

LANDSCAPES PROTECTION AND ECO-DEVELOPMENT: THE CASE STUDY OF GARGANO NATIONAL PARK, ITALY

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Abstract: Over the years, many interpretations have been given in terms of sustainable development and despite the different nuances in the concept interpretation, all the definitions tend to converge in a unique way within the environmental debate and everything related to the protection of territorial diversity. In these terms, even the Gargano National Park has moved in this direction, by promoting specific actions for the exploitation of natural resources and preparing the implementation of plans and programs for development of the territory. And it is just within the aspect of environmental sustainability that emerge the most critical points: the development of heterogeneous process has contributed to accentuate one of the main problems of the area – the road network – which, through a net shift of the tourists axis to the coast, has resulted in congestion of external road networks and lack in the internal networks. Therefore, although the tourism sector represents the largest source of actual and potential wealth of the Gargano's area, it doesn't yet reach the levels of development desirable relating to the major opportunities available over the region. In this work are highlighted lights and shadows of the development process that has characterized the last two decades about Gargano National Park, marking the aspects related to tourism, the promotion and development of the territory, highlighting the gaps and providing a key view about the possible construction of a real Local Tourist System.

Key words: landscape, carrying capacity, tourism attractiveness, Gargano, lack

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INTRODUCTION

The concepts of "Sustainability" and "Sustainable Development" tend to provide a better framework within which to plot the coordinates of the intervention guidelines with a growth pattern characterized by eco-friendly goals, which tend to preserve the natural environment. It is from decades that is told diffusely about the development, and is at least from thirty that are studied the interrelationships between the environment and

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development, searching the conditions that will allow the development to occur itself compatibly with the natural system (Cavuta, 2004).

In particular, in 1987, thanks to a document prepared by a special committee of the United Nations, the famous “Brundtland Report”, was officially established, in its most complete form, an expression known as “sustainable development”, defined on time as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. A significant contribution to its popularity was then given – in 1992 – by the Rio Earth Summit, during which much has been said and written on the subject of sustainable development. Even before the Brundtland Report, however, several other official documents told about sustainability; first of all, the United Nations Declaration on the Environment, held in Stockholm in 1972, from which emerges the concept of “eco-development”, and where it was solemnly established that man has the right to dispose of an environment “whose quality allows him to live with dignity and well-being” and at the same time the “solemn duty to protect and improve the environment for present and future generations”. In the 1972 was released the First Report of the Massachusetts Institute of Technology (MIT), at the Club of Rome, where, through the analysis of some key variables, such as pollution, industrial growth, the availability of natural resources, food production and population in particular, we arrive at the conclusion that there are clear limits to economic growth, and that, in the absence of a significant turnaround, the collapse of the entire man’s socio-economic system is almost inevitable (Poch & Llordés, 2011).

The need to change course in human behavior is also emphasized by the report of the UNEP (United Nations Program for the Environment) of 1975, which speaks expressly of “another development”, as well as the Brandt Report of 1980, in which is told in terms of “compatible development”, and the UNEP-IUCN-WWF report where the idea of sustainability is understood in terms of durability in time, a kind of justice extended to the future (Dumont & Teller, 2005). The following documents to the Brundtland Report, first of all, the World Bank report and the Rio Declaration, both of 1992, and the Second Report Meadows '93, subscribe the definition of sustainable development contained in the Brundtland Report itself, maybe stressing, sometimes vigorously, the revolutionary significance of the sustainable society of the new millennium; there are also texts, such as the Second Report of the UNEP-IUCN-WWF '91, where the notion of sustainability seems to be understood, where reference is made to respect the carrying capacity of the environment, in terms closely environmental and less anthropocentric.

The Aalborg Charter in 1994, the “Charter of European cities for sustainable and durable development”, signed in order to start a campaign for action on urban sustainability, explains the idea of “environmental sustainability” as the “maintenance of natural capital”: this means, on the one hand, to consume renewable resources any more than they can naturally replenish, and non-renewable resources in order to allow the gradual replacement of these with alternative sources, and emit pollutants into the measurement that doesn’t exceed the natural capacity of the environment to absorb and neutralize them. In particular, the document (particularly important for its potential operation), emphasizes the dynamic and not static sustainable development, which indeed is a “creative process, local, seeking balance” between the needs of human development and the characteristics of the environment, in an attempt to escape too harsh judgments of too rigid economists or too bright environmentalists.

Coming up today, finally, we can see that the socio-economic and cultural heterogeneity of the different visions of development, however, has led to multiple and conflicting definitions of sustainable development, not only for the different approaches adopted, but also for the conflicting ideologies environmental which it is based, from the

radicalism of the ecocentric environmentalist vision to the minimalism of the orthodox liberal thought which assumes the existence of a high degree of substitutability between all forms of capital (physical, human and environmental) and adopts a vision of strong sustainability. Therefore, currently, it is impossible to define a meaning or a uniquely shared content, but it is possible to classify the different definitions attributed over the years into three main groups (Caravita, 1990).

The first definition group pays particular attention to the natural environment and considers every human activity bound by the imposed conditions, conservation of biodiversity, the carrying capacity of the natural environment and the conservation of natural resources. The typical definition is provided by Pearce and Turner, who identified two necessary conditions for embarking on a path of sustainable development:

- It is not possible to exploit the natural resources at an utilization rate that is greater of their capacity to regenerate;
- The quality of the waste discharged into the environment should not exceed the absorption capacity of ecosystems.

In the case that these two basic conditions should not be respected then it should to be determined the environmental degradation with negative repercussions on the exercise of economic activities, which would be compromised in the long run. The second definition group emphasizes the topics related to the concepts of social justice and quality of life. In fact, many authors such as E. Barbier have applied the concept of sustainable development to the situation of the Third World underlining the need to improve the living conditions of poor people by improving 'supply, real income, education and health facilities, sanitation and water supplies, food supplies and money for emergencies..' or the definition provided in the report "State of the World" in 1988 by Lester Brown, the founder of the Worldwatch Institute, who argued: Start the world on a sustainable development will not be easy, given the environmental degradation and economic confusion that prevails today. Certainly, some small increase in investment in efficient energy use or in budgets will not be enough for family planning.

The ability to take a similar path depends on a total reordering of priorities and a fundamental restructuring of the global economy, as well as a revival of international collaboration, co-equal only to that which occurred after the Second World War. Only as long as the desire to ensure a sustainable future become a major concern of national governments, it will be possible to prevent the continued deterioration of the natural systems that govern the economic life, which is nullifying all efforts to improve the human condition". Finally, in the third group of definitions it prevail concepts of intergenerational equity, in fact, in this sense arise definitions provided by Goodland and Lennox: "Sustainable development is a pattern that optimizes the economic and social benefits in a given period of time without compromising the opportunity to enjoy the same benefits in future times. A priority objective of sustainable development is to pursue a reasonable and equitable distribution of the level of economic well-being in the way that this can be such as to be perpetuated for many generations". As can be seen from the foregoing, the concept of sustainable development is something that takes on different meanings, however, the commonly accepted definition of sustainable development is the one given by the Brundtland Commission, which can be interpreted as a model of development that requires the fulfillment of the two conditions represented by the intra and inter-generational equity (Barbieri, 1989). Therefore, to talk about sustainability, with reference to a protected area, it is necessary to adopt an eclectic theoretical approach and at the same time pragmatic, considering that both the over-exploitation of natural resources and their lack or inefficient utilization show to have harmful effects on the overall territorial and socio-economic balance of the area (Lazzari & Aloia, 2014).

THE GARGANO NATIONAL PARK

The park lies entirely in the Province of Foggia (Figure 1) and includes, in whole or in part, in its perimeter 18 municipalities: it includes most of the headland; the latter presents itself surrounded on three sides by the Adriatic sea and sloping down to the arid plains of the “Tavoliere”, difficult barriers to overcome for many life forms that determine the condition to live in a kind of organic farming “island”.

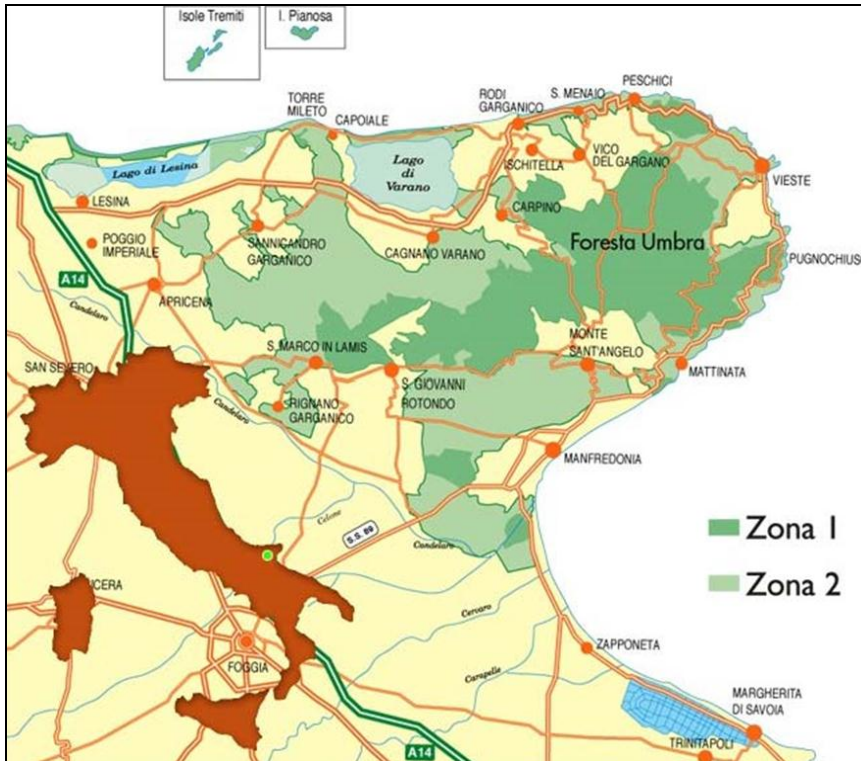


Figure 1. Perimeter of Gargano National Park (Foggia's Province)

The park was established by the “Legge Quadro” on Protected Areas (n° 394/91) and it has the peculiarity of a rich variety of environments that are followed in the space of a few kilometers and ranging from forests (the most important is the Foresta Umbra), grasslands, expanses dominated by strict limestone valleys to the plateau area full of sinkholes, from the marshes and coastal lagoons to the maquis. The park also includes the coastal lakes of Lesina and Varano (Landini & Leone, 1984), the top flaps of the coastal wetland near Manfredonia, the marine reserve of the Tremiti and eight nature reserves managed by the Forestry State (Sfilzi, Falasconi, Isola Varano, Monte Barone, Foresta Umbra, Bosco di Ischitella, Lago di Lesina, Palude di Frattarolo) and similar oasis of wildlife protection established by Puglia Region (Cavuta, 1995).

The Gargano is a promontory cloaked by coastal forests of pine and oak trees and by crops of almond, orange and olive trees. The low and sandy coast in the northern part becomes steeper with high limestone cliffs that open into coves of fine sand, very busy in the summer months. The interior is largely covered by vegetation of the Foresta Umbra that wraps the cape with beech and pine trees, forming the heart of the Gargano National Park. In this lush vegetation, perhaps the richest in southern Italy, the countries that are

part of, especially inside, have preserved their ancient structure, with winding streets and whitewashed houses: Vieste, San Menaio, Peschici and Mattinata. Regarding the Pedology and Geology, the Gargano's is composed mainly of sedimentary rocks, limestone and dolomite, Cretaceous and Jurassic (from 180 to 70 million years ago) mostly well stratified and affected by the phenomenon of karst dissolution. The only exception is Punta Pietre Nere, a mass of dark volcanic rocks dating back to the Triassic period (between 200 and 245 million years ago), outcropping on the Lesina's beach. The karst phenomenon, produced by the action of water and carbon dioxide on limestone rocks, especially prevalent in the Gargano promontory, has "carved" in many ways the landscape (Cardinale & Cavuta, 1995).

All along the margin of the large limestone block are found large erosive furrows that, with radial trend, head towards the sea or to the plain of Capitanata. We're talking about rocky ravines, attributable to the phenomenon of "dry valleys", known locally as "valloni", caused from interacting mechanical erosion and the action of karst, caused by the channeling of rainwater along the lines of maximum gradient, the which can also reach lengths of tens of kilometers. Another manifestation of karst are the more than 4000 sinkholes dotting the Gargano area (the sinkhole Pozzatina, more than 100 meters deep and with a diameter of about 500 meters is one of the largest in Italy). The deep karst is instead due to the existence of more than 600 caves, many of which are of archaeological interest (inhabited from the Paleolithic to the Bronze Age). There are also many caves (128): these caves have been originated first as underground phenomena and later were stripped due to the demolition of the limestone by the power of the waves. As for the permeability are distinguished: permeable karst rocks mainly due to the karst phenomenon that was started from the cracks of white organogenic limestone, irregularly stratified; are also found permeability rocks and karst mixed for cracking that occurs in dolomite and grey dolomitic limestone with flint (Sigismondi & Tedesco, 1995).

In the Gargano National Park there is one of the most extension core in Italy of pine forests of "Pino d'Aleppo" (7.000 ha). Until the mid-60s them had an important role in the production as provided wood products and resin; another common practice was the "spellecchiatura", i.e. the removal of the bark, which was used as tannic material to dye fishing nets. The economic value of the pine forest was a form of guarantee for the conservation of these formations. Currently, the productive function of pine is irrelevant in the general economic situation of the promontory, while it has become more important as function in landscape and tourism. Today, the extension of the pine forests of Gargano is less than a few decades ago; among the main causes behind this phenomenon there is the search of space for grazing and agriculture, as well as the messy, convulsive building development to create new tourism structures on the coast. Even the fire, being predominantly willful, pose a threat to these stands. Other formations of considerable interest to the promontory are represented by: cerrete (17.000 ha), currently jagged due to the strong forestry exploitation and unregulated grazing, copses of oak, beech trees (4.200 ha) and scrublands. The beech high forests are located mainly in the hilly areas exposed to North East and North West, where are present particular climatic conditions. The beech forests vegetate on the Gargano promontory from altitudes below 300 meters thanks to the humid northern sea currents, which generate relatively high rainfall (over 1200 mm/year in the Foresta Umbra).

The beech trees in the Foresta Umbra, in the woods of Ischitella and those in Monte Spigno represent an attraction for many visitors. In the reserve of Bosco di Ischitella the beech forest are located at the lowest altitude of Italy. The chestnut of Gargano, although most of the land can be attributed to Castanetum, is not very common and grows on land decalcified. The farming operations are almost absent and are limited

to plants that are found in arable land. In this case, the treatment is made for the arable land and the chestnut will benefit indirectly. In fact, the product does not fetches high prices on the market, and therefore neither aren't made new plants nor attempt was made to varietal improvement. The areas where the cultivation of the chestnut is still widespread are represented by two sides (parallel to each other and both facing north) located respectively one under the rocky crest of Monte degli Angeli (near Monte Sant'Angelo), and the another under the one between Monte Spigno and Monte Croce (in Falcare locations in the left side of the wide valley that leads from the "Casa Cantoniera di Umbra" to Carpino). The crops have taken place in the time of natural formations for reasons related to population growth and the consequent "land hunger" by the population. The orchards are located in a more or less spread throughout the Gargano, with species and different varieties depending on the environmental characteristics.

It can be found mostly in non-specialized culture species or varieties of fruit trees currently of minor importance but which in the past had a very important role in the food of the local people. Wheat, oats and barley have been the dominant component of the Gargano landscape until the last war. The maximum extension has occurred probably during the Fascist period when it was launched the government in favor of the cultivation of wheat. In many uncultivated areas, reflecting the extent of the crop, remain the countless courtyards for the beating, still easily recognizable. Currently, this crop survives only in the best lands of the promontory. In recent years, the cereal has gained interest by the employees, thanks to the Community incentives in favor of hard wheat. The turnaround of Community policy in this area suggests for the near future a significant reduction in cereal area for which, in all likelihood, there will be important changes also from the point of view of landscape (Baldacci, 1962).

FLORA AND FAUNA SYSTEM

Many of the approximately 2.000 plant species of Gargano's, amounting to more than 35% of the Flora Italica, are endemic to the area and very rare. From the point of view of flora, Gargano is a strip of land in the Balkans. Floras of eastern origin have landed on this promontory undergoing speciation processes, and thus it is possible to admire plants foreign to the Italian flora (*Scabiosa dallaportae*, *Inula candida*, etc.).

The special flora is enriched with the phenomenon of macrosomatismo and with endemism: almost all species, from herbaceous to woody ones, are presenting notable developments (height, leaf surfaces) that have often assume the presence of new varieties and new species that have enriched the vast endemism chapter, that is, as the species of *Campanula Garganica*, linked only to the cliffs of the Gargano. The beech forests, present in some nuclei limited also in the sub-Apennines, are typical of the Gargano, where they reach their maximum splendor. Some beech are located at lower altitudes (less than 300 meters) compared to the generality of peninsular beech forests (between 800 and 1.100 meters). They usually form mixed forests, sometimes they mingle with other types of woodland, especially *cerrete*, with which they come in contact. This tree species is favored by the particular climate of the promontory that provides abundant rainfall in late spring.

Among other species of trees of the park, it can be counted the Carpino, black Carpino, Orniello, *Acero Campestre*, *Acero montano* and *Acero napoletano*, Tasso, Olmo, Tiglio and Roverella. In addition to the species listed above, belonging to the Foresta Umbra, are also interesting the very large Cerri of Bosco Quarto, the *lecceta* of Monte Sacro and pine forests of Monte Barone and Monte Pucci, unfortunately greatly damaged by the action of arsonists (Canigiani, 1987). The presence in a limited area of diverse ecosystems promotes the richness and variety of wildlife. Particularly noteworthy is the number of species of nesting birds; in the wetlands of the lagoons of Lesina and Varano

and in the Palude Frattarolo, Foce Candelaro are nesting, wintering or summering the Airone rosso, Cavaliere d'Italia, Svasso, Moriglione, Smergo, Tirabuso, Spatola, Sgarza ciuffetta, Garzetta, Folaga, Germano reale, Fischione, Anatra. In Varano wintering the Cormorani, while in Saline of Margherita di Savoia are wintering and summering Fenicotteri. Mammals, since unfortunately disappeared for some time following the systematic hunting of large carnivores (bear, wolf, lynx), and large ungulates, except for a group of reintroduced Daini and Mufloni, they remain as a very significant presences.

Of particular note is that of Capriolo, with a core group of individuals considered to be among the few truly native dwelling in our country. There are also a number of forest mammals, the most common of which are the wild boar, fox, marten, weasels, badgers, and several species of bats forestry while rarer are the wild cat, the marten. Remarkable is the grazing of domestic ungulates also represented by local races such as the Vacca Podolica and Capra Garganica. Pigs are often left in the wild, making possible the crosses with wild congeners; intense is also the phenomenon of stray dogs. There are plenty of reptiles and amphibians, with seventeen species surveyed: Biacco, Cervone, Colubro of Esculapio, Colubro liscio, Geco verrucoso, Lucertola campestre, Luscengola, Natrice dal collare, Ramarro, Vipera comune, Rana greca, Rana verde, Rospo comune, Testuggine, Tartaruga palustre, Tritone crestato and Tritone italico (Lauriola & Palmieri, 1996).



Figure 2. A particular of “Testa del Gargano”

Also considering the invertebrate fauna, the Gargano stands out for its individuality: a recent study shows that of the 724 species of Macrolepidoptera known for Puglia, 70 are exclusive of the promontory. The depths of the Tremiti Islands (Figure 2) waters are rich of fauna and populated by numerous species of fish; in the medium-high waters, there are herds of serranids, such as serrano bag, and wrasses including the damsel. There are also the sparidi, with species such as bream and red snapper. Abundant is the presence of mullet and must be reported the presence of two signatidi: the seahorse and Pesce Ago. The shallower waters are populated instead by grouper, moray, octopus and schools cuttlefish and squid. An animal stands out among all for his presence: the Capreolus, this is a species that in recent decades has seen significant population and geographic growth in many Italian and European regions. This development, not only due to natural causes such as spontaneous recovery of

habitat suitable for the species, is the result of activity in restocking or reintroduction of foreign-born individuals, primarily for hunting. This deer weighs on average 15-27 kg, with a body length of 90-130 cm and a height of 60-70 cm. The coat, consisting of short and thick hair, takes on a vibrant red rust color in the spring while in the winter becomes grayish-brown (Bechieri & Bartolini, 2001). The Gargano's municipalities falling in Park covers a total area of 173.883 ha, which represents 24% of the territory of the Foggia's province with a population of approximately 135.000 inhabitants (2009) and shows a clear decline in population spread in all cities. We can see, however, some exceptions, especially those affecting the coastal municipalities, in which the increase of residents is correlated with the remarkable development of tourism activities.

It is a special case the town of San Giovanni Rotondo, whose population growth is linked to the development of the cult of Padre Pio and the health center. The road system comprises a main road formed by roads and trunk roads and a network of secondary roads. Road transport, especially in private, has achieved in recent years, especially in the summer to coincide influx of tourists, a level so high as to put a strain on the disposal capacity of the road network. A significant contribution to the solution of the problem will certainly be provided by the completion of the freeway bypass of Gargano, currently feasible up to Ischitella on the north side and up to Mattinata on the south side. It should be emphasized, moreover, that road transport is not, at current, functionally integrated with other systems, by public transport. Railway lines of the Gargano's area consist only of a secondary trunk of the State Railways, connecting Foggia and Manfredonia, and the Ferrovie del Gargano, which connect San Severo with the Calenella valley, near Peschici (Airaldi & Beltrami, 1987).

THE ECONOMIC SECTORS

The rural vocation of the province of Foggia is confirmed by the data relating to the agricultural sector development, which happens to be among the most important and characterizing one of the economy of this country. It helps, in fact, the Gross Domestic Product (GDP) with a provincial rate of 14%; this value is about twice the average calculated for Puglia and is almost four times higher than the national average. In this regard it is important to emphasize that, where there is availability of resources (especially water) and morphology allows it, are practiced intensive forms of agriculture, which are in opposition – in terms of profitability – to extensive cultivation forms, typical of the most disadvantaged areas, which are those that characterize most of the park territory with the exception of the flat area in the northern portion of the promontory.

About the industry, which constitutes 19% of the provincial GDP, there is a high incidence of the manufacturing sector, although the values are lower than both the regional average data, both at the national ones. With particular reference to the territory pertaining to the Mountain Community of Gargano, it is clear that the industry still has a development quite poor. The rates of industrialization are low and most of the companies have a size less than the provincial average. The manufacturing industry – in terms of employees – contributes 7.5% to the provincial total, with only rare exceptions.

A special case is the municipality of Ischitella in which the rate of industrialization is equal to 48.5% due to the emergence of a small group of companies that manufacture electric motors. The construction industry occupies a small percentage of provincial GDP (4.40%), but is characterized by bigger-sized companies. Among the specialized production of Gargano, we can count the manufacture of electrical machinery and electronic and optical equipment, motors, generators and transformers; these sectors still enjoy a certain vitality and workers make up about 91% of the province total for this category. These activities are concentrated in the towns of

Vico del Gargano, Vieste and, as mentioned, Ischitella. Other important manufacturing sector for the economic development of Gargano is the extraction of non-energy minerals, which mainly interests the towns of Vico del Gargano, Carpino and the municipalities in the southeast area, in particular Sannicandro Garganico.

The transport and communications sector accounts in the GDP with an average value higher than the entire region and the national level (9.68%). In the area pertaining to the Mountain Community of Gargano the industry and services productive structure records 5845 firms, 17.7% of enterprises in the province of Foggia, with an occupation of 13% of the employees. The average farm size is 1,8 employees per local unit (compared to 2,3 in the province of Foggia). If we consider that the inhabitants of this area are about 19% of the provincial ones, we can deduce that is present an economy characterized by a low level of population activity of the (80,2 employees per 1.000 residents, compared to 132,2 of the Province). The 96.4% of Gargano's companies doesn't exceed 5 employees and the percentage of firms that reach a higher dimension (6-9 employees) is equal to 2% of the total. Companies with a number of employees between 10 and 49 are 75, 32 of which spread over the municipalities of San Giovanni Rotondo and Vieste; those working in the food industry, in oil production, construction and services. Companies – instead – with a number of employees exceeding 50 units are located in the municipalities of Ischitella, Peschici and still San Giovanni Rotondo. With the exception of a fraction belonging to the industrial sector of the electric motors production, the other belong to the construction industry, personal services, tourism and business.

Over the past 15 years there has been a decrease in the average size of the Gargano's company, due in large part to the failure of large-size companies (first of all the ENICHEM, with over 900 employees, operating in the territory of Monte Sant'Angelo); at the same time, there has been an increase in the total number of enterprises. It emerges the growth of the construction and food industries, while there was a decline in traditional activities, such as woodworking. The textile and clothing sector has undergone a drastic reduction. In the handicraft, we note the positive balance of the tanneries activities and manufacture of leather products, which survive thanks to local and tourist demand (Varraso, 2004).

TOURISM ACTIVITY IN GARGANO

The tourism sector has absorbed – in recent years – much of the labor demand that has gradually created as a result of the decline of many traditional activities. The impact of tourism is particularly significant when we consider that in the territory of the Gargano have been settled more than 70% of the hotels and camps throughout the province and more than 13% of traditional services (Russo, 2004). The GDP value about the category “Business and Tourism”, lower than the national and regional levels, is the 16% of provincial GDP, compared to 21% of the Puglia's data and 19.6% of the national one.

The Gargano area is the main tourism attraction of the Foggia's province, as it is clear from the distribution of structures: 68% of the hotels¹ and 90% of extra-hotel is located in the Gargano. The area began to attract the attention of large national and international tourist demand initially as a destination for beach and residential tourism; currently, the Gargano promontory is also attractive for other types of tourism: religious, cultural, sports, nature, rural and health care. The rediscovery of the Gargano's tourism offer – however – is happening slowly. In the past, the prevailing policy of the local authorities has led to the establishment of tourism facilities along the coast weakening the development of the historical centers of the inland areas and the existing environmental

¹ The municipalities of Apricena, Cagnano Varano and Rignano Garganico were excluded from the Table 1 since their hotel accommodation capacity is zero

and landscape heritage (Gismondi & Russo, 2007). These choices have led to a gradual deterioration of the image and attractiveness of Gargano's tourism, as well as an objective and substantial impairment of landscaping resources of the promontory.

In addition, the promotion of an exclusively seaside summer tourism has resulted in a strong seasonal attendance and has generated imbalances in favor of the coast places, with an expansion of urbanization without an organization and planning based on sustainable tourism development (the sewer system has remained almost the same over time with serious problems in the summer months), creating a considerable gap compared to inland areas (except the town of San Giovanni Rotondo). The park service structures, intended to tourist flows from other regions, should have a dual role: them could be able to serve the local residents and tourists who stay there. They should have – in the naturalistic tourism – the function of dissemination of information about resources in the park and how to tourist can use the same (Gismondi, 2001).

Table 1. Hotel accommodation capacity by municipalities in the Gargano National Park
(Data source: processing on “Parco Nazionale del Gargano”, 2011)

Municipality	5-Stars & 5-Stars Luxor			4-Stars			3-Stars			2-Stars			1-Stars			Tourism Hotel Residence			Total of Hotels		
	Struct.	Beds	Rooms	Struct.	Beds	Rooms	Struct.	Beds	Rooms	Struct.	Beds	Rooms	Struct.	Beds	Rooms	Struct.	Beds	Rooms	Struct.	Beds	Rooms
Carpino	-	-	-	-	-	-	1	56	24	1	24	12	-	-	-	-	-	-	2	80	36
Ischitella	-	-	-	-	-	-	3	223	113	-	-	-	1	15	9	-	-	-	4	238	122
Isole Tremiti	-	-	-	-	-	-	11	513	238	5	100	51	4	68	33	-	-	-	20	681	322
Lesina	-	-	-	-	-	-	2	204	102	1	28	12	-	-	-	-	-	-	3	232	114
Manfredonia	-	-	-	2	292	146	6	416	215	2	49	28	-	-	-	2	680	187	12	1437	576
Mattinata	1	176	88	2	415	182	3	187	87	2	68	28	-	-	-	1	62	31	9	908	416
Monte Sant'Angelo	-	-	-	1	130	57	4	343	141	-	-	-	-	-	-	-	-	-	5	473	198
Peschici	-	-	-	5	813	405	10	646	341	10	363	176	5	114	56	2	608	191	32	2544	1169
Rodi Garganico	-	-	-	-	-	-	20	1657	748	3	58	39	1	24	15	-	-	-	24	1739	802
San Giovanni Rotondo	-	-	-	9	1329	675	58	3005	1701	24	1043	522	6	128	86	-	-	-	97	5505	2984
San Marco in Lamis	-	-	-	3	255	128	1	20	14	-	-	-	-	-	-	-	-	-	4	275	142
Sannicandro Garganico	-	-	-	-	-	-	-	-	-	1	22	12	-	-	-	-	-	-	1	22	12
Serracapriola	-	-	-	-	-	-	1	48	16	1	15	8	-	-	-	-	-	-	2	63	24
Vico del Gargano	-	-	-	-	-	-	6	360	197	-	-	-	1	13	9	1	170	14	8	543	220
Vieste	1	341	183	10	2292	821	18	2183	889	6	292	131	6	214	119	6	1357	445	47	6679	2588
Total Park's area	2	517	271	32	5526	2414	144	9861	4826	56	2062	1019	24	576	327	12	2877	868	270	21419	9725

The Gargano's tourism offer is mainly recognizable to the following types of accommodation: hotel, 270 exercises and a capacity of approximately 21.500 beds, with a predominance of two-and three-star hotels (56 and 144 structures) and a good

supply of four-star hotels – 32 structures – with only two five-star hotels (Table 1); extra-hotel, in the municipalities of Park there are 394 exercises, with a very high capacity (over 70.000 people), almost exclusively from campgrounds and resorts, with a note about the birth of many bed&breakfast in recent years; the other tourist facilities are of marginal importance (Table 2).

Table 2. Extra-Hotel accommodation capacity by municipalities in the Gargano National Park
(Data source: processing on “Parco Nazionale del Gargano”, 2011)

Municipality	Camping and villages		Housing for rent		Agrotourism		Homes for holidays		Bed and breakfast		Total of Extra-Hotels	
	N°	Beds	N°	Beds	N°	Beds	N°	Beds	N°	Beds	N°	Beds
Apricena	-	-	2	19	-	-	-	-	-	-	2	19
Cagnano Varano	5	1769	-	-	1	20	-	-	-	-	6	1789
Carpino	-	-	-	-	-	-	-	-	-	-	-	-
Ischitella	4	1313	-	-	3	48	-	-	3	27	10	1388
Isole Tremiti	2	611	11	113	-	-	-	-	2	15	15	739
Lesina	1	700	-	-	-	-	-	-	-	-	1	700
Manfredonia	5	1534	1	538	-	-	2	92	1	8	9	2172
Mattinata	10	3759	12	240	6	221	-	-	10	80	38	4300
Monte Sant'Angelo	2	850	1	20	2	28	-	-	-	-	5	898
Peschici	15	9171	22	2129	1	26	-	-	-	-	38	11326
Rignano Garganico	-	-	-	-	1	12	-	-	-	-	1	12
Rodi Garganico	11	4084	8	509	-	-	-	-	3	30	22	4623
San Giovanni Rotondo	1	120	44	379	-	-	2	74	24	205	71	778
San Marco in Lamis	-	-	2	8	-	-	-	-	-	-	2	8
Sannicandro Garganico	3	766	-	-	-	-	-	-	1	10	4	776
Serracapriola	-	-	-	-	-	-	-	-	-	-	-	-
Vico del Gargano	4	2256	2	60	1	40	-	-	2	22	9	2378
Vieste	94	36536	51	1687	5	92	1	144	10	96	161	38555
Total Park's area	157	63.469	156	5702	20	487	5	310	56	493	394	70.461

The accommodation capacity (number of exercises and beds) is concentrated mainly in the coastal towns, where there is the presence of about 73% of hotels and 88% of campsites and holiday parks, which corresponds to a bed offer respectively of 82% and 88%. Among the inland municipalities the exception is San Giovanni Rotondo, which – thanks to the health center and religious tourism exploded in the last twenty years – set up a tourism which constitutes about 15% of the hotels in the Gargano, corresponding to the 11% of the total beds. Comparing data about the total accommodation capacity of the hotel facilities and those extra-hotel, it is clear that the last one far exceeds the hotel sector (Zarrilli & Brito, 2013); this data confirms the trend of a quantitative tourism development (mass tourism) rather than qualitative (selected and/or alternative tourism).

In the last 15 years there has been a strong increase in overnight-stays, due both to domestic and to international tourism. The flow (Table 3) is dominated mainly by Italians, 81% versus 19% of foreigners; in particular, the presence are concentrated for 83% in the middle months of the year with a high degree of seasonality; the maximum value is recorded in the month of August, when it reaches 37% of overnight-stays, mainly due to the movement of Italian tourists (88%), foreigners – instead – while showing preference for the months of July and August, are distributed in a more balanced way in the period from May to September (Table 4). From the analysis of overnight-stays and arrivals for the hotels, it's clear how from 1995 to 2012 arrivals of Italian tourists signed an increasing trend, although not in a consistent manner, with the significant downturns in 1998-99 and 2004. Conversely, the overnight-stays – in the same timeframe – have not undergone significant decreases, except for the biennium 1998-1999 with about

50.000 fewer in overnight-stays than in 1997. Globally – about arrivals – we can say that although there has been a global increasing phenomenon, it is found to be slow and unsatisfactory for the amount of available accommodation.

Table 3. Italian tourism flow
(Data source: processing on ATP Foggia, 1998-2012)

Year	Arrivals	Overnight-Stays	Average Stay (days)
1998	472.690	2.225.081	4,7
1999	514.149	2.359.787	4,6
2000	511.319	2.486.961	4,9
2001	658.368	3.115.485	4,7
2002	709.754	3.334.320	4,7
2003	613.598	3.302.735	5,4
2004	667.227	3.431.262	5,1
2005	676.675	3.460.404	5,1
2006	675.256	3.515.145	5,2
2007	681.415	3.378.524	5,0
2008	807.433	3.649.272	4,5
2009	744.263	3.662.323	4,9
2010	741.023	3.630.337	4,9
2011	690.909	3.716.961	5,4
2012	656.236	3.583.706	5,5
Total	9.820.315	48.852.303	

Table 4. Foreign tourism flow
(Data source: processing on ATP Foggia, 1998-2012)

Year	Arrivals	Overnight-Stays	Average Stay (days)
1998	64.177	529.509	8,3
1999	72.628	653.384	9,0
2000	89.223	648.603	7,3
2001	81.543	619.503	7,6
2002	100.323	762.779	7,6
2003	100.724	677.877	6,7
2004	94.165	635.627	6,8
2005	97.159	593.851	6,1
2006	100.249	639.764	6,4
2007	97.849	509.772	5,2
2008	112.474	597.495	5,3
2009	110.030	580.708	5,3
2010	107.687	557.344	5,2
2011	118.666	623.590	5,3
2012	117.851	643.668	5,5
Total	1.464.748	9.273.464	

The average stay is about five days in the early years considered, and then increased to six/seven until the mid-2000s, returning – finally – to the initial situation in recent years. About the foreign incoming tourist flow is interesting to note that it remains constant from 1995 to 1999, with an interesting peak in 2000 in which we have seen a strong growth, as a logical consequence of the Jubilee and this event had a strong religious appeal by the municipalities of the park, in particular San Giovanni Rotondo. The extra-hotel tourism structures – considering Italian tourists – seem to be the best liked solutions, both in terms of arrivals and in terms of overnight-stays; flows annually register constant increments, obtaining a satisfactory result, also in relation to the fact that a significant part of data is unavailable, since it's not declared by the sources (Viganoni, 2007). The days of average length of stay have suffered a slight decrease,

from ten to nine about. The foreign tourist flow for extra-hotel structures maintains a fluctuating trend. Significant declines in arrivals have been recorded in 1998 and 2001. Considering the overnight-stays – instead – in recent years they have substantially come back to increase, recording the highest peak in 2012 with about 643.000 overnight-stays, facing the about 557.000 ones of 2010. In order to achieve a deeper reading of the data, we decided to proceed with the construction of three indices to provide a comprehensive interpretation of the current tourism situation in the Gargano National Park.

Specifically, the indices calculated are: the index of tourist pressure, the rate of composed receptive function and the gross utilization rate. The first, also called index of “turisticità”², measure the influence of tourism on the territory and on the host population; it is appropriate for measuring the intensity of tourist flows, regardless of the territory’s size. In this case, it is clear (Figure 3) as in the area of Gargano there are four locations with high values: Rodi Garganico with a value of around 24, Peschici and Vieste with values close to 40 units, and finally the Tremiti Islands, with a value even higher than 50 units. All other municipalities have extremely lower values, in some cases close to zero, which confirm the huge regional imbalance present between the places of the coast and inland areas.

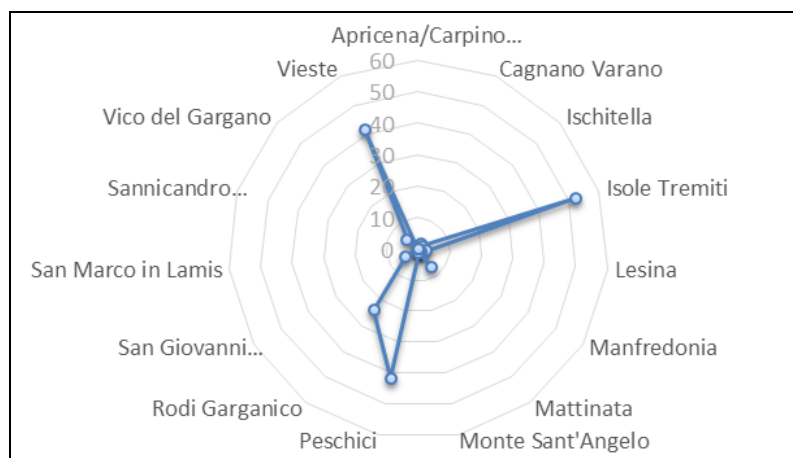


Figure 3. Index of Tourist Pressure
(Source: Personal Data Processing, 2015)

The rate of composed receptive function³ consists, instead, in measuring the level of hospitality and tourism of the community, considering the receptive intensity taking into account the spatial extent; it is evident (Figure 4) that even in this case it is traced the strong influence of the coastline, with places like Vieste and Peschici that have the best range of tourism accommodation in quantitative terms, as well as the town of San Giovanni Rotondo, the only exception in the inland of Gargano.

The final assessment tool considered – the index of gross utilization⁴ – measure in percentage terms how much have been used services and available facilities – in a tourism

² The Tourist Pressure Index, also called Rate of Tourist Function or Index of “Turisticità” is calculated by the ratio of visitors per year and the population multiplied by the days of the year $[(p/(pop*365))*100]$

³ The Rate of Composed Receptive Function is given by the ratio between the number of beds and the average population, taking into account the surface of the area $[(L/pop*S)*100]$

⁴ The Index of Gross Utilization is calculated by the ratio of visitors each year and the number of beds multiplied by the days of the year $[(p/(L*365))*100]$

destination – taking into account the size of the services with compared to the tourist flows; the last graph (Figure 5), in which are listed all the Gargano’s municipalities in points form, shows a balanced distribution above and below the mean value, with 8 municipalities that exceed the 10% utilization and the remaining ones placed in the lower end.

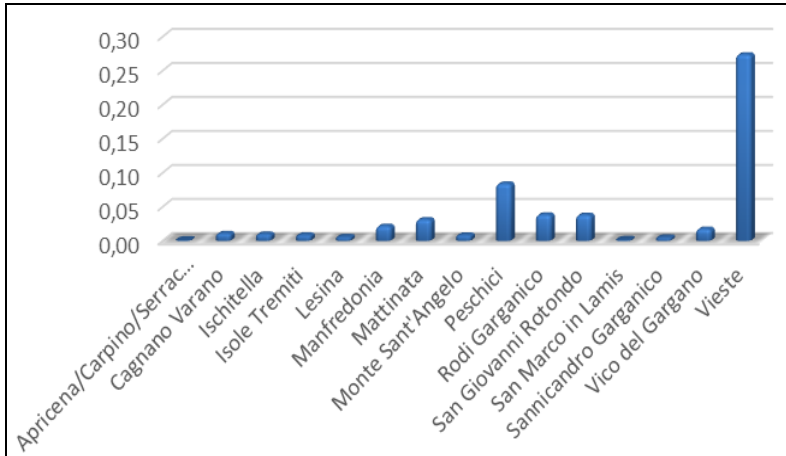


Figure 4. Rate of Composed Receptive Function
(Source: Personal Data Processing, 2015)

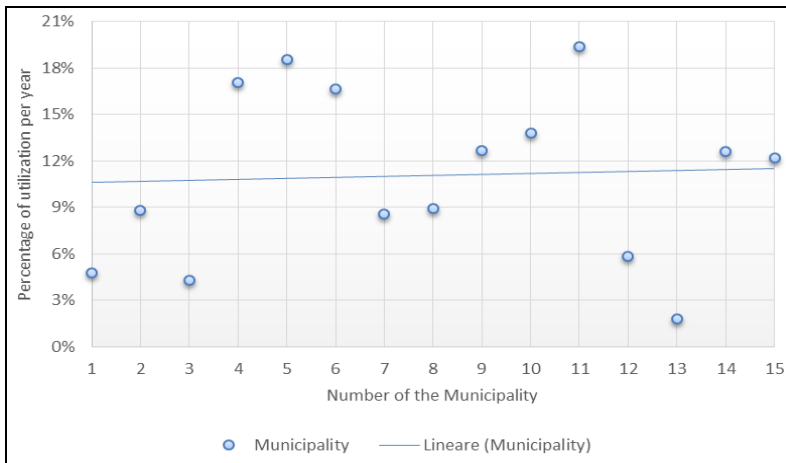


Figure 5. Index of Gross Utilization
(Source: Personal Data Processing, 2015)

Among the municipalities with the highest index we can count San Giovanni Rotondo and the Tremiti Islands, to which are added Lesina and Manfredonia, towns with a low rate of tourist pressure but with a good density of use (in these cases there is no saturation of the territory, this mean that the municipalities in question are engaged in a good attractiveness management without compromising the available resources and minimizing overcapacity); between the municipalities with the lowest utilization rate instead we could include San Nicandro Garganico, Ischitella, and 4 municipalities in the hinterland, the last ones grouped into one only variable, since they are actually devoid of consistency in the data.

CONCLUSIONS

The quality of information and tourism, next to the general communication activities of the area, represent two of the switching elements of the marketing mix currently seen as strengths (Costa, 2004). The major weak point, emerging from the operators responses, concern the economic resources for activities of tourism promotion. A large share of this value is attributable to tourism activity carried out in the Gargano, which is generally identified as the main tourist hub of the entire “dauna” province, considering that most of the hotel structures (about 68%) and extra-hotel ones (about 90%) is located in the Gargano. However, although the tourism sector in the Mountain Community of Gargano represents a central element of the local economic system, its consolidation and further development it would require an overall redevelopment. In fact, with the presence of the institution of Gargano National Park, the ways in which the industry has grown over time have to be reconsidered with a focus to the sustainable development of the territory, which enhances the natural environment and promotes the local economic rebalancing between inland areas and the coastal strip. Moreover, it is commonly known as the expansion of the tourism sector in the Gargano has concerned mainly some areas and is centered mainly on the summer and mass tourism, next to the religious one linked to the cult of Padre Pio. This situation has contributed to regional economic imbalances inside the area and, in some cases, has resulted in significant negative environmental impacts on the Garganico ecosystem.

The transformation process of the Gargano from the land of malarial plains and strenuous pastures in a popular destination for tourists, until the origins of a real tourism industry is closely linked to its environmental characteristics. The environmental, landscape, archaeological, religious and mythological interest of some areas of the headland since ancient stimulate several tourist trails of disproportionate beauty as well as a great social and cultural interest. Nowadays, we can see how on a total of 13 municipalities only 8 use as planning instrument the general regulator plan, while the remaining 5 municipalities use as a regulatory tool a manufacturing program, including the two largest municipalities in Gargano, San Marco in Lamis and Sannicandro Garganico. While it is true that in the evolution of planning legislation the manufacturing plan is equivalent to the general regulator plan, it does not perform the same tasks of planning also with signs of obvious limitations: in fact, the only town of San Marco in Lamis approved even 18 variants for the territorial transformation. It is also useful to remember that those municipalities which drew up the master plan have been able to approve it originally in the eighties and its validity occurred only after many years, when many territories had already changed, especially in a historical phase that has resulted in radical changes in some areas since the event of the Jubilee of 2000, in particular regarding public works and the hotel facilities that have involved – although with different intensity – the great centers of Gargano.

The situation that emerges from the socio-economic and territorial analysis highlights the problems and the change opportunities with which local authorities should to compare in order to start the creation of a Local Tourist System, which bases its foundations on social and territorial sustainability. From this analysis it is possible to outline the weakness points, characterized by the lack of both an internal network, consisting in the articulation of social groups, structures and especially economic interests, but also to an external network which should provide relations with other territories. Another source of weakness is the plan of local public transport in the province and in particular the reorganization of the public transport system in the Park: they are completely outside the logic of the new transport chain at the service of all systems DRTS (demand responsive transport system), i.e. transport with a flexible

demand, taxi bus, car sharing and car pooling. A further sign of weakness comes from the separation between the territorial planning and economic and social processes.

Finally, it is almost absent a planning of coastal ecosystems and river basins, highlighted by an imbalance between the strong areas, i.e. between the environmental and coastal areas (Cavuta & Di Matteo, 2013). But despite these gaps, there are good demands for a coordination between the institutions for regional planning and implementation of a strategic plan for the creation of a "Sustainable Local Tourism System"; there is a recovery and rehabilitation program of the land and structures, and finally, there is also a plan of flexible public transport for mobility in the area.

Ultimately, it can be stated that the establishment of a national park involves economies and diseconomies of scale: the cost for the local population must be distributed throughout the national community. The problem of free-riding, that is the presence of consumers who take advantage of collective consumption by not attending properly to their funding, who lead to sub-optimal bid for the public good, is partially solved with the establishment of a park, since natural resources become impure public goods (club goods), which form an intermediate class between public goods and private goods. It is justified, therefore, the intervention by the public authorities in order to regulate the use of natural resources, in order to avoid the "tragedy of the common properties". Moreover, it should be encouraged local economies: a very important aspect is the self-financing, which should support the state funding, pursuing a national park business model. Also in this case we must consider the optimal levels of public funding and the potential demand from which to draw resources for self-financing.

The situation of the Gargano National Park is exactly the same, where there is a vast territory and with various issues concerning its management, coordination and communication. We can say that it should always take as a reference point the principle that a park should be established, planned and designed to create sources of socio-economic development and enhancement of the natural and cultural history, always respecting the surrounding area, promoting policies for sustainable tourism and not isolate parts of the territory from the potential active participation of the population.

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