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

- *REPORT BY THE NGO* -

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



**Conservation efforts during 2017
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 2017

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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 2017. 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, as well as the actual situation at the nesting site during the nesting season of 2017, 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 (Illustration 1), has a significant ecological value because: 1) it is the second largest loggerhead sea turtle (*Caretta caretta*) nesting habitat in the Mediterranean Sea (Margaritoulis et al., 2003), and 2) contains an extensive system of sand dunes consisting of the following habitats: 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 2).

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 about 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 3 and 4).

1.2 Local government

The Municipality of Trifylia, with the town of Kyparissia as its capital, 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 has organized and operated a seasonal conservation project in Kyparissia Bay. Tagging of turtles started in 1982 (before the founding of ARCHELON, by students hired by the Ministry of Environment) 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 hosted a high percentage of nests and, hence, 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). In addition, ARCHELON carries out an extensive public awareness program to inform visitors and residents about sea turtles, their nesting habitat and the threats they face (Rees et al., 2002).

The seasonal field project of ARCHELON during 2017 started on 7 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 1,350 (detailed processing of data is still underway). This is the fifth year in a row that over 1,000 nests were recorded in the core nesting area. In all five years (2013-2017) the number of nests exceeded those recorded in Laganas Bay (Zakynthos Island). The increase in nest numbers, that has appeared since 2006¹, combined with the 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).

It is noted that in the context of the LIFE EUROTURTLES project (LIFE15-NAT/HR/000997) ARCHELON monitored during 2017 nesting season the remaining 35km of Kyparissia Bay (i.e. from Alfios River in the north to Neda River in the south). This was the first year (since 1989) that the entire 44km of the Bay were monitored. According to preliminary data, in this northernmost part 278 nests were monitored and protected.

1.4 The Specific Environmental Study (EPM)

In the context of an older LIFE-Nature project (LIFE98-NAT/GR/5262), approved by the Ministry of Environment, ARCHELON commissioned a consultancy to elaborate a Specific Environmental Study (SES or “EPM” in Greek) for southern Kyparissia Bay. The EPM, accompanied by a Management Plan and a Draft Presidential Decree, were submitted for approval and application to the Ministry of Environment in May 2002. These documents comprised the foundation for the Ministry to issue a Presidential Decree and establish a Management Agency that would oversee the effective conservation of southern Kyparissia Bay (Efthymiou et al., 2002).

Regrettably the EPM was never adopted or implemented although it was regarded as technically acceptable (Ministry of Environment letter No 61801/4642/13-11-2002 to the European Commission). Moreover, conservation objectives were not laid out nor were specific protection or management measures taken by the Ministry. 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 5). 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).

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 12 years (2006-2017) there has been a considerable increase (about 100%) in nest numbers!

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.

It must be noted that in the Reasoned Opinion, it is specifically stated that the construction plan of 47 two-storey homes with basements and swimming pools in this ecologically sensitive habitat is not consistent with the requirements of the European legislation.

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 The Greek State taken to the Court of Justice (March 2014 – 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 measures were taken in time to mitigate the problems within the 2013 nesting season, 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.

The Court hearing took place on 13 January 2016, the opinion of the Advocate General was delivered on 18 February 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 2016)

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 was reviewed during the 35th and the 36th Standing Committee meetings (December 2015 and November 2016 respectively). Because of lack of progress during the nesting seasons of 2015 and 2016 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 is the most urgent measure that should be taken by the Greek authorities² as well as that the judgement of the European Court of Justice (see in 2.2.) should be taken under consideration when making decisions for the habitat³.

4. FOLLOW UP OF THE COMMITMENTS OF GREECE

4.1 The issue 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 “Thines kai Paraliako Dasos Zacharos, Limni Kaiafa, Strofylia, Kakovatos” and GR2330008 “Marine area of Kyparissiakos Bay: Katakolo Cape- Kyparissia” 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 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 future⁴.

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 decision⁵, 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 of an improved Draft Presidential Decree was urgent in light of the case C-504/14 and the Bern Convention Recommendation. Therefore, the rapid resubmission of an improved draft was suggested to the Ministry of Environment.

4.3 The issue 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;

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

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

⁴ 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.

⁵ StE Minutes of Review process (Praktiko Epexergasias in Greek) No. 32/2015.

- 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 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;
- 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 Commission⁶ 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 of the 2nd Draft Presidential Decree from the Council of State (April 2017 – July 2017)

Almost one year after the endorsement of the Natura 2000 Commission (May 2016) and two years after the Hellenic Republic Council of State (“StE”) decision for the 1st Draft Decree, the 2nd Draft Presidential Decree was submitted to the StE for constitutional lawfulness review in April 2017. In July 2017 the StE issued the relevant decision⁷, according to which 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

⁶ 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.

⁷ StE Minutes of Review process (Praktiko Synedriasis & Gnomodotisi in Greek) No. 175/2017.

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.

4.5 The protection Ministerial Decision (May 2016 – May 2018)

Until the issue of the Presidential Decree and in order to protect the area against building interests the Ministry of Environment issued in May 2016 (Government Gazette 141/24-05-2016) a Ministerial Decision⁸ of 2 years' duration (i.e. until May 2018) for the three Natura 2000 sites (GR2330005, GR2330008 and GR2550005) and adjacent areas. Apart from the fact that no designation of the whole area or any zone is given, this Ministerial Decision includes the provisions of the 2nd Draft Presidential Decree.

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, 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 2017, 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).

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 unpleasant development led to the reopening of the beach bar that had been closed since 2013.

4.7 Implementation of national and international requirements

As mentioned above (see in 4.2. and 4.4.) the StE emphasised twice (i.e. in April 2015 and in July 2017) that the resubmission of the Draft Presidential Decree was urgent in light of the case C-504/14 and the Bern Convention Recommendation. Unfortunately, almost one year after the Judgement 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 is not issued yet.

Concerning the implementation of the 12 points of the Bern Convention Recommendation (see in 3.2.) unfortunately very little progress was made during the 2017 nesting season. Specifically:

1) Protection status: A Presidential Decree, which foresees the appropriate protection status for the area of southern Kyparissia Bay, is not issued yet. The protection Ministerial Decision (see in 4.5.) does not contain any designation.

2) Permanent prohibition of constructions: As mentioned above (see in 4.5.) the protection Ministerial Decision is valid for 2 years, i.e. until May 2018. The relevant Presidential Decree must be issued in time.

3) Restoration of original dune and forest habitat: No restoration work took place. Moreover, during 2017 no barriers existed on any perpendicular road to the beach, so vehicles accessed the sand dunes and the nesting beach.

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.

⁸ According to Article 6 paragraph 9 of Law 3937/2011

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: It is worth mentioning that the Municipality of Trifylia made some progress regarding photo pollution from public lights in Kalo Nero (sector O). Specifically public lights were modified (directed downward and lower to the ground) to reduce disturbance for sea turtles. 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.

7) Beach equipment management: The beach furniture in Kalo Nero was fragmentary stacked during July and August, while licenses for new beach furniture were issued in Kalo Nero in both 2016 and 2017.

8) Sand and gravel extraction. Due to the reduction of public works as a result of the financial crisis, sand and gravel extraction has not been a significant issue during the 2017 season.

9) Further building outside the urban-planning areas: The protection Ministerial Decision (see in 4.5.) is only a temporary protection from building interests, as it is valid for 2 years. The Presidential Decree must be issued in time.

10) Regulating the navigation of vessels: Fishing with nets near the nesting beach is currently not forbidden, and is a widespread practice leading to adult turtles and hatchlings being caught during nesting and hatching season. The included in the 2nd Draft Presidential Decree restrictions for fisheries need further specialization.

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 2017 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 2017 NESTING SEASON

5.1 The field project of ARCHELON during the 2017 nesting season

As mentioned before, the annual field project of ARCHELON during 2017 started on 7 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.

A very serious constraint that ARCHELON faced during 2017 was the unreasoned complaints of local businessmen to various competent authorities regarding the field work (i.e. nest protection methods, kiosk operation, volunteers). These complaints clearly aimed to weaken the work of ARCHELON in the area, as a part of the local community considers ARCHELON and sea turtles as the main reason for the forwarded restrictions.

5.2 Illegal actions continue

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 mid June to mid September. Unfortunately, under wrong instructions of the Municipality of Trifylia and the Public Land Authority, it operated on the sand dune zone. The main problems that raised from the operation of this beach bar were the planting of nonnative vegetation (banana trees), the daily watering of the surrounding dune area (to minimize the dust) and the night operation causing increased human and vehicle presence on the nesting beach during night hours and light pollution (Photo 1). Restoration of the area was asked by all competent authorities (Ref. No. 28163/02-08-2017) but a response was never received.

Moreover, in May 2017 ARCHELON field members noticed the planting of ten tamarisk trees (*Tamarix* sp.) on the nesting beach in front of Irida Hotel in Kalo Nero (Photo 2). The roots of this species are known to grow fast in a wide area around the tree and render the beach unsuitable for nesting as turtles find difficulty to dig a nest chamber; the roots also invade turtle nests and destroy the eggs by dehydration. Restoration of the area was asked by all competent authorities (Ref. No. 28100/22-05-2017) but no action was taken.

Lastly, behind the core nesting area near Vounaki hill (sector B), the house that had been under construction since late November 2012, was finished in summer 2014. Building and garden creation works took place in the sand dune zone and resulted in total destruction of dune vegetation. During 2016 a new fence was built around that land plot. After the complaints of ARCHELON to the Urban Planning Authority, the barbed wire fencing was removed during 2017 but the cement base still remains (Photos 3, 4).

It is noteworthy that, regarding all the above mentioned cases, the protection Ministerial Decision (see in 4.5.) clearly prohibits any planting of vegetation without previous relevant study.

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 2017 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. 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.

When ARCHELON began monitoring the nesting activity on this beach, Kalo Nero was a small village with most families occupied with agricultural activities. Agriculture is still a significant source of income in the area, but Kalo Nero has quickly developed to a tourism resort.

In both 2016 and 2017 new licenses for beach furniture were issued by the Municipality of Trifylia at the beachfront of Kalo Nero and a large part of the nesting beach was occupied by sun beds, umbrellas, wooden paths, showers and other structures. Apart from the fragmentary stacking of sun beds during July and August and the modification of public lights, which resulted in limited decrease of the light pollution, 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) concentrating 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 not only the majority of the main conservation issues remained unresolved during the 2017 nesting season, but also the operation of the beach bar in Elaia (sector C), which was not allowed to open since 2013, increased the disturbances to the sea turtle nesting.

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

5.4 Turtle Strandings

During the 2017 nesting season 10 dead turtles were found within the monitored beach section of 9.5km, while 9 more dead animals were found in the rest of Kyparissiakos Bay (1 in the south of the core nesting habitat and 8 in the north). Examination of the dead ones showed interaction with fisheries, i.e. turtles entangled in nets and fishing lines (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 20m 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

Despite the fact that the Judgement of the European Court of Justice was posted almost one year ago (10 November 2016) and that the Bern Convention Recommendation was adopted almost three years ago (December 2014) the Presidential Decree for southern Kyparissia Bay is not issued yet. The Hellenic Council of State (StE) has emphasised twice (i.e. in April 2015 and in July 2017) that the resubmission of the Draft Presidential Decree is urgent in light of the international requirements. Taking into consideration that the Ministerial Decision for the protection of the whole area (see in 4.5.) is valid for 2 years, i.e. until May 2018, the relevant Presidential Decree must be issued in time otherwise the southern Kyparissia Bay will be again without any protection from building interests.

Furthermore, the 2nd Draft Decree is clearly improved over the previous one, but still further improvements are imperative to achieve favorable conservation status for the core of the second largest nesting area of *Caretta caretta* in the Mediterranean. These improvements must be in line with the Greek Natura 2000 Commission endorsement (May 2016) and the two decisions of StE⁹.

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⁹ StE Minutes of Review process (Praktiko Epexergasias in Greek) No. 32/2015 and No. 175/2017.

APPENDICES

APPENDIX 1: DISTURBANCES IN KALO NERO BEACH (SECTOR O) DURING 2017

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. In the past these platforms were leased out by the Municipality under the guise of “simple beach use”. 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 (Photos 9a, 9b).

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, spot lights shining right on the beach, 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 (Photo 10a, 10b). On the contrary, no modification took place regarding the private lights (Photo 11). As a result, the light pollution problem on the beachfront of Kalo Nero remains a serious conservation problem despite the provisions in both the protection Ministerial Decision for the area (see in 4.5.) and the Joint Ministerial Decision for lease of beach portions (see in 4.6.).

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 trapped for a while, inside the box. According to preliminary data during 2017, the method of “nest-boxing” was used on 85 nests in Kalo Nero from 13 July until 15 September (approximately 37% of all nests in Kalo Nero). It should be noted that relocation of these nests in other parts of Kalo Nero beach cannot happen, as in the few suitable places that remain without bright lights and other disturbances there is a dense occurrence of natural nests.

Beach Use and Beach Furniture

As the Joint Ministerial Decision for lease of beach portions (see in 4.6.) neither included the beachfront of Kalo Nero in the areas to be excluded from leasing (Annex 3II) nor foresaw any restrictions on new licenses, the Municipality of Trifylia was free to lease portions of the beach. As a result, on the beachfront of Kalo Nero new licenses for beach furniture were issued both in 2016 and 2017 and a larger part of the beach was occupied by sunbeds and umbrellas (Photo 12). In addition,

the beach structure was manipulated and wooden paths, showers and other structures were added on the beach sand. However, the sun beds were stacked during July and August. Although this is a progression towards protection of nesting, it was implemented fragmentary (in many occasions during this period unstacked sun beds were recorded) and for a very short period (started in late nesting season, i.e. in late June) (Photos 13a, 13b).

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 25 May (nesting season) and on 2 August (hatching season) 2017 beach cleanings were recorded in the beachfront of Kalo Nero (Photo 14).

APPENDIX 2: DISTURBANCES AT BEACH SECTORS A-C DURING 2017

Beach Bar in sector C

As mentioned (see in 4.6.), the Annex 3II of the Joint Ministerial Decision (beach parts not 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). The beach bar operated from mid June until mid September, on the sand dune zone and resulted in total destruction of dune vegetation (Photo 1). The main problems that raised from its operation were the planting of nonnative vegetation (banana trees), the daily watering of the surrounding dune area (to minimize the dust) and the night operation causing increased human and vehicle presence on the nesting beach during night hours and light pollution. It is noteworthy that the beach bar in sector C was not allowed to open since 2013, 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 15). Hatchling tracks were often observed during the morning survey heading towards the sand dunes, instead of going towards the sea. Unlikely 2016 hatching season, when the lights of the perpendicular to the beach roads of Elaia and Agiannakis were turned off, no efforts have been made during 2017 to reduce photo pollution from neither public nor private lights in sectors A, B and C.

Roads

At the beaches of Agiannakis and Elaia, the two perpendicular to the beach roads were paved with compacted soil in 2006 and asphalted in 2009. Although these access roads pre-existed, their paving has destroyed the sand dunes and the associated vegetation where the roads meet the beach. Particularly in Elaia, part of the sand dunes is used as a car parking area. The five new illegal roads that were constructed by the real estate firm “Neos Kotinos S.A.” in 2011 and 2012 between the above two asphalted roads (Sector C), connecting the forest road to the beach, resulted in a further destruction of sand dunes and their vegetation. Further, these five roads attract cars and camper vans right on the high beach among the dunes and this causes more destruction (Photo 16). Another road providing access to the location of the old beach bar at Vounaki (sector A) was compacted in 2007 but it is not yet paved with asphalt. In this location, the sand dunes are also used as a car parking area.

Vehicles

During the entire 2017 nesting season a large number of 4x4 vehicle tracks were observed on the beach almost on a daily basis (Photo 17). 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 (Photo 18). In all entrances to the beach, sand dune vegetation is absent, since these parts are used as parking areas (Photo 19).

While in July 2014 (when the on-the-spot appraisal of Bern Convention experts was still pending) the Municipality of Trifylia put mobile barriers at 8 perpendicular roads to the beach (the asphalt roads in Agiannakis and Elaia, the five illegal roads of “Neos Kotinos S.A.” and the road in Vlassada) in order to restrict vehicular access to the beach, this measure was not repeated since 2015.

Heavy vehicles on the beach

Beach cleanings were not recorded in sectors A, B and C during the 2017 nesting season.

House Construction

The plans for construction of up to 47 holiday houses along the entire beach length between Agiannakis and Elaia (sectors B and C) still exist (Illustration 5). According to the real estate firm, the seaward boundaries of this strip of land are on the beach line, covering almost the entire sand dune ecosystem between Agiannakis and Elaia.

Moreover, near Vounaki hill (sector B), the house that had been under construction since late November 2012, was finished in summer 2014. 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 2017 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 20). 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

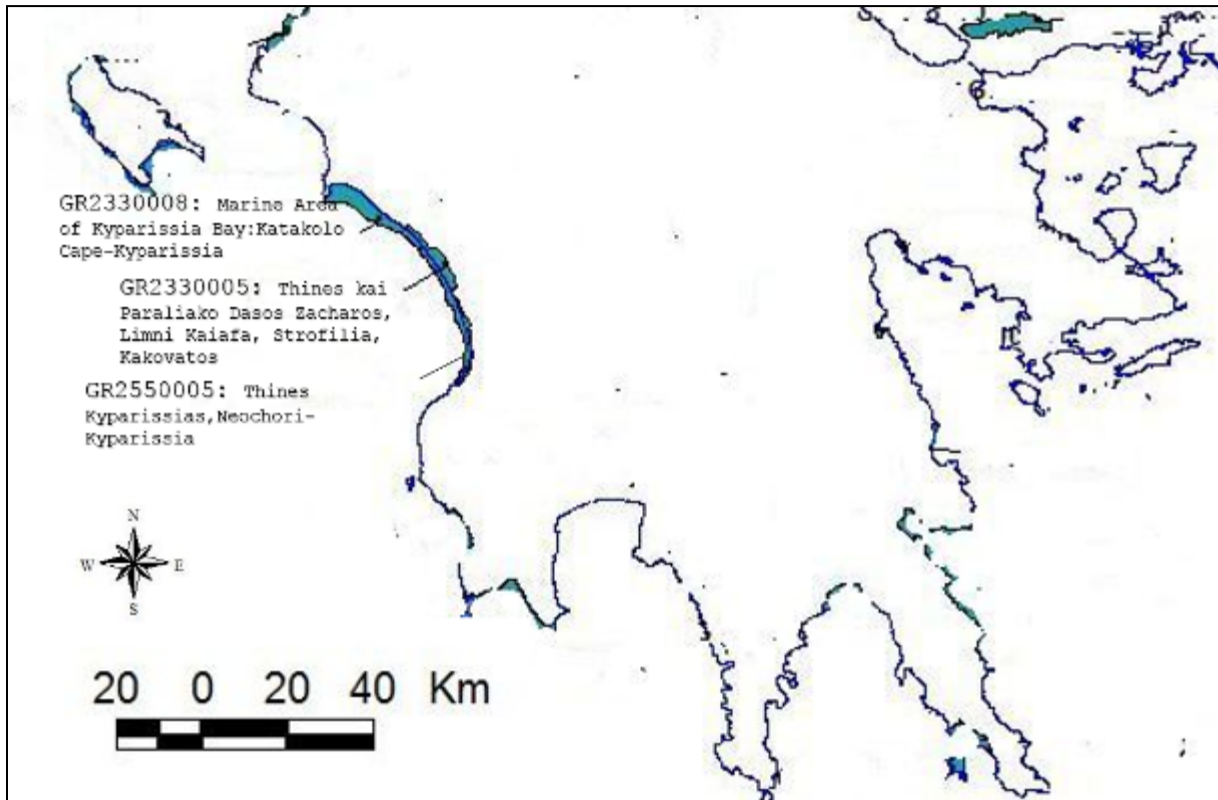


Illustration 2: Map of the core nesting area (Neda River – Arcadikos River) in southern Kyparissia Bay showing its position within the boundaries of two Natura 2000 sites, the terrestrial one (GR2550005) and the marine one (GR2330008).

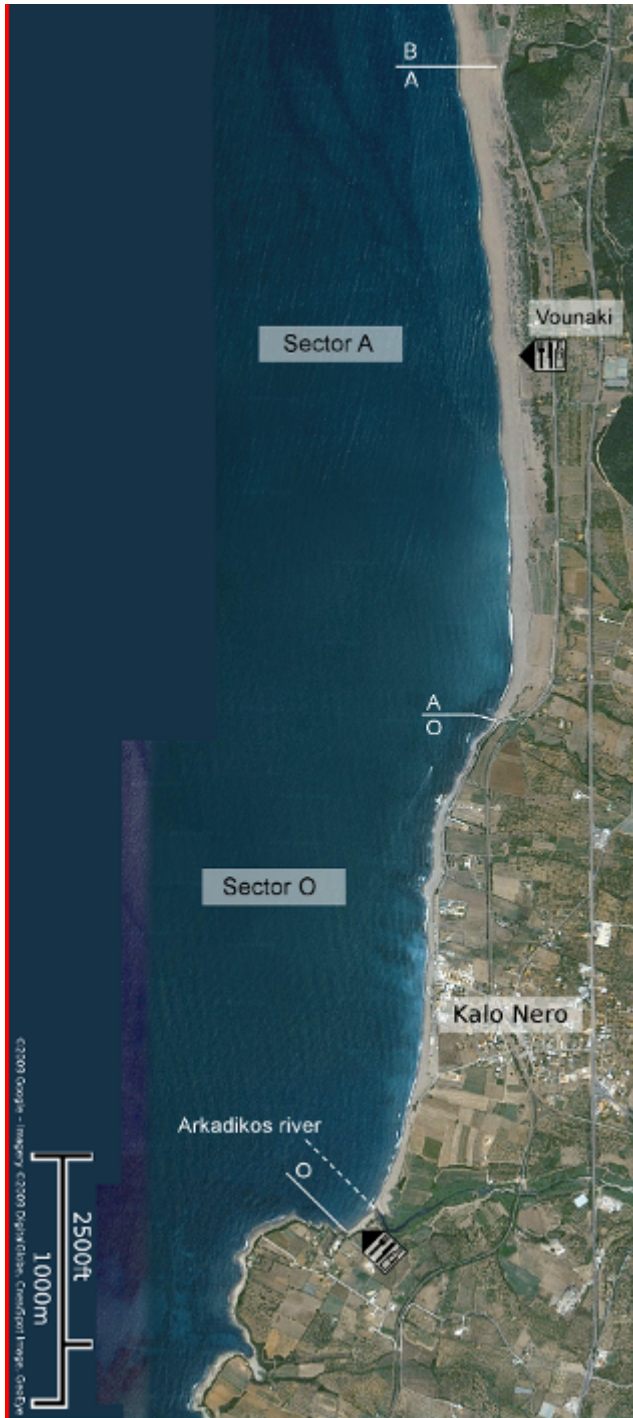


Illustration 3: The southern part of southern Kyparissia Bay (Sectors O & A). (Sectors B & C).



Illustration 4: The northern part Kyparissia Bay

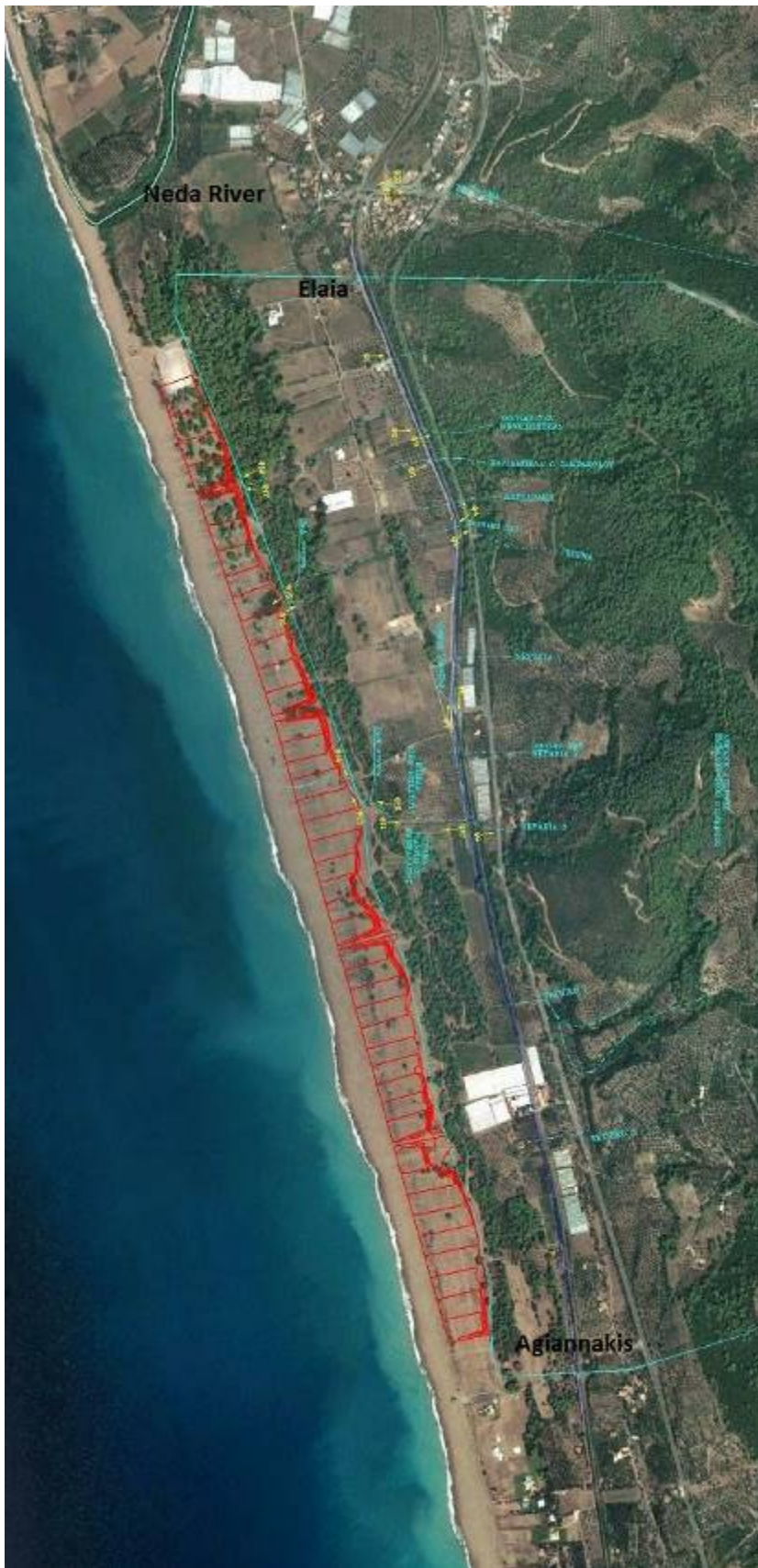


Illustration 5: The plans for building up to 50 holiday houses cover almost the entire sand dune ecosystem between Agiannakis and Eliaia, just behind the core nesting area (sectors B & C).

PHOTOS



Photo 1: The beach bar of Elaia in C sector (non native vegetation, watering of the dune area)



Photo 2: Planting of ten Tamarix trees on the nesting beach of Kalo Nero in front of Irida hotel.



Photos 3 & 4: House near Vounaki Hill (sector B); in 2016 a new fence was built around the land plot, in 2017 the barbed wire fencing was removed but the cement base still remains.



Photo 5: Dead turtle found on 03.06.2017. Cause of death entanglement in thick fishing line.



Photo 6: Fishing boat very close to the shore.



Photo 7: Caravans on the coastal road of Kalo Nero just behind the nesting beach.



Photo 8: Platforms extend over the beach in Kalo Nero.



Photos 9a, 9b: Indications of beach erosion in Kalo Nero (in photo 9b the erosion has directly affected a nest pointed by a red arrow).



Photos 10a, 10b: Public light on the coastal road of Kalo Nero in 2016 (left) and 2017 (right).



Photo 11: Light pollution on the beachfront of Kalo Nero from private and public lights.



Photo 12: New licenses for beach furniture in Kalo Nero were issued in 2016 and 2017.



Photos 13a, 13b: Fragmental implementation of beach furniture management (in the right picture, a track of a sea turtle which was disturbed by sunbeds is visible).



Photo 14: Beach cleaning in Kalo Nero on the 25th of May 2017.



Photo 15: Light pollution from public lights in the perpendicular to the beach road of Elaia (sector C). The lights of the beach bar (canteen) of Elaia are pointed by the red arrow.



Photo 16: Cars and caravans at the end of one illegal road constructed by “Neos Kotinos S.A.”. Destruction of sand dune vegetation.



Photo 17: Vehicle tracks on the nesting beach.



Photo 18: Deterioration of sand dune vegetation due to vehicles.



Photo 19: The entrance of the beach in Elaia (sector C) is used as parking area.



Photo 20: Shelters from beach campers in Elaia beach (sector C).