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## NATURE AND TOURISM ON TROPICAL AND SUBTROPICAL ISLANDS

**Abstract:** Tropical and subtropical islands have become an important tourist destination. The islands are concentrated in eight areas of the world. Evaluating the natural tourist potential of these areas, it seems that the most attractive are the islands of Mid and West Indian Ocean and the Polynesia. Yet, these locations are less popular than the theoretically less naturally attractive Caribbean, Mediterranean and East Atlantic islands.

This leads to the conclusion that nature is not the most important decisive factor in choosing tourist destinations, and “tourist paradises” are formed on islands regardless of their natural attributes. Tourists are mainly attracted by the “myth” of a tropical island, and the most important criterion is the distance from home and travel time.

**Key words:** tourism, tropical islands, nature.

Islands, and the tropical and subtropical islands in particular, have become lately one of the most important tourist destinations. The main obstacle in their tourist development, which was to distance from homes of potential clients, has been overcome with the introduction of long distance, large capacity passenger planes. Higher availability, accompanied by relatively cheaper accommodation and increasing wealth of the tourist, was further reinforced by portraying the islands as “tropical paradises”. The islands became the synonym of three S’s (sea, sun, sand) at first, and later, in early years of 2000’s, ten S’s: sand, scenery, sea, sun, surf, shopping, safety, sex, sincerity, and sociability (Crocombe, 2001, p. 139).

Nature is present in three areas: the sea (sea, surf), the land (sand, scenery), and the air (sun). Two first areas are very diverse.

This natural diversity of the islands results mostly from their origin (Jędrusik, 2002). The most often visited<sup>1</sup> tropical and subtropical islands include the following types:

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<sup>1</sup> Please note that most of the islands being made “tropical paradises” are small, with Cuba (100,000 km<sup>2</sup>) as the sole exception. Madagascar, Java, Sumatra, New Guinea are far less popular than Mauritius, Tenerife or Tahiti. G. Cazes, interpreting the ideas of Ch. Huetz de Lemps and M. Serviable, writes: “a tropical island, privileged target for expansion, is an easy unit of legal subordination, political control, economic exploitation and military defence. Hence, it is perceived as an “attractive” area. Even in modern times, a tourist is a bit of an explorer, coming to conquer the island” (Cazes, 1989, p. 40). This holds only for small islands.

1. volcanic islands young; (VY type)
2. volcanic islands old; (VO type)
3. volcanic islands old, surrounded by coral reef closing the lagoon (“almost atolls” or „semi-atolls”); (VA type)
4. atolls; (AT type)
5. atolls raised; (AR type)
6. continental origin islands – probably the remains after continent “shifts”; (CO type)
7. continental origin islands – coastal; (CL type)
8. calcareous islands in an “ocean arc – trench” system; (RT type)

Each of the above mentioned island types has distinct tourism potential and provides different possibilities to develop other forms of tourism.

The young volcanic islands usually do not have natural beaches with white sand. Lack of coral reefs limits the offer of water activities. Yet, the tourists are attracted by island’s inland (e.g. volcanic landscapes) and allow for all kinds of qualified tourism (climbing, trekking, cycling, paragliding, parachuting).

The old volcanic islands take tourism from the mainland to the coastline. Volcanic forms are heavily eroded, thus less attractive for the visitors. The islands are, however, surrounded by coral reefs, which facilitates water activities and sports (e.g. shallow- and deep-water diving). Most islands of this type feature white, sandy beaches.

With time and in favourable conditions an old volcanic island becomes entirely surrounded by a coral reef closing the lagoon. These are sometimes called “almost atolls” and provide the best tourist options related to the lagoon exploration as well as some inland tourism possibilities (e.g. climbing).

Tourism development on atolls, usually formed from strings of small, narrow, flat and sandy coral islands surrounding a lagoon, is almost entirely based on the exploration of inner lagoon (swimming, diving, fishing, sailing) and the inner string of islands (sandy beaches). The outer reef is rarely explored (rod-fishing for large fish), nor are the straits connecting the lagoon with an open ocean (diving in these waters is becoming increasingly popular – due to strong currents, this kind of activities may be treated as extreme sports).

Raised atolls do not offer much to the visitors. The inner lagoon does not exist or is too small and too polluted. There are no beaches and the sea is poorly available due to high cliffs.

Continental origin islands are quite diverse. Most are relatively high and diversely shaped, which facilitates trekking, cycling and climbing. These islands also mostly feature attractive sandy beaches and coral reefs – facilitating swimming, and exploration of underwater fauna and flora.

Different in this regard are the shelf islands of continental origin – mostly formed from sands carried by rivers or sea currents, relatively high calcareous islands or sunk elements of the neighbouring coastline. Their tourism potential is limited to the beaches and the beauty of the sea.

Finally let me also include the flat calcareous islands formed on edges of tectonic platforms. They are similar in shape to raised atolls, yet, not all have high cliffs. Flat shores are reach in attractive, white sand beaches. The cliffs provide excellent climbing possibilities and allow for some extreme sports (e.g. paragliding). Sometimes, coral reefs are formed nearby, increasing natural attractiveness of these islands.

Of course, the tourism potential of the tropical and subtropical islands also depends on the climate, yet, this factor seems to be less impartial than the natural characteristics resulting from the origin of islands. It is also worth noting that among the mentioned 10 “S’s” only one, the sun, relates to climate features. The attractiveness of “sea” and “surf” depends on water, and “sand” and “scenery” depend on land, relatively land and water.

Reducing the climate only to the number of sunny days seems to be too simplistic. Of course, from tourist’s point of view, the sun is important, but “climate safety” is of no less importance – thermal comfort and lack of dangerous climatic phenomena. The French climatologist, J.P. Besancenot, based on field studies and polls conducted among the tourists visiting the islands, enumerates the following features of a “climatic ideal” for tropical islands:

- safety requirement – i.e. no tropical cyclones; it is most secure where cyclones occur less frequently;
- beautiful weather requirement – i.e. the need for sun and no rain, at least for rainless weather in daytime. The annual number of sunny days should exceed 145 – 150;
- climatic comfort requirement – i.e. no need for long-term preparation of tourist’s organism for new climatic conditions (Besancenot, 1989, p. 17).

It is worth noting that periodically unfavourable climatic conditions do not eliminate an island as a tourist destination. They only impose certain preferable tourism seasons. In Winter the season peaks in the tropical islands located on the Northern hemisphere (drier conditions, hence more sun and less humidity, minimal risk of cyclones). In the Summer similar conditions are occur in the Southern hemisphere. Summer, Spring and Autumn, are the most appropriate periods to visit subtropical islands on the Northern hemisphere.

In Table 1, I tried to sum up the natural tourist potential on different types of tropical islands. Three zones, sea, land and air, have been limited to five “S’s”. I a source of individual assets I took the characteristics of individual island types. And hence, the “sea” stands for swimming, diving, sailing and fishing options. “Surf” stands for surfing options, “sand” for sunbathing, “scenery” for landscape exploration trekking, cycling and horse riding options. “Scenery” also includes the development options fro qualified tourism, e.g. climbing and paragliding. Finally the “sun” stands for the existence of weather conditions in line with the above “climate ideal” requirements. Symbols in the table (++, +, 0, -, —) indicate respectively: very high potential, high potential, neutral potential (benefits are balanced by dangers), small potential, no tourism potential.

Table 1.

Natural tourist potential on various types of tropical and subtropical islands  
and evaluation of their environmental attractiveness

Island type	Sea		Surf		Sand		Scenery		Sun		Total
	potential	pts.	potential	pts.	potential	pts.	potential	pts.	potential	pts.	pts.
VY	-	-1	++	2	—	-2	++	2	+	1	2
VO	+	1	0	0	++	2	0	0	+	1	4
VA	++	2	0	0	++	2	+	1	+	1	6
AT	++	2	0	0	++	2	-	-1	++ <sup>2</sup>	2	5
AR	—	-2	+	1	—	-2	+	1	+	1	-1
CO	+	1	+	1	+	1	+	1	+	1	5
CL	+	1	+	1	+	1	0	0	+	1	4
RT	+	1	0	0	++	2	0	0	+	1	4

The above table indicates that the highest natural tourist potential is on the “almost-atolls”, atolls and continental origin islands located far from the coast. Whereas in the case of “almost-atolls” and continental origin islands, the tourism potential is distributed quite symmetrically over the three zones (water, land and air), the main attractions of the atolls are only in “water and sun”. Tourism potential of old volcanic island, coastal islands of continental origin and the arc-trench system islands is mutually similar.

The least tourist potential is in raised atolls and young volcanic islands, nevertheless, the latter attract visitors with inland features. Having added the values for each island type (“+” stands for 1 point, and “-” for minus 1 point), it appears that the most attractive is VA (+6), then AT and CO (+5), and then respectively: VO, CL, RT (+4), VY (+2) and AR (-1).

#### TOURIST ISLAND AREAS AND THEIR GENETIC CHARACTERISTICS

Tropical and subtropical islands, which became a significant tourist destination, are concentrated in eight areas (Fig. 1). They are:

1. Caribbean area – mostly the islands of Lesser and Greater Antilles, Bahamas and in some distance, Bermudas;

<sup>2</sup> It has been decided to stress the high sun availability in the atolls. Their low absolute altitudes are no obstacle for humid oceanic air masses, no convection movements are formed, and in consequence the sky is quite rarely clouded (and it depends on atmospheric circulation). Moreover, the entire atoll usually features the same weather, whereas on other island types weather is much more diverse spatially (e.g. windward vs. leeward and climatic layers on high islands).

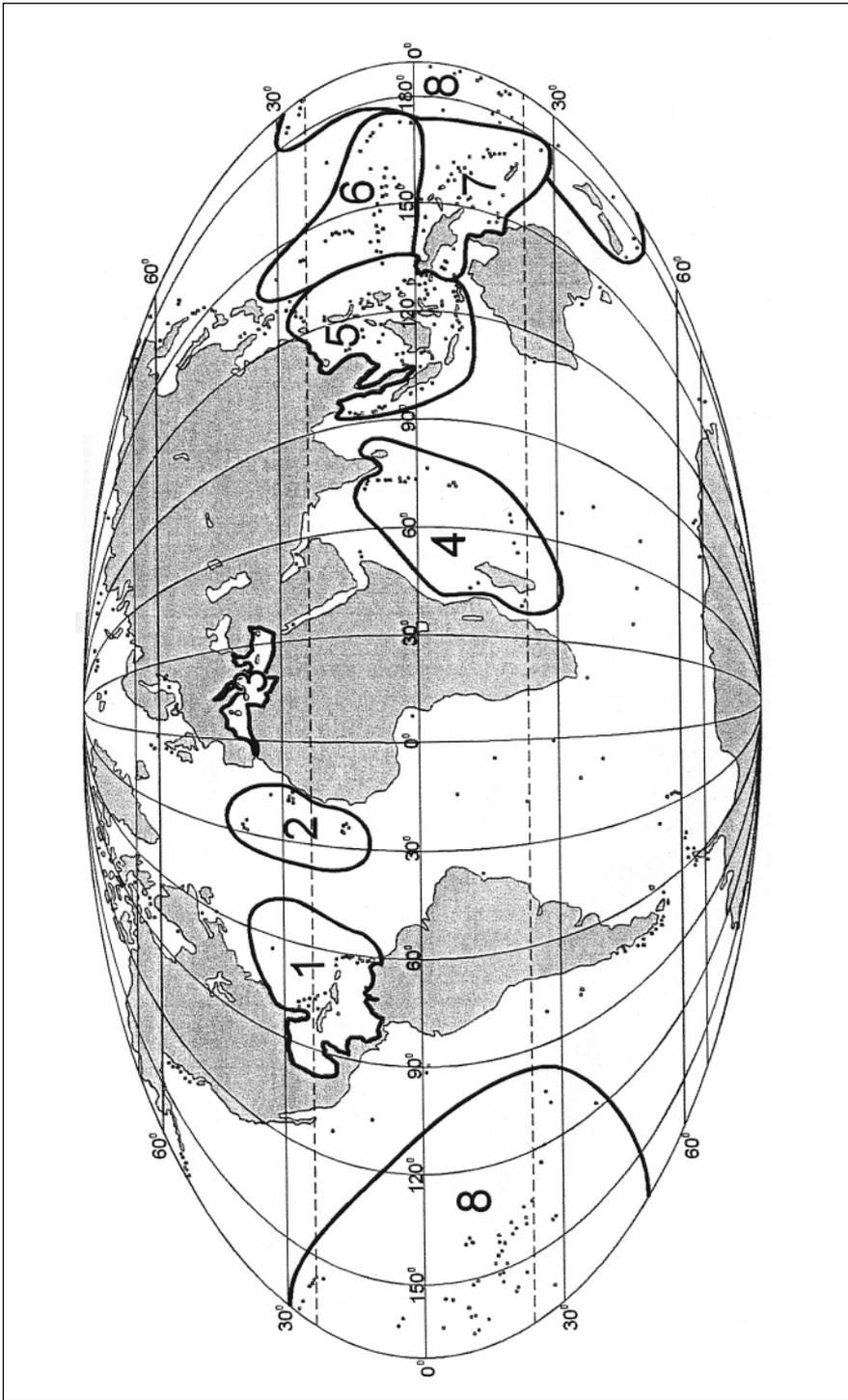


Fig. 1. Tourist island areas in the tropical and subtropical zone.

2. East Atlantic area – mainly the Canaries and Madera; the tourist meaning of the other islands on the western African coastline, including Cape Verde, Sao Tome and Principe is relatively small on a global scale;
3. Mediterranean area – from Balearics to Cyprus;
4. Mid and West Indian Ocean area – particularly: Sri Lanka, Maldives, Seychelles, Mascarene Islands, to a lesser degree Madagascar, Comoros (mainly Mayotte), Zanzibar and other islands close to African coastline;
5. Malaysian area – islands located on both sides of the Malayan Peninsula: on the Andaman Sea and on the South Chinese Sea, as well as islands from the archipelagos: Malaysian and Philippine, and Taiwan;
6. Micronesian area – from Palau to the Gilbert's Islands in Kiribati;
7. Melanesian area – from Papua New Guinea through Solomon's Islands, Vanuatu, New Caledonia, to Fiji;
8. Polynesian area – between New Zealand, Hawaii and Easter Island.

The Caribbean area features islands of different genetic origin. This is where you can frequently encounter the curve-trench system islands. The neighbouring lithosphere platform allowed formation of flat calcareous islands close to the volcanic islands. The most spectacular example are Grande-Terre and Basse-Terre in Guadeloupe. Flat calcareous islands (RT type) are located on the outer side of the Lesser Antilles curve and they are similar in nature to the Bahamas. The inner part of the curve is populated by volcanic islands. Islands of the Greater Antilles have a complicated genesis, as a result of which they combine elements of continental and volcanic islands. The Caribbean area almost completely lacks the “almost-atolls” (VA type), raised atolls (AR type), and high islands of continental origin (CO type).

The East Atlantic area is dominated by volcanic islands, mostly young (VY).

The Mediterranean area is rich in islands of continental origin (CL), which are the extensions of mountain ranges existing on the continent (e.g. the Balearics are the extension of the Betic Systems), or the result of flooding intermountain valleys (Adriatic Sea islands), or fragments of tectonic platforms (Malta). Some of the Mediterranean islands were formed as a result of volcanic eruptions (e.g. Liparian Islands, Western Sicily), so they may be counted as the VY or VO type islands (e.g. Thira). Unlike the islands located on lower latitudes, the Mediterranean islands have no coral reefs.

The Mid and West Indian Ocean area is very diverse. Besides Madagascar, which alone is an island-continent combining elements of VY, VO and CO type islands, the area features young volcanic islands (Réunion, Njazidja – Grande-Comore), old volcanic islands (Mauritius, Rodrigues, Mayotte, Nosibé), atolls (Maldives, Lakshdweep), and both types of continental origin islands (CO – the so called Granite Seychelles, CL – Zanzibar, Pemba, Lamu).

The Malaysian area currently features coastal islands of continental origin (including Koh Phuket, Koh Samui). Andamanes and Nicobares, as well

as the large islands of the Malayan Archipelago can be treated as the curve-trench system islands, and the majority of the Philippine Archipelago islands are both types of volcanic islands, with the advantage of young islands.

The Micronesian area is mostly composed of atolls (Marshall Islands, most of the Carolinian Islands). It also features raised atolls (Nauru), Northern Marianas with Guam and Palau, Yap and Pohnpei are old volcanic islands. The only active Micronesian volcano is located on the Pagan island.

The Melanesian area, besides an exceptionally vast New Guinea, features relatively big for the Oceania continental origin islands – CO and CL types (New Caledonia). It is also populated by young and old volcanic islands (Vanuatu and many Fiji Archipelago islands) and relatively scarce atolls (e.g. Beautemps-Beaupré near New Caledonia, Steward Islands in Solomon Islands and one of the biggest in the world – Ontong Java), including some raised (e.g. Rennel).

The Polynesian area is dominated by young volcanic islands (e.g. both islands of New Zealand, Hawaii, Tahiti, Rarotonga, Samoa) and old (e.g. Moorea), as well as atolls (e.g. Rangiroa in the Tuamotu Archipelago, Ellice Islands in Tuvalu). Currently, the area also features raised atolls (e.g. Makatea in French Polynesia) and “almost-atolls” (e.g. Bora Bora in French Polynesia and Aitutaki in Cook’s Islands).

Analysing individual areas for the genesis of islands contained therein, so also considering the natural tourist potential, the differences between them are quite apparent. It has been illustrated in Table 2. Symbols +, +, - correspond respectively to the occurrence of a given island type on a given area, rare occurrence, or no occurrence.

Table 2.

Types of islands in the tourist island areas

Area / Island type	Caribbean	East Atlantic	Mediterranean	Mid and West Indian Ocean	Malaysian	Micronesian	Melanesian	Polynesian
VY	+	+	+	+	+	+	+	+
VO	+	+	+	+	+	+	+	+
VA	-	-	-	-	-	-	-	+
AT	+	-	-	+	-	+	+	+
AR	-	-	-	-	-	+	+	+
CO	-	-	-	+	-	-	+	-
CL	+	-	+	+	+	+	+	-
RT	+	-	-	-	-	+	-	-

The above comparison indicates the most genetically diverse island areas are the Polynesian area and the Mid and West Indian Ocean area. Only Polynesia features the most attractive “almost-atolls” (VA type), yet it lacks islands of continental origin, particularly those with higher potential of the CO type islands. These, however, are raising attractiveness of the Indian Ocean. Interestingly, all areas (except Micronesia) are rich in young volcanic islands. Given the calculations for natural tourist potential of individual island types and contents of the above Table 2, we may try to define natural tourist potential for each of the tourist island areas (Table 3).

This means that the best natural environment conditions for tourism are on the Mid and West Indian Ocean area and in Polynesia. Slightly less attractive are Melanesia and the Caribbean Islands. Still less attractive are the mutually similar Mediterranean and Micronesian islands. Surprising small natural tourist potential is present in the East Atlantic islands, which mainly results from little genetic diversification and the consequential lack of coral reefs.

Table 3.

Natural potential of the island areas

Area / Island type	Caribbean	East Atlantic	Mediterranean	Mid and West Indian Ocean	Malaysian	Micronesian	Melanesian	Polynesian
VY	2	2	2	2	2	0 <sup>3</sup>	2	2
VO	0	0	4	4	0	4	4	4
VA	0	0	0	0	0	0	0	6
AT	5	0	0	5	0	5	5	5
AR	0	0	0	0	0	0 <sup>4</sup>	0	0
CO	0	0	0	5	0	0	5	0
CL	4	0	4	4	4	0	0	0
RT	4	0	0	0	4	0	0	0
Total	15	2	10	20	10	9	16	17

<sup>3</sup> For easier analysis, in case of sporadic occurrence of a given island type on a given area – 0 value has been assigned.

<sup>4</sup> Despite negative point value ascribed to this island type, its occurrence is irrelevant to the general evaluation of this area. The tourists simply omit this island.

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USE OF THE NATURAL TOURIST POTENTIAL  
ON ISLANDS OF VARIOUS TYPES

The above tourism island areas are profoundly diverse not only genetically but also in respect of the number of islands, area, and traffic load of tourists.

Although it is not the most important subject of the study, I wish to highlight the fact that of diverse preferences influencing the choice of tourist destination. One of the most important choice criteria is surely the distance and travel time<sup>5</sup> between home and holiday destination. Hence, this is probably the reason, why the Micronesian area has twice as much tourists each year than Malaysian and Polynesian (except New Zealand) together (Crocombe, 2001, p. 360), despite much less natural tourist potential.

The biggest tourism centres in Oceania are Guam, Northern Marianas, Palau in Micronesia, Hawaii and New Zealand in Polynesia. It is worth noting that these are all islands of volcanic origin.

Tracing the tourist routs it is quite apparent that tourism develops on islands of all types. The example of Micronesia would point to the advantage of volcanic islands over the atolls. Yet, it is contradicted by the tourist traffic load on Maldives, which are almost entirely composed of atolls. This indicates that, on the area of the Indian Ocean, they are equally attractive as Mauritius (old volcanic island) and almost as attractive as Réunion (young volcanic island). Meanwhile, Seychelles, mostly composed of granites (CO type) have been visited by three times less tourists, and the coastal continental island (CL type) – Zanzibar – four times less (Guébourg, 1999). The Mauritius-like Rodrigues (VO type) was far less popular than its larger neighbour. Meanwhile, the most frequently visited islands in the Malaysian area are Koh Phuket in Thailand (CL type).

The theoretically least attractive East Atlantic Canaries (only VY type) are annually visited by few million tourists.

Relatively least popular, for obvious reasons, are holidays on raised atolls, nevertheless, also in this case there are exceptions. the Nauru island (AR type), despite strongly adverse natural conditions resulting from both inaccessibility of beaches, lack of coral reefs, and an interior devastated with many years of phosphorites exploitation, still attracts the tourist with the so called “tax paradise”.

As you can see, the natural tourist potential becomes secondary from the point of view of tourist traffic. It seems that almost any type of island can be transformed into an important tourist centre. It an increasingly more common phenomenon in today’s world. Hence the actual picture of tourism

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<sup>5</sup> The mutual geographic location of both areas also seems important. The more beneficial is the meridian configuration, which saves the trouble with time shifts (jet-lag). Hence popularity of the Caribbean Islands among Americans and Canadians, Mascarene Islands and Seychelles among the Europeans, and Micronesia among the Japanese and Koreans.

development on tropical and subtropical islands is so different from theoretical assumptions. In many cases, the natural potential are not used to a sufficient degree. Yet, it is also sometimes conversely: islands with small potential become important tourist destinations.

#### SUMMARY

There exists a myth of tropical island in the world. It is difficult to say what attracts the tourists more – the myth or the islands. It seems that tourist paradises tend to get formed on tropical and subtropical islands practically regardless of their natural attributes. Besides extreme cases of raised atolls, popular tourist centres can be found on all island types. Perhaps this is the strength of the attractiveness of tourist paradises, allowing the tourists to “conquer” new kinds of lands, different from the others. Equally important as the “myth”, and at the same time much more important from the natural tourist potential is the distance from home. This is the main factor which attracts so many visitors to the East Atlantic, Micronesian, and Caribbean islands, and hinders tourism development on the Indian Ocean and Polynesian islands.

Shortages of nature can be masked by directing tourists’ attention only its certain aspects or by improving the nature and creating an almost artificial world based on existing environmental conditions.

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