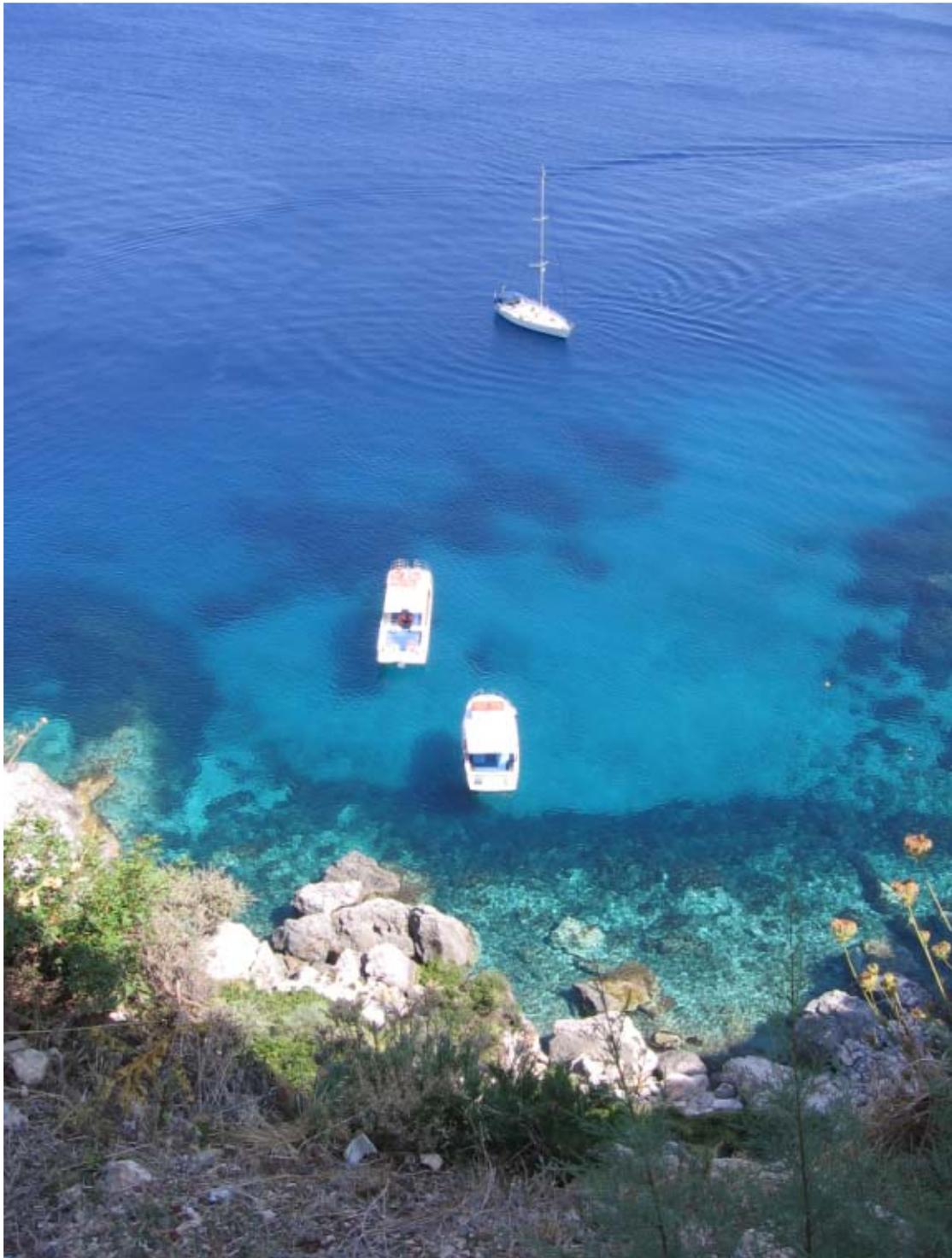


# **Water and Fire in Greek National Parks**



## **Alfred Toepfer Natural Heritage Scholarship Project Report**

**by Rachel Danemann**

# Contents

Thanks and Acknowledgements

About Me

Project Proposal

Aims and Objectives

The Greek Context

Reports on the Four National Parks

- Mount Parnitha, Athens
- Laganas Bay Marine Park, Zakynthos
- Samaria Gorge, Crete
- Alonnisos and the Northern Sporades

Analysis and Conclusions

- 1) Water
- 2) Fire
- 3) Visitor Management and Education

Recommendations

References and Sources of Further Information

## **Thanks and Acknowledgements**

Firstly, I would like to thank the Alfred Toepfer Foundation F.V.S. for my natural heritage scholarship and enabling me to attend the Europarc 2009 conference in Stromstad, Sweden.

I would also like to thank all of the people who helped to make my trips so successful, particularly the staff and volunteers I met in the various National Parks in Greece during my visits, and the people who responded helpfully and patiently to my numerous emails requests asking for information, clarification and logistical support.

Thanks is also due to my friends and colleagues at the Peak District National Park and South Hams District Council who inspired me to apply for the scholarship and continue to make my daily work enjoyable and interesting.

A large thank you is also due to my family- particularly my husband Tim, and parents Sue and Howard who help me cope with juggling the demands of work, travel, report writing and being a mum to our baby daughter Chloe.

Thank you all for you help and support.

I hope you find this report interesting and useful.

*Rachel Danemann*

## **Introduction- About Me**



I have been a part-time ranger for the Peak District National Park Authority since 2003. I spend my weekends on patrol, helping the public, surveying footpaths and bridleways and being involved in conservation tasks.

I have spent much of my free time involved in conservation tasks both in the UK and abroad- Peak District, Yorkshire Dales, Lake District, Hungry Mother State Park in West Virginia USA, tree-planting in Iceland, marine conservation work in Galapagos Islands and Sulawesi, Indonesia.

I also help out as a volunteer leader with my local Duke of Edinburgh's Award Group and the John Muir Award- helping get young people interested in conservation.

For my day-job I work as a planning officer in South Hams, Devon which includes part of Dartmoor National Park. As a chartered town planner a key part of my role is ensuring that conservation and other environmental interests are appropriately considered and reflected in planning policy documents.

Previously I spent three and half year working as a Community Development Planner for the Lake District National Park Authority, in Cumbria, where amongst other tasks I was involved in writing the National Park Management Plan.

## **Project Proposal**

The aim of this project was to bring together issues of management in fire and water, which are currently both important issues for National Park management in the UK.

The Peak District National Park's Moors for the Future Project, funded by the Heritage Lottery Fund, seeks to minimise the risk of fire through partnership working with landowners, education and outreach work and the development of a fire management partnership.

For a Peak District Ranger, fire can be seen in two ways- firstly, as a problem that requires management, and secondly, as a possible tool for management. The role of the ranger is critical in both watching for fires and (for the full time staff) fighting them. However, it may also be possible to use fire in management processes to help protect the peat from arson and unintended fires.

Marine Spatial Planning is a relatively new topic to the UK, and discussions on how best to protect the sea are ongoing. Notions of marine national parks are gaining increasing interest. As a rural coastal authority this is one of the key issues facing South Hams Council whose responsibility includes the management of Salcombe Harbour. Debates as to how the planning system can best engage with this agenda are currently ongoing.

I was therefore interested in visiting others national parks to see how these two elements- fire and water are managed elsewhere. I wanted to visit two National Parks and two National Marine Parks in Greece to see how they tackle conservation and visitor management issues.

## Aims and Objectives

The aim of this research project was to visit National Parks and National Marine Parks in Greece to see how the two elements, fire and water, are managed. I was keen to see how conflicts between visitors and the ecosystem were mitigated or managed, and how custodianship of the National Parks was fostered.



I hoped to be able to see first hand how the Greek authorities tackled conservation and visitor management issues, and whether these experiences offered any useful lessons for UK conservation and management practices.

## **The Greek Context**

Ancient Greece was thickly forested; the pines and oak of the coastal regions gave way to firs and black pines on the hills and lower mountains. However, this native woodland came under pressure as human activity expanded and in classical times a pattern emerged of forest clearances, followed by agriculture, abandonment to scrub and then a resumption of cultivation and grazing. Vast amounts of timber were used for ship building, charcoal making and construction work.

The forests of ancient Greece have all but disappeared. Today only small patches of virgin forest remain, mostly in the north and north east of the country in the regions of Epirus and Macedonia, but even these are threatened by loggers and arsonists. Deforestation and soil erosion are also major problems, although a long overdue programme of reforestation has recently begun.

An estimated 25,000 hectares of forest are destroyed by fire every year. The 2000 season was particularly bad for the Peloponnese and the island of Samos. In 2007, large fires on Mount Parnitha and the Peloponnese destroyed vast tracts of forest and vegetation. Last summer fires in the areas around Athens made international news, and this year, 2009, seems to have been particularly bad with wild fires reaching the northern suburbs of Athens.

## **Management Issues in National Parks in Greece**

Greece is not widely known for its wildlife and conservation management pedigree. During the 1950s many wetlands were drained under an official policy to convert them to agricultural uses. The lakes, lagoons, and deltas that remain are now afforded protection for their scientific and environmental value, but they are still under pressure from industrial and sewage pollution, disturbance, and other misuse and exploitation that reportedly often goes unchecked.

The arrival of mass tourism in the 1970s saw large swathes of agricultural lands and wildlife havens developed, especially along the coast and many of the shepherds and other agricultural workers are now employed in the numerous tourist bars and tavernas. One consequence of this change is a reduced pressure of grazing livestock which in turn has led to some natural regeneration, for example Crete now has five times as much forest as at any time over the past five centuries.

National Parks in Greece tend to be reserves for flora and fauna with minimal tourist facilities such as basic campsites and refuges; although there are lots of walking trails. Management of the parks usually consists of a buffer zone protecting an inner core zone. Policies for the buffer zones do allow for some activities, including even hunting in some cases; whereas, only walking is allowed within the core zone.

The most visited National Parks in Greece are Mount Parnitha, near Athens, and the very popular Samaria Gorge on Crete. Other National Parks can be found at Vikos-Aoos in Epiros, north-western Greece, Prespa in Macedonia, northern Greece, Iiti and Parnasos in central Greece and Mount Olympus National Park on the border of the Thessaly and Macedonia regions.

National Marine Parks can be found in Alonnisos, in the Evia and the Sporades region, and in Laganas Bay on Zakynthos, although as one guidebook cautions:

“While a marine park ostensibly exists for the protection of loggerhead turtles at Laganas Bay on Zakynthos, implementing its protective policies has been fraught with difficulties. Tourists cavorting on the beach and excessive neon lights have played with the breeding patterns of this endangered species to the point where the European Commission has reportedly taken up the case and is losing patience with the authorities.”

Lonely Planet, 2008, page 83

So, whilst several national parks and national marine parks have been established, there remain concerns about the protection of the natural environment because many protected areas appear to suffer from seemingly weak protection policies and lax implementation. Commentators observe that environmental awareness is generally at a low level, especially where littering is concerned. Although environmental education is now part of the school curriculum many observers fear that it will in fact be generations before attitudes change and this will be simply too late for some of the endangered species.



*Images from Kalamaki Information Point and Gerakas Visitor Centre*

## **Report on Mount Parnitha National Park, Athens**

Mount Parnitha is a rugged range of virgin forests, rocks and ravines located just 20km north of Athens city centre. With its spectacular alpine scenery within an hour's drive, or an hour and a half's bus ride of the city, Mount Parnitha National Park is a favourite escape for Athenians.

I wanted to visit the Park to see how it had been affected by recent forest fires. Mount Parnitha was also the location of the Olympic mountain-biking events in 2004 and the Olympic village was built up against the eastern side of the mountain. A cable car also ascends from the small town of Archanes to a casino at the top of the 900m (3000ft) mountain.

I was particularly interested in how visitors to the area are managed, especially as many guidebooks state that the area is still seldom used by hikers despite the mountain hosting many demanding trails. I wanted to see if and how the National Park publicised itself and how management issues were addressed.

Extending 25 km (15 miles) from east to west, Mount Parnitha is a rich in wild flowers. In March and April late snow can still be found on the mountain's northern side where a carpet of crocus, alpine squills and mountain wildflowers can be found. Lower down the slopes grow aubretia, tulips and dwarf iris. The highest point is Karambola at 1413 meters (4635 ft). In ancient times it sheltered wild animals, although today it is home to tortoises and birds of prey.

The National Park hosts numerous walking trails and way marked paths. Most visitors arrive by cable car which drops them at the Casino Mt Parnes gaming and hotel complex. The most popular trail is from the foothills at Thakromakedes to the refuge at Bafi, or on to next refuge at Flampouri. The route uphill takes about two hours and offers superb views. It starts in thorny scrub land of the Mediterranean maquis and leads up through alpine firs to beautiful views.

The easiest access is said to be from Aya Triada where a map detailing the routes available, local landmarks and topography is provided. Paths are marked by red discs or multi-coloured paint splodges on the trees. Popular destinations for walkers include the Cave of Pan, and the Skipiza spring, about a two hour walk away.

The national park is served by a couple of bus routes although the service is limited, unless you take the free casino bus from central Athens. Services for visitors and accommodation within the park are also limited to a few largely seasonally restaurants and cafes. The warden at the Bafi refuge provides board and lodgings, although visitors are advised to check ahead.



Tragically thousands of hectares of this centuries old forest were razed during the 2007 fires and the area will take decade to recover from this environmental disaster.

## **Green Spaces Under Pressure**

I was also able to visit Kaisariani forest on the urban fringe of Athens. From top of Kaisariani hill you can see the sprawling city of Athens and understand the topography of Attica region. The way that the urban sprawl has 'conquered' previously green areas and natural reserves.

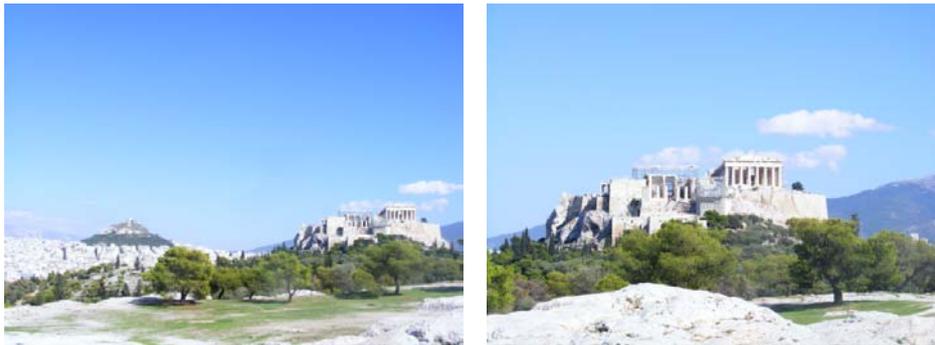
Although it looks like it has been a green space for centuries, in reality it is an 'aesthetic forest', created by man-made planting starting in the early 1900s. Founded by a finance minister an engineer and a forester in 1899 the philodasiki enosi (forestry association) was established to plant trees around the Athens periphery. The society planted trees in the areas of Lycabettous, Filopapou, Arditou, Numfon Pnukas and the sides of the Acropolis hill- which we all devoid of trees in the 19<sup>th</sup> century.

The forestry association began planting trees in the Ymettus hills in the 1920s although this initial growth was harvested to provide timber for the war effort. A new stage of planting was begun in 1947 and the organization ceded ownership of the forest lands on condition that they would remain as forest in perpetuity. In 1974, 6400 hectares of forest were designated as an aesthetic forest park in recognition of their visual and ecological importance.

Several local groups are involved in ongoing struggles to protect this forest, and I was able to meet and talk with some representatives of these groups. They told me that despite efforts to revitalize Kaisariani's forest, even this green space is now threatened by the city's expansion and the interests of private capital.

The mountain of Hymmetus formed the eastern edge of the Athens/Attica city-region until very recent times when, in 2001, the city embarked on a large scale restructure, partly in preparation for the Olympics. The new Athens airport was built in the Mesogeia basin on the eastern side of the mountain and a new motorway- the Attica Road- connected the area of Elesina with the airport. This new motorway was extended in 2003, in the first phase, of what will be a new highway ring right around the Athens basin.

These new super structures have fundamentally changed the relationship between the mountain and the city. Athens is surrounded by four peri-urban mountains- Parnitha, Renteli, Ymettus and Aigaleo which serve to regulate the city's climate by both retaining rain water and filtering the winds. The Hymmetus hills have now become part of the city, rather than part a the wider peri-urban ecological system.



These large, significant and rapid changes have triggered considerable debate in the public arena, particularly after the 2007 fires in Parnitha, because although the importance of green areas around Athens has been recognised, land speculation and the city's policy of expansion continue apace. There seems to be a wish to both protect green spaces and enable the construction of the new motorway network.

The mountain area surrounding Athens has been organised into two different zones of protection. In the Hymettous hills the areas covered under Zone A and Zone B were regulated to allow for only development that was 'beneficial to the public'. However, a significant amount of residential development has occurred within the B zone, albeit justified as being 'in the public interest'. The areas of Bari, Ano Glyfada and Ilioupoli are now exclusive suburbs and home to some notable Greeks.

The Hellenic Ministry for the Environment, Physical Planning and Public Works has recently announced a significant reduction in the areas covered by the B Zone protection classification in the Hymettus region to make way for additional residential development.

The proposed extension to the Hymettou ring road will pass through Byronas, Ilioupoli and Argyroupoli eventually linking Kaisariani to the coastal road at Glyphada. As well as passing through lots of forested areas the new road will also change the nature of the neighbourhoods it passes through with its tolls and overpasses- although as a concession to the municipalities (similar to borough councils in London) affected some of the road will be tunnelled underground.

Indeed, it appears that citizen movements and a numerous collective mobilisations are occurring all over the city and citizens fight for their right to green space. This issue seem particularly prevalent in areas on the eastern side of the city of Athens, where natural areas boarder the mountain of Hymmetus. As the city grows this natural areas are under increasing pressure for development, so those wish to protect them are forced to demonstrate their concerns.

An organisation called the 'Inter municipal coordinate committee for the rescue of Hymettus' was constituted in March 2007. It brings together over 30 community and resident associations from the 15 municipalities around the Hymettus mountain.

However, the regulation of natural areas in Athens is fragmented and often resulted in the assimilation of natural areas into the urban conurbation. Physical and natural parts of Attica scenery such as streams, gulfs, hills and fields have disappeared as urban areas have been developed, often without a coherent planning framework or inclusion of provision for open public space.

The open spaces and natural areas that do exist in Athens are often just 'voids', areas which remain un-built often by chance, rather than as the result of a planned approach to green space and the provision of public parks. Managing and connecting these left over spaces to maximise their amenity and wildlife benefits is therefore incredibly difficult, and many area remain subject to ongoing and protected legal disputed as to their official status- development land, or protected green space.

## Report on Laganas Bay National Marine Park, Zakynthos

The natural beauty of Zakynthos, in the Ionians is under threat from perceived over-development for package tourism. In order to protect the logger head turtles that call it home it was declared a national marine park in 1999. I wanted to see what difference if any the National Marine Park protection offers to the Loggerhead turtles- Europe's most endangered marine species.



Strict regulations are now in force to regarding boats, mooring and fishing and water sports within designated zones. Some beaches are completely off limits between dusk and dawn during the breeding season. Other regulations include banning cars and bikes from nesting beaches, allowing umbrellas only in designated areas and ensuring lights are not shone directly onto nesting beaches.

I wanted to see how these regulations were enforced and I also hoped to visit the Sea Turtle protection society of Greece's public information centre, at Gerakas, to see how these sensitive issues were explained to locals and tourists alike.

## Protecting the Loggerhead Turtles

The Mediterranean Green Loggerhead turtles (*Caretta caretta*) have been migrating from Africa for many thousands of years. The giant creatures can weigh up to 180kg (400lbs) and they lay their eggs in the sand, said to be the softest in Greece, at night on Laganas Bay on Zakynthos, their principle nesting ground.

The disco and hotels nights of Laganas disorientate the turtles' navigation and few turtles now nest successfully. Of the eggs that are laid many are destroyed by vehicles on the beach and the poles of beach umbrellas.

The growth of tourism has been mostly concentrated on the 14km (9mile) sweep of beach at Laganas. The unrestricted development has decimated the local turtle population and only an estimated 800 remain. Visitors can take trips on glass bottomed boats to see them and all sorts of turtle souvenirs fill up the gift shops. Although, outside of the holiday resorts there is little development on the island.



There is some protection for the turtles as a result of environmentalists as some stretches of beach are off limits to tourists and locals in an attempt to give the turtles a chance to stabilise their numbers.

The loggerhead turtles are showcased in all the travel brochures and guidebooks as a must see site in Greece. However this exposure brings both benefits and costs.

The latest edition of one of my guidebooks offers a useful summary of the tensions, in their section on Zakynthos:

### **At Loggerheads**

The Ionian Islands are home to the Mediterranean's loggerhead turtles (*Caretta caretta*), one of Europe's most endangered marine species. The turtles prefer large tracts of clean, flat and uninhabited sand, as do basking tourists, and this has led to the imminent extinction of the turtle.

Zakynthos hosts the largest density of turtle nests – around 1100 along the 5km Bay of Laganas. During hatching time (July to October), surviving hatchlings emerge after a 60-day incubation period in the sand. Many of the nests are destroyed by brollies and bikes and the surviving young don't make it to the water – they are often disorientated by sun beds, noise and lights.

Conservation lobbyists have clashed with local authorities, tourist operators and the government, and in 1999, following pressure from the EU, the Greek Government declared the Bay of Laganas area a national marine park. Strict regulations were put in force regarding building, boating, mooring, fishing and water sports in designated zones.

All designated nesting beaches are completely off-limits between dusk and dawn during the breeding season (May to October). Despite this dozens of illegal bars and tavernas operate in the area, illegal umbrellas and sun beds are rented out to tourists and boats cruise through protected waters.

The Greek Government is accused of having its head in the sand; it has been condemned by the European Court of Justice for failing to implement EU natural protection legislation. Meanwhile, WWF (World Wildlife Fund), Archelon (the Sea Turtle Protection Society of Greece) and Medasset (Mediterranean Association to Save the Sea Turtle) continue their lobbying efforts. Volunteers from Archelon ([www.archelon.gr](http://www.archelon.gr)) and National Marine Park provide informal beach wardens and run excellent education and

volunteer programmes. For further information, visit the wildlife information centre at Gerakas beach.

Visitors can also do the following:

- Avoid using umbrellas on dry sand (use the wet part of the beach).
- Do not enter nesting beaches between dusk and dawn, and avoid visiting Daphni Beach.
- Be aware of boating trips - where they go and what's on offer.
- Seek information on the area's sea turtle conservation efforts and protective regulations.

Lonely Planet, 2008, page 712

## The Topography of Zakynthos



*Model of the island at the Gerakas Visitor Centre*

This 3D model of Zakynthos shows Laganas Bay to the South. The resort of Laganas is indicated by the middle sign and Kalamaki to the right of that. The sign on the right shows the mountain village of Keri and the label in the bottom right indicates Gerakas beach on Vasilikos peninsula.



*Laganas Bay- showing the developed resort of Laganas to the west and the protected beaches to the east*

## My Visit

I was able to visit Zakynthos in July, at the height of both the tourist, and the turtle season. I was able to meet with representatives of the National Marine Park and volunteers with Archelon. I also hired a car which enabled me to travel all around the island to see if and how the turtles were being promoted- as a reason to visit Laganas. I visited the visitor centre at Gerakas and spoke with fellow tourists about their reasons for coming to Zykynthos and the importance of the turtles in their decisions.

I was also able to talk to some tour operator representatives and some business owners as to the value and difficulties that the national marine park poses for them. For the purpose of research, I also went on a turtle spotting tour so I could see exactly what happened and what information is being given to tourists about the turtles by the mass tourism industry. During my time in Zakynthos I was able to see the best and worst of tourism industry and its engagement with the turtles.

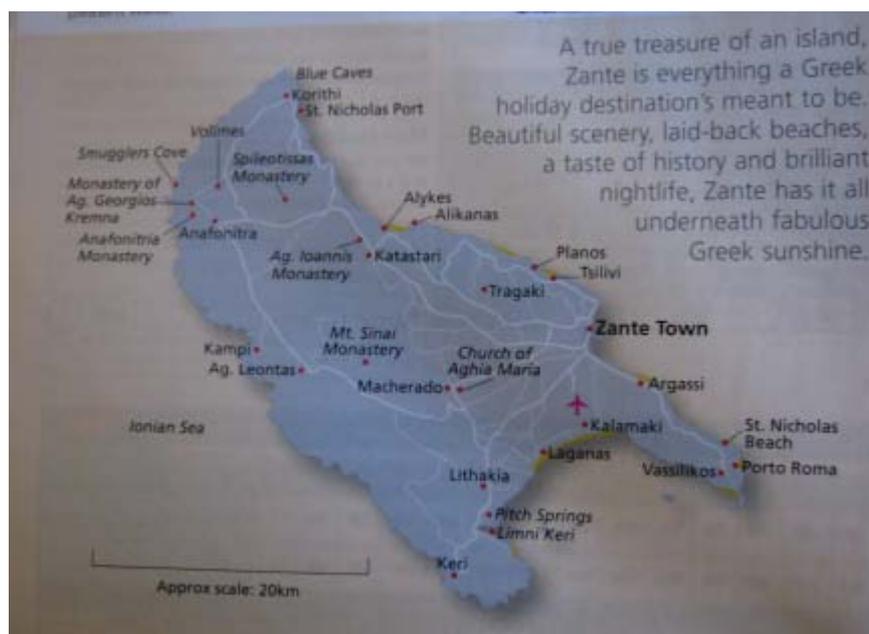


*The Blue Caves and Shipwreck Beach (North Zakynthos) Crystal Beach, Kalamaki (South of the Island)*

## The Role of the Tourism Industry

Marketed by the package holiday companies by in anglicised name of Zante, the island of Zakynthos is advertised to appeal to both the 'young, fun in the sun' and 'family' holiday market. More recently, in an apparent bid to expand their market appeal, remoter parts of Zakynthos are also appearing in the couples only and luxury break brochures of the major holiday companies.

The western side of the island is mountainous and much more rugged and remote. The majority of visitors to Zante would experience this side of the island only from the windows of the tour buses en route from their resort to the various tourist 'destinations' that are well served by coaches offering day trips to attractions such as the Blue Caves, Shipwreck Beach, the Water Park near Anafonitria and the craft markets at Volimes.



Zakynthos however, remains best known for its charter flights to resort destinations such as Laganas, Kalamaki, Planos, Tsilivi, Argassi, Alykes and Alikanas.

## Turtle Power

All visitors to the islands could not fail to realise that turtles are a feature of the island, as various turtle-related souvenirs populate the tourist shops and supermarkets.



Numerous ticket sellers also offer turtle spotting opportunities. These are offered to all sections of the market from exclusive private yacht charters to €10 guaranteed sighting trips.

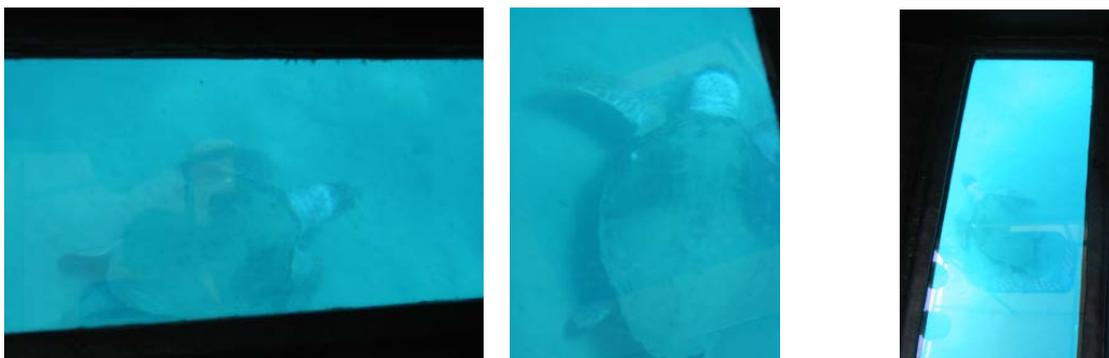


The turtle spotting trips also range in length from an hour trip in Laganas Bay to an afternoon excursion including a trip to Keri caves, or a full day round the island tour. However, whichever trip is chosen, all tourists end up in their boats in Laganas Bay trying to find a very limited number of turtles.

The consequence of this is that the turtles that are spotted attract all of the boats in the Bay at that point in time. Indeed from the beach is it possible to work out where a turtle is by where the tourist boats have congregated.



The resulting hounding of a few individuals felt akin to hunting them, and the turtle we saw seemed to be trying to hide and showing more general signs of distress. This was not helped by our driver continuously attempting to go right over the top of the turtle in the very shallow waters with the glass bottomed boat to ensure that everyone got a good view and some nice pictures.



The guide informed us that they only did this if it was safe and didn't hurt the turtle. However, I would think that turtles don't normally have to deal with glass bottomed boats full of tourists floating over them at very close range. I am sure this will, if it has not already, affected them and caused them to change their behaviour.

On our trip I saw only the one turtle. Other tourists I spoke to had also seen turtles on their turtle-spotting trip, but all in similar circumstances to the ones I saw. Most were fairly accepting of the way turtles were found and were grateful to have seen them. Most talked about how sad it was they were so endangered but had little awareness of how their sightseeing could be contributing to their decline.

### **Guidelines for Tourists**

The World Wildlife Fund has issued guidelines for visitors, although I did not see them displayed at any time on my trip. I had to read them from a guidebook. They are:

1. Don't use the beaches at Laganas and Yerakas between sunset and sunrise.
2. Don't stick umbrellas in the sand in the marked nesting zones.
3. Take your rubbish with you- it can obstruct turtles.
4. Don't use lights near the beach at night- they can disturb the turtles, sometimes with fatal consequences.
5. Don't take any vehicles onto the protected beaches.
6. Don't dig up turtle nests- its illegal.
7. Don't pick up hatchlings and carry them to the water, as it's vital to their development that they reach the sea on their own.
8. Don't use speedboats in Laganas Bay- a 9kph speed limit is in force for vessels in the bay.

## Management of Zakynthos National Marine Park

The National Park Authority has designated different parks of Laganas Bay Marine Park into different zones. The Park consists of seven terrestrial zones and four buffer zones covering a total of 1,471 hectares and two maritime zones covering 8,918 hectares, including the islets of Serkania located 50 nautical miles off the coast of Laganas.



Laganas Bay itself is divided into three different zones. Boat access is prohibited in Zone A, and anchoring and mooring is prohibited in Zone B. Both Zones B and C are subject to a speed limit of 6 knots from May 1 to October 31<sup>st</sup> each year.

On land Zone A1, the breeding site at Serkania, is the most protected, an 'absolute protection zone' with absolutely no activity, other than scientific research allowed.

Zone A3 of the management plan relates to the island of Strofandina. Although it has no nesting turtles, is an important location for migratory birds and for this reason it is designated as natural protection zone. Here soft infrastructure for environmental education purposes is allowed. So too is maintenance of cultural heritage and the continuation of existing agricultural cultivation and animal husbandry.

In the natural protection zones, such as Zone A2, the islets of Marathonissi (a turtle nesting beach) and Pelouzo, no new development is allowed although repairs and conservation of existing building of heritage value is permitted. As

are daily organised visits and the light infrastructure needed to support research.



My tourist trip turtle spotting included a trip to Marathonissis. The various trips saw tourists left unaccompanied on the island for between an hour to three hours to for swimming and sunbathing. Only fleeting reference to the turtles, and the appropriate behaviour of tourists was made.

This concentrated the visiting tourists on a very small section of beach, which I guess left the rest of the island for the turtles and the researchers. However I couldn't help feeling that leaving these tourists to their own devices was a missed opportunity to explain the importance of the turtle conservation efforts to them.



Zone N1 and N2 are areas where it is hoped that tourists and turtles can live together. On Gerakas beach, at the end of the Vasilikos peninsula at the south east of the island, between 7am and 7pm provision is made for 250

people under 120 umbrellas and a small stall. This is permitted on a small stretch of sand next to the waters edge on the proviso that they are removed at dusk every afternoon.

My visit to Gerakas beach found that the tourist infrastructure had been provided and was being well used; for the most part though tourists were staying, as requested, to 5 metres of sand closest to the sea.



Indeed the provision of the umbrellas and sun beds within this strip seemed to be serving to direct tourists to this location. The success of management in this area could also be attributed to the NMPZ visitor stand which is located at the access point to Gerakas beach at the end of the road. Tourists and local alike have to pass by the stand to access the beach and information leaflets and visitor guides are freely distributed. This strategic point is also the location for the Gerakas NGOs visitor centre.



Zone N3 covers the area of the nesting beaches at Kalamaki. Here building is prohibited although research and soft infrastructure such as information and interpretation boards are allowed. Tourists can visit between 7am and 7pm and 150 umbrellas and sun beds are permitted as long as they are removed each night.

My visits to Kalamaki around dusk found the information point had closed, although a current tally of turtle nest monitoring could still be seen, and there were leaflets available to take away.



AREA	NESTS	NEW	TOTAL	NEW	HATCHED
GERAKAS :	0	78	1	3	
DAFNI :	1	51	0	11	
SEKANIA :	1	386	7	48	
KRYSTAL :	7	75	1	4	
KALAMAKI :	0	152	1	6	
MARATHOUSI :	7	45	0	0	
04/08/09	4	785	10	72	

There was evidence of what looked like recent development just back from the beach, and I could see how the lights from these developments may distract and disorientate the turtles.



Kalamaki's Crystal beach was the first place I saw the pyramid markers showing known turtle nests. Each marker includes a sign in English and Greek warning that disturbing turtle nests is a criminal offence. The same kind of markers can be seen on all the turtle nesting beaches.

*A nest marker on Daphni beach*



More interestingly it was also clear that the umbrellas on Crystal beach had been removed, and the stands left. I am unclear as to whether leaving the stands or removing them each night and reinstalling them every day posed a greater risk to the turtles. The pedalos looked like they were staying the night as well which I would imagine have the potential to disorientate the turtles in much the same way as any other obstructions would.



On Kalamaki beach itself there was also evidence of umbrellas being left for the night. One area of the beach was cordoned off although this seems to be for health and safety reasons, as falling rocks presented a danger, rather than to protect the turtles.



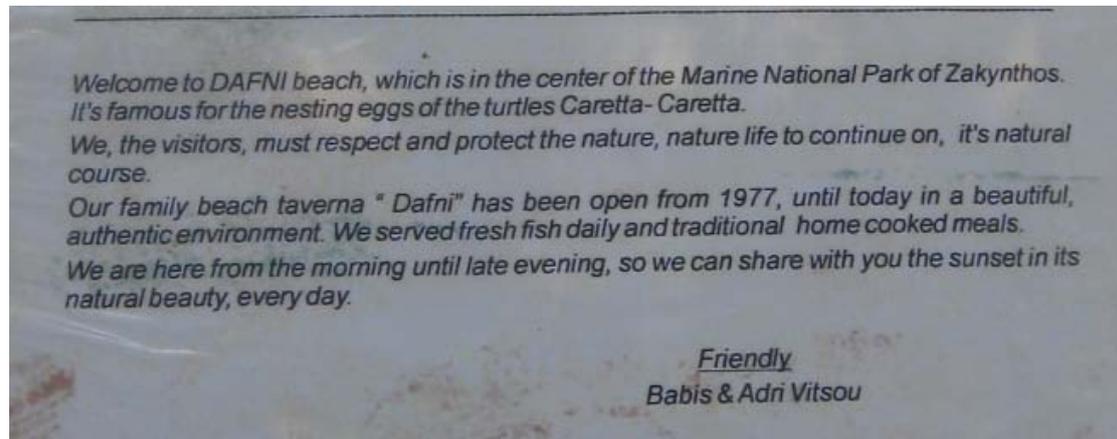
*Kalamaki Beach- area near the cliffs cordoned off for safety, but beach umbrellas remain in the sand.*

One of the most contentious areas seems to be at Daphni beach on the Vasilikos peninsula. Here tourists and turtles seem to be literally on top of each other. The nest markers and the bar customers are literally sharing the same space.



*Daphni Beach- tourists and turtle nests- Can they live together?*

This conflict is recognised and acknowledged in the restaurant's own menu.



This business is clearly well established and seems popular particularly with the Greeks. However it is the one place singled out in my guide book as somewhere to be avoided. It seems that Daphni beach is very contested territory as it is located adjacent to the absolute protection zone.

Aside from the note in the restaurants menu and a few signs there was little interpretation or explanation about how tourists should behave and why this would help the turtles. Information on this could be found at the National Park visitor's centre, although this was located up in the mountains rather than on the beach where the locals and visitors could easily access this.

## Mountain Visitor's Centre

The National Marine Park run a visitors centre located up in the mountain on route to Daphni Beach. It contains lots of information on the biology, distribution and dangers facing both the turtles and the whole ecosystem.



*National Marine Park Visitors Centre in the Hills*



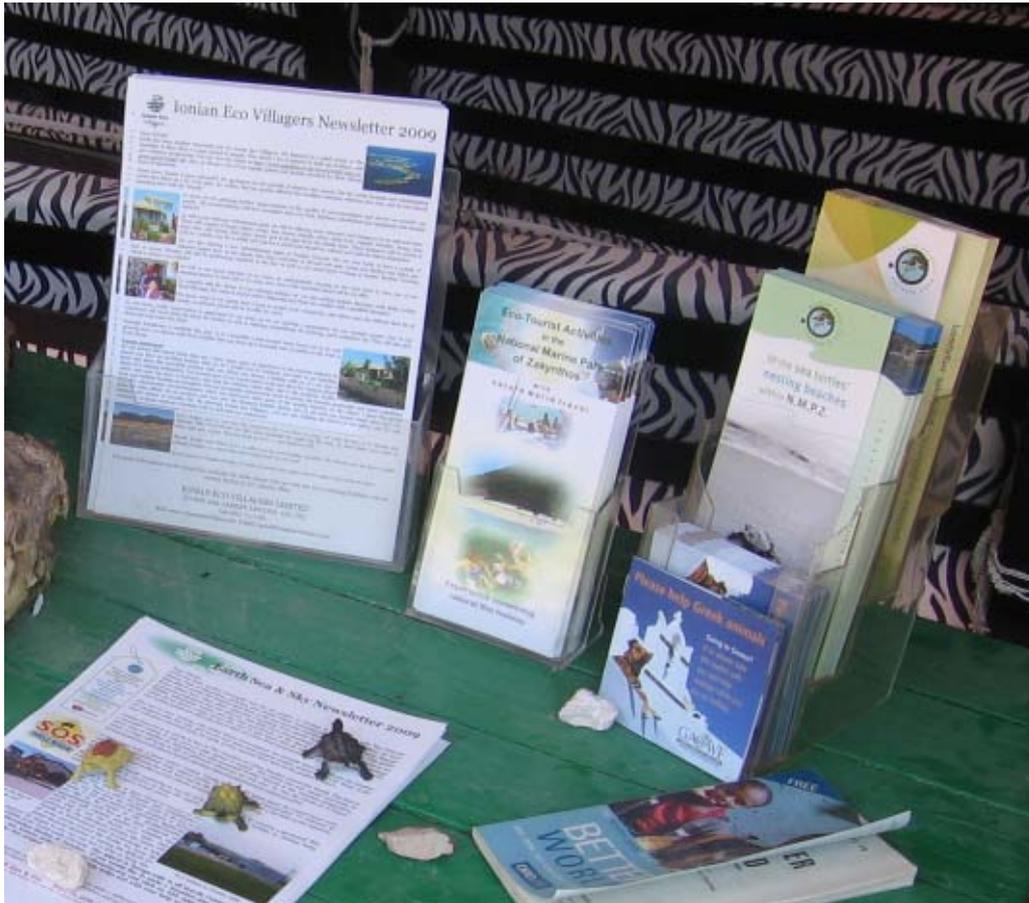
*Caretta Caretta sign located just off Daphni Beach*



There are a couple of rooms of exhibitions and then a large education room full of children's pictures of turtles. It is clear that this centre is doing good education work and involving and engaging young people in activities which promote and understanding of the turtles and how they can be protected. However the centre seems to be in the wrong place. It can not be easily accessed, as it is located up a dirt road in the hills. The signage to it is limited and all in Greek. I only stumbled across it by chance, and I was actively looking for information on the turtles.

## Gerakas Visitor's Centre

In contrast, there is also a Visitor's Centre at Gerakas, just off the beach, which details the history of the Marine Park and the importance of the turtles and other species of wildlife and plants to Zakynthos, Greece and the World. The centre hosts a video on the life-cycle of the turtle and various display boards and information leaflets to take away.



**The Struggle for a Marine Park for Zakynthos**

The Gerakas visitor centre also details the pioneering work of Dimitria Margaritoulis. In 1977-1980 she made preliminary observation on the turtles nesting patterns. Prior to this no scientific data on sea turtles existed in Greece.



In 1980, the National Council for Town Planning and the Environment declared that the beaches of Laganas were to be protected and authorised the appropriate ministries to precede with special protection measures. In 1981 a preliminary monitoring programme was initiated on Zakynthos; followed in 1982 with a long term tagging process and the introduction of the first building restrictions, in parts of Laganas.

In 1983, the field researchers who had participated in the turtle surveys founded The Sea Turtle Protection Society of Greece. The society worked in co-operation with the Greek authorities and supported by the European Community implemented continuous monitoring of both the nesting beaches and the turtles. To date the Bay of Laganas has proved to be the single most important nursery for the Loggerhead turtles in the whole Mediterranean with between 800 and 2000 nests, depending on the year.

In 1984 a presidential decree was issued introducing regulations on tourists and residential development, as well as land use behind nesting beaches. This set private land aside for conservation purposes, but landowners reacted angrily to this as the government had failed to propose compensation measures at the same time.

Eventually, presidential decree 906/D 26-12-1999 was issued. This established the National Marine Park of Zakynthos at Laganas Bay.



### **The Marine Park's Management Body**

The presidential decree which established Laganas Bay as a National Marine Park also makes provision for the establishment of a private non-profit body to manage the National Marine Park of Zakynthos (NMPZ) under the supervision of the ministry for the environment and other stakeholders. Its main task is to prepare and implement the NMPZ Regulations through the management and operation of the park.

The management body prepares a management plan every three years which it submits to the Ministry of Environment. It also prepares an annual action plan. It receives funding from the state, local government, several European Union programmes, and some private donations, commissions and loans.

The management body is made up of nine member board members and a president. The board members include one representative from the Ministry of Environment, one from the regional government and one representative of the NGOs working on Zakynthos. All members are appointed by the Ministry of Environment.

## The Work of Archelon – the Sea Turtle Protection Society of Greece

A key player in the monitoring of turtles and the management and educations of visitors is Archelon- the Sea Turtle Protection Society of Greece. The society was founded in 1983 with the aim to protect sea turtles and their habitats in Greece.

Archelon seek to help protect the turtles through a variety of means including scientific research, public awareness campaigns, habitat restoration projects and running rescue centres.



On the island of Zakynthos Archelon run a volunteer programme which enables people to spend their summer helping Archelon with its various activities- turtle monitoring, nest marking, beach patrols and visitor information. The volunteers camp together at a site just outside of Kalamaki.



The facilities are fairly basic with toilet and shower block, communal cooking at eating, although this is made clear to the volunteers before they arrive in

the in the heat of the day I found the camp to be an uncomfortable place to visit especially as it is located inland and so does not benefit from cooling sea breezes.



The volunteers I spoke to told me that although volunteers came from all over world for example Germans and Australian, the majority of volunteers were from England. I was told that there were also a few volunteers from Greece, although not Zakythos itself. This was seen to be a new and important development for the project as working in partnership with the Greek population is seen as being critical to its ultimate success.

The volunteers I spoke to were largely students, either with degrees, or studying for degrees in biological science or environmental studies. They told me that they enjoyed the camaraderie of the camp, getting involved in monitoring the turtles and talking to the public. They said that they manned

the stalls in shifts and also did night patrols on the beaches. They said that they found their work interesting, enjoyable and sometimes exhausting but all felt that they were really making a difference and helping the turtles.

Some of the volunteers, who had been with the project the longest were slightly more reflective about their work and were all too aware of the enormity of the job in hand. I sensed that some of them were becoming resigned to the limitations of the impact of their work as the situation was already so critical for the turtle. Many seemed frustrated that they could not do more.

One volunteer told me that the WWF had been forced to pay millions of euros to buy land near to Serkania to stop it being developed. This was a key nesting site for the turtles and this action appears to have secured the future of the beach. However, the fact that this action was necessary and enacted by international charity, hints at possible problems with the implementation of local protection policies, which should already have afforded the beach the protection it needed.

All of the volunteers I spoke to that had seen actually seen turtles, nestlings or eggs spoke with great passion of their experiences. One volunteer explained how a turtle had been seen at very close range somewhat unexpectedly while the volunteer was swimming. The enthusiasm of the volunteers speaking to me was impressive, but I was concerned that all of this knowledge and information could simply be lost when the volunteers returned home.

Most of the volunteers I spoke to had come across Archalon through their website. This seemed to be the principle way that the NGO recruited its volunteers. Archelon also run a Visitor Information Point on the main tourist strip in Kalamaki. Kalamaki is more of a family destination, and perhaps a presence in the youth hot-spot on Laganas could also be useful.



Archalon's stand contains many informative panels, in both English and Greek which explain their ongoing research and nest monitoring work, as well as a recent GPS tracking project.



The stand in Kalamaki details importance of the turtles and their supporting ecosystem to the world. It includes information on the turtles' locations and distribution, biology, reproduction, life cycle, comparisons with other turtles and information about the work of Archelon across Greece. Most importantly volunteers at the stall engage directly with passing tourists to explain the effects that humans can have on the turtles and their habitats and what tourists can do to minimise their own impacts.

## **Report on the Samaria Gorge National Park, Crete**

The Samaria Gorge on Crete is home to a number of endangered species and was designated a national park in 1962 to save the Cretan wild goat, the kri-kri, from extinction. Popular with many tourists every year, Samaria Gorge is now a honey-pot tourism site and admission is controlled through the payment of an entrance fee and restricted opening times.

I wanted to see how the conflict between tourists and wildlife was managed with particular reference to mitigating the risks to this important habitat, including the risk from fire.

### **Tourism and the Gorge**

The Samaria Gorge in south western Crete is the location of the most spectacular landscapes on the island. The Samaria Gorge is the reputedly the longest ravine in Europe and was designated a national park in 1962. At this time the residents of the pastoral Samaria village moved elsewhere, but the ruins of their village and their tiny chapels at Agios Geogias, Osia Maria, Agios Christos, Agia Paraskevi and Agios Nikolas can still be seen today.

It is home to a large number of endangered species most notably the Kri Kri (Cretan Wild goat) which is well suited to its mountain environment being both nimble and sure footed on rough terrain. Mature adults have horns with three rings along their length and attractively marked coats. They are found in only a few areas of Crete, including the Samaria Gorge, and thought to be a truly wild relative of the feral goats which can be found in large numbers throughout the Mediterranean and in other parts of the world.

My guidebooks advise visitors that they are unlikely to see a Kri Kri as they have an aversion to tourists. However, visitors I spoke who had seen the goats said that they seem rather tame for wild animals. This suggests that the sheer number of visitors in the gorge may be affecting the goat's natural behaviours, as they become increasingly accustomed to humans.

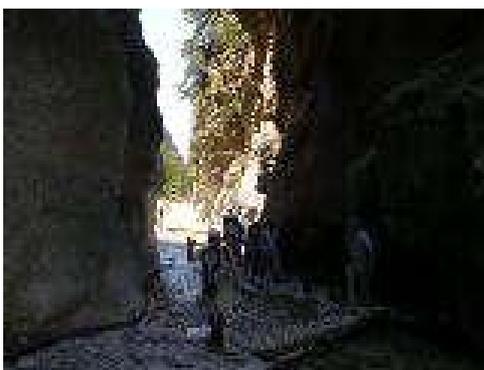


*Pictures from travel brochure promoting walking the gorge*

The gorge was carved out by the river that flows between the mountains of Avlivmanakou (1857m) and Volakias (2116m) just below the Omalos plateau. It varies in width from 3 to 150 metres and the walls are over 150m at their highest points. The gorge also boasts numerous wild flowers, although April and May are the best time to see them.

The walk itself takes between five and seven hours, with water fountains provided en route. Walkers are advised to wear sturdy shoes particularly for the Xyloskalo, or wooden stairs with wooden handrails, where the path drops 1000m (3,280 ft) within the first 2km (1 mile) of the walk.

The zigzag path at Xyloskalo enables you to reach the gorge itself, and is the starting point of the 44 km (27 mile) walk through the National Park ending at the small seaside village of Agia Roumeli, or New Village, which is equipped with restaurants and boarding houses and was once the haunt of pirates and used to export cypress wood to Egypt.



12 km in hikers squeeze through the narrowest part of the gorge, at Sidiropotes- the Iron Gates where the two towering rock walls are only three meters (9ft) apart. This is a highlight of the walk and compulsory photo stop.



Walking the Samaria Gorge is highlighted in all the guidebooks on Crete as a 'must do' attraction, although they all also advise of the crowds. Early in the season walkers may have to wade through the stream but later in the year as the flow drops stepping stones emerge. It is however not for the faint hearted as one of my guidebooks cautions:

"The Samaria Gorge is not a walk in the park and you should only attempt it if you have a reasonable level of fitness. If you find that the going is tough within the first hour, there are park wardens with donkeys who will take you back to the beginning.

Rugged footwear is essential for walking on the uneven ground, which is covered by sharp stones. Don't attempt to walk in unsuitable footwear – you will regret it. Take a hat and sunscreen, plus a small bottle of water that can be refilled along the way in the many springs spurting cool water (it's inadvisable to drink water from the main stream). Bring energy food to snack on. Be wary of falling rocks, which have caused fatalities."

## Report on the National Marine Park of Alonnisos, Northern Sporades

Alonnisos in the Sporades, is home to striped, bottlenose and common dolphins, and the endangered monk seal. Local residents are renowned for their respect for the ecosystem and I wanted to see how marine protection policies were implemented and how local residents are engaged in these processes.

### **Mediterranean monk seal**

Once populating hundreds of colonies in the Black Sea and the Mediterranean, as well as along the Atlantic coast of Africa, the Mediterranean monk seal has been reduced to about 400 individuals today. Half of these live in waters between Greece and Turkey.

One of the earth's rarest mammals, this seal is on the list of the most 20 endangered species worldwide. Major threats include deliberate killings by fishermen – who see the seal as a pest that tears holes in their nets and robs their catch – incidental catching in fishing gear, decreasing food supplies as fisheries decline, habitat destruction and pollution.

Recognising that the seal may become extinct if not protected Greece established the National Marine Park of Alonnisos in 1992, to both protect the seal and to promote the recovery of fish stocks.

The Lonely Planet, 2008, page 667

My guidebook observes that the Mediterranean Monk Seal (*Monachus Monachus*) is the most endangered mammal in Europe, with less than 400 surviving worldwide. The majority of them live around the Portuguese island of Maderia, although there are also populations along the coast of Morocco, Algeria, Libya, Croatia and Cyprus, although small numbers survive in the Greece waters of the Ionian sea and Aegean of which the largest community,

comprising of around 30 seals, is found living and breeding around the islands north of Alonnisos.

### **National Marine Park of Alonnisos**

Founded in 1992, the National Marine Park of Alonnisos and the Northern Sporades, is an area of great environmental importance and sensitivity. The fragile marine ecosystem is home to rare wildlife, flora and fauna and the national park was created to protect the important breeding ground, and Greece's largest population, of the endangered Mediterranean Monk Seal- of which there thought to be fewer than 400 left worldwide, making it one of the world's most endangered species. As well as the seals the national marine park protects other wildlife including cetaceans and some rare sea birds.

The National Marine Park's area includes not just Alonnisos but also the tiny uninhabited outer islands and islets of Peristera, Kyra Panayia, Yioura, Psathoura, Skantzoura and Piperi. Yiuora (or Gioura) is the home wild goats, and no-one is allowed within 500metres of the island. Auduins gull and Elenora's falcons can be found on the islet of Skantzoura which boasts nothing more than an abandoned monastery and a few seasonal shepherds. However an inhabited monastery still exists on the island of Kyra Panayia.

The marine park also serves as an important staging post for many migrant birds en route from their breeding grounds in North east Europe during the spring and autumn. Land birds from tiny warblers to elegant pallid harriers can be found here as well as grey herons and kingfishers, and several species of gulls and terns.

### **Protection Policies and Monitoring**

Fishing is restricted around Alonissos, a move which has proved surprisingly popular with local fisherman because the tighter restrictions impact mostly on larger scale fishing boats from elsewhere in Greece. Local stocks are

beginnings to recover and in time the fishermen see they will benefit financially from this.

Marine biologists from the University of Athens have pioneered work to scientifically monitor the Monk seal in Alonisos. The hard work of the Hellenic Society for the Protection of Monk Seals (HSPMS) must also be recognised. They have worked tirelessly with the local community to improve understanding and education, particularly among local fisherman.

Until recently it was not uncommon for fisherman to kill seals because they compete with fisherman for fish, and have been known to destroy nets full of fish. HSPMS working in collaboration with the Pieterburen Seal Crèche have successfully hand reared several abandoned seal pups and released them back into the wild in the north of the National Marine Park.

Although monk seals can travel up to 200km a day in search of food, they tend to return to the same places to rear their pups. As they have only have one pup every two years their small populations are very vulnerable to disturbance. The monk seals of Alonissos have adapted their behaviour to respond to the disturbance of man by retreating to isolated sea caves with restricted partly submerged entrances to breed, rather than rearing their pups in the open.

### **Visitor Management and Policy Implementation**

The islet of Piperi lies within the core zone of the National Park and serves as a monk seal and seabird refuge. Access is strictly controlled and it can only be visited by scientists with permission from the Ministry of Environment, and fishing is prohibited within 5km of the islet. Critics argue however that the Greek Government has made little attempt to enforce these regulations and boats from outside the area continue to fish around Piperi.

Although virtually none of the islands have a resident population or regular ferry service, the islands of Peristera and Kyra Panayia can be visited by an

excursion boat, or 'kaiki'. Boats are not allowed to take visitors to the more remote islets and guidebooks caution against such activities and indeed seem discourage visitors all together by highlighting how unlikely it is that you will see a seal and stressing the remoteness and isolation of this part of Greece.

A few unauthorised campers appear to be tolerated on Peristera but only in one particular spot- known locally as Barbecue Bay. Camp fires are also allowed here. Owing to the severe restrictions in place in the National Marine Park it was not actually possible for me to visit Alonnisos or its neighbouring islands. This experience however clearly illustrates that in order to protect some of the world's most endangered wildlife keeping the tourists away can be a key management responsibility.

In most parts of the park only scientists are now permitted to visit. The inaccessibility of the location, and lack of service by an airport or reliable ferry service, also seems to be assisting with efforts to ensure that this fragile ecosystem is left alone. However, the recent filming on the Hollywood movie Mamma Mia in this area may serve to put the destination on the wider tourist map. Ensuring this remoteness and isolation is retained, through continuing to resist tourism and any other development pressures may be the monk seals best, and possibly only, chance of survival.

## Analysis and Conclusions

### 1) Water

Water played a key role in each of the National Parks I studied. Rivers, lakes and coast-lines both create spectacular scenery I visited and were beautiful attractions in their own right. However it was the use of water as a resource to be managed that was the focus of my study.

The use and management of water as a resource was most evident in my discussions with the local groups in Athens where new development and new infrastructure and the importance of green space are contested issues. Water conservation was seldom mentioned other than requests from the hotels I stayed in to re-use my towels.

I had expected that the management of the water resources in the marine parks would be more developed than management of terrestrial lands. However, it seems that land-use policies are perhaps more familiar, more established and easier to enforce.



For example, controlling development through land-use policies in Zakynthos has occurred, although the reasons for this are difficult to attribute.



Discussions with Archelon volunteers would suggest that the role of NGOs in protecting land should not be underestimated although I also suspect that the flight path to the airport may be another reason that development pressure in this area has been less.

My own observations of boats and speed limits would suggest that some of the regulations are given scant regard by many of the boaters and even some of the tour companies. During my visit I saw no evidence of any enforcement of the rules, there was no police or ranger presence either on land or on the boats.

Throughout the whole of my time on Zakythos, I also saw no pro-active engagement from the package holiday operators in conservation issues, for example there was no information in my hotel room, or available in the selection of leaflets in the hotel's bar. This would seem to be an area that could be further developed and would ensure that the messages of protection, conservation and appropriate behaviour get out to as many tourists as possible.

In contrast, the management policies in the Sporades prevent tourists from even visiting most parts of the park although even here anecdotal evidence suggests these policies are not always respected.

Overall, I found that the use and conservation of water in Greece did not have the prominence I expected. However, even this observation offers useful guidance to those involved in Marine Spatial Planning in the UK. Indeed the ongoing debate as to how the planning system can best engage with the marine management and protection agenda is set against the backdrop of a Marine Spatial Planning Bill which is making its way through the law-making processes.

It is clear that the involvement of stakeholders in both the policy making and implementation processes is key. There is also clearly no point in investing time, money and effort into creating rules and regulations for managing marine areas that are either unenforceable, or simply not enforced. However, some of these issues could hopefully be avoided if the National Marine Park Legislation is developed through partnership working- understanding the needs of all stakeholders.



If and when a marine park is established careful thought should also be given as to how the rules and regulations are explained to all the different users of the park. Different groups may need different levels and methods of interpretation and explanation.

In this regards the newly created cross boundary National Marine Parks at Koster Havets, Sweden and Ytre Hvaler, Norway and would seem to be an exemplar.

Footnote: I was fortunate to be able to visit these as part of the Europarc 2009 conference which included attending the inauguration of the Koster Havets National Park, the first marine park in Sweden, I would suggest that the establishment of this cross-boarder national marine park offers many useful lessons for the UK, including around partnership working and engagement.

NB: For more information on Koster Havets and Ytre Hvaler National Parks see the Europarc section of the web-links at the References and Sources of Further Information section at the end of this report.

## 2) Fire

The impact of fire was clearly prevalent in all my visits to Greece. On Zakynthos the impact of recent fires could be seen across the islands, particularly in the western mountains. In fact the most recent fire on Zakythos occurred just after my return on August 23<sup>rd</sup> and could be seen from space.



Signs warning of the dangers of fire were seen but not commonplace. There was also no evidence of the adjustable fire risk signs I have seen in

*Fire Damage and Signs in Zakythos*



## **Analysis- Visitor Management and Education**

Throughout my visits to Greece the importance and impact of tourists on the protected areas I visited was obvious. The management of visitors took many forms from entrance fees and 'opening times' in Samaria Gorge to access by permit only in the Sporades, and restrictions on boating and beach access in Zakynthos.

The Samaria Gorge is a classic 'honey-pot' tourism site which attracts vast numbers of visitors and as such often feels like a motorway of tourists. The entrance fee of 5 Euros and the restricted opening time 6am- 3pm May to Mid-October seem to serve both to help manage the visitors numbers and also to ensure their safety.

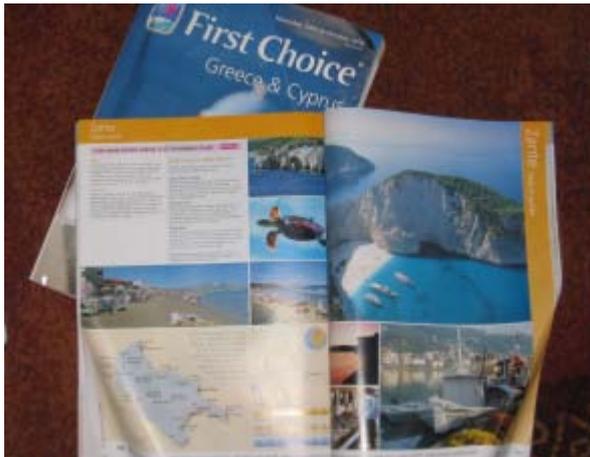


Zakynthos was an island of contrasts- the undeveloped north and west of the island contrasted with the over-developed south with the resorts of Laganas and Kalamaki.

In Zakynthos in the resorts of Laganas, Kalamaki and Gerekos efforts are being made to inform and educate tourists by Archelon, the National Park and others through information points and visitor's centres. However this may in be too late. Loggerhead turtles also feature prominently in the marketing of Zante in the United Kingdom, and all the tour companies offer turtle spotting excursions as an optional extra.

Archelon are also trying to attract families to become involved in their projects as volunteers. However, I am not sure how appealing the conditions at camp would be to families with young children. Perhaps allowing tourists already staying in local accommodation to volunteer for a day or two may be a more

successful way of reaching out to younger people. I also saw evidence of colouring books, adopt-a-turtle schemes and other activities targeting at younger people. These could perhaps be better promoted. There would also appear to be both need and demand for something akin to a junior ranger programme. This may be an area that Europarc could assist the Greek authorities and NGOs with.



There would seem to be an opportunity to partner with the tour companies to better promote responsible tourism. For example including leaflets of the WWF suggested code of conduct for tourist available in the tour company welcome packs.

There was a good level and provision of information services- Signs from the National Marine Park of Zakynthos were numerous and clearly visible, as were their visitor information points, such as these at Gerakas. However, the location of the visitor's centre in the hills seems at odds with the notion of an accessible easy-to-use visitor's attraction. Perhaps the airport would be a better location for a visitor's centre.



*NMPZ Signs at Daphni Beach*

## Recommendations

In Laganas, it was clear that more could be done; and is urgently needed if the turtles are to survive. Whilst the important work of Archalon and other NGOs must not be underestimated - I felt that more strategic support was needed. There would seem to be a role for Europarc in this in terms of offering mentoring and support services, perhaps utilising twinning opportunities, and their experience of the charter-marks for official accreditation needed for tourist trips, and limits placed on tourist boats to turtles in both numbers and capacity.

However, my trip to Zakythos also showed the danger of designating or marketing a National Park solely on the basis of a single species. The marine environment of the island is important and should be protected and the loss of its 'signature species' could lead for calls to the National Marine Park to be disbanded or at least for some of regulations to be relaxed. The same risk could be seen for the Monk Seal in the Northern Sporades- although information here does seem to talk more about the ecosystem in the round.

The increasing interest in environmental matters I first discovered in Athens is a trait found throughout my travels. Such awareness would suggest the interest in national parks amongst the Greeks is likely to increase. I just hope its not too little too late.



*Archelon's Loose Change  
Collection Point at Airport*

The funding of the management and conservation of Greek National Parks may also be something that requires further consideration. Whilst the NGOs are doing a good work they have to exert a lot of effort constantly fundraising, which could be perhaps be better used researching and conserving the ecosystem. Perhaps a tourist or bed tax would be worth exploring.

## References and Sources of Further Information

### Guide Books

Benson A et al (2006) The Rough Guide to Greece, 11<sup>th</sup> Edition, Rough Guides

Dubin, M (2002) Eyewitness Travel Guides- The Greek Islands, London: Dorling Kindersley

Dubin, M (2003) Eyewitness Travel Guides- Greece- Athens and the Mainland, London: Dorling Kindersley

Hellander, P et al (2008) Lonely Planet Greece, 8<sup>th</sup> Edition, Australia: Lonely Plant Publications Pty Ltd

Hellander, P et al (2006) Lonely Planet Greece, 7<sup>th</sup> Edition, Australia: Lonely Plant Publications Pty Ltd

Laganas Bay Marine Park, Zakynthos-  
Archalon

[www.nmp-zak.org](http://www.nmp-zak.org)

[www.archlon.gr](http://www.archlon.gr)

Alonissos and the Northern Spoardes

[www.alonissos-park.gr](http://www.alonissos-park.gr)

Moors for the Future Project

[www.moorsforthefuture.org.uk](http://www.moorsforthefuture.org.uk)

South Hams District Council

[www.southhams.gov.uk](http://www.southhams.gov.uk)

Alfred Toefper Foundation

[www.acti.de](http://www.acti.de)

Scholarship

[toepfer-fvs.de](http://toepfer-fvs.de)

EUROPARC Federation

[www.europarc.org](http://www.europarc.org)