ΓΔ Εκπαίδευση και πολιτισμός

Πρόγραμμα διά βίου μάθηση

Leonardo da Vinci

PROJECT MOBILITY GREECE 25/9-1/10/2011

10 stops in the nature of Preveza region

Made by: NATURA OPAVA – CZECH REPUBLIC

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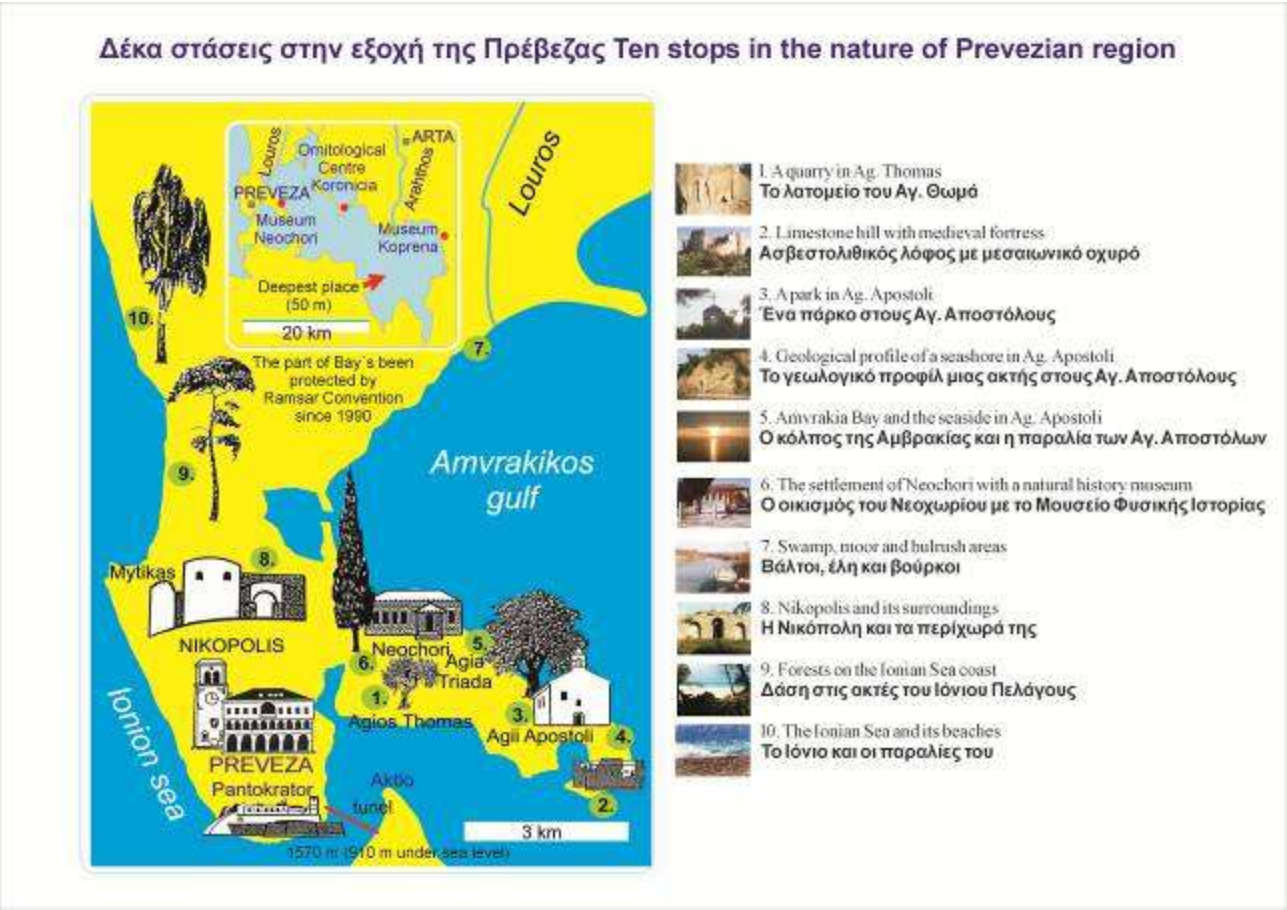
www.natura-opava.org

Ten stops in the nature of Preveza region and activities of Natura Opava

Educational use of the trail called "Ten Stops in the Region of Preveza"

The instructive trail makes the natural and aesthetically valuable parts of the Preveza´s countryside around the Amvrakian Bay accessible. The trail leads through typical ecosystems. According to the project, there will be some boards installed here in the future, it means the boards through which visitors will be informed of the natural and landscape attractions. Due to the type of the region (impenetrable stages of macchia and private parks), a visitor may access the individual stops mostly through asphalted roads. However, there are some places the visitors can access on foot only.

Students who participate in international meetings in Agios Apostoli will visit all the ten sites in the frame of professional program. There are professional leaders who inform the students of the interesting sights being right on the place. The professional program of the camp is aimed at the professional fields of geology, botany, entomology, hydrobiology, herpetology and ornithology. Pupils and students are involved in the nature science research of the Preveza´s region. Interesting findings of the research are published in the Regional Natural Museum in Neochori.



Stop No. 1 "Quarry in Agios Thomas"

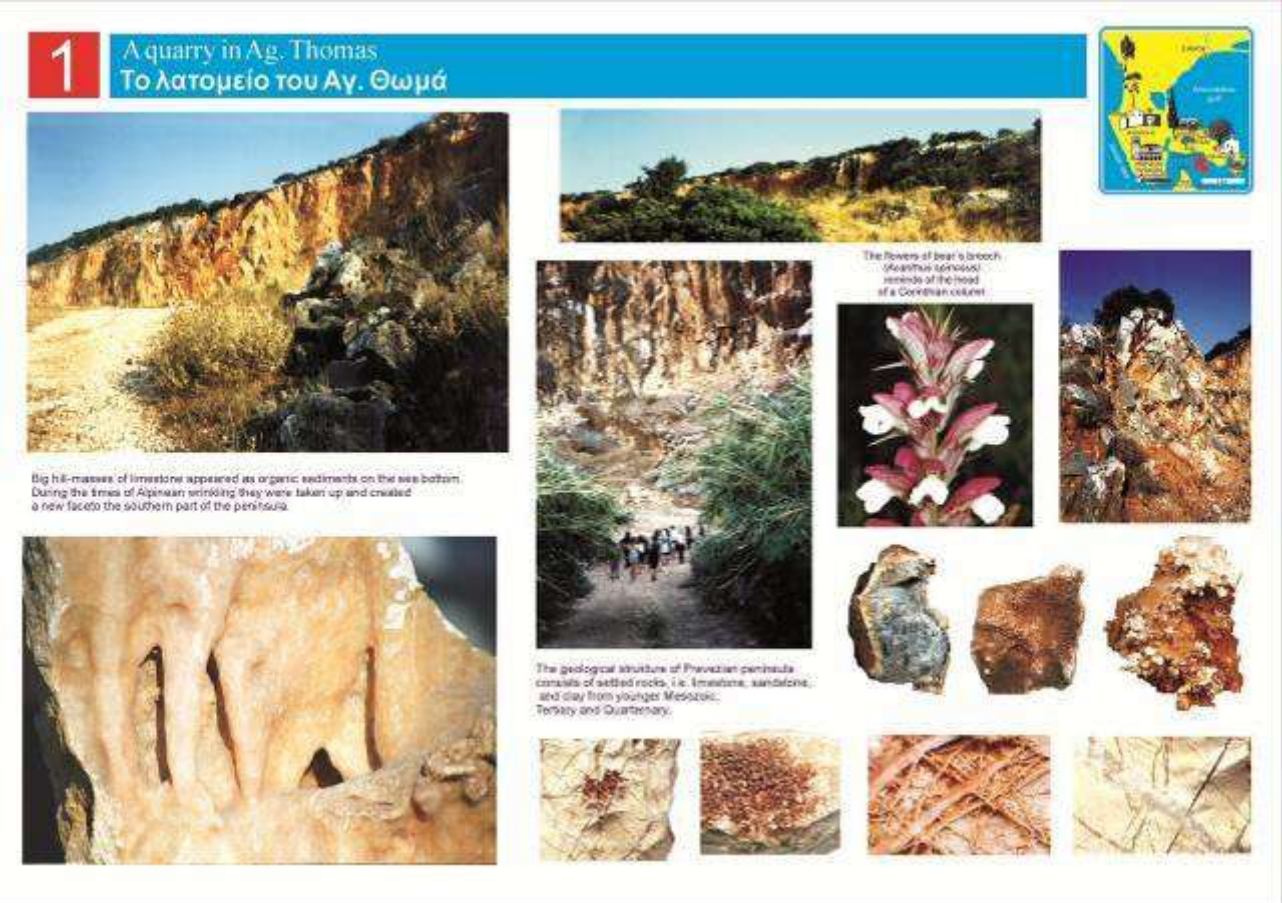
Characteristics:

It is the limestone quarry near Agios Thomas. Quarried limestone belongs to the set-up of Dinar mountain range. It comes from Jurassic period of the Mesozoic Era. The entire wider surrounding near Preveza belongs to the Ionian zone of the outer Hellenides. It was formed by Alpine folding which created the range mountain line of Dinar-Hellenic stage.

The geological structure of Preveza´s surroundings is formed by bedded rocks only (limestone, sandstone, clay slate), it means the rocks of younger systems: Mesozoic, Tertiary and Quaternary. Here you may also find some paleontological evidence from the Jurassic period. On the western side, the quarry is surrounded by dense macchia vegetation.

Educational Objective:

- Origin of limestone
- Use of limestone in building and chemical industry
- Reduce of soil acidity by using the lime



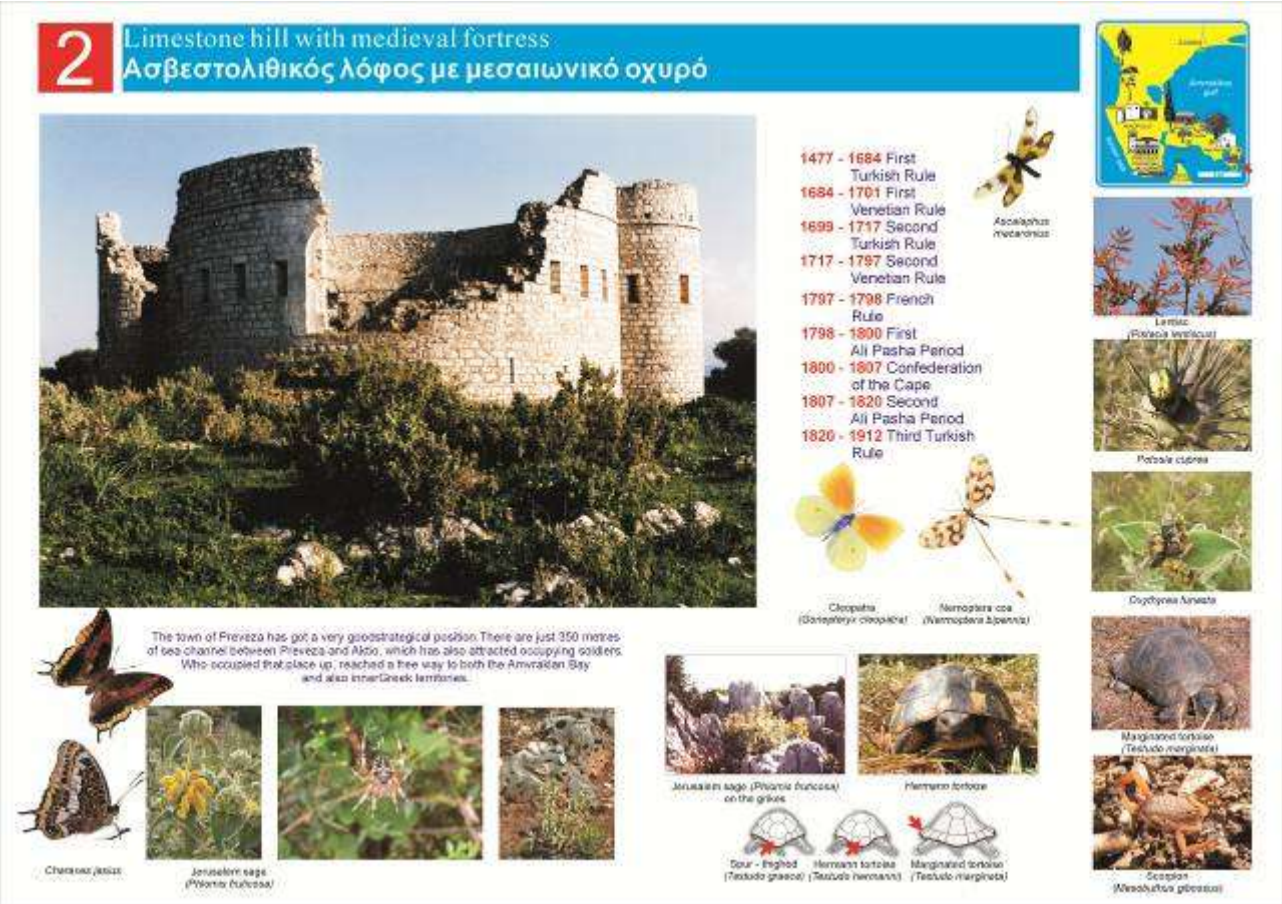
Stop No. 2 "Macchias, pastures, skrape fields" - Limestone hill with medieval fortress

Characteristics:

The region forms a mosaic of different types of macchia the skrape fields which are now partly used as pastures (sheep, goats). It is a side-road from the village called Agios Apostoli at the altitude of approximately 100 metres. In the impenetrable vegetation of macchia there are mainly *Pistacia lentiscus and Pistacia terebinthus), Cistus salviaefolius*, sometimes there are also other impenetrable brushwoods of bushes and mainly dwarf trees in which prevails *Myrtus communis*. However, there were identified even the species of *Laurus, Rubus* (blackberry), *Nerium oleander* (oleander), *Sarcopoterium spinosum*, then also *Ilex aquifolium)* and individually appearing *Cupressus sempervirens.* As a result of regular pasturing, there are also extensive dense herbaceous vegetations (frygana) - often intensely aromatic ones (species of thyme, rosemary, salvia, mint, sapa, etc.). As for typical birds, there are *Lanius senator, Oenanthe hispanica* and warblers. As for precious butterflies, you can find here *Charaxes jasius, Hiparchia fatua*, palpares, numopteras and more of ones. Even with your eyes closed, you can recognize the cicadas of *Lyristes* which can be easily identified according to their "cutting". At the top of the highest hill there is the Turkish fortress which is the popular place for outings of participants of our camp.

Educational Objective:

- Importance of pasturing the herbaceous vegetation for preservation of species composition of plants;
- Effects of carbon dioxide dissolved in water to rise the skrape fields;
- The Turks in troubled history of the Greeks.



Stop No. 3 "Park" in Agios Apostoli"

Characteristics:

It is very precious due to the remnants of oak trees which are many thousands years old - with the domination of *Quercus pubescens* and Hungarian oak *Quercus frainetto* and ancient centuries-old olives *Olea europea.* Spring aspect is characterized by ubiquitous cyclamens *genus of Cyclamen*, appearance of beautiful carrot-shaped plant - *Smyrnium perfoliatum* and many other plant species. In 1991 there was the new species of pyrophor discovered here, i.e. *Lacon Kapler* (named after a Czech entomologist Kapler who as the first man found it right here). The most outstanding kind of butterflies is represented by *Callimorpha quadripunctaria,* birds are represented by *Strix aluco* and *Otus scops* - both species nest in hollow trees, fully provided by the old trees. In the fallen oak leaves, you can find the smallest lizard - *Ablepharus kitaibelii* whose northernmost finding locality is in the Hills of "Kováčovské" in the region of Southern Slovakia. There are abundant green lizards *(Lacerta viridis)* and the lizards of Balcan *(Lacerta trilineata)* sunbathing on the olive tree trunks and hunting. The region around Agios Apostoli and the little church undoubtedly belong to the most valuable sites on the instructive trail. Ing. Jiří Lazebníček, a mycologist from Olomouc, found here the rare, dark-coloured fungus from the family of Trogossitidae - Pulcherricium Caeruleumere in the year of 1999, which confirmed the value of this place.

Educational Objective:

- Exemplary ecosystem of an old oak-tree forest
- A little church on which you can demonstrate the destructive power of earthquakes (cracks in the walls) and sea erosion which will be the reason for its collapse from a high cliff to the sea waters in a few years (within ten years there has been a move of the cliff towards the back wall of the small church by 3 meters).
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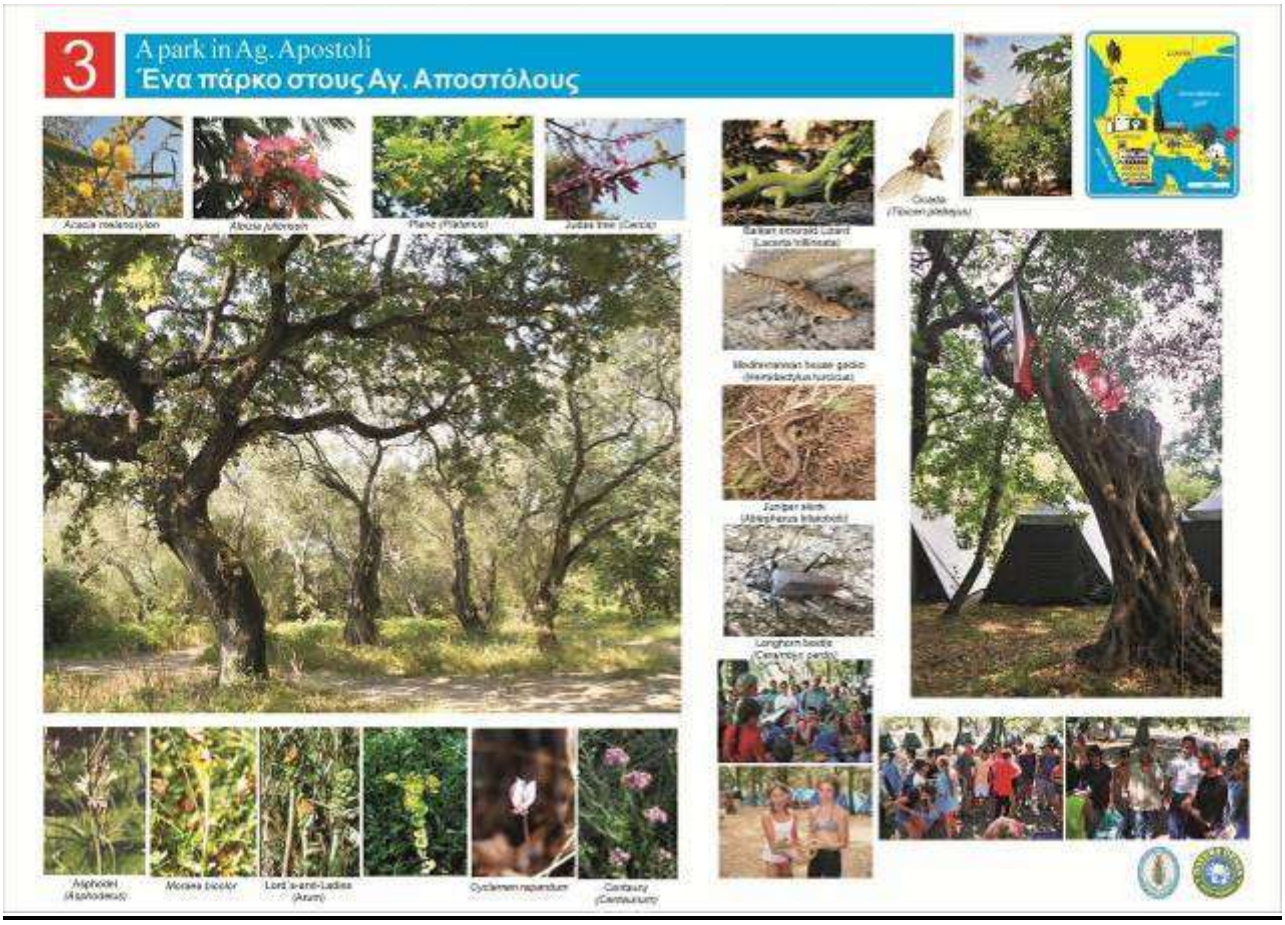


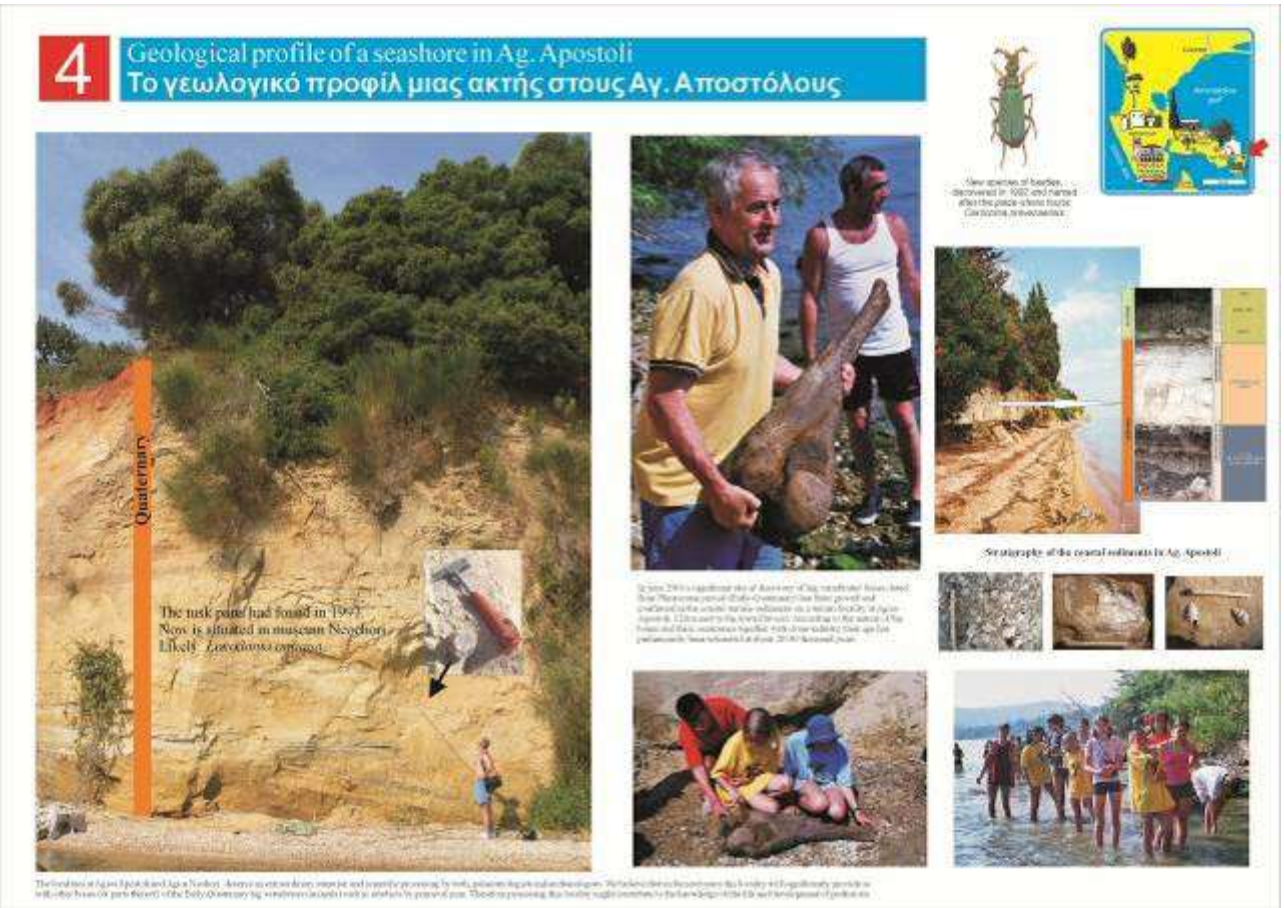
Stop No. 4 "Geological profile of the Sea Coast in Agios Apostoli"

Characteristics:

On the high wall of the shore, exposed by erosion effects of the sea, you can see the layers of the period of Alluvium which are easily identifiable (layer of own plough soil and the plough soil enriched with marl); and you can also see the layers formed during the period of Tertiary (marl layer which is temporarily flooded; the layer of whitish slate scan from which there are shells of gastropods falling down *(Gourmya family)*. Currently, little hermits of *Clinabarius family* use them as their "small houses". And finally the layer of carbonized vegetable matter which was permanently flooded in the past. Here on the uncovered shore, there was the discovery of parts of tusk and a bone (femur) of the "forest elephant" *(Loxodonta Antiqua)* which had lived here in the period of Pleistocene. It was the discovery of Dr. Rostislav Morávek - National History Museum in Olomouc in the year of 1998. It was even 5 meters tall animal creature, taller than a mammoth, whose tusks were longer than 3 metres. The radiocarbon method has shown that the tusk parts which were found are 35,000 years old (with tolerance of +/- 2500 years). On the same place, there have been stone tools of Neolithic human being - i.e. stone knives, arrowheads - found here since 1998. All these findings are in the exhibition of the Natural science Museum in Neochori.

Educational Objective:

- Origin and age of geological layers
- Settlement of Neolithic human being, the ways of his life and production of stone tools
- Bionomics of the newly discovered beetle *Cerocoma prevezaensis* (its parasitic relationship to bees of *Tropidotilla litoralis* forming passageways in the layer of whitish slate scan



Stop No. 5 "Amvrakian Bay and its Coastline in Agios Apostoli"

Characteristics:

Natural conditions in the bay are significantly different from those in the sea. The bay is connected to the open sea in the place of strait between Preveza and Cape Aktio. This is the place of the famous naval battle of ship fleet of rebellious Antonius and Cleopatra with government troops of Pompei, which was filmed too.

System of water exchange in the bay is very poor. Moreover, there is also the fact that the river Arachtos empties into the bay on the averted northern side. The river drains out a large part of Epirus basins between Ioannina and north-south mountain axis of Greece. Diversity of living conditions of the bay is reflected in the fact that many marine organisms, animals and plants do not like this environment, and therefore they miss here completely. On the other hand, some other organisms have perfectly adapted to this environment. And due to the fact that they do not have their competition of the "purely" sea organisms here, they simply occupied this region and they procreated themselves to the unusual extent. For example, the echinodermatas, which are still in the Preveza´s harbour represented by ugly holothuroidea, are not present at all further behind the first little peninsula of Agia Triada. While on the other hand, the beautiful fish called Salaria pavo - which is unique in Preveza - here occupies every boulder protruding from the sandy sea bottom. As the geological layers show, it means the layers that emerged above the sea level due to action of tectonic forces (Greece belongs to the tectonically active regions), similar conditions to those we can witness by ourselves were present here in the Bay also in the period of Tertiary. By the way, we have not found any evidence showing that the sea was sometimes prevailing here. It has always been the bay, lake or swampland.

This stop is one of the few places in the instructive trail which can be reached only on foot (most others are accessible on roads and also on the roads for cars). On the way to the Bay, we go through macchia vegetation were *Cleopatra Gonepteryx* flies around. And caterpillars live on the evergreen plant of macchia - *Rhamnus alaternus.*

Along the coast you can see reed growing *(Phragmites sp.)* and the high plant replacing bamboo *(Arundo donax).* On the beach you can find a number of washed-up clusters of egg boxes of Bolinus brandaris (genus *Murex)*, shells of Ranatras, Pectinidae and other marine molluscs. We can find here also cuttle-fish bones and shells of naturally prepared crabs and other marine animals. We can often see fishing silver seagulls *Lalur argentatus* and *Sterna hirundo.* However, the greatest attraction in the Bay belongs to dolphins *(Delphinus delphis),* one of them is pictured in the heraldry of Preveza town, and also giant water turtles *(Caretta caretta).*

Educational Objective:

- The difference between the sea and bay in terms of animal species representation
- Symbiotic relationship between the crab of Dardanus callidus and Actinia equina.
- Protection of the Amvrakian Bay

5 Amvrakia Bay and the seaside in Ag. Apostoli
Ο κόλπος της Αμβρακίας και η παραλία των Αγ. Αποστόλων

1. Spinous murex (*Murex dianthus*)
2. Rhyssoplax (*Chiton olivaceus*)
3. Apple murex (*Murex trunculus*)
4. Common cerith (*Cerithium vulgatum*)
5. Screw shell (*Turritella communis*)
6. Nassarius reticulatus
7. Common cuttlefish (*Sepia officinalis*)
8. Scaphander lignarius
9. Mediterranean cone shell (*Conus mediterraneus*)
10. Common tusk shell (*Dentalium vulgare*)
11. Gibbula albida
12. Pelicans foot shell (*Aporrhais pes-pelecani*)
13. Thais shell
14. Common cockle (*Cerastoderma edule*)
15. Papillose cockle (*Acanthocardia echinata*)
16. Dog cockle (*Glycymeris glycymeris*)
17. Warty venus-shell (*Venus verucosa*)
18. Mantalum infatum
19. Pen shell (*Pina nobilis*)
20. Bearded horse-mussel (*Modiolus barbatus*)
21. Mediterranean mussel (*Mytilus galloprovincialis*)
22. Calico clam (*Venerupis decussata*)
23. Tellin (*Tellina*)
24. Tellin (*Tellina*)
25. Common piddock (*Pholas dactylus*)
26. Noah's ark (*Arca Noe*)
27. Cladocora (coral)
28. A tubeworm on variegated scallop (*Chlamys varia*)
29. Spongia (*Spongia officinalis*)
30. Common barnacle (*Balanus amphitrite*)
31. Oyster (*Ostrea edulis*)
32. Grooved jackknife clam (*Solen marginatus*)
33. Stout clam (*Solecurtus strigillatus*)
34. Black sea-urchin (*Arbacia lixula*)
35. Limpet (*Patella caerulea*)

Logger head (*Caretta caretta*)

Stop No. 6 "Settlement of Neochori with the Natural Science Museum"

Characteristics:

The priority belongs to the exhibition of natural expositions of the Museum and visits to the School of Environmental Education. It is very good to compare the original flora and the flora planted in gardens (e.g. *Hibiscus sp., Nerium Oleander, Bougainvillea spectabilis, Punica granatum, Morus alba, Ficus carica,* etc.).

In nearby Agios Trias there is probably the most grandiose eucalyptus in the entire region *(Eucalyptus camaldulensis).*

In the spring of 2000, we started planting in the botanical garden at the museum. The garden should include trees and herbs typical of this region. The plants will be labelled with names. The garden will include a pergola too. The first part of the pergola was installed in the spring of 2000.

Educational Objective:

- Comparison of three ecosystems represented as Dioramas.
- Food chains in different ecosystems.
- Viewing collections of prepared animals in the natural science exhibition - diversity of animal species.
- Viewing interior of the Greek School of Environmental Education.
- Tour of the village of Neochori with identifying plants in the gardens.
- Walk to the biggest eucalypt tree in neighbouring Agios Trias.
- Excursions to the lemon and olive park.

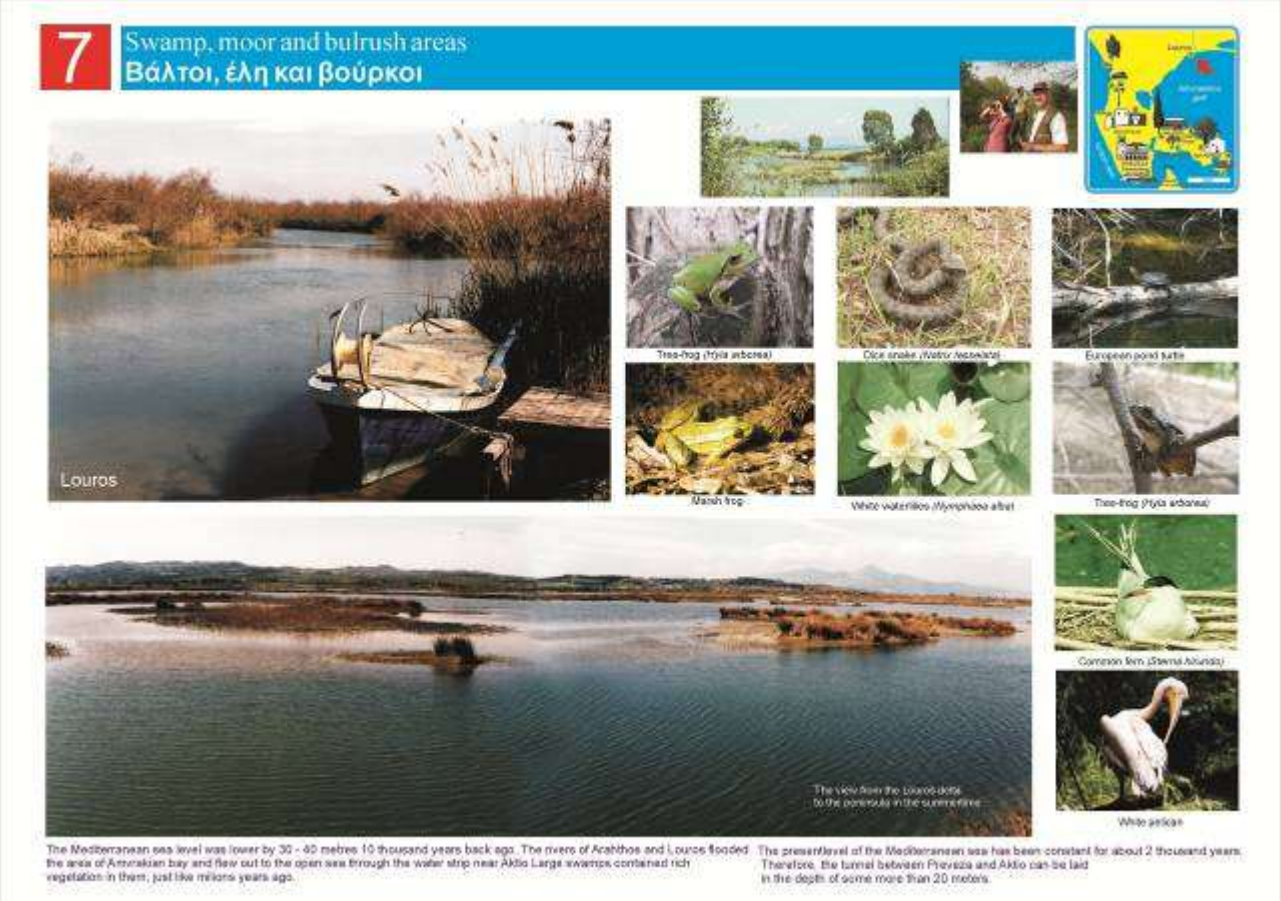
Stop No. 7 "Swamplands and Reed Areas"

Characteristics:

The Amvrakian Bay´s marshes and swamplands were included to the World Natural Heritage of high scientific value, according to the Ramsar Convention of 1977. Mainly for this reason, one of the stops on the instructive trail was located in the area of artificially created bay in the eastern direction of Nikopolis. Here - accompanied by communities of water, marsh and wetland birds - is the place for nests of many species of birds. The most beautiful and also the most precious ones of them include *Himantopus Himantopus.*

Educational Objective:

- Meeting the ecosystem of wetlands.
- Observation and identification of bird species.
- Importance of wetlands in the countryside



Stop No. 8 "Nikopolis and its Neighbourhood"

Characteristics:

In addition to historically valuable Antique monument (winner of the Battle of Aktio had this town built in honour of this victory), Nikopolis is also considered as an interesting place in terms of natural science. The inside area near the museum building is overgrown

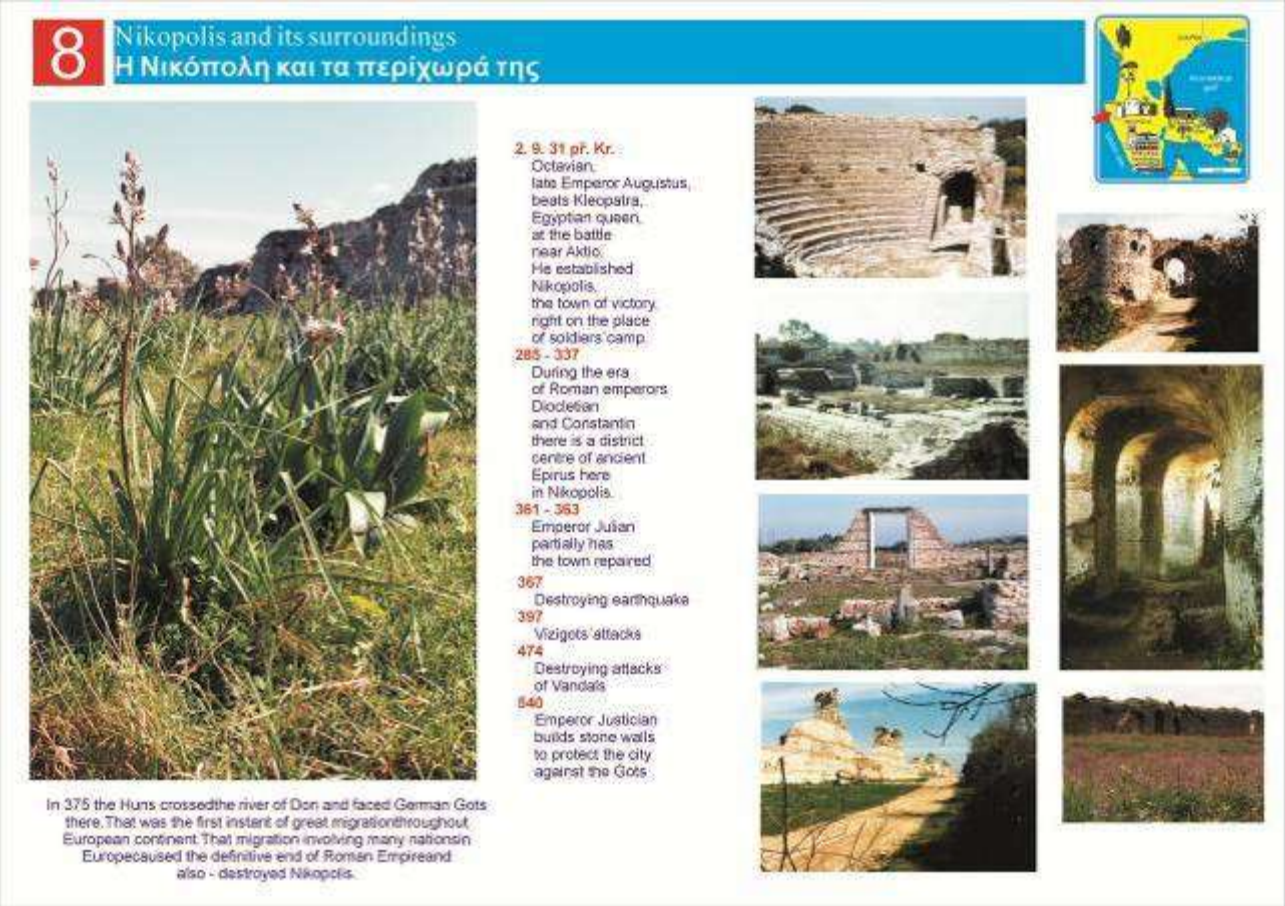
by the fennel abundantly spread around here in the Balkan *(Foeniculus vulgare)*, the fennel is a host plant of *Papilio machaon.*

The strictly protected greenish turtle *(Testudo hermannii)* and snakes of the group of grass snakes - colubers (e.g. *Coluber gemonensis)*, these ones are quite common here in the region.

It is quite interesting to see the tree frogs of *Hyla arborea* which take their rest on the fragrant fennel even during the strongest sunlight.

Educational Objective:

- Protected animals and people in busy places, protection of rare animals.
- Viewing and meeting the history of this cultural monument



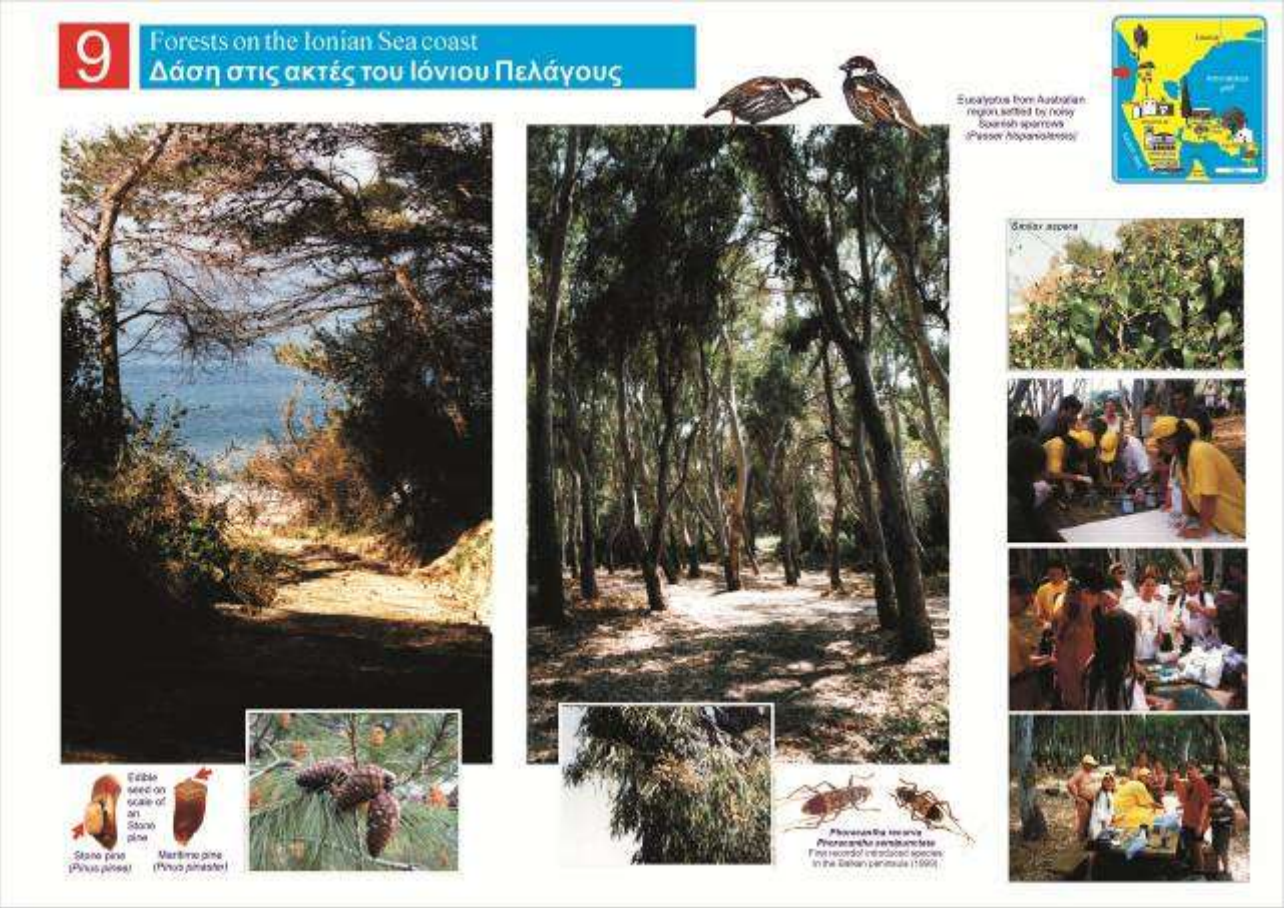
Stop No. 9 "Forest vegetation of the Ionian Sea Coastline

Characteristics:

The place is located west of Nicopolis. The place is widely used by holidaymakers (wide gravel beach). There is continuous growth of eucalyptus trees *(Eucalyptus camaldulensis)*, the tree is originally from Australia, it is widely grown here in the Mediterranean Sea too. In the Cetraceous and Tertiary times, *Eucalyptus* was growing in Central Europe too, even in the territory of our country! Its wood is used in building industry as fuel... The stand vegetation is also used in the original homeland for drying swamps. The wood is resistant to decomposition. Leaves are used for production of the drug called *eucalypti folium* - strongly aromatic with camphoric and contractive taste, used in medicine, perfumery and production of candies. At this place, *Eucalyptus* provides its users with deep shade. Not only the users but mostly the sparrows of *Passer hispaniolensis*. It is the suitable place for their nesting in colonies. There is a pine forest slightly continuing behind the eucalyptus forest in its northern part. This community of *Pinus halepensis*, typical for its long needles and cones seated on the thicker branches, is accessible by walking on foot just a few metres from the beach. On the high layer of pine needles (which is actually litter material), there are dense growths of bush-rope of *Smilax aspera*, often forming beautifully dark walls, and freshly green ones in the springtime, at the edge of the growth. In the shade, you can find here also *Ruscus aculeatus*, *Ilex aquifolium*, *Myrtus communis* and many other plants, including the beautiful yellow sorrel which is a common weed here.

Educational Objective:

- Meeting the ecosystem of eucalyptus and pine forest
- Notice of "sterility" of the eucalyptus growth, comparison with locust growth in our country.
- Observation of Spanish sparrows living in colonies.



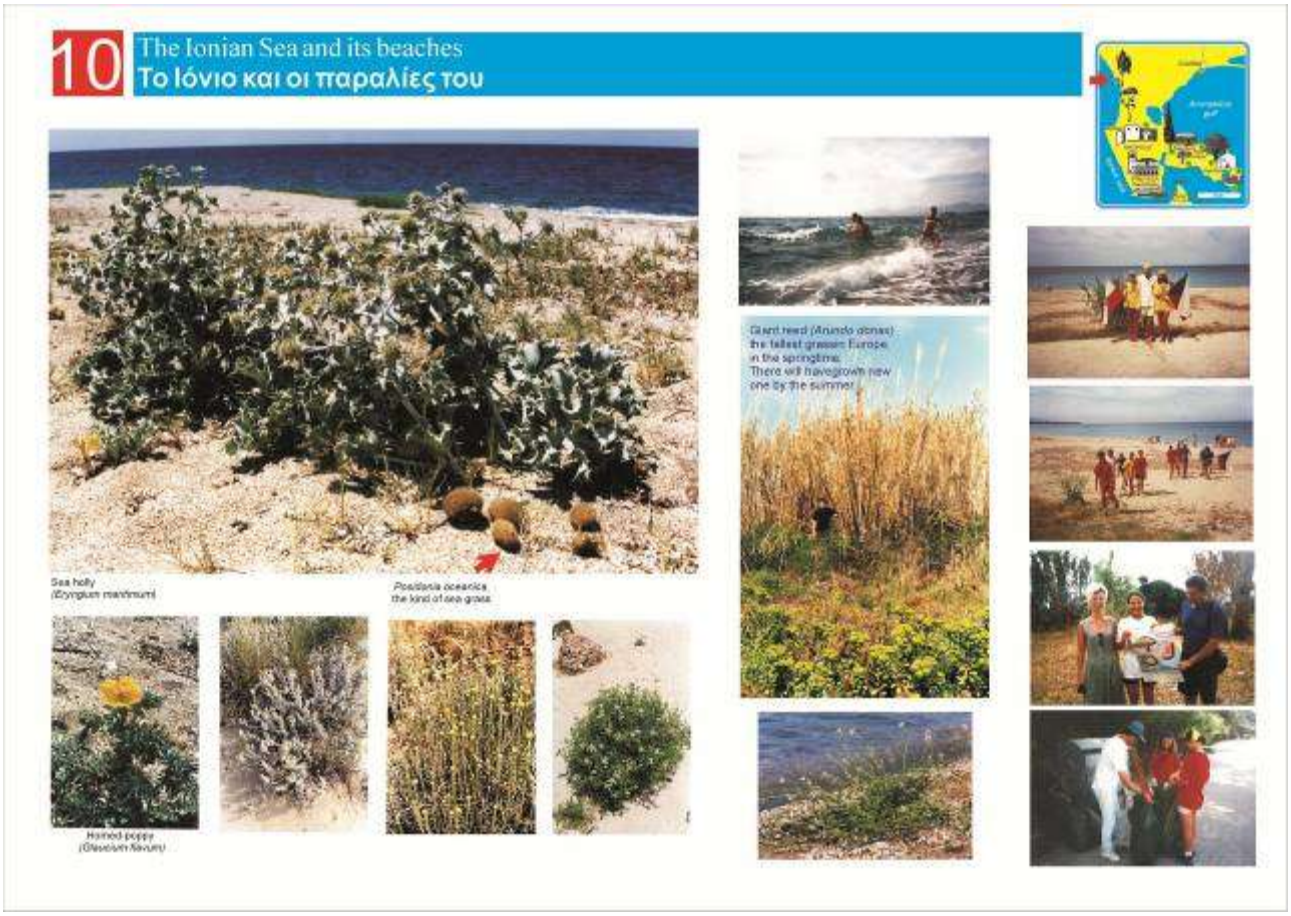
Stop No. 10 "Ionian Sea and Beaches"

Characteristics:

Tourists on the beach can admire *Eryngium maritinum* and *Glaucium flavum*. The by-passing walkers will certainly face the oval-shaped (like a "flat" egg) brown formations occurring in greater or lesser quantities on the beach. They are rhizomes of sea-plant of *Posidonia oceanica*, it means the rhizomes which are shaped by the sea waves and then ejected to the beach.

Educational Objective:

- Importance of the Mediterranean Sea and its protection against pollution.
- Keeping the beaches clean.
- Protection of plants on the beach, especially Eryngium maritinum (ornamental plant which is often taken away by holidaymakers).



The results of nature science research in the period of 1992 -2004

The region of Preveza´s peninsula in western Greece is exceptional in terms of nature science. Its eastern part, protruding out to the Amvrakian Bay with villages of Agios Apostoli, Agia Triada, Agios Thomas and Neochori, is fortunately not a popular tourist area. And this is why we can still meet very diverse species composition of flora and fauna in undisturbed ecosystems.
Current results of the survey show that it is very likely that the site of Agios Apostoli has been inhabited since the prehistoric times. Settlement of the Middle Stone Age (about 40,000 years ago) was located still on the shore of a freshwater lake at those times. The lake became the sea bay about 10,000 years ago when the Mediterranean Sea level rose up by 30 - 40 metres. The current situation of the water level has been unchanged for about 2000 years.

List of Discoveries by Natura Opava – Czech republic

1992
- discovery of new species of *Cerocoma Prevezaenzis* (beetle of Meloidae family), named according to the place of finding - described by Miroslav Dvořák, Praha
- discovery of new species of Elateridae for Greece (beetle of Elateridae family) - *Lacon Kapleri* (described by Oldřich Kapler jr., Praha)

1996
- discovery of a stone arrowhead of prehistoric man in Agios Apostoli (Rostislav Morávek, Olomouc)
- discovery of a stone knife of prehistoric man in Agios Apostoli (Radim Sokol, Opava)

1997
- discovery of a stone knife of prehistoric man in Agios Apostoli (Milan Kubačka, Opava)
- discovery of tusk part of "forest elephant" *(Loxodonta Antiqua)*, (Rostislav Morávek, Olomouc)

1998
- another discovery of part of "forest elephant" tusk *(Loxodonta Antiqua)* in Agios Apostoli (Rostislav Morávek)
- discovery of new species of sawyer beetle for Western Greece (beetle of Cerambycidae family) ***Nathrius brevipennis*** (Zdeněk Černý, Praha)
- discovery of new species of sawyer beetle for Balkan (beetle of Cerambycidae family) ***Phoracantha semipunctata*** (Zdeněk Černý, Praha)

1999
- **discovery of a stone knife of prehistoric man** in Agios Apostoli (Peter Hort, Ostrava)
- **discovery of rare fungus *Pulcherricium caeruleum*** in Agii Trias (Jiří Lazebníček, Olomouc)
- **discovery of new species of sawyer beetle for Europe** (beetle of Cerambycidae family) ***Phoracantha recurva*** (Zdeněk Černý , Praha)

2000
- **Florist survey of the Amvrakian Bay´s surroundings - 1999-2000** (Jiří Lazebníček, Olomouc)
- **discovery of a stone knife of prehistoric man** in Agios Apostoli (Ondřej Cáder, Opava)
- **discovery of a part of back tooth belonging probably to a "forest elephant" *(Loxodonta Antiqua)*** in Agios Apostoli (Milan Kubačka, Opava)

2001
- **discoveries of stone knives, janglers, scrapers and arrowheads of a prehistoric man** in the site of Agios Apostoli (Miloš Kačírek, Pavel Kolařík, brothers Pavel and Michal Ficeks, Jakub Kubačka, Zdeněk Čerevka and Tereza Šimečková - all of them from Opava)
- **Contribution to knowledge of the fauna of beetles of Cerambycidae family** Greece, 1992-2001 (Zdeněk Černý, Praha). There were 96 species of Cerambycidae beetles discovered in the region.

2002
- **Orchids of the Preveza Peninsula (results of a survey in 1998-2002)** (Daneš Červený, Opava, and Pavel Havránek, Olomouc). There were 42 species of orchids discovered in the region.

2003
- **Coleoptera, Blattoidea and Heteroptera in Preveza´s Surroundings, Greece** (Zdeněk Malinka, Opava)
- **Listing the trees on the site of Agios Apostoli, focusing on oaks.** There were recorded 52 trees with a trunk circumference of 2.5 to 9.2 metres (Quercus pubescens, Quercus frainetto, Quercus Cerris and Quercus Virgiliana). Herbarium of these species and their hybrids was handed to Arboretum in Nový Dvůr (CZ). Now it is included in the evidence collections. (Jakub Kubačka, Opava)
- **Significant trees on the Preveza´s peninsula** (Jakub Kubačka, Opava)

2004
- **Contribution to the knowledge of butterflies (Lepidoptera) 1992-2004** (Lubomír Honč, Albertovec)
- **Contribution to the knowledge of amphibians and reptiles (Amphibia, Reptilia), 1988-2004** (Milan Kubačka and Jakub Kubačka, Opava, Ivan Zwach, Rozstání)
- **Contribution to knowledge of birds (Aves) 1998-2004** (František Gazda, Vítkov)
- **List of observed species of mammals (Mammalia), 1992-2004** (Milan Kubačka, Opava)
- **List of observed species of shellfish in Preveza´s region of the Amvrakian Bay in the years of 1992-2004** (Milan Kubačka, Opava)
- **discovery of a fossilized bone of Pleistocene mammal** (joint of shoulder bone), belonging probably to a forest elephant of ***Loxodonta Antiqua*** (Rostislav Morávek, Olomouc)

Co-workers, professional guarantee for the project:

Prof. RNDr. Vítězslav Bičík, CSc. - Department of Zoology and Anthropology, Faculty of Nature Science, University in Olomouc
Ing. Miroslav Frank, CSc. - Head master of the Arboretum at the Silesian Land Museum Opava - Nový Dvůr

Jakub Kubačka - Statutory representative of the Natura Opava, student of anthropology and systematic biology in the Faculty of Natural Science at the Masaryk University in Brno,
Ing. Jiří Lazebníček, corresponding member of the European Committee for Protection of Fungi and their Environment
RNDr. Miloš Holzer, Czech Union of Nature Protection, Olomouc
Ing. Rostislav Morávek, Department of Geology in the Museum of National History in Olomouc
Ing. Zdeněk Malinka, entomologist, Opava
Ivan Zwach, biologist, herpetologist, Rozstání, Czech Republic
Zdeněk Černý - Czech Entomological Society, Praha
RNDr. Milan Kubačka, Natura Opava, biologist, author of publications
Mgr. Petr Pavlíček - director of the Mendel´s Grammar School in Opava
František Gazda, ornithologist, - Moravian Ornithological Society
Milan Pustějovský, - Zoological preparation of mammals and birds (Slavkov near Opava)

Co-operation with Greek colleagues:

Panagiotis Merkuris, Town Hall of Preveza
Vasilis Marmaris, Environmental Society of Preveza (Nature Protection Organization)
Dionysis Papanikos, geologist, Geological Institute of Preveza
Stamatis Zogaris, Hellenic Centre for Marine Research, Athens)

A Contribution to the Understanding of the Prevezian Nature

A Contribution to the Understanding of geology and paleontology

(Rostislav Morávek)

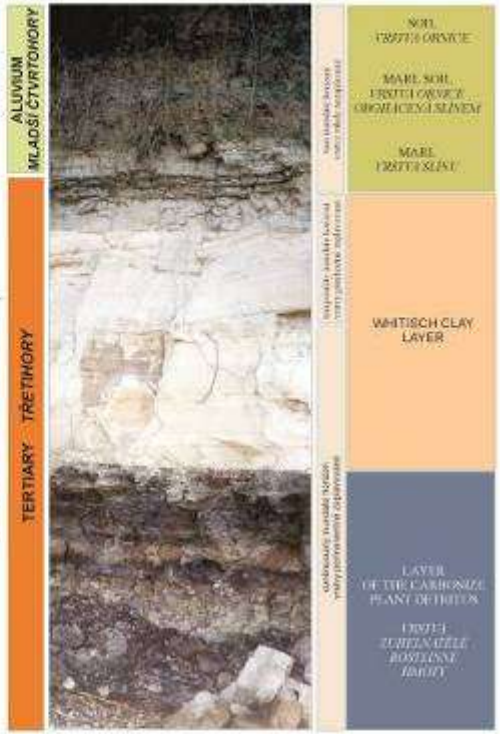
1. A contribution to the understanding of flora (Jiří Lazebníček)
2. A contribution to the understanding of trees in Agios Apostoli
3. A contribution to the understanding of orchids (Daneš Červený)
4. A contribution to the understanding of beetles of family Coleoptera: *Cerambycidae* in Greece (Zdeněk Černý)

5. A contribution to the understanding of insect (Milan Malinka)
6. A contribution to the understanding of *Amphibia* and *Reptilia* (Ivan Zwach, Milan Kubačka, Jakub Kubačka)

Stratigraphy of the coastal sediments in Ag. Apostoli

Stratifikace usazených hornin na odkrytém břehu v Ag. Apostoli

Melanopsis concmenensiana



The Geological Building

On behalf of zonal mountains system of dinar-helenic part, formed and created by alpine wrinkling there is the region of wider Preveza surroundings as a constituent of the Ionic outer helenidas zone. It is composed of settled minerals (limestone, sandstone, clay) of younger formations only: Miocene, Tertiary and Quaternary.

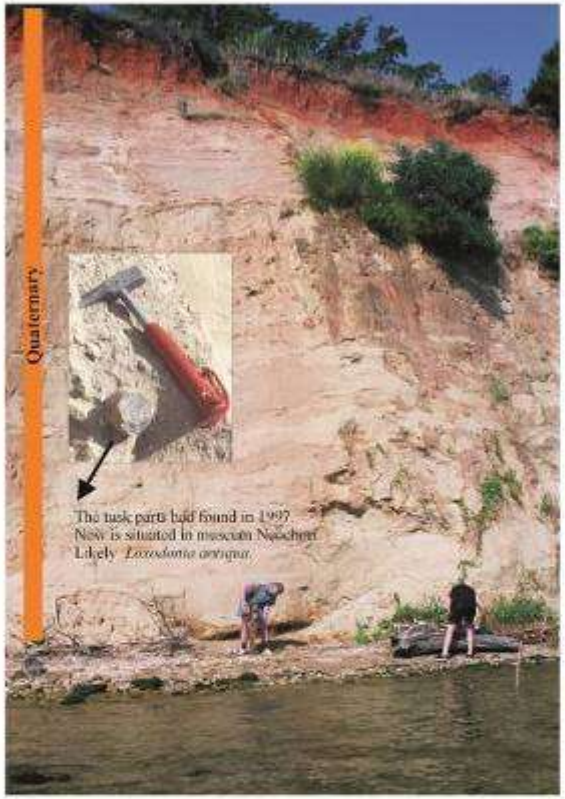
Geologická stavba

V rámci alpinským vrásněním formovaného a vytvořeného pásemného pohoří dinarsko-helenského tvoří je izomi širšího okolí Prevezy součástí jonské zóny vnějších helenid. Na její stavbě se podílejí pouze usazené horniny (vápence, pískovce, jílové břidlice) mladších útvarů; miocénního, terciérního a kvartérního.

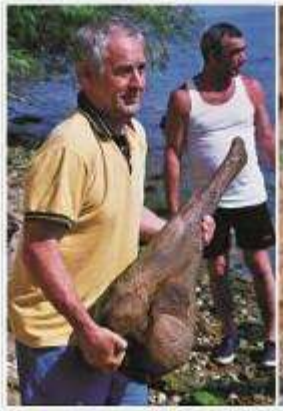
Geological map of area Preveza

Chybí legenda !

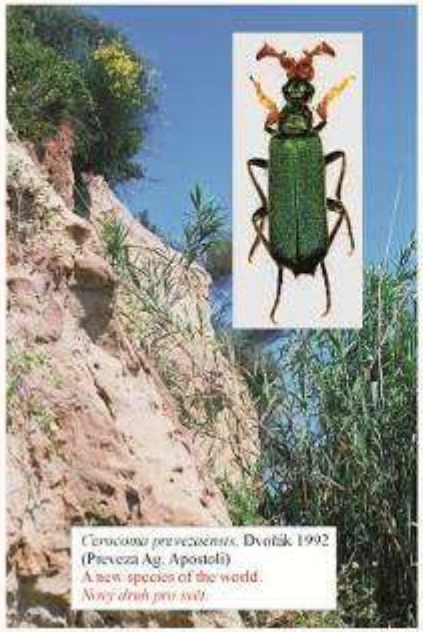
The localities at Agios Apostoli and Agios Neohori deserve an extraordinary attention and scientific processing by both, palaeontologists and archaeologists. We believe that in the next years this locality will significantly provide us with other bones (or parts thereof) of the Early-Quaternary big vertebrates (animals) such as artefacts by primeval man. Therefore processing this locality might contribute to the knowledge of the life and development of prehistoric cultures within the territory of Greece in the Early Pleistocene.



In year 2004 a significant site of discovery of big vertebrates' bones dated from Pleistocene period (Early-Quaternary) has been proved and confirmed in the coastal terrace sediments on a terrain locality at Agios Apostoli, 12 km east to the town Preveza. According to the nature of the bones and their occurrence together with stone industry their age has preliminarily been estimated at about 20-30 thousand years.



A Contribution to the Understanding of Beetles
Příspěvek k poznání fauny brouků



Cerocoma preveziensis, Dvořák 1992
(Preveza Ag. Apostoli)
A new species of the world.
Nový druh pro svět

Prionus laticollis Fabricius, 1792.
A new species
on the territory of Greece.
Nový druh pro území Řecka

Nathrius brevipennis Mulsant, 1836
In Greece found only
in the eastern part of Macedonia,
for the first time found in the west.
Nový druh pro území Řecka
a Balkánského poloostrova

Phoracantha recurva Newman, 1840.
A new species on the territories
of Greece and Europe
Nový druh pro území Řecka i Evropy

Phoracantha semipunctata Fabricius, 1775.
a new species on the territories
of Greece and the Balkan Peninsula