



MINUTES OF THE FIRST SCIENTIFIC COMMITTEE MEETING
IN CHANIA, 26-27/02/2009

The first scientific committee meeting of the Life+ Nature project (Life07/NAT/GR/000296-JUNICOAST) entitled: “Actions for the conservation of coastal dunes with *Juniperus spp.* in Crete and the South Aegean (Greece)” took place at the premises of the Mediterranean Agronomic Institute of Chania (MAICh), on the 26-27/02/2009. This meeting was under the framework of action E.3 (scientific committee) of the project. Participants in the first scientific committee meeting were: Prof. Panagiotis Dimopoulos from University of Ioannina-Greece, Dr. Louis Cassar, Director of the International Environment Institute (IEI)-University of Malta, Prof. Kerry Godfrey from the University of Guelph-Canada, Mr. Javier Jimenez Romo from the Municipality of Valencia-Spain, Prof. Costas Thanos from the National and Kapodistrian University of Athens-Greece, Dr. Ioannis Vogiatzakis and Mr. Panagiotis Nyktas (external assistants) from the University of Reading-England, Dr. Georgia Valaoras from the external monitoring team for the Greek and Cypriot LIFE projects, Mr. George Kazakis, Mr. Dany Ghosn, Dr. Kalliope Padiaditi, Ms. Hlektra Remoundou and Ms. Christina Fournarki from Mediterranean Agronomic Institute of Chania. Chair person of this meeting was Mr. George Kazakis (project manager) and the objectives of the meeting were:

- To present the project,
- To discuss the methodologies of the project actions and the problems/difficulties that might be encountered during the 1st year of the project.
- To discuss potential collaborations, integration of methodologies/results and exchange of data between the project beneficiaries in order to facilitate the completion of the preparatory actions and the proposal of effective concrete conservation actions.
- To visit the Elafonisi study site (GR4340015) and acquire a first assessment on the present status of the site.

Initially Mr. George Kazakis, Mr. Dany Ghosn and Dr. Kalliope Padiaditi presented analytically the project’s actions and the agenda of the meeting.



Following the project presentation, a round table discussion examining the materials and methods of each action took place. Each preparatory action methodology was discussed in detail. A summary of the main points that were raised are presented below in turn.

ACTION A.1: Landform and land degradation processes in dune systems

The proposed methodology for this action was presented by Mr. Panagiotis Nyktas who will carry out this action in collaboration with MAICh and the Technical University of Crete. Proposed start date for data collection was set as April. Landform and land degradation processes in the dune system will be studied in representative transects and scattered point measurements following the standard procedures in soil sciences and physiographic/geomorphological surveys in particular. The potentials of ground Penetrating Radar and Electrical Resistivity Tomography (ERT) will be tested for their usefulness for the purpose of this action. Water sampling and measurements of the ground water table level were proposed in order to determine water quality.

Dr. Louis Cassar pointed out the need to examine the wider surrounding landscape rather than just the priority habitat itself, largely to understand what processes were operating within and around the site in question, as well as the possibility of investigating temporal changes.

Mr. Nyktas mentioned that temporal changes present essential information since coastal dunes present some of the most dynamic landforms. Dominant landscape processes might differ between sites (e.g. aeolian vs fluvial). In general, a preliminary hydrological modelling and basin delineation (under the present rainfall) points of a reduced fluvial influence in comparison with coastal and especially Aeolian processes. This yet, is to be confirmed in the field.

All participants commented on the issue that all preparatory actions have duration of only 1 year and on the feasibility of examining any temporal change.

Dr. Cassar recommended the examination of historic data e.g. from old aerial photos. The example of Maghreb sand dunes was presented where changes outside the habitat were taking place which directly impacted upon the sand dune system and its biotopes. This



point was considered as important in terms of proposing concrete conservation actions which will address the issue at its core.

Mr. Nyktas mentioned that historic air photos have already been purchased from year 1968 (scale 1:15.000) and their comparison with later air photos (1996) and contemporary high resolution satellite imagery might reveal significant changes. Inland processes that might influence coastal sand dunes might be of relevance in the 2 Cretan sites where greenhouses have been constructed inland.

Prof. Dimopoulos mentioned that in Chrysi island he remembered using air photos of scales 1:5.000.

Mr. Nyktas said he will enquire for the largest scale in addition to historic air photos at the Hellenic Military Geographical Service.

A recommendation of using the line intersect method with a fix point in the hinterland was recommended. However, it was pointed out that the selected method would have to take into account the particularities of each site and that there is no one standard method. Dr. Cassar also recommended that were feasible, boreholes could be sunk in order to examine the temporal ground water fluctuations.

Mr. Nyktas replied that this has been planned in addition to at least one soil pit in each site. Soil analysis and comparison of horizons under different cover could reveal the dominant processes that shaped the sand dunes and the role of vegetation in dune formation.

Dr. PEDIADITI raised the question, regarding the LIFE+ funding regulations which point out that all actions should be carried out within the priority habitat in order to be funded.

Dr. Valaoras pointed out that if the objective of the action does not change e.g. the conservation of the priority habitat, sampling outside the habitat e.g. the fore dunes 2210 or in the hinterland in order to achieve that aim, as long as justified within the reports, is acceptable.

Mr. Javier Romo pointed out that from his experience with LIFE projects, this is possible. He gave the example of actions for the conservation of Mediterranean temporary ponds which were carried out outside the habitat in order to enable its conservation.

Prof. Godfrey commenting on the same Action (A.1) pointed out the need to integrate the results and data collection methodology with the visitor impact assessment study (A.5).



He stated that land use needs to be determined in and around the site as well as desire lines used by visitors (e.g. trails) and transects placed accordingly.

Mr. Nyktas commented that the extent of which degradation is due to visitor impact is difficult to determine unless a posterior comparison between erosion and visitor intensity patterns (maps) i.e. comparison control site(s) where there is no evidence of visitor presence and camping areas and visitors trails. Erosion- compaction data can/ should be used as an indicator of visitor impacts.

Mr. Javier Romo pointed out the necessity of spatially integrating all data collection by using a GIS platform. He also pointed out the necessity of identifying how the beach is nourished and which are the different processes affecting the landscape both natural and human induced. He transferred the experience of the Spanish case study where they studied other areas outside the habitat for the implementation of visitor management infrastructure suitability in order to move the visitor impacts from the actual habitat. He also pointed out the need to examine historical aerial photos to establish how the habitat used to be in order to be able to propose effective restoration measures.

ACTION A.2: Determining the dune system plant communities' composition and structure

Mr. Ghosn presented the proposed method for A.2 which incorporated the use of plots in order to determine the dune system plant communities' composition and structure and sampling various ecological parameters. Many questions were raised for consideration regarding the number, the size, the location of plots and the potential of using transects, and more importantly the issue of integrating data collection methods between various preparatory actions (mainly A.1, A.2, A.3 and A.5).

Prof. Dimopoulos recommended the re-examination of the same plots sampled in 2000 in order to be able to examine temporal changes.

Mr. Kazakis asked whether we would be able to trace the exact location of plots measured in 2000 in order to re-sample.



Prof. Dimopoulos stated he would send all available data for all Cretan sites to examine the feasibility. A discussion on how to integrate all different data collection followed.

Prof. Godfrey proposed that A.1 transects and A.2 plots should be aligned. In other words, Prof. Godfrey suggested to try and align transects of A.1 so that they pass through the middle of the various plots of A.2 and maybe end up with several plots (A.2) along the transect (A.1)-perhaps passing through different levels of visitor use and the potential for concomitant impact (A.5).

Dr. Vogiatzakis recommended the following approach to start the integration at the methodology development phase of the A actions. He Suggested the creation of standard maps in GIS which are shared amongst all, and that different overlays regarding sitting of different plots, transects etc would be created for each action. However final research design would be determined having overlaid existing NATURA2000 permanent plots (mentioned by Prof. Dimopoulos) in order to maximize integration and capacity to examine temporal changes.

Prof. Godfrey agreed with Dr. Vogiatzakis and mentioned that the overall idea of using GIS to create the map and data overlays is vital, and in doing so, this intersection of data collection and analysis can be more readily achieved.

Dr. Cassar cautioned against the use of the Braun Blanket method for vegetation-however the need to be able to use the same methods with those in 2000 had to be considered for the sake of consistency.

ACTION A.3: Composition and structure of Juniperus populations

Prof. Thanos having already started data collection transferred to the group his experiences and questions which had risen from the field trips of the previous days.

Firstly he commented on the difficulty of identifying a single Juniper individual due to the clonal behaviour of the Juniperus species. He pointed out that a single individual can have over 40 stems, which cannot be identified without damaging the roots or destructive sampling – which is out of the nature of the project.



He proposed using, gender, similarity (phenotypical) and location / position on the dune formation to classify a single individual, although he pointed out that this was not a standardised method, but rather based on his observations following the previous field visits to Elafonisi. He pointed out that an entire dune could be covered by 1 individual with many stems. This was agreed as problematic by the group with regards to integrated data collection as other partners in the field may classify individuals differently (e.g. in action A.2). It was thus proposed as a starting point that all stems are counted and that accurate GPS points of each individual would be recorded and shared amongst the partners.

The second difficulty he noted when out in the field was how to determine the age structure of the Juniper trees. Destructive sampling was not seen as favourable, although in Elafonisi which was visited, there are many cut branches. However, due to the clonal nature of the trees, one cannot know the original “mother” tree (main stem) and from there establish the age. Classification by size and other characteristics was thus proposed. Recording evidence of natural regeneration and the presence of seedlings were proposed too. He noted that in Elafonisi there is no regeneration – which he stated as unsurprising when you have long living species. However, many trees with lots of fruits and some seedlings on the ground were found. The question thus being why isn't there any regeneration occurring?

Mr. Nyktas pointed out that if the age of the trees (or individual stems) might provide with potentially useful information for the rates of dune erosion/deposition.

The third difficulty he talked about was the short period (January-March) to allow the discrimination between male and juvenile (non-reproductive) plants (as the male strobili, in contrast to the female ones, are shed after pollination which occurs early during January and February). In addition, many of the seeds appear to be empty, and it is unknown why almost 95% of seeds sampled in November are empty. The need to collaborate with action C.8 from the onset and as soon as possible was underlined. In order to create a link with action C.4, he proposed the need to produce clonal plants (vegetative reproduction using cuttings) and raised the question on how to do this practically.



Mr. Javier Romo transferred his experience from Spain. He noted that they did not estimate the age of their trees and stated that age can be estimated by extracting a transversal cylinder from the trunk of the tree. He noted also that they did not use cuttings for propagation but only seeds. He mentioned also that it was very hard to increase the germination rate of the seeds, and they are actually following their survival rate in the field. Mr. Romo stated he would provide Ms Fournaraki the germination protocols and share know how regarding C.8 action.

Prof. Thanos pointed out that there is evidence of extensive grazing in Elafonisi as well as camping in the summer, which may be affecting natural regeneration dramatically.

Mr. Kazakis informed the group that a scientist from the USA who is a Juniper dendrochronologist will be visiting MAICh in the summer and that a visit to the Elafonisi area would be arranged to share his views on the age determination issue.

Mr. Ghosn raised a question with regard to how to share data collection between action A.2 and action A.3 as both refer to similar data collection for what concerns the Juniper trees. It was agreed that once developed, common data collection sheets should be circulated and there should be a further discussion regarding how to collaborate on this point.

ACTION A.4: Habitat mapping

Mr. Kazakis stated that the habitat mapping action has already started using 1:5000 military maps of Greece, satellite images and aerial photos. He noted that INSPIRE specifications by the EC for the production of spatial data will be taken into account.

ACTION A.5: Visitor impact assessment

Dr. Pediaditi described the proposed methodology to conduct the visitor impact assessment which consisted of both on site observations and surveying in combination with A.1, A.2, A.3 as well as visitor survey. She noted the importance to share results



between action A.5 (visitor intensity data) and actions A.1, A.2, A.3 in order to be able to estimate the impact of visitors on:

1. Landform structures (e.g. erosion),
2. Vegetation composition (e.g. vegetation cover, % bare ground),
3. Juniper population (e.g. tree conditions and regeneration data).

Problems regarding feasibility issues and lack of baseline data regarding e.g. visitor number in order to obtain representative samples where presented.

Mr. Javier Romo pointed out that in Spain they are considering the use of infrared sensors to establish visitor counts and usage of trails but actually they did not install them. He mentioned also that currently they are using infrared cameras to detect forest fires.

Dr. Padiaditi commented on the lack of budget to do so. She also raised questions on the timing of data collection and how a specific impact e.g. erosion caused by natural processes or by visitors can be determined.

Mr. Javier Romo pointed out that in Spain they were at the same stage of investigation and development of methodologies and that they had the same difficulties and questions. It was agreed to continue communication and exchange of methods for consideration.

Prof. Godfrey proposed the zonation of high/low use and/or no use areas and link to A.1 and A.2 actions. He added that he doesn't think that we can break down use-levels too far, but to try to establish some form of value considered perhaps high-use, moderate-use, low-use and no-use, the latter perhaps being a control site. This may, however, be the ideal, as we need prior data, perhaps trend data of use, usage patterns, etc. to be able to identify and classify what we actually mean by these terms.

ACTION A.6: Stakeholder consultation

Dr. Padiaditi reported on the progress already made within this action i.e. the interviews and the stakeholder workshop carried out on the previous day. The time consuming nature of this action was pointed out.



ACTION A.7: Elaboration of long term monitoring protocols and selection of indicators

All participants discussed the need to identify practical, feasible and meaningful long term monitoring indicators and to establish their baselines, as well as the difficulty of doing so.

Prof. Dimopoulos pointed out that we should try and use the standardised indicators of the EU for habitat monitoring and said he would send them to MAICh.

ACTION A.8: Elaboration of target habitat protection and restoration specifications

Prof. Thanos pointed out that the implementation of this action would be carried out by other colleagues from his department. It was pointed out and supported by all participants

that a draft of the specifications should be developed in advance (i.e. March 2010) in order to be reviewed by the stakeholder committee and the scientific committee prior to their finalisation. This request was also brought forward during the stakeholder meeting the day before by various stakeholders. In addition, he suggested that the permanent monitoring plots (perhaps 50X50 m each) to be established for detailed mapping of the dune systems should be used for all monitoring purposes as needed within each of the preparatory actions.

ACTION C.1: On site habitat demarcation

The issue of using “soft-fencing” material (e.g. wooden posts and cordons) and the need to demarcate only where necessary was pointed out.



ACTION C.2: Waste removal

Dr. Cassar pointed out that attention is needed not to degrade the sites further and create more damage when collecting the rubbish. The combination of education activities through beach clean up events with C.2 was encouraged and ideas from Spain were provided.

ACTION C.3: Enhancement of juniper regeneration & **ACTION C.4:** Restoration of the floristic composition and structure of the target habitat

The question of how to carry out successfully these actions and feasibility issues were raised by Prof. Thanos.

Mr. Javier Romo noted that it is preferable to use the same medium from the sites for the propagation of the keystone species of the habitat.

Prof. Thanos pointed out that regarding the eradication of alien species he would only remove some *Pinus brutia* seedlings as a pilot action from Lavrakas site in Gavdos. Of course each case of invading alien species should be given proper consideration.

Dr. Cassar warned that we must be careful not to change species composition in the area dramatically over a short time-span.

ACTION C.5: Fore dune stabilization through vegetation restoration

Dr. Cassar pointed out that the title foredune stabilisation may be misleading as foredunes are, by their nature, unstable environments where sediments budgets are in constant state of flux as a result of the very dynamics of active dune fields. However Mr. Javier Romo pointed out that they had a similar activity as fore dunes were reconstructed and temporarily stabilised in order to ensure that the sand was not blown away. Prof. Godfrey mentioned that this probably one of the actions that is dependent on the results of preparatory actions.



ACTION C.6: Visitor management intervention and infrastructures & **ACTION C.7:**
Design and installation of Signs

The issue of vandalism of visitor's management infrastructure (boardwalks, rubbish bins directional and information signs, etc) was pointed out. The issue of long term maintenance of the visitor's management infrastructure was raised by Mr. Kazakis. The possibility of signing Memorandum of Understandings (MoU) with the correspondent municipalities in each area was proposed in order to maintain and ensure the long-term sustainability of the visitor's management infrastructure.

The issue of stakeholders in some site requesting toilets even though not included in the proposal was raised. Dr. Valaoras pointed out that we could include them if deemed necessary.

ACTION C.8: Ex situ conservation and propagation of keystone species

Mr. Javier Romo promised to send protocols on seed germination and storage.

Prof. Thanos noted that a sterile medium (perlite) could be used for the propagation of keystone species. He also added that juniper seedlings (either found in excessive numbers in situ or sown from seed in purpose, in the sand) could be transplanted in specific spots of the site considered as deficient in juveniles or in need of regeneration.

Finally, all the public awareness and dissemination of results actions (D actions: action D1 – action D7) and the Overall project operation and monitoring actions (E actions: action E1 – action E6) were discussed and different ideas were exchanged among the participants in order to ensure that the awareness of all targeted audiences is raised by using the most effective possible means.

Mr Romo, provided participants with educational and awareness raising material from similar past LIFE projects in Spain and commitment to collaborate in future awareness raising activities and networks was established.



Annex I: Agenda of the meeting



**Actions for the conservation of coastal dunes with
Juniperus spp. in Crete and the South Aegean**



MAICh-Chania, 26-27 February 2009

Scientific Committee Meeting AGENDA

Thursday, 26 of February 2009	
09:30 – 09:40	Welcome (Project Coordinator-Mr. George Kazakis)
09:40 - 10:00	Overview of the project
10:00 – 12:00	Presentation and review of proposed Preparatory Actions
12:00 - 12:15	Coffee Break
12:15 - 13:30	Presentation and Review of Concrete Conservation Actions
13:30 - 15:00	Lunch (M.A.I.Ch) + Administration
15:00 - 16:30	Presentation and Review of Dissemination Actions
16:30 – 16:50	Coffee Break
16:50 – 18:00	Break out sessions-
18:00-18:30	Plenary
20:00	Dinner in traditional restaurant
Friday, 27 of February 2009	
09:30 – 18:00	Field trip to the area of Elafonisi (coastal dunes with <i>Juniperus spp.</i>)



Annex II: List of participants

Name	Contact details
Prof. Panagiotis Dimopoulos	Associate Professor of Botany and Plant Ecology, University of Ioannina, Department of Environmental and Natural Resources Management, G. Seferi 2, 30100 AGRINIO, Greece. Phone: 26410 74119 74112, E-mail: pdimopul@cc.uoi.gr
Dr. Louis F. Cassar	Director of International Environment Institute (IEI), Office: Room 311A, Chemistry Building, 3rd Floor, University of Malta, Msida MSD 2080, Phone: +356 2340 2071, E-mail: louis.f.cassar@um.edu.mt
Prof. Kerry Godfrey	School of Hospitality and Tourism Management, College of Management and Economics, University of Guelph, 117F Macdonald Stewart Hall, 50 Stone Road East, Guelph, Ontario, N1G 2W1, Canada. Phone: 519-824-4120, E-mail: godfreyk@uoguelph.ca
Mr. Javier Romo	Ayuntamiento de Valencia Concejalía de Dehesa-Albufera, CV 500, km 8,5, margen izquierda, ES-46012 Valencia, España, Phone: +34 96 1610347, E-mail: jimenezromo@albufera.com
Prof. Costas Thanos	Associate Professor, Department of Botany, Faculty of Biology, National and Kapodistrian University of Athens, Panepistimiopolis, Athens GR-15784, Greece. Phone: +30-210-7274655, E-mail: cthanos@biol.uoa.gr
Dr. Ioannis Vogiatzakis	Center for Agri-Environmental Research, School of Agriculture, Policy and Development, The University of Reading, UK. PO Box 237, Reading RG6 6AR, Room: 1U 20 (new Agriculture building), Phone: +44 (0)118 378 6149, E-mail: i.n.vogiatzakis@reading.ac.uk
Mr. Panagiotis Nyktas	Alifieridon 8, Chania 73133, Greece. Mobile: +30 697 33 48 943, E-mail: p.nyktas@reading.ac.uk
Dr. Georgia Valaoras	Regional Coordinator for South East Europe - Monitoring expert, Astrale GEIE – Prospect C & S, 14 Asklepiou GR-10680 Athens, Greece. Phone: +30-210-3610088, Mobile: +30-6945233050, E-mail: georgia.Valaorass@astrale.org
Mr. George Kazakis	MAICh, Department of Environmental Management, Alsylío Agrokipiou, P.O.Box 85 GR, 73100, Chania, Greece. Phone: +30 28210 35000 (ext.577), E-mail: kazakis@maich.gr
Mr. Dany Ghosn	MAICh, Department of Environmental Management, Alsylío Agrokipiou, P.O.Box 85 GR, 73100, Chania, Greece. Phone: +30 28210 35000 (ext.577), E-mail: dghosn@maich.gr
Dr. Kalliope Padiaditi	MAICh, Department of Environmental Management, Alsylío Agrokipiou, P.O.Box 85 GR, 73100, Chania, Greece. Phone: +30 28210 35000 (ext.576), E-mail: padiaditi@maich.gr
Ms. Hlektra Remoundo	MAICh, Department of Environmental Management, Alsylío Agrokipiou, P.O.Box 85 GR, 73100, Chania, Greece. Phone: +30 28210 35000 (ext.578), E-mail: hlektra@maich.gr
Ms. Christina Fournaraki	MAICh, Alsylío Agrokipiou, P.O.Box 85 GR, 73100, Chania, Greece. Phone: +30 28210 35000 (ext.553), E-mail: flora@maich.gr