consultation with local people, including adults, mainly because they are the ones who have more knowledge about the area of the ejido El Capulín, and consequently the background of the presence of the monarch butterfly in the area, as well as the creation of the National Sanctuary of the monarch butterfly.

The purpose of the Ecotourism Route project is to generate economic income for the local populations in the municipality of Donato Guerra, State of Mexico, Mexico; through the promotion of ecotourism activities contemplated in the circuits established in the design of the route; at the same time, part of the income will be used to improve the National Sanctuary of the monarch butterfly, with the idea of maintaining in optimal conditions everything related to the sanctuary.

Promoting small businesses for the local population is an opportunity resulting from the implementation of the Ecotourism Route, as is participating in the development of the operation of the Monarch Butterfly National Sanctuary.

The research contains positive and negative aspects for the monarch butterfly species (*Danaus plexippus*), so the methodology to be implemented should comply with what is necessary to ensure that the impact on the species' environment is not negative, so that the tourist attraction can be used in a sustainable manner.

We plan to conduct surveys within the Ejido El Capulín, municipality of Donato Guerra, applied to both local people and tourists who frequent the area, these will be conducted in order to know what the tourist's expectations are when visiting the National Sanctuary of the monarch butterfly, for example: price standards they are willing to offer for services; the activities of interest of their preference, such as horseback riding, biking, hiking, flora and fauna observation, handicraft workshops, among others; the availability of time they wish to invest in the tour, among other variables.

Development

Justification

The monarch butterfly is a transcendental topic, mainly because this species travels thousands of kilometers from Canada to the oyameles of the State of Michoacán and the State of Mexico, being the National Sanctuaries of the monarch butterfly one of its potential destinations.

This project seeks to raise awareness among society in general about the importance of the monarch butterfly species (*Danaus plexippus*), and the consequences that the alteration of the natural space where they spend part of their life cycle represents for this species. Specifically, the issue of clandestine logging in the region and the intentional burning of forests to incorporate land used for the cultivation of Hass avocado (*Persea americana*).

The project was chosen mainly because of the benefits it represents, among which is the generation of economic income for the local populations in the municipality of Donato Guerra, State of Mexico, Mexico. Through the promotion of ecotourism activities contemplated in the circuits established in the design of the same, promoting a culture of environmental conservation and preservation of the environment where the monarch butterfly species develops (which comes to be exploited as a tourist product, sometimes to the extent that it lacks concern for the damage that is caused, in order to generate a significant economic revenue, but without addressing the needs that this living being requires; The conservation of the monarch butterfly species contributes to the use of natural resources, as long as it is sustainable.)

Another reason for the creation of this Ecotourism Route is that nowadays people are looking for different places, to be in contact with nature, pleasant; that offer attractive experiences with the environment, with tranquility, places where the attention is personalized.

Objectives

The main objective of the project is to develop and trace an Ecotourism Route focused on the monarch butterfly species within the town of El Capulín; in order to generate an economic benefit for the local population, thus positioning the Biosphere Reserve as a site with ecotourism potential recognized worldwide. It is important to highlight the basic objectives in order to achieve the main one: to manually map the ecotourism route using a Global Positioning System (GPS) to identify where the monarch butterfly species is most abundant. Conduct soil and space studies to identify whether the Ecotourism Route to be implemented is suitable for development in the area, seeking sustainable alternatives to avoid a negative impact on the natural environment. Another objective has been to conduct a market survey to determine the feasibility and profitability of the project, with a delimited and defined market segment, as well as a sampling with high levels of confidence and low margins of error. A market survey to ascertain the impressions close to home.

Along the same lines, provide training to local people as a strategy for the development of the Ecotourism Route, in order to provide them with jobs. To inform local populations about how the Ecotourism Route will be developed, in order to avoid misinterpretations that could affect the project. For the purpose of generating an influx of tourists to the route, a Social media 5.0 (Facebook Ads, Instagram Ads and Google Ads), as a tourist product of the municipality of Donato Guerra, State of Mexico, Mexico.

Theoretical Framework

The monarch butterfly (Danaus plexippus) is an insect that has attracted enormous attention in recent decades, due to the discovery of its migratory routes and hibernation sites called "sanctuaries". In Mexico, the largest monarch butterfly Sanctuaries in the world have been registered (Reserva de la Biosfera mariposa 2010), which has led to notable tourist attraction and, presumably, economic benefits for the region (Cortez-Madriral, García-González, & Guzmán- Larralde, 2014).

Although monarch butterflies are native to the American continent, they have dispersed to different parts of the world, arousing the attention of onlookers to such an interesting migration process, currently remains one of the most admired insect species both for its beauty and its biological capacity, however, there are few studies focused on this species.

Sanctuaries. Since 1986, areas known as monarch butterfly sanctuaries have been established (RBMM Program, 2001). In the State of Mexico they are distributed in the municipalities of Temascalcingo, San Felipe del Progreso, Donato Guerra and Villa de Allende; in Michoacán, in the districts of Contepec, Senguio, Angangueo, Zitácuaro, Aporo and Ocampo (Esquivel-Ríos et al., 2011); in the latter is located El Rosario Sanctuary, one of the sanctuaries that registers the greatest tourist influx but also problems such as illegal logging, inadequate forest exploitation, and loss of flora and fauna, although a wide range of institutions participate in its conservation, exploitation, and development of tourist activity (Esquivel-Ríos, Cruz-Jiménez, Cadena-Inostroza, & Zizumbo-Villarreal, 2014).

Sanctuaries at the national level are sites where the monarch butterfly species is protected from various threats; there are several of these sanctuaries located especially in the State of Mexico and the State of Michoacán. El Rosario Sanctuary has the same problems as El Capulín Sanctuary: illegal logging, inadequate forest use, and loss of flora and fauna. It appears that this is a recurrent problem in the other sanctuaries, but it is particularly prevalent in El Capulín Sanctuary and El Rosario Sanctuary.

Ecotourism Route. is one that takes place in a specific geographic space, where the displacement is focused on an event or phenomenon, it addresses natural aspects of the space where it takes place (Luyz, 2017). The implementation of Ecotourism Routes is chosen because they allow the development of the mobility of spectators, without leaving aside the care and preservation of the natural environment where they are developed, the design of these is focused on the attractions that the space has. It is important to consider the type of route to be followed, in relation to the attractions that are available, to ensure that as much use as possible is made of the area on which it is carried out; in consideration of this it is essential to have delimited the points of attention on which it will be focused. The layout of the Ecotourism Route must be carried out and subsequently, to verify if it is indeed marketable or not.

The Tourist Routes allow us to determine the points to which the visitors will arrive, as well as to emphasize the representative tourist attractions of the site, in such a way, that allows to know each one of them, achieving the advantage of this.

The design of a Tourist Route. recognizes that it must first be based on its construction, taking into account the available resources and subsequently the conception of its commercialization, in this sense it considers the following phases: establish the objective pursued with its creation; specify which are the priorities to begin its design; identify through studies the acceptance or not of the tourist demand on the product, once it has been introduced in the market, and from its results, establish the strategies for its implementation and finally, at the same time that travelers arrive to the route, the information received must be analyzed to adapt them to the needs of the tourists. (Luyz, 2017).

It is important to consider the type of route to be carried out, this in relation to the attractions that are available, to ensure that the area on which it is carried out is taken advantage of as much as possible, in consideration of this it is essential to delimit the points of attention on which it will be focused. The layout of the Ecotourism Route must be carried out and subsequently, to verify if it is indeed marketable or not.

Marketing of the Tourist Route. in this process several elements should be considered such as: framing the itinerary from beginning to end with all the information that the tourist needs to make the journey without difficulty, so it should include signage along the entire route that allows the tourist to know how the route is developed. Likewise, the itinerary must include a varied communication network that provides the tourist with the possibility of moving easily. Finally, it must contain concrete elements that distinguish it from others, representing a great attraction for the tourist (Sanchez, 2014).

To achieve adequate marketing, the first thing to do is to analyze the demand that the product possesses, in the specific case of the municipality of Donato Guerra, State of Mexico, Mexico. The main focus is on determining the behavior of the tourist flow due to the natural protected areas that protect the monarch butterfly species, which is why it is necessary to design and define what it is intended to offer, that is, the routes to be implemented in the area should contemplate the attractions of the place, in order to capture the attention of people in general, thus motivating the development of tourism.

Methodology

The methodology used was mixed: quantitative (surveys and statistical data), qualitative (focus groups are used), descriptive (the project's actors are described); and it has a reflective sociocritical/critical paradigm (the individual constructs his reality, and from it transforms it as a reflective critical creative subject).

A quantitative research was carried out, in which a series of surveys were applied to inhabitants of the communities of the ejido El Capulín; and in this way it was possible to obtain knowledge about the style of work that the inhabitants carry out. Each survey has been designed with ten questions related to the interest that the project requires: price of the services, the feasible way to travel the route, the determined time, and also to calculate the feasible profit for both guides and tourists who visit the area. In addition to that, in the field research the students made a tour of the different trails, and in this way the appropriate trail for tourists was established, and alternative trails for environmental care to be applied later. It is intended that by the middle of the year 2023 the first Ecotourism Route of the monarch butterfly will be carried out, taught by students of the Bachelor's Degree in Tourism of the Tecnológico de Estudios Superiores de Valle de Bravo; as well as a sample of ecotourism given by people from the rural community of the ejido El Capulín. Subsequently, in order to trace the route, the material required to identify the exact coordinates points and trace the route was Google Earth, digitally.

A market survey was carried out through Google forms, by means of Google drive, with a previously determined market segmentation; with a sample size calculated in a specific way; with a minimum margin of error and a significant level of confidence.

Also a market survey in Valle de Bravo as a general and representative universe. The methodology is quantitative due to the use of surveys, but not only this instrument is used to collect information, but there are others to be implemented such as: leading questionnaire, observation and interview. For the collection of information, the market research methodology of Miguel Santesmases Mestre is followed.

The research plan comprises a set of activities that start with the identification of the problem to be investigated, go through the definition, classification and measurement of the variables and their expression in a form or questionnaire, and end with the analysis of the data and the interpretation of the results. Specifically, it includes the following stages:

1. Identification of the problem to be investigated.
2. Definition of the research objectives.
3. Determination of the type of research design.
4. Specification of the study hypotheses.
5. Definition, classification and measurement of the study variables.
6. Selection of the sources of information.
7. Design of the questionnaire or form for data collection.
8. Design and selection of the sample (if applicable).
9. Data collection and processing.
10. Data analysis and interpretation of results.
11. Preparation of the research report (Mestre, 2014).

The methodology handled by Miguel Santesmases Mestre will provide the guideline of market surveys, which provides the project with the guideline to follow, if the project is profitable.

The qualitative methodology constituted essentially the "focus groups" that are carried out with local people, inherent to the route.

The descriptive methodology allowed the mapping of the Ecotourism Route, through the GPS System, manually. Subsequently, the data is captured in Google Earth and the route is marked at satellite level.

Use is made of social networks so that the route can be marketed through "free" content marketing, with the use of digital applications (Apps) and digital platforms; providing promotion to the route at reduced prices.

Results

It has been mentioned that the work of investigation that has as product a Thesis between, it is had according to chronogram of activities already, partial results of the same one that are presented next, being these the main ones:

1. Marking and tracing of the Ecotourism Route.
2. Conducting a market survey through Google forms by Google drive.
3. Conduct a market survey in the municipality of Donato Guerra, State of Mexico.
4. Collect data on the impressions of the people settled along the Ecotourism Route.
5. Conduct a Social Media 5.0 about the Ecotourism Route, as a tourism product of the municipality of Donato Guerra, State of Mexico, Mexico; highlighting the fundamental values that constitute it such as respect and care for the natural environment.
6. Pilot test of the implementation of the Monarch Butterfly Ecotourism Route in the municipality of Donato Guerra.

– Marking and layout of the Ecotourism Route.

Figure 1 Layout of the Monarch Butterfly Ecotourism Route in the municipality of Donato Guerra, State of Mexico, Mexico



Source. Own Elaboration using GPS and Google Earth

Figure 2 Qr. of the Monarch Butterfly Ecotourism Route



Source. Own Elaboration

The existing monarch butterfly sanctuaries in the municipality of Donato Guerra, State of Mexico, Mexico; for years have contributed to the economy of the ejido El Capulin, where they are located, since the inhabitants of this municipality are directly benefited by being providers of tourist services, offering tourists guided tours to this sanctuary.

The Monarch Butterfly Ecotourism Route took approximately five hours to complete, during which different points of interest were observed and then marked in a computer program called Google Earth.

The route begins at one of the ecotourism stops of the monarch butterfly sanctuary, in the ejido El Capulín in Cerro Pelón, called Macheros (point number 1). Coordinates: 19°21'51.76 "N. 100°17'23.97"O. Elevation: 2,451 meters). This route began at approximately 11:30 a.m., marking as "Start", in front of the gates of the Monarch Butterfly Ecotourism Park.

Another marking area at the second point of importance (point number 2). Coordinates: 19°22'08.41 "N. 100°16'57.24 "O. Elevation: 2,568 meters), since in this area there is a first deviation that should be marked at the time of the tour, and thus prevent detours by tourists; also in this area you can give an explanation to tourists about that not every year the monarch butterfly hibernates in the same area, and that is why sometimes another route is used to reach the "Hibernation Nucleus".

Follow the route until you reach the third point of importance (point number 3). Coordinates: 19°22'14.91 "N. 100°16'16.75 "O. Elevation: 2,637 meters); this was one of the main points, since it is one of the most important visual attractions that can be offered to the tourist; this place is called "El Ranchito", it is where you can observe the fall of the monarch butterfly arriving to the place where it will drink water.

Afterwards we have point number four (point number 4). Coordinates: 19°22'21.38 "N. 100°16'12.54 "O. Elevation: 2,684 meters).

– **Conduct a market survey through Google forms by Google drive**

The process starts with a simple data collection instrument (questionnaire), which is launched by different electronic means (WhatsApp, email, Facebook, Twitter, YouTube) to the given market segment.

The program tabulates and delivers graphs, the graphs must be interpreted and presented in a report, which is what is presented in this section:

– **Target market. Mexican Republic**

Market segmentation. Men and women between the ages of 20 and 60 years old, upper-middle (MA), lower-middle (MB), upper-low (BA) economic class, according to the Ministry of Economy (SE), any schooling, any nationality, who wish to go on an Ecotourism Route and who wish to experience contact with nature.

Sample size. It is based on the principle of equiprobability, which means that all individuals in the selected sample will have the same probability of being chosen. This ensures that the sample drawn will be representative. The sample size is calculated, knowing the size of the unsegmented population, directly from the home page of the National Institute of Statistics and Geography (INEGI).

Calculation of the sample size for the market segment, when the size of the segmented population is not known, or the size of the unsegmented population is known. In the intercensal survey 2015, conducted by the National Institute of Statistics and Geography, 126 million, 014 thousand, 024 inhabitants were counted in the Mexican Republic, but the size of the target market population is not known. With a margin of error of 3%. Without knowledge of the size of the segmented population. Confidence level of 95%. Sample size is: 1014 surveys.

– **Market survey report.**

A total of 1,014 surveys are conducted, with the following results:

1. Age ranges. 15-20 years old: 46.9%; 20-35 years old: 34.8%; 35 years old or older: 18.3%.
2. States of residence. State of Mexico, State of Morelos, State of Michoacán.
3. If an Ecotourism Route has been taken. No: 55.6% and yes: 44.4%.
4. If you have heard about the Monarch Butterfly Biosphere Sanctuary. Yes: 49%; no: 38.7%; maybe: 12.3%.
5. You know the species of the monarch butterfly. Yes: 61.6%; no: 38.4%.
6. You have visited a monarch butterfly sanctuary. Yes: 53.7%; no: 46.3%.
7. Would take a Monarch Butterfly Ecotourism Route. Yes: 54.2%; no: 27.1%; maybe: 18.7%.
8. Amount willing to pay for the Ecotourism Route: \$300.00: 44.6%; \$500.00: 40.5%; \$600.00: 14.9%.
9. You would like to receive information about monarch butterflies before starting the route. Yes: 53.7%; no: 28.6%; maybe: 17.7%.
10. Ecotourism route on horseback or hiking. Horseback riding: 37.6%; hiking: 62.4%.

– **To conduct a market survey in the municipality of Valle de Bravo, State of Mexico**

Calculation of the sample size for the market segment, when the size of the segmented population is not known, or the size of the unsegmented population is known. In the intercensal survey 2020, conducted by the National Institute of Statistics and Geography (INEGI), 61,599 inhabitants were counted, but the size of the target market population is not known.

With a margin of error of 10%. No knowledge of the size of the population. Confidence level of 95%. Sample size: 96 surveys.

The first step is to design the research instrument (leading questionnaire), which will complement the collection of information with interviews and observation. Tabulations and graphs are presented, and subsequently the final report (which is included in this work) is prepared.

– **Market survey report**

A total of 96 surveys were conducted, with the following results:

1. Age ranges. 15-20 years old: 17.3%; 20-35 years old: 42.9%; 35 years old or older: 39.8%.
2. If you have taken an Ecotourism Route. No 63.3% and yes 36.7%.

3. If you have heard of the Monarch Butterfly Biosphere Sanctuary. Yes: 54.1%; no: 36.7%; maybe: 9.2%.
4. Amount willing to pay for the Ecotourism Route. \$300.00: 60.2%; \$500.00: 32.7%; \$600.00: 7.1%.
5. Knows the species of the monarch butterfly. Yes: 51%; no: 34.7%; maybe: 14.3%.
6. Attractions that you would like the route to have. Monarch butterfly education workshop: 44.9%; recreational workshop: 41.8%; none: 13.3%.
7. Ecotourism route on horseback or hiking; horse: 42.9%; hiking: 57.1%.
8. Visited a monarch butterfly sanctuary. Yes: 32.7%; no: 67.3%.
9. Use of websites or use of traditional sites as advertising media. Web sites: 73.5%; traditional sites: 26.5%.
10. Means of payment. Box office 67.3%; website 32.7%.

– **To collect data on the impressions of the people settled along the Ecotourism Route**

Surveys were administered to the inhabitants of the five communities that make up the El Capulín ejido: Macheros, El Capulín, Llano Redondo de Zaragoza, Las Galeras, La Fundición and El Capulín. Forty surveys were conducted in the ejido and it was found that the communities benefit economically from the tourism that takes place there; however, this is temporary because the monarch butterfly season only lasts from November to March.

– **Survey report:**

1. Sex. Female: 47%; male: 53%.
2. Occupation. Student: 20%; farmer: 17%; employee: 12%; housewife: 15%; professional: 3%; other: 33%.
3. Age range. 18-25 years: 30%; 25-40 years: 50%; 40 years and older: 20%.
4. ¿Do you think that the promotion of the Monarch Butterfly Biosphere Reserve as a tourist attraction through an Ecotourism Route is good for the municipality? Yes: 95%; no: 5%.
5. Would you agree to participate in the development of the Ecotourism Route, either as a guide or as a protector of the natural area? Yes: 56%; no: 40%; maybe: 4%.
6. Price of the route. \$400.00: 14%; \$500.00: 47%; \$600.00: 36%; \$700.00: 3%.
7. Attractions you would like to have on the route. Monarch butterfly education workshop: 63%; recreational workshop: 33%; none: 4%.
8. What activities do you carry out to preserve the habitat of the monarch butterfly? Care, regulation and monitoring: 32%; do not throw garbage or water: 20%; do not damage nature: 10%; physical condition: 5%; workshops: 30%; none: 3%.

To carry out a Social Media 5.0 about the Ecotourism Route, as a tourist product of the municipality of Donato Guerra, State of Mexico, Mexico; highlighting the fundamental values that constitute it such as respect and care for the natural environment.

Traditional advertising versus digital advertising, a contemporary issue that delimits the success or failure of modern companies; although it is true that there are elements that condition such success or failure different from the subject of study; it could be mentioned that this issue is central, unequivocally significant, which governs our globalized markets.

Digital advertising has become the vortex of marketing 5.0; it has become the watershed of a generation focused on the search for information, rather than simply being a subject of advertising. The "Boomers" and "X" generations continue to make use of traditional advertising; the "Y" (Millennials) and "Z" (Centennials) generations make indiscriminate use of digital advertising. As can be seen, traditional advertising has an expiration date, given by the emerging generations.

"What does all this portend for the marketers of the future; it means that they will have to prepare to wage real marketing warfare. Increasingly, successful marketing campaigns will have to be approached like military campaigns" (Ries Chairman & Trout, 2006).

As mentioned (Ries & Trout, 1990), the essence of marketing is war; although it is not a literal war, it is a war that implies establishing defined and accurate strategies (as in war); in such a way that the presumed opponent can be defeated. Marketing is an element that today's companies must use "against" their "enemies"; an element that will give them commercial success or failure. A war that leads companies to use established marketing strategies, with the deployment of contemporary and complementary elements of the subject of study.

A Social media 5.0 or digital marketing campaign should be carried out to advertise the Ecotourism Route.

– **Pilot test of the implementation of the Monarch Butterfly Ecotourism Route in the municipality of Donato Guerra and generate improvements**

Development of the pilot test:

- a) Presentation.
- b) Introduction of the route.
- c) Development of the route.
- d) Conclusions.

a) Introduction

The guide should introduce himself before the group of tourists with his name, using expressions that generate confidence and familiarity in the clients.

He/she should make reference to his/her skills, professionalism and experience in order to offer initial guarantees to the client in terms of safety:

The guide will take advantage of this stage to ask the clients about their state of mind, the experiences they have had so far on their vacation, and the expectations they have about the excursion; in this way, he/she can go about creating a suitable climate to develop the interpretation activity.

b) Introduction of the tour

Before starting the tour, the guide should specify some behavioral guidelines to be followed by tourists. Subsequently, the guide proceeds to start the tour by briefly informing the itinerary.

c) Development of the tour

After briefly informing the itinerary, the guide can begin to develop the actions and interpretation of the environment. For the development of the tour, each of the points marked on the itinerary is explained and it is recommended to share different "Did you know that..." to tourists, thus making the tour more enjoyable.

d) Conclusions of the tour

To conclude the excursion, the guide will make a brief summary of the tour and begin the dialogue by asking the clients about their impressions of the monarch butterfly biosphere sanctuary, the places they liked the most, and the sensations they experienced. Finally, he will kindly ask tourists to fill out satisfaction surveys, asking them to be objective. He/she will say goodbye remembering their name, will thank them for their company and good behavior throughout the tour, and will encourage them to return and comment on their experiences with family and friends (traditional word-of-mouth advertising).

– **Analysis: pilot test of the implementation of the Monarch Butterfly Ecotourism Route in the municipality of Donato Guerra**

The pilot test was conducted from December 19 to 23, 2022. During the course of the week, three pilot tests were carried out, in which the failures within the service were analyzed and thus set the guidelines to improve the service.

Annexes

Annex 1. Entrance to the monarch butterfly sanctuary in the ejido El Capulín, in the municipality of Donato Guerra, State of Mexico, Mexico



Source. Own Elaboration

Annex 2 Layout of the Ecotourism Route of the monarch butterfly. "Llano 3 Gobernadores"



Source. Own Elaboration

Conclusions

This research project was based on different sources. The research addressed new issues within the tourism sector, since there is no Ecotourism Route in Donato Guerra, State of Mexico, Mexico. For this purpose, an investigation was carried out through different digital and printed media in order to gather information about the monarch butterfly, as well as the problems that have arisen during the last decades in the National Sanctuary of the monarch butterfly in this municipality of Donato Guerra, reaching the conclusion that the implementation of the Ecotourism Route allowed the promotion of new tourist services that allowed the attraction of tourism to the local community; with this activity it was possible to explain what happens in the place and encourage people to visit it, promoting the conservation of the habitat of the monarch butterfly species (*Danaus Plexippus*), composed by the fresh forests, populated by oyameles (*Abies religiosa*), pines (*Pinus spp.*) and pine-oak (*Pinus* and *Quercus*), acting as a safe habitat for the winter months.

The field research, which consisted of a tour through the areas where the species lives, provided that the activity can be done on foot or horseback for access to remote areas, this activity was the key point to mark strategic points for the design of the Ecotourism Route of the monarch butterfly, in which the outstanding areas of the area were indicated, These should be updated periodically and a logbook should be kept, as well as a report supported by photographic material on the environment. This will allow us to know if the natural space is suffering negative alterations, and if so, the route will be suspended temporarily or definitively, as well as a modification in its period of functionality.

For the development of the project it was important to consider all the aspects that could be key to the proper promotion of the route, in addition to other factors such as the review of the design of the route, the delimitation, mapping of the contemplated routes, analysis of the conditions of the environment, the acceptability and support it would have from the locals, and how it could become a key point to improve the economy of a group of people. We concluded by making arrangements for service providers to receive training to acquire theoretical and practical knowledge to conserve and promote the importance of the natural resources in the communities, as well as to acquire new strategies for tourism trends in the natural attractions and to strengthen their capacity to respond to environmental changes and be better prepared for the day to day, which generates greater personal confidence to develop in the field, which in this case is tourism. For this purpose, a script or speech was developed to facilitate the quality of service and greater communication between the guide and the tourist.

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