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**Threats to marine turtles in Thines Kiparissias
(Greece)**

- REPORT BY THE NGO -

*Document prepared by
ARCHELON, the Sea Turtle Protection Society of Greece*

ARCHELON, the Sea Turtle Protection Society of Greece



**CONSERVATION EFFORTS DURING 2018
AT THE NESTING HABITAT OF *CARETTA CARETTA*
IN SOUTHERN KYPARISSIA BAY
(NATURA 2000 - GR2550005 “THINES KYPARISSIAS”)**

Short report submitted to
the European Commission and the Standing Committee of the Bern Convention

Athens, October 2018

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PROLOGUE

This report, a follow up to the previous reports submitted annually since October 2012, presents the main events in the efforts to protect the habitats of southern Kyparissia Bay (Natura 2000 site GR2550005 “Thines Kyparissias: Neochori – Kyparissia”) in general and the marine turtles in particular, during 2018. Specifically, this report focuses on the actions taken by the Greek government and the local authorities regarding the Judgement of the European Court of Justice of 10 November 2016 (case C-504/14) and the relevant case file in the Bern Convention (Recommendation No. 174), as well as the actual situation at the nesting site during the nesting season of 2018, as recorded through the fieldwork of ARCHELON.

1. BACKGROUND

1.1. Location and core nesting area

Kyparissia Bay, at the western coast of central Peloponnese, has a significant ecological value because it is the second largest loggerhead sea turtle (*Caretta caretta*) nesting habitat in the Mediterranean Sea (Margaritoulis et al., 2003) and it contains an extensive system of sand dunes (Embryonic shifting dunes 2110, dunes with *Euphorbia terracina* 2220 and the priority habitat coastal dunes with *Juniperus* spp. 2250 that is included in Annex I of Directive 92/43/EEC). The Bay’s coastline consists of about 44km of continuous sandy beach from the river Alfios in the north, to the river Arcadikos in the south, with a small number of additional beaches separated by rocky outcrops further south. The terrestrial part of the Bay includes two Natura 2000 sites (GR2550005 “Thines Kyparissias: Neochori – Kyparissia” in the south and GR2330005 “Thines kai Paraliako Dasos Zacharos, Limni Kaiafa, Strofylia, Kakovatos” in the north) while the marine area includes another Natura 2000 site (GR 2330008 “Marine area of Kyparissia Bay: Katakolo Cape – Kyparissia”) (Illustration 1).

Although turtles nest along the entire 44km beach, the core nesting area is located in the southernmost 9.5km, between the rivers Neda and Arcadikos (Margaritoulis & Rees, 2001), where approx. 82% of the total nesting activity is recorded. This part of the beach is entirely included in the Natura 2000 site GR2550005 “Thines Kyparissias”. The core nesting area is divided for monitoring purposes by ARCHELON, into four sectors (A, B, C, O), of which the northernmost three (A through C, totaling about 7.3km) are the least developed and are backed by stretches of coastal pine forest, low dunes and cultivated fields, while the southernmost sector (O, about 2.2km) is characterized by many disturbances, affecting turtle nesting and hatching, as it contains the expanding coastal village of Kalo Nero. The village of Elaia and the small settlement of Agiannakis are found at a short distance from the beach behind the Sectors C and B respectively (Illustrations 2 and 3).

1.2 Local government

The Municipality of Trifylia, based in Kyparissia, includes the entire core nesting area of 9.5km of beach length. The Municipality falls under the Region (Perifereia) of Peloponnese, based in Tripoli, and to the Decentralized Administration (Apokentromeni Dioikisi) of Peloponnese-Western Greece-Ionian Sea, based in Patras.

1.3 The long-term field project of ARCHELON

Since the beginning of the 80s, ARCHELON operates a seasonal conservation project in Kyparissia Bay. Tagging of nesting turtles started in 1982 and systematic beach surveys commenced in 1984. During the period 1984-1989 the entire length of Kyparissia Bay was surveyed, but since 1990 the monitoring project was restricted to the southernmost 9.5km of beach, which was assessed as the core nesting area (Margaritoulis & Rees, 2001). Since 1992, all nests within the core area are protected against predation by animals, inundation by the sea and disorientation of hatchlings as a result of bright artificial lighting. The massive protection of nests has caused an increase in the number of nesting turtles since 2006 (see below).

The seasonal field project of ARCHELON during 2018 started on 5 May and terminated on 30 September. Preliminary data raise the number of nests that were located in the 9.5km core area (Neda River to Arcadikos River) to approximately 2,550 (detailed processing of data is still underway). This

is the 6th year in a row (2013-2018) that over 1,000 nests were recorded in the core nesting area and that the number of nests exceeded those recorded in Laganas Bay (Zakynthos Island). The increase in nest numbers, that has occurred since 2006¹, combined with an increase of neophyte turtles (i.e. turtles nesting for the first time), is likely to be attributed to the massive protection of nests applied in the core nesting area since 1992 (Margaritoulis et al., 2013). The period between the start of the extensive nest protection (1992) and the significant upward trend in nest numbers (2006) coincides with the minimum age of maturity of *Caretta caretta* in the Mediterranean, which is estimated at about 14 years (Casale et al., 2011).

1.4 Lack of protection for southern Kyparissia Bay

Although ARCHELON has submitted to the Ministry of Environment a Specific Environmental Study (SES or “EPM” in Greek), accompanied by a Management Plan and a Draft Presidential Decree for southern Kyparissia Bay since 2002 (elaborated in the context of LIFE98-NAT/GR/5262 project), no specific protection or management measures were adopted or implemented, nor conservation objectives were laid by the Ministry for the area. As a result, the sea turtle nesting area and the other habitats in southern Kyparissia Bay remained unprotected. In contrast, significant management and conservation issues remained unresolved and resulted in the gradual degradation of habitats, as well as direct and indirect disturbances to sea turtle nesting (Vallianos and Margaritoulis, 2011).

Specifically, buildings have been erected, in some cases directly on sand dunes. Dirt roads along or leading to the beach have been paved and bright street lighting has been installed. The beach of Kalo Nero village is almost entirely occupied by beach furniture and wooden walkways; light pollution is severe and there are signs of coastal erosion. In the coastal area between the settlements of Elaia and Agiannaki, approx. 2.5 km in length, which is owned by the real estate firm "Neos Kotinos S.A.", five roads were illegally constructed perpendicular to the beach in 2011 and 2012, which resulted in the destruction of sand dune formations (conclusion of General Inspector of Greek Public Administration, December 2013). At the same time, 47 building permit applications were filed with the Urban Planning Authority and are still pending for approval. The permits involve the construction of two-storey holiday homes with basements and swimming pools (Illustration 4). Forty-three of the planned holiday homes are shown to have direct access to one of the five illegally constructed roads (under Article 10 Paragraph 1 Law 31212/2003, land plots outside urban planned areas can be built on when they back or have access to a public road).

2. CASE C-504/14

2.1 The Reasoned Opinion (October 2012)

As a consequence of the above, in October 2012 Greece received from the European Commission a Reasoned Opinion (EL2011/2156 ENVI) for violation of articles 6 and 12 of Habitats Directive 92/43/EEC in the Natura 2000 site GR2550005 “Thines Kyparissias”.

In response to the European Commission on the Reasoned Opinion, the Ministry of Environment committed to take protection measures for the core nesting area (Ref. No. 5074/22-11-2012). The measures to have been taken included: (a) the immediate control of anthropogenic disturbances, and (b) the implementation of an Action Plan for the medium and long-term protection of the area.

2.2 Condemnation of the Greek State by the Court of Justice (November 2016)

Despite the commitments of the Ministry of Environment to take appropriate measures to safeguard the core nesting area of the loggerhead sea turtle in southern Kyparissia Bay, the majority of conservation issues remained unresolved during the 2013 nesting season. Since no substantial steps were taken to promote the long-term conservation of the area and as the new nesting season was about to begin in two months, the European Commission decided in March 2014 to take Greece to the Court of Justice over failure to provide adequate protection for the endangered sea turtles and their nesting habitat.

¹ During the 12-year period (1994-2005) nesting effort in the core area (sectors A-C, O) averaged 552 nests per year. However, in the last 13 years (2006-2018) there has been a considerable increase (about 100%) in nest numbers!

The Court hearing took place on 13 January 2016 and the relevant Judgment was posted on 10 November 2016. The Court (completely coherent with the opinion of the Advocate General) declared that:

- The Greek State has failed to fulfil its obligations under Article 6, paragraph 2 of Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora on southern Kyparissia Bay by:
 - tolerating the construction of houses in Agiannakis in 2010, the use, without a sufficient regulatory framework, of other houses in Agiannakis which were built in 2006 and the commencement of building works relating to around 50 dwellings located between Agiannakis and Elaia, and by authorising in 2012 the construction of three holiday houses in Vounaki (Greece);
 - tolerating the development of access routes to the beach in the Dunes of Kyparissia Bay, namely the opening up of five new roads to Agiannaki beach and the asphaltting of certain existing roads and thoroughfares;
 - failing to take adequate measures to enforce the prohibition on wild camping close to the beaches at Kalo Nero and Elaia;
 - failing to take the measures necessary to restrict the operation of seasonal bars between Elaia and Kalo Nero, on the nesting beaches of the *Caretta caretta* sea turtle, and by failing to ensure that the various forms of pollution caused by those bars do not disturb that species;
 - failing to take the measures necessary to reduce, within the Kyparissia area, the furniture and various structures found on the nesting beaches of the *Caretta caretta* sea turtle and by authorising the construction of a platform near the Messina Mare Hotel;
 - failing to take the measures necessary so as to ensure that the light pollution affecting the nesting beaches of the *Caretta caretta* sea turtle in the Kyparissia area is adequately curtailed; and
 - failing to take the measures necessary to ensure that fishing in the waters off the nesting beaches of the *Caretta caretta* sea turtle in the Kyparissia area is adequately curtailed,
- The Greek State has failed to fulfil its obligations under Article 6, paragraph 3 of Directive 92/43/EEC by issuing permits for houses built in 2010 in Agiannaki, for three holiday houses in Vounaki in 2012 and for the construction of a platform near the Messina Mare Hotel without first subjecting these projects to an appropriate assessment for the compatibility of their implications with the conservation objectives of the site.
- The Greek State has failed to fulfil its obligations under Article 12, paragraph 1 (b) and (d) of Directive 92/43/EEC by:
 - failing to adopt a comprehensive, coherent and strict legislative and regulatory framework for the protection of the *Caretta caretta* sea turtle in Kyparissia Bay;
 - failing to take, within the prescribed period, all the specific measures necessary to prevent the deliberate disturbance of the *Caretta caretta* sea turtle during its breeding period; and
 - failing to take the measures necessary to enforce the prohibition on deterioration or destruction of the breeding sites of that species.

3. THE CASE FILE IN BERN CONVENTION

3.1 The case file and the on-the-spot appraisal (July 2014)

Regarding southern Kyparissia Bay, the Bern Convention opened a case file in 2013, on the lack of protection measures for sand dunes and loggerhead turtles *Caretta caretta*, a species listed in Annex II of the Convention.

In July 2014 experts of the Bern Convention carried out an on-the-spot appraisal in the core nesting area, during which they had the chance to see firsthand all the anthropogenic disturbances that

result in direct and indirect damage to sea turtles (adults and hatchlings), their nests, and the nesting habitat in southern Kyparissia Bay, as well as to meet with representatives from the Municipality of Trifylia.

3.2 The Recommendation No. 174 (December 2014 – December 2017)

In December 2014 the Standing Committee of Bern Convention issued to Greece Recommendation No. 174 on the conservation of the nesting habitat in southern Kyparissia Bay. The Recommendation consists of 12 points. Specifically, it is recommended among other that Greece:

- 1) Considers giving the key nesting area a protection status that may ensure the long-time conservation of its high natural value (National Park or equivalent);
- 2) permanently prohibits the construction of any villas or other buildings, new roads or other infrastructure, in the key area where construction licenses have been suspended, thus preserving the present natural state of those areas;
- 3) restores the original sand dune and forest habitat in the above mentioned area by demolishing the roads built perpendicular to the shoreline, as well as other artificial infrastructure; blocks as a matter of urgency, until the demolition works are carried out, the roads perpendicular to the shoreline with non-mobile barriers at the entry of the road, so to avoid further damage to the neighboring dunes and forest;
- 4) addresses, in the entire Natura 2000 site, the problem of photo-pollution, particularly in Kalo Nero;
- 5) ensures that the beach furniture used now in the Natura 2000 site is removed at night or stored in a way that reduces the area occupied on the beach; does not give any licenses to any new beach furniture so that most beaches remain free from obstacles for nesting turtles;
- 6) enforces measures aimed at avoiding people and cars from visiting the sea turtle nesting beaches at night.

The case file is reviewed annually during the Buro and the Standing Committee meetings since December 2015. Because of lack of progress regarding the points of the Recommendation, the Standing Committee decided to keep the case file open and agreed that the issue of a Presidential Decree, enabling the appropriate protective status to the nesting site and forbidding building in the Natura 2000 sites, is the most urgent measure that should be taken by the Greek authorities², that the judgement of the European Court of Justice (see in 2.2.) should be taken under consideration when making decisions for the habitat³, as well as that its Recommendation No. 174 should be fully implemented, avoiding any further deterioration of the nesting beach and its surrounding area⁴.

4. FOLLOW UP OF THE COMMITMENTS OF GREECE

4.1 The issuance of the 1st Draft Presidential Decree (August 2014)

In spring 2014 the Ministry of Environment decided to update the already approved Special Environmental Study (SES or “EPM” in Greek) for the neighbouring Natura sites GR2330005 and GR2330008 by adding the site GR2550005 “Thines Kyparissias: Neochori – Kyparissia”. The accompanying 1st Draft Presidential Decree, which referred to the three Natura 2000 sites and adjacent areas, was released for public consultation in August 2014.

In the opinion of the environmental organizations ARCHELON, MEDASSET and WWF Greece this Draft Presidential Decree could not achieve favourable conservation status of marine turtles and the habitat in southern Kyparissia Bay. On the contrary, it was expected to irreversibly contribute to a significant decrease of the conservation status of both the *Caretta caretta* and the dune habitat. It

² Report of the 35th Standing Committee meeting, page 14 & Report of the 37th Standing Committee meeting, page 9.

³ Report of the 36th Standing Committee meeting, page 13.

⁴ Report of the 37th Standing Committee meeting, page 9.

could not be considered a tool for sustainable development for the broader area, but instead seemed to aim at serving building interests, thereby risking the habitat's future⁵.

4.2 The review of the 1st Draft Presidential Decree from the Council of State (December 2014 – April 2015)

The Ministry of Environment submitted the 1st Draft Presidential Decree for Kyparissia Bay to the Hellenic Republic Council of State (known by its Greek acronym as "StE") in December 2014 for constitutional lawfulness review. In April 2015 the StE issued the relevant decision⁶, according to which the Draft Presidential Decree should be rejected. The court provided guidance to the Greek administration on the substantial provisions of the Presidential Decree and emphasised that the issue and resubmission of an improved Draft Presidential Decree was urgent in light of the case C-504/14 and the Bern Convention Recommendation.

4.3 The issuance of the 2nd Draft Presidential Decree (February 2016)

Ten months after the StE decision, the Ministry of Environment released on 26 February 2016 for public consultation a 2nd Draft Presidential Decree for the three Natura 2000 sites and adjacent areas (GR2330005 "Thines kai Paraliako Dasos Zacharos, Limni Kaiafa, Strofylia, Kakovatos", GR2330008 "Marine area of Kyparissiakos Bay: Katakolo Cape- Kyparissia" and GR2550005 "Thines Kyparissias: Neochori – Kyparissia").

The environmental organizations ARCHELON, MEDASSET and WWF Greece submitted in March 2016 to the Ministry of Environment, in the context of the consultation, detailed comments on the new Draft, with focus mainly on southern Kyparissia Bay. In the opinion of the above environmental organizations, this new Draft was clearly improved compared to the 1st one, but still further improvements were needed to achieve favorable conservation status of marine turtles and the habitat in southern Kyparissia Bay. Specifically:

- It was not clear why the designation as a National Park was not chosen;
- All areas that were not designated as Nature Protection Areas (PPF) were designated as Agricultural Landscape Zone (ZAT), where building was set as the basic characteristic. It is noted that not only the existence of an intermediate zone, aiming the graduation of land uses, was not foreseen between the above two zones, but also in the cases of properties located partly in the PPF and partly in the ZAT, building would be permitted in the ZAT part taking into account the total size of the plot (i.e. the size of both the ZAT and the PPF part). The coastal area behind the southernmost sector of the core nesting beach (sector O) was also designated as ZAT;
- The provisions in the whole Agricultural Landscape Zone (ZAT) were the same although the characteristics of the neighbouring Nature Protection Areas (PPF) were different;
- The new Draft was not accompanied by an Annex with the legally existing road network although the existence of illegal roads consists a serious problem for the habitat;
- The provisions for the regulation of fisheries in the marine area (PPF3) needed further specialization;
- Visitor management measures on the nesting beaches, especially at night, were not foreseen;
- Although sectors A, B and C of the core habitat were excluded from occupation by beach furniture, there was no clear planning for the operation of the beach bars, which in the past consisted a constant threat to sea turtle nesting in those three sectors because of the intensive light pollution and the illegal permanent constructions on the nesting beach;

⁵ Through a summary that was sent to the Ministry after the public consultation the environmental organizations ARCTUROS, Hellenic Ornithological Society, ELLINIKI ETAIRIA- Society for the Protection of Environment and Cultural Heritage, Hellenic Society for the Protection of Nature, Mediterranean SOS Network, Callisto-environmental organization for wildlife and nature, Ecological Recycling Society, Greenpeace Greece and MOM expressed their support.

⁶ StE Minutes of Review process (Praktiko Epexergasias in Greek) No. 32/2015.

- The installation of new light sources behind the nesting beach was not banned;
- There was no reference to the need for management measures on the beachfront of Kalo Nero (sector O), where the light pollution, the beach furniture, the illegal structures on the beach (for which demolition orders have been issued) and the intensive human presence remained a constant threat to sea turtle nesting.

The 2nd Draft Presidential Decree was submitted to the Natura 2000 Commission⁷ after the completion of the public consultation and before the submission to the StE. The relevant endorsement was issued in May 2016. According to it, the 2nd Draft was generally approved but many improvements were requested to achieve favorable conservation status of southern Kyparissia Bay.

4.4 The review and approval of the 2nd Draft Presidential Decree from the Council of State (April 2017 – July 2017 & June 2018)

Almost one year after the endorsement of the Natura 2000 Commission (May 2016, see in 4.3.) and two years after the Hellenic Republic Council of State (“StE”) decision for the 1st Draft Decree (April 2015, see in 4.2.), the Ministry of Environment submitted the 2nd Draft Presidential Decree to the StE for constitutional lawfulness review in April 2017. The StE issued the relevant decisions in July 2017 and June 2018⁸.

According to the 1st decision (No. 175/2017, July 2017), the judgement on the Draft Presidential Decree should be postponed until the Ministry of Environment proves that the Special Environmental Studies for Kyparissia Bay fulfil the requirements of a Strategic Environmental Assessment (in line with Directive 2001/42/EEC). Further, the StE emphasized that the Ministry should urgently promote the above process in light of the Judgement of the European Court of Justice of 10 November 2016 and the 2-year duration of the Protection Ministerial Decision for the area (see in 4.5.). Lastly, the StE provided guidance to the Ministry of Environment on the allowed land uses in the Agricultural Landscape Zone (ZAT), explaining that the Nature Protection Areas (PPF) could be significantly affected by those. Therefore, it highlighted the need for an intermediate zone between the PPFs and the ZAT, as well as the necessary differentiation in ZAT provisions according to the characteristics of the neighbouring PPFs, especially behind the core nesting area.

The Ministry of Environment provided to StE the required explanations about the Special Environmental Studies and the Strategic Environmental Assessment in February 2018 (Ref. No. 15538/1158/21-2-2018), while with regard to the ZAT provisions, the Ministry insisted that adequate conservation status can be achieved for both the nesting beach and the dune habitats. In June 2018 the StE issued the 2nd and final decision (No. 80/2018) on the 2nd Draft Decree. According to it, the 2nd Draft Presidential Decree should be approved and only minor changes were requested (e.g. as competent Management Authority for the area was appointed the Management Agency of Kotychi, Strofilia Lagoon & Kyparissia Bay, according to the provisions of Law 4519/2018⁹, the use of heavy vehicles for beach cleanings was banned throughout the whole year for the protection of the dune habitats). Moreover, the StE emphasised the need of urgent issue of Management Plan for Kyparissia Bay, so that still existing threats for the habitat and the sea turtle nesting can be effectively addressed (i.e. absence of annex with the legally exiting road network, inadequate regulation of fisheries in PPF3, lack of visitor management measures on the nesting beaches, no clear planning for the operation

⁷ The Greek Natura 2000 Commission was established by the Joint Ministerial Decision, which implemented the Habitats Directive in 1998. Among other tasks, it is authorised to comment on draft legislation and to advise the Ministry on sustainable management of protected areas, including the characterisation of protected areas and the determination of permitted activities within such site. According to Law 3937/2011 (article 19, paragraph 2) the Natura 2000 Commission “*constitutes the central scientific advisory body for the co-ordination, supervision and assessment of policies and measures for the protection of biodiversity in Greece.*” The Commission is also authorised to advise the Ministry concerning issues relating to the operation of the protected area management bodies, as well as advising on the allocation of funds for these purposes.

⁸ StE Minutes of Review process (Praktiko Synedriasis & Gnomodotisi in Greek) No. 175/2017 and No. 80/2018.

⁹ According to Law 4519/2018 (Government Gazette A 25/20-2-2018) the competence of the 35 (existing or new) Management Agencies of Greece extends to all Natura 2000 sites. The existing Management Agency of Kotychi & Strofilia Lagoon, based close to Patras, extends to Kyparissia Bay.

of beach bars in sectors A, B and C of the core nesting area, lack of ban for new light pollution, lack of special management measures for the beachfront of Kalo Nero (sector O).

4.5 The protection Ministerial Decision (May 2016 – May 2019)

Until the issuance of the Presidential Decree and in order to protect the area against building interests the Ministry of Environment issued in May 2016 (Government Gazette D 141/24-05-2016) a Ministerial Decision¹⁰ of 2 years' duration for the three Natura 2000 sites (GR2330005, GR2330008 and GR2550005) and adjacent areas. Since the Presidential Decree was not issued yet, in May 2018 the duration of the protection Ministerial Decision was extended for one more year (i.e. until May 2019, Government Gazette D 204/23-05-2018). This Ministerial Decision includes the provisions of the 2nd Draft and yet approved Presidential Decree and ends with the issue of the Presidential Decree (see below in 4.7.).

4.6 Beach Management Measures (June 2017)

Based on legislation and the Joint Ministerial Decision (Government Gazette B1636/12-05-2017 as amended by Government Gazette B2970/07-06-2017) prescribing beach use, which is valid until 31-12-2019, Municipalities can lease portions of the beach to tourism and leisure related businesses. In the case of sea turtles nesting sites, including Kyparissia Bay, the competent Municipalities can concede to local businesses the “simple beach use” for 2018, provided that the implementation of protection management measures (e.g. removal of beach furniture at sundown, beach cleaning, light pollution, beach parties) is ensured during the nesting and hatching season (Annex 3I). As will be described in the following chapters, these measures of the Decision were not enforced by the Municipality of Trifylia at the beachfront of Kalo Nero (sector O) during the 2018 nesting season either.

Moreover, the Joint Ministerial Decision foresaw exceptions in the areas to be leased (Annex 3II). Sectors A, B and C of the core nesting area (beaches of Vounaki, Agiannakis and Elaia respectively) were included in the exceptions regarding beach furniture and water sports businesses. Unfortunately, the operation of beach bars was not included in the exception. As a result, the Municipality of Trifylia leased portion of Elaia beach (sector C) for a beach bar (canteen). This was the second year in a row that the beach bar of Elaia operated, while during the period 2013-2016 had been closed.

As the issues of Beach Management are not adequately addressed in the approved Presidential Decree (see in 4.3., 4.4.), the urgent issue of Management Plan for southern Kyparissia is essential.

4.7 The issuance of the Presidential Decree

Almost two years after the Judgment of the European Court of Justice (November 2016) and three years after the Bern Convention Recommendation (December 2014), **the Presidential Decree for southern Kyparissia Bay was issued in October 2018** (Government Gazette D 391/03-10-2018 as corrected by Government Gazette D 414/12-10-2018 due to error on the included map of the area, i.e. the map of the 1st draft Presidential Decree from the year 2014 was included).

As mentioned above (see in 4.3., 4.4.), unfortunately the Presidential Decree does not address some major conservation issues for southern Kyparissia Bay in general and for marine turtles in particular. Specifically, the lack of Annex with the legally existing road network, the lack of adequate fisheries regulations in the marine area (PPF3), the lack of beach management measures for the visitors and the beach bars especially in the core nesting area, the lack of ban for new light pollution can now be resolved only through a Management Plan for the area. Moreover, although the Presidential Decree seems to protect Kyparissia Bay from intensive building interests behind the nesting beach, the designation of the whole area as Nature Protection Area (not as National Park), the fact that building is the basic characteristic in the Agricultural Landscape Zone (ZAT) and that the provisions in the whole ZAT are the same (although the neighbouring Nature Protection Areas are different) are expected to risk achieving favorable conservation status for the area in a long-term basis.

According to the Presidential Decree and the law 4519/2018, the management of Kyparissia Bay is under the responsibility of the Management Agency of Kotychi, Strofilia Lagoon & Kyparissia Bay,

¹⁰ According to Article 6 paragraph 9 of Law 3937/2011

based close to Patras. The establishment of a branch in Kyparissia Bay and provision of the required additional funding, which are considered necessary preconditions for the active engagement of the Management Agency, will take at the minimum 2 years before being settled.

4.8 Implementation of international requirements

Apart from the Presidential Decree's issue, little progress was made during 2018 concerning the implementation of the 12 points of the Bern Convention Recommendation (see in 3.2.):

- 1) Protection status: The Presidential Decree, issued in October 2018, designates the whole area as Nature Protection Area (not as National Park).
- 2) Permanent prohibition of constructions: The Presidential Decree seems to protect Kyparissia Bay from building interests behind the nesting beach.
- 3) Restoration of original dune and forest habitat: Not only no restoration work took place, but also new illegal actions resulted in further deterioration of the sand dunes (see below in 5.2.). Moreover, during 2018 no barriers existed on any perpendicular road to the beach, so vehicles accessed the sand dunes and the nesting beach on a daily basis.
- 4) Adjustments to existing buildings: No actions have been taken to reinstate the previous dune ecosystem in houses built within the vicinity of nesting areas, nor have any actions been taken to reduce photo-pollution from the existing buildings.
- 5) No agriculture on public land and the dune area: The cultivation of watermelons and vegetables continues on the dune area.
- 6) Photo-pollution reduction: Since 2017 some public lights at the beachfront of Kalo Nero (Sector O) were modified (directed downward and lower to the ground) by the Municipality of Trifylia. However, no efforts have been made to reduce photo pollution from neither public lights in the other three sectors (A, B and C) of the core nesting habitat nor private lights in Kalo Nero. As a result, light pollution remains a serious threat for sea turtle nesting in the core area.
- 7) Beach equipment management: The beach furniture in Kalo Nero (Sector O) was not managed at all during the whole 2018 nesting season. This was a serious setback, as since 2014 beach furniture was fragmentary stacked during July and August.
- 8) Sand and gravel extraction: Sand and gravel extraction has not been a significant issue during the 2018 season.
- 9) Further building outside the urban-planning areas: The Presidential Decree does not allow the expansion of settlements towards the Nature Protection Areas (PPFs).
- 10) Regulating the navigation of vessels: Fishing with nets near the nesting beach is currently not forbidden by the Presidential Decree, and is a widespread practice leading to adult turtles and hatchlings being caught during nesting and hatching season.
- 11) Human presence on the nesting beach at night: No measures have been taken to keep people and cars off the beach at night nor were there any signs warning people to stay away.
- 12) Control of feral or stray dogs: During the 2018 nesting season the field project of ARCHELON did not record any attacks to nesting turtles, as witnessed in years 2014 and 2015.

5. THE ACTUAL SITUATION IN THE FIELD DURING THE 2018 NESTING SEASON

5.1 The field project of ARCHELON during the 2018 nesting season

As mentioned before (see in 1.3.), the annual field project of ARCHELON during 2017 started on 5 May and terminated on 30 September. Unfortunately, during the whole season, the cooperation between ARCHELON and the Municipality of Trifylia was very limited. However, the Municipality allowed ARCHELON to set up the seasonal information station in Kalo Nero, unlike to years 2013, 2015 and 2016, when the information kiosk was not allowed to operate. Apart from the Municipality, also a part of the local community (e.g. Trade Association of Kyparissia) keeps hostile attitude towards ARCHELON, as the sea turtles are considered the main reason for the forwarded restrictions.

5.2 Illegal actions continue

In May 2018 a whole motor cross race (with 280 participants) took place in the sand dune zone and on the nesting beach (Photos 1, 2) partly in the core nesting area (C sector) and partly in the north of Neda river. Although the relevant license was provided only for the existing asphalt road network, neither the police nor the organizing company responded to the appeals of ARCHELON for immediate pause of the race. This unfortunate incident resulted in the deterioration of sand dunes and risking the existing sea turtle nests.

As mentioned (see in 4.6.), the Annex 3II of the Joint Ministerial Decision allowed the operation of beach bars (canteens) in sectors A, B and C. As a result, the Municipality of Trifylia leased portion of Elaia beach (sector C) for beach bar (canteen). The beach bar operated from early June to mid-September on the sand dune zone (Photos 3a, 3b). The main problems that arose from the operation of this beach bar were the deterioration of sand dunes and the night operation causing increased human and vehicle presence on the nesting beach during night hours and light pollution. It should be noted that the Management Agency of Kotychi, Strofilia Lagoon & Kyparissia Bay gave a negative opinion for the operation of the canteen in C sector¹¹.

Lastly, behind the core nesting area near Vounaki hill (sector B), the house that had been under construction since late November 2012, was completed in summer 2014. During 2018 further garden creation works took place in the sand dune zone and resulted in total destruction of dune vegetation (Photo 4). Although ARCHELON complained to all competent authorities, no action was taken.

5.3 Anthropogenic disturbances at the core nesting area (O and A-C)

This section focus on the anthropogenic disturbances that resulted in direct and indirect damage to sea turtles (adults and hatchlings), their nests, and the nesting habitat in southern Kyparissia Bay during the 2018 nesting season, as these disturbances were experienced through the standard fieldwork of ARCHELON. Because the beach at Kalo Nero (sector O) differs greatly from the remaining beach (sectors A-C) in both physical characteristics and in magnitude of disturbances, these two beach parts are examined separately.

5.3.1 Sector O: The beach of Kalo Nero (length: 2.2 km)

The distinction of Kalo Nero from the rest of the nesting beach is very important. This area is already severely affected by tourism development, as Kalo Nero has quickly developed to a tourism resort. It needs to be closely managed under the principles of sustainable development, so that the natural environment is not irrevocably damaged and the beach returns to a conservation status suitable - as much as possible - for sea turtle nesting.

As in previous years, during 2018 a large part of the nesting beach was occupied by sun beds, umbrellas, wooden paths, showers and other structures. As the beach furniture was not managed at all (on the contrary, in years 2014-2017 beach furniture was fragmentary stacked during July and August), the situation in Kalo Nero has not improved.

A detailed description of the noted disturbances in Kalo Nero beach is given in the Appendix 1.

5.3.2 Sectors A, B, and C (length: 7.3 km)

If sea turtles are to be effectively protected in Kyparissia Bay, these three Sectors (A: Vounaki beach, B: Agiannakis beach, C: Elaia beach) hosting about 75% of all nests in the 9.5km core nesting area, must be maintained at its current almost pristine condition or as close to it as possible. This area is characterized by a very wide beach with an appropriate inclination, backed by low sand dunes with vegetation. Unfortunately, also for these beach sectors the majority of the main conservation issues remained unresolved during the 2018 nesting season.

A detailed description of the documented problems in beach sectors A, B, and C is given in the Appendix 2.

¹¹According to Article 4, paragraph 1 of Law 4519/2018 (Government Gazette A 25/20-2-2018) the prior opinion of the competent Management Agency is required for the licensing of various activities within the boundaries of a Natura site.

5.4 Turtle Strandings

During the 2018 nesting season 9 dead turtles were found within the monitored beach section of 9.5km, while 6 more dead animals and 1 injured were found in the rest of Kyparissiakos Bay. Examination of the dead animals showed interaction with fisheries, i.e. turtles entangled in nets and fishing lines or turtles with intentional head injuries (Photo 5). Fishing boats and stationary nets were observed to be too close to the shore in all beach sectors, in some cases at distances less than 30m from shore (Photo 6). Set nets are usually left for the entire duration of the night, so any females attempting to emerge for nesting are at risk of getting trapped.

6. CONCLUSIONS AND RECOMMENDATIONS

The issued in October 2018 Presidential Decree for Kyparissia Bay (Government Gazette D 391/03-10-2018) constitutes unquestionably a positive development in the efforts to protect the habitats of southern Kyparissia Bay in general and the marine turtles in particular. Unfortunately, some major conservation issues of southern Kyparissia Bay are not addressed by the Decree. These can only be resolved through the urgent issue of a Management Plan for the area and the active engagement of the Management Agency of Kotychi, Strofilia Lagoon & Kyparissia Bay. Furthermore, the provisions regarding the Agricultural Landscape Zone (ZAT) may risk achieving favorable conservation status for the area on a long-term basis.

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APPENDICES

Appendix 1: Disturbances in Kalo Nero beach (Sector O) during 2018

The Coastal Road

The 1.7 km coastal road behind the beach of Kalo Nero is used not only for accessing hotels and houses in the area but also as a car-park for beach visitors and as a free camping area for caravans (Photo 7). Especially during the high tourist season (July and August), which coincides with the late nesting season and early hatchling season, the density of cars and caravans was very high during night hours, so that sea turtles attempting to nest were disturbed by vehicular lights or human presence and hatchlings were at risk of being trampled by tourists on the beach and/or disorientated by artificial lights.

Platforms on the Beach

In addition to the road, elevated platforms extend over the beach and are used by restaurants and bars located on the landward side of the coastal road. The Regional Public Land Authority (Ktimatiki Ypiresia) examined the beachfront of Kalo Nero in 2011, declared the platforms illegal and issued orders for their demolition. The demolition protocols are not implemented by the responsible authorities (Municipality of Trifylia and Region of Peloponnese) yet (Photo 8).

Beach erosion

Due to the construction of the coastal road and the illegal platforms at the back of the beach, where naturally the sand dune zone would exist, extensive beach erosion appears on the beach of Kalo Nero.

Light Pollution

Public road lights are installed on electricity poles along the coastal road of Kalo Nero causing intensive light pollution. Additional light pollution is caused by hotels, restaurants and bars on the beach platforms and lights from parked camper vans. It is noteworthy that during Autumn 2016 the Municipality of Trifylia modified the public lights (downward and lower to the ground direction), which resulted in small decrease of the light pollution. On the contrary, no modification took place regarding the private lights. As a result, the light pollution problem on the beachfront of Kalo Nero remains a serious conservation problem (Photos 9, 10) despite the provisions in various legislative acts [protection Ministerial Decision (see in 4.5.), Joint Ministerial Decision for lease of beach portions (see in 4.6.) and the Presidential Decree (see in 4.7.)].

The light pollution in Kalo Nero renders useless the standard method of “nest-shading”, used by ARCHELON in other areas, to protect emerging hatchlings from light disorientation, and forces the practice of “nest-boxing”. This is an “unorthodox” method comprising of a wooden box placed over the nest in such a way that in case of hatchlings’ emergence, these remain inside the dark box and avoid disorientation by bright lights. The box is checked during the night at regular intervals (e.g. every hour) and in case of emerged hatchlings, these are transferred and released in a nearby dark beach section. It should be noted that this practice might have consequences in the later behavior of the hatchlings, since they do not immediately head for the sea after exiting the nest, but remain inside the dox for a while. According to preliminary data during 2018, the method of “nest-boxing” was used on 298 nests in Kalo Nero from 18 July until 13 September (approximately 64% of all nests in Kalo Nero).

Beach Use and Beach Furniture

A large part of the beach was occupied by sunbeds and umbrellas during 2018 (Photo 8). In addition, the beach structure was manipulated and wooden paths, showers and other structures were added on the beach sand. Unlikely to years 2014-2017, when the beach furniture was fragmentally stacked during July and August, during the whole 2018 nesting season the beach furniture in Kalo Nero was not managed at all (Photo 11). This was a serious setback towards protection of nesting and a clear violation of the provisions of relevant legislation (Ministerial Decisions and Presidential Decree).

Heavy vehicles on the beach

Despite the terms in the Joint Ministerial Decision for lease of beach portions (Management Measures at the sea turtle nesting sites, Annex 3I), beach cleanings with heavy vehicles were recorded for one more season in the core nesting habitat. Specifically, on 16 and 18 May 2018 beach cleaning was recorded in the beachfront of Kalo Nero (Photo 12). It must be noted that according to the Presidential Decree heavy vehicles are prohibited on the beach throughout the year for the protection of the sand dunes.

Appendix 2: Disturbances at beach sectors A-C during 2018

Beach Bar in sector C

As mentioned (see in 4.6.), the Annex 3II of the Joint Ministerial Decision (beach parts not to be leased) limited the placement of beach furniture but allowed the operation of beach bars (canteens) in sectors A, B and C (beaches of Vounaki, Agiannakis and Elaia respectively). As a result, the Municipality of Trifylia leased portion of Elaia beach for beach bar (canteen). Despite the opposite opinion of the Management Agency of Kotychi, Strofilia & Kyparissia Bay (see in 5.2.), the beach bar operated from early June until mid-September, on the sand dune zone and resulted in total destruction of dune vegetation (Photos 3a, 3b). It is noteworthy that the beach bar in sector C was not allowed to open in the period 2013-2016, as it was one of the commitments of the Greek authorities to the European Commission on response to the Reasoned Opinion (Ref. No. 5074/22-11-2012).

Light Pollution

The relatively small number of artificial lights in sectors A, B and C attract frequently hatchlings from distances of 400 metres or more (Photo 13). Hatchling tracks were often observed during the morning survey heading towards the sand dunes, instead of going towards the sea. Despite the repeated appeals of ARCHELON towards the Municipality of Trifylia for turning off temporally the 3 public lights of the perpendicular to the beach roads of Elaia and Agiannakis (sectors C and B respectively) during August and September (hatching season), no efforts have been made during 2018 to reduce photo pollution from neither public nor private lights in sectors A, B and C.

Roads

In the location of all perpendicular to the beach roads (roads of Agiannakis, Elaia, Vlassada and Vounaki, the five new illegal roads constructed by the real estate firm “Neos Kotinos S.A.”) the sand dune vegetation is absent as a result of total destruction by vehicles (Photo 14). Particularly in Elaia and Vounaki, part of the sand dunes is used as a car parking area.

Vehicles

During the entire 2018 nesting season a large number of 4x4 vehicle tracks were observed on the beach almost on a daily basis (Photo 15). Unfortunately, the measure of mobile barriers at the perpendicular roads to the beach was not repeated since 2015 (this measure was applied only in 2014 when the on-the-spot appraisal of Bern Convention experts was still pending). The vibrations of the vehicles can cause damage to turtle eggs since they may detach the embryos and potentially cause hatchlings to emerge prematurely. Emerging hatchlings can be trapped within car ruts for hundreds of meters before they can exit them or die of exhaustion, dehydration or predation. Moreover, vehicles moving on the beach cause damage to the sand dune vegetation.

Apart from the regular threat of vehicles, in May 2018 a whole motor cross race (with 280 participants) took place in the sand dune zone and the on nesting beach (Photos 1, 2). The race was conducted partly in the core nesting area (C sector) and partly in the north of Neda river.

Heavy vehicles on the beach

While beach cleanings were not recorded in sectors A and B during the 2018 nesting season, the beach bar in C sector organized one on 15 May (Photo 3b).

House Construction

Near Vounaki hill (sector B), the house that had been under construction since late November 2012, was finished in summer 2014 (Photo 4). It is noteworthy that the relevant building permit involves the construction of two more holiday houses in the particular land plot outside the urban-planning area.

Free Camping

The coastal forest of Elaia (sector C), close to the sand dunes between Agiannakis and Elaia, attracts a large number of free campers every year. During the high summer season (July and August) of 2018 it was estimated that more than 2,000 people were camping simultaneously in the forest. In many cases tents and caravans were placed in the sand dune zone or even on the nesting beach (Photo 16). Free camping is against the law in Greece and the local Police Station regularly received calls to patrol the area, but since free campers are a source of income for the local community, law enforcement is not strict regarding free camping.

ILLUSTRATIONS

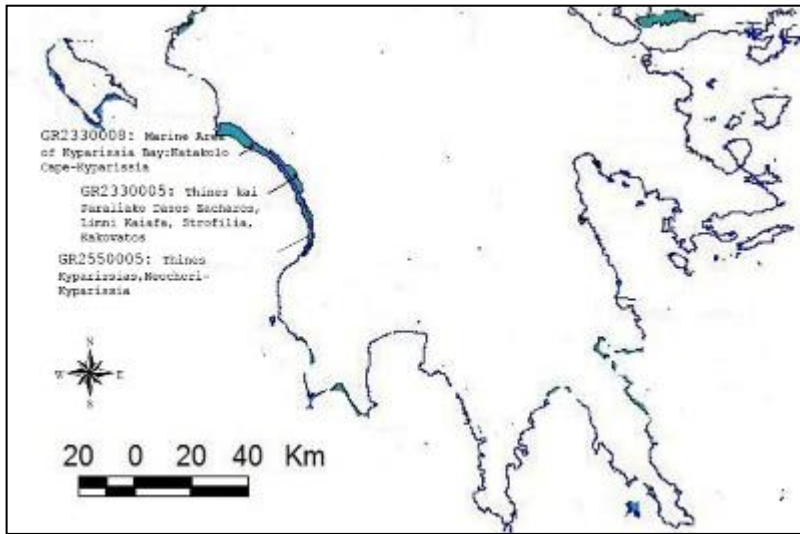


Illustration 1: Map of Peloponnese, showing the position of Kyparissia Bay



Illustration 2: The southern part of southern Kyparissia Bay (Sectors O & A).

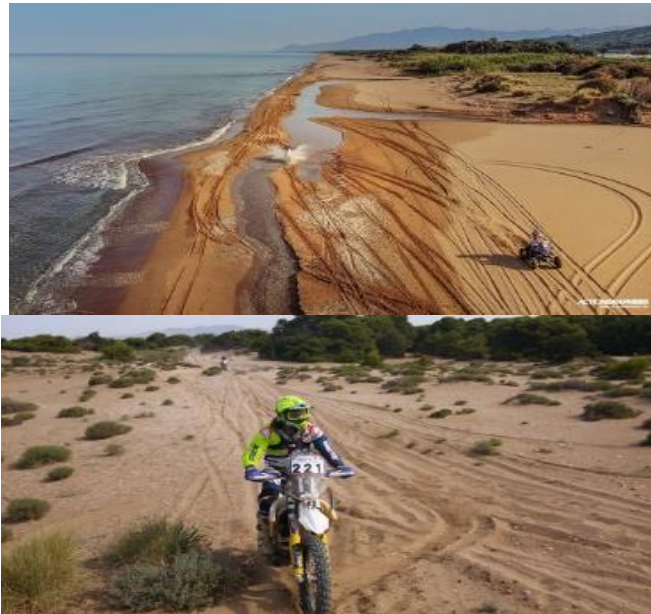


Illustration 3: The northern part of southern Kyparissia Bay (Sectors B & C).



Illustration 4: The plans for building up to 50 holiday houses cover almost the entire sand dune ecosystem between Agiannakis and Elaia, just behind the core nesting area (sectors B & C).

PHOTOS



Photos 1, 2: Conduct of motor cross race on 22 May with 280 participants in the sand dune zone and on the nesting beach.

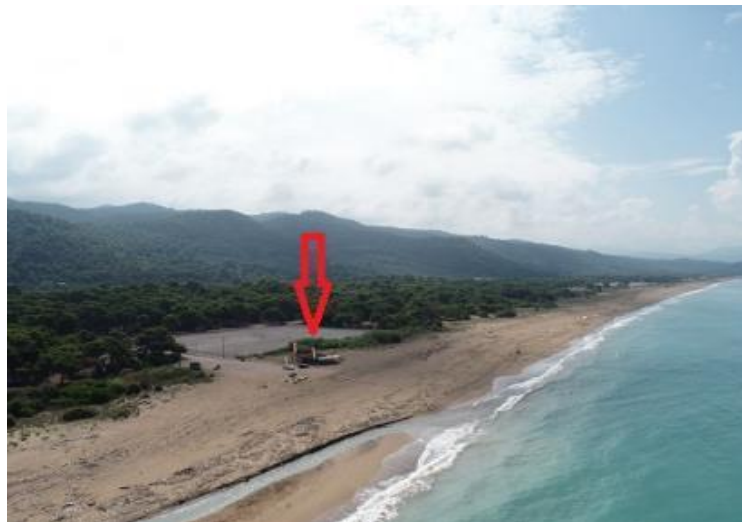


Photo 3a: Destruction of sand dunes because of the beach bar operation in C sector in the sand dune zone (Photo: ARCHELON/LIFE EUROTURTLES/Polymnia Nestoridou).



Photo 3b: Beach cleaning in C sector on 15 May in front of the beach bar.



Photo 4: Destruction of dune vegetation because of garden creation works in B sector (Photo: ARCHELON/LIFE EUROTURTLES/Polymnia Nestoridou).



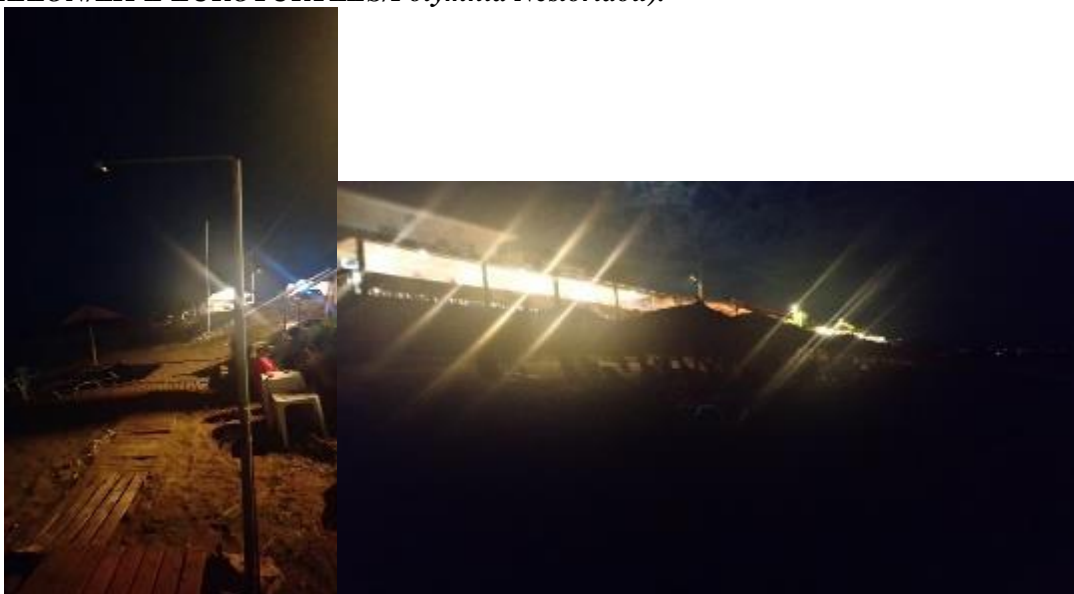
Photos 5, 6: Interaction with fisheries (fishing line and intentional head injury are obvious) and boats fishing to close to shore.



Photo 7: Free camping from caravans on the coastal road of Kalo Nero (O sector), behind the nesting area.



Photo 8: Illegal platforms on the beach & occupation by beach furniture in Kalo Nero (Photo: ARCHELON/LIFE EUROTURTLES/Polymnia Nestoridou).



Photos 9, 10: Light pollution on the nesting beach of Kalo Nero (O sector).



Photo 11: Beach furniture was not collected at all at night during 2018 nesting season.



Photo 12: Beach cleanings with heavy machinery were recorded twice in Kalo Nero during May 2018 after the start of nesting.



Photo 13: Light pollution from the perpendicular to the beach roads that affect the nesting beach in sectors A, B and C.



Photo 14: Destruction of sand dune vegetation at the exit to the beach of all perpendicular to the beach roads due to vehicles (Photo: ARCHELON/LIFE EUROTURTLES/Polymnia Nestoridou).



Photo 15: Vehicle tracks in sector A.



Photo 16: Tents and shelters on the nesting beach between Agiannakis and Elaia (sectors B & C). This equipment was not removed during the night hours.