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ΕΛΛΗΝΙΚΟΣ ΓΕΩΡΓΙΚΟΣ ΟΡΓΑΝΙΣΜΟΣ "ΔΗΜΗΤΡΑ"
Institute of Mediterranean Forest Ecosystems
and Forest Product Technology

Conservation of priority forests and forest openings in "Ethnikos Drymos Oitis" and "Oros Kallidromo" of Sterea Ellada

LIFE11 NAT/GR/1014 - "ForOpenForests"

ACTION A.5

Determination of vegetation composition and structure in the mountain grasslands (6210*, 6230*)

DELIVERABLE A.5.2

Specifications for monitoring the impact of management on mountain grasslands (6210*, 6230*)

Pinelopi Delipetrou, Vasilis Papanastasis, George Karetsos

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Ινστιτούτο Μεσογειακών και Δασικών Οικοσυστημάτων

Διατήρηση δασών και ανοιγμάτων προτεραιότητας στον "Εθνικό Δρυμό Οίτης" και στο "Όρος Καλλίδρομο" της Στερεάς Ελλάδας
LIFE11 NAT/GR/1014 - "ForOpenForests"

ΔΡΑΣΗ Α.5
Καθορισμός της σύνθεση και της δομής της βλάστησης των ορεινών λιβαδιών (6210*, 6230*)

ΠΑΡΑΔΟΤΕΟ Α.5.1
Προδιαγραφές για την παρακολούθηση των αποτελεσμάτων της διαχείρισης στα ορεινά λιβάδια (6210*, 6230*)

Πηνελόπη Δεληπέτρου, Βασίλειος Παπαναστάσης, Γεώργιος Καρέτσος

Proposed reference: Delipetrou P., Papanastasis V., Karetsos G. 2015. Specifications for monitoring of the impact of management on mountain grasslands (6210*, 6230*). Deliverable A.5.2. for the project LIFE11 NAT/GR/2014 - ForOpenForests. Hellenic Agricultural Organization Dimiter- Institute of Mediterranean Forest Ecosystems and Forest Products Technology, National and Kapodistrian University of Athens - HSPN, 16 p.

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Table of Contents

SUMMARY

The monitoring objectives for the mountain grasslands within the project ForOpenForests are the assessment of the results of conservations actions C3 (action D2) and assessment of the conservation status of the mountain grasslands including the long term results of action C3 (after-LIFE monitoring).

The main monitoring parameters for assessing the conservation status of a habitat according to the requirements of Directive 92/43/EEC are: distribution and range, area, structures and function including the typical species (plant community composition and structure), and conservation potential (pressures and threats). After-LIFE monitoring requires the above parameters. Monitoring within action D2 requires assessment of plant community composition and structure and also of grazing capacity. The base study for all of these parameters took place within actions A5 and A6 and can be used for comparison with the results of monitoring.

Monitoring within action D2 will include the following:

- Annual recording of total plant cover, dry matter cover, naked soil cover and species composition in 68 1.25x1.25 m plots established in pairs, within (grazed) and outside (ungrazed) the grazing exclosures, inside the treated areas (burning, cutting of herbs, and cutting of herbs and shrubs) and outside the treated areas.
- Annual recording of biomass in 0.5x0.5 m plots placed within the above 68 plots.
- Vegetation transects with the methodology of action A5 in Livadies (L1, L2), Alykaina (A), Nevropoli (N2), Mikres Limnes (K3, K7).

After-LIFE monitoring will include:

- Grassland mapping every 6 – 12 years including plant community identification.
- Vegetation transects with the methodology of action A5 in Alykaina (A), Greveno (G), Livadies (L, L2), Tourkos (TR), Tsamadaiika (TS), Zapantolakka (Z1, Z2), Gkioza (K1), Panagia-Dremata (K2), Mikres Limnes (Mourouzos-Mouriza, K3, K7), Isomata (K4, K6), Nevropoli (N1, N2), Souvala (S1, S3, S6).

ΠΕΡΙΛΗΨΗ

Οι αντικειμενικοί στόχοι της παρακολούθησης στων ορεινών λιβαδιών στο πλαίσιο του έργου ForOpenForests είναι η εκτίμηση των αποτελεσμάτων της δράσης διατήρησης C3 (δράση D2) και η εκτίμηση της κατάστασης διατήρησης των ορεινών λιβαδιών, συμπεριλαμβανομένων των μακροπρόθεσμων αποτελεσμάτων της δράσης C3 (παρακολούθηση μετά το LIFE).

Οι κύριες παράμετροι παρακολούθησης για την εκτίμηση της κατάστασης διατήρησης ενός είδους σύμφωνα με τις απαιτήσεις της Οδηγίας 92/43/ΕΟΚ είναι: κατανομή και εύρος εξάπλωσης, έκταση, δομές και λειτουργίες συμπεριλαμβανομένων των τυπικών ειδών και προοπτικές διατήρησης (πιέσεις και απειλές). Η παρακολούθηση μετά το LIFE απαιτεί τις παραπάνω παραμέτρους. Η παρακολούθηση στο πλαίσιο της δράσης D2 απαιτεί εκτίμηση της δομής και της σύνθεσης των φυτοκοινοτήτων και επίσης εκτίμησης της βοσκοϊκανότητας. Η μελέτη βάσης για όλες τις παραπάνω παραμέτους έγινε στο πλαίσιο των δράσεων A5 και A6.

Η παρακολούθηση στο πλαίσιο της δράσης D2 θα περιλαμβάνει τα ακόλουθα:

- Ετήσια καταγραφή της συνολικής φυτοκάλυψης, της κάλυψης της ξηρής ουσίας, της κάλυψης του γυμνού εδάφους και της χλωριδικής σύνθεσης σε 68 δειγματοεπιφάνειες 1.25x1.25 η οποίες θα τοποθετούνται ανά ζεύγη, μέσα (αβόσκητες) και έξω (βοσκώμενες) από τους κλωβούς, μέσα στις περιοχές των μεταχειρήσεων (κάψιμο, κόψιμο ποών και κόψιμο ποών και θάμνων) και έξω από αυτές.
- Ετήσια καταγραφή της βιομάζας σε δειγματοεπιφάνειες 0.5x0.5 m τοποθετημένες μέσα στις παραπάνω 68 δειγματοεπιφάνειες.
- Διατομές βλάστησης με τη μεθοδολογία της δράσης A5 στις θέσεις Λιβαδιές (L1, L2), Αλύκαινα (A), Νεβρόπολη (N2), Μικρές Λίμνες (K3, K7).

Η παρακολούθηση μετά το LIFE θα περιλαμβάνει τα ακόλουθα:

- Χαρτογράφηση των λιβαδιών κάθε 6 – 12 έτη συμπεριλαμβανομένης της αναγνώρισης των φυτοκοινοτήτων.
- Διατομές βλάστησης με τη μεθοδολογία της δράσης A5 στις θέσεις Αλύκαινα (A), Γρεβενό (G), Λιβαδιές (L, L2), Τούρκος (TR), Τσαμαδαΐϊκα (TS), Ζαπαντόλακκα (Z1, Z2), Γκιόζα (K1), Παναγία-Δρέματα (K2), Μικρές Λίμνες (Μουρούζος-Μουρίζα, K3, K7), Ισώματα (K4, K6), Νεβρόπολη (N1, N2), Σουβάλα (S1, S3, S6).

1. Monitoring objectives and parameters for the assessment of the impact of management actions on mountain grasslands

The management actions within the project action C3 were: burning of shrub (*Juniperus nana* subsp. *nana*), cutting of herbaceous vegetation, cutting of shrub (*Rosa* spp., *Rubus* spp., *Juniperus oxycedrus*, *Prunus spinosa*, *Ononis spinosa*), and establishment of mobile cages (grazing exclosures) at three grazing intensities (no or light grazing, medium grazing, heavy grazing or overgrazing). These treatments were applied as follows:

- Mt. Oiti, Livadies 1 grasslands: burning of shrub, establishment of cages.
- Mt. Oiti, Livadies 2 grasslands: cutting of herbaceous vegetation, establishment of cage. Areas of action A5 transects L and L2.
- Mt. Oiti, Alykaina grasslands: establishment of cages at three grazing intensities. Area of action A5 transect A.
- Mt. Kallidromo, Nevropoli grasslands: cutting of shrub and of herbaceous vegetation, establishment of cages at three grazing intensities. Areas of action A5 transects N2.
- Mt. Kallidromo, Mikres Limnes (Mourouzos and Mouriza) grasslands: cutting of shrub and of herbaceous vegetation, establishment of cages at three grazing intensities. Areas of action A5 transects K3 and K7.

Monitoring of the mountain grasslands within the project ForOpenForests has two objectives:

- Assessment of the results of the conservation measures of action C3. This corresponds to monitoring within the LIFE project in the frame of action D.2.
- Assessment of the conservation status of mountain grasslands including the long-term results of the conservation action C3. This corresponds to after-LIFE monitoring.

The main monitoring parameters for assessing the conservation status of a habitat in terms of the Directive 92/43/EEC and the relevant reporting (Article 17) by member states are (Evans & Arvela 2011):

i. Distribution and range of the habitat (expressed in 10x10 grid).
ii. Area of the habitat.
iii. Special structures and functions of the habitat, including the typical species.
iv. Conservation potential (as assessed by the impacts of threats and pressures on the area and stuctures and functions of the habitat).

The above parameters were used during the base study of the mountain grasslands (actions A.5 and A.6) and can also be used as indicators of the success of the conservation measures within the LIFE project.

Distribution and range

Distribution is defined as the number of grid cells where a species occurs and range is an envelope including these cells. For habitats in Greece a 10x10 grid has been used, but for the

assessment at the local level of Mt. Oiti and Mt. Kallidromo a smaller grid will be more informative. A 5x5 grid would be appropriate in addition to the 10x10 grid. Monitoring of distribution and range only needs the confirmation of the existence of the mountain grasslands at the known sites as they have been mapped by action A.1. This includes plant community identification which means at least recording of the typical species.

Area

The use of a current satellite image combined with ground truthing is an adequate methodology for mapping and monitoring the area of any habitat. The maps produced by action A.1 consist the base status of the grasslands. Ground truthing includes plant community identification.

Structures and functions including typical species

The assessment of the structures and functions of mountain grasslands includes monitoring of important abiotic and biotic factors. Abiotic factors are mainly related to soil properties and also to meteorological conditions. Biotic factors include the plant community composition and structure and how they are influenced by abiotic factors and manegement.

The transects of Actions A5 and A6 were intended to provide the base status of the grassland communities regarding plant community composition, structure, and grazing capacity.

Monitoring of the results of action C3 should include the assessment of the various management treatments applied by the comparison of plant community composition, structure, and grazing capacity (total biomass) in treated and untreated sites of similar size. Treatment regarding grazing was applied only locally at the grazing exclosures, so the effects of all management treatments should be monitored at plots of 2.25 m^2 (1.5x1.5 m, equal to the size of the exclosures) in order for the results to be comparable. Cutting of herbaceous vegetation and cutting of shrub areas were larger, so the effects of this treatment could also be monitored at the larger areas covered by the vegetation transects of actions A5 and A6.

For after-LIFE monitoring, the vegetation transects of action A5 can be used for monitoring of plant community composition and structure at the level of Natura 2000 sites.

Conservation potential

Pressures (current in the past 10 years) and threats (projected in the future) acting on the population and habitat of the species generally include natural or anthropogenic habitat degradation or loss and disastrous events as well as impacts of interspecific relationships such as competition, invasion or predation and of endogenous factors. The main pressures and threats identified at the mountain grasslands of Mt. Oiti and Mt. Kallidromo were related to grazing (either lack of grazing or overgrazing) and to scrub encroachment. The effects of grazing are assessed by the monitoring of plant community composition and strucure. The effects of scrub encroachment are assessed by monitoring of the grassland area (mapping).

2. Monitoring protocol

Distribution, range, and area - After-LIFE monitoring

Method: Aquisition of current satellite image and visit at the grassland polygons mapped by action A1 for plant community identication and recording of the boundaries of the habitat with GPS (point data).

Plant community identification by recording of all the plant species in 4x4 plots (one plot at each polygon).

Process of GPS and plant community data and construction of GIS map using the satellite image as a background. The results of plant community data should be assessed by an expert.

Timing: After-LIFE monitoring. Every 6 – 12 years. Field work in July on Mt. Oiti and in late June or early July on Mt. Kallidromo.

Man-days: One day of field work may cover 4 to eight polygons, depending on distances and weather conditions. Approximately 1 month of office work.

Management plots - D2 monitoring

Method: Estimation of vegetation cover, composition, and biomass in 1.25x1.25 m plots. Plots are established in pairs, within (grazed) and outside (ungrazed) the grazing exclosures, inside the treated areas (burning, cutting of herbs, and cutting of herbs and shrubs) and outside the treated areas (Table 1).

Recording of vegetation cover by optical estimation by two independent observers. Total plant cover, dry matter (dry leaves and shoots from previous years) cover, total naked soil cover are recorded in each plot.

Recording of vegetation composition by two independent observers. The three most abundant plant species are recorded in each plot.

Recording of biomass in 0.50x0.50 m plots randomly placed within each 1.25x1.25 m plot. Clipping of all above-ground plant part by scissors and placement of the samples in paper bags. The samples are air-dried and weighed in the laboratory.

Timing: Annualy after the onset of action C3, in July. Repeat biomass estmation if necessary in September.

Equipment: Measuring tapes at least 50 m, printed protocol (Table 1 and Table 2) and stationery. Equiment for the collection and storage of plant samples.

Man-days: Field work: two people for 4 – 6 days, depending on the weather conditions.

Vegetation transects - D2 and After-LIFE monitoring

Method: Methodology as in Deliverable A.5.1. Setting of permanent transects at the areas of vegetation transects of action A.5.

Recording of the cover-abundance of all plant species and total vegetation cover in 1x1 plots placed systematically along the transects at distances of 10 m.

D2 monitoring. Transects in Livadies (L1, L2), Alykaina (A), Nevropoli (N2), Mikres Limnes (K3, K7).

After-LIFE monitoring. Transects of action A5: Alykaina (A), Greveno (G), Livadies (L, L2), Tourkos (TR), Tsamadaiika (TS), Zapantolakka (Z1, Z2), Gkioza (K1), Panagia-Dremata (K2), Mikres Limnes (Mourouzos-Mouriza, K3, K7), Isomatas (K4, K6), Nevropoli (N1, N2), Souvala (S1, S3, S6).

Timing: D2 monitoring. Once in 2017 (after 4 years of treatment application).

After-LIFE monitoring. Every 6 years.

Field work in July on Mt. Oiti and in late June or early July on Mt. Kallidromo.

Equipment: Measuring tapes at least 50 m, printed protocol (Table 2 and Table 3) and stationery. Equiment for the collection and storage of plant samples.

Man-days: D2 monitoring. Field work: two people for c. 4 days, depending on the weather conditions. Office work: Approximately 15 days (depending on the species identification proccess).

After-LIFE monitoring. Field work: two people for c. 10 days, depending on the weather conditions. Office work: One to two months (depending on species identification proccess).

Table 1. Sampling scheme for the plant community composition, structure and biomass in treated (34 plots, in 16 pairs of grazed and ungrazed plots) and untreated (34 plots, in 16 pairs of grazed and ungrazed plots) sites.

		1.25x1.25 m plot					
	Treatment	cutting		no treatment		burning	
Area	**Grazing Intensity**	grazed	ungrazed	grazed	ungrazed	grazed	ungrazed
Livadies 1	no or light			A1	A1'	A1	A1'
Livadies 1	no or light			A2	A2'	A2	A2'
Livadies 1	no or light			B1	B1'	B1	B1'
Livadies 1	no or light			B2	B2'	B2	B2'
Livadies 1	no or light			Γ1	Γ1'	Γ1	Γ1'
Livadies 1	no or light			Γ2	Γ2'	Γ2	Γ2'
Livadies 2	no or light	A1	A1'	A1	A1'		
Livadies 2	no or light	A2	A2'	A2	A2'		
Livadies 2	no or light	A3	A3'	A3	A3'		
Livadies 2	no or light	B1	B1'	B1	B1'		
Livadies 2	no or light	B2	B2'	B2	B2'		
Livadies 2	no or light	B3	B3'	B3	B3'		
Alykaina	heavy			A1	A1'		
Alykaina	heavy			A2	A2'		
Alykaina	heavy			A3	A3'		
Alykaina	medium			B1	B1'		
Alykaina	medium			B2	B2'		
Alykaina	medium			B3	B3'		
Alykaina	no or light			Γ1	Γ1'		
Alykaina	no or light			Γ2	Γ2'		
Alykaina	no or light			Γ3	Γ3'		
Nevropoli	heavy	A1	A1'	A1	A1'		
Nevropoli	heavy	A2	A2'	A2	A2'		
Nevropoli	heavy	A3	A3'	A3	A3'		
Nevropoli	medium	B1	B1'	B1	B1'		
Nevropoli	medium	B2	B2'	B2	B2'		
Nevropoli	medium	B3	B3'	B3	B3'		
Nevropoli	no or light	Γ1	Γ1'	Γ1	Γ1'		
Nevropoli	no or light	Γ2	Γ2'	Γ2	Γ2'		
Nevropoli	no or light	Γ3	Γ3'	Γ3	Γ3'		
Mikres Limnes	heavy	A1	A1'				
Mikres Limnes	heavy	A2	A2'				
Mikres Limnes	heavy	A3	A3'				
Mikres Limnes	medium			B1	B1'		
Mikres Limnes	medium			B2	B2'		
Mikres Limnes	medium			B3	B3'		
Mikres Limnes	no or light	Γ1	Γ1'				
Mikres Limnes	no or light	Γ2	Γ2'				
Mikres Limnes	no or light			Γ3	Γ3'		

Table 2. Protocol for vegetation transects at the grasslands of Mt. Oiti.

Transect*	**A**	**GPS file**	**Grassland Name*:** Alykaina	
Author				Date
Notes				

Plot No	A___	A___	A___	A___	A___	A___	A___	A___	A___	A___
Distance from start (m)										
GPS										
Plant cover %										
Achillea setacea										
Agrostis gigantea										
Alopecurus gerardii										
Anthemis cretica ssp. columnae										
Anthemis tinctoria ssp. parnassica										
Anthoxanthum odoratum										
Arenaria serpyllifolia										
Armeria canescens										
Astragalus thracicus										
Brachypodium pinnatum										
Bromus cappadocicus										
Bromus hordeaceus										
Campanula spatulata										
Carex ovalis										
Carum graecum										
Centaurea affinis ssp. pallidior										
Centaurea nervosa ssp. promota										
Centaurea triumfettii										
Cerastium glomeratum										
Chrysopogon gryllus										
Convolvulus arvensis										
Cynosurus cristatus										
Dactylis glomerata										
Deschampsia cespitosa										
Dianthus tymphresteus										
Dianthus viscidus										
Dorycnium pentaphyllum ssp. herbace										
Edraianthus parnassicus										
Eryngium amethystinum										
Erysimum cuspidatum										
Euphrasia liburnica										
Euphrasia minima										
Festuca dalmatica										
Festuca jeanpertii ssp. achaica										
Festuca nigrescens										
Festuca rubra										
Galium verum										
Helictotrichon pubescens										
Herniaria parnassica										
Hieracium cymosum										
Hieracium hoppeanum s.l.										
Hieracium piloselloides										
Hypericum barbatum										
Koeleria lobata										
Lotus corniculatus										
Luzula multiflora										
Luzula spicata										
Medicago sativa ssp. falcata										
Mentha spicata ssp. condensata										
Minuartia recurva										
Nardus stricta										
Nepeta nuda										
Paronychia albanica										

Plot No	A___	A___	A___	A___	A___	A___	A___	A___	A___	A__
Phleum alpinum										
Phleum montanum										
Plantago argentea										
Plantago holosteum										
Plantago lanceolata										
Poa bulbosa										
Poa thessala										
Poa timoleontis										
Poa variegata										
Potentilla pedata										
Potentilla recta										
Prunella laciniata										
Ranunculus polyanthemoides										
Rumex acetosella										
Secale montanum										
Silene roemeri										
Stachys germanica										
Stachys germanica ssp. heldreichii										
Thymus longicaulis										
Trifolium alpestre										
Trifolium arvense										
Trifolium fragiferum										
Trifolium hybridum										
Trisetum flavescens										
Veronica arvensis										
Veronica serpyllifolia										
Achillea setacea										

* Livadies Transect **L**, Livadies Transect **L2**, Greveno Transect **G**, Alykaina transect **A**, Tourkos transect **T**, Tsamadaiika transect **TS**, Zapantolakka transects **Z1**, **Z2**

Table 3. Protocol for vegetation transects at the grasslands of Mt. Kallidromo.

Transect*	N1	**GPS file**	**Grassland Name**: Nevropoli
Author			Date
Notes			

Plot No	N___	N___	N___	N___	N___	N___	N___	N___	N___	N___
Distance from start (m)										
GPS										
Plant cover %										
Achillea crithmifolia										
Achillea pannonica										
Acinos alpinus										
Aegilops biuncialis										
Aegilops geniculata										
Agrostis gigantea										
Allium guttatum										
Allium vineale										
Alyssum chalcidicum										
Anthemis arvensis ssp. cyllenea										
Anthemis tinctoria ssp. parnassica										
Anthoxanthum odoratum										
Arenaria leptoclados										
Armeria canescens										
Asteriscus aquaticus										
Avena barbata										
Barbarea sicula										
Barbarea vulgaris										
Bellis perennis										
Bromus hordeaceus										
Bromus intermedius										
Bromus racemosus										
Bromus squarrosus										
Bromus sterilis										
Bupleurum glumaceum										
Bupleurum gracile										
Campanula spatulata										
Carex distans										
Carex distans										
Carex divisa										
Carex divisa										
Carex flacca										
Carex flacca										
Carex otrubae										
Carex otrubae										
Centaurea solstitialis										
Centaurea solstitialis										
Cerastium glomeratum										
Cerastium glomeratum										
Cichorium intybus										
Cichorium intybus										
Cirsium creticum										
Cirsium creticum										
Cirsium vulgare										
Cirsium vulgare										
Convolvulus arvensis										
Convolvulus arvensis										
Convolvulus betonicifolius										
Convolvulus betonicifolius										
Cynodon dactylon										
Cynodon dactylon										
Cynosurus cristatus										

Plot No	N___	N___	N___	N___	N___	N___	N___	N___	N___	N___
Cynosurus cristatus										
Cynosurus echinatus										
Cynosurus echinatus										
Dactylis glomerata										
Dactylis glomerata										
Dasypyrum villosum										
Dasypyrum villosum										
Dianthus gracilis										
Dianthus gracilis										
Dianthus viscidus										
Dianthus viscidus										
Dorycnium pentaphyllum ssp. herbace										
Dorycnium pentaphyllum ssp. herbace										
Echium italicum										
Echium italicum										
Elymus repens										
Elymus repens										
Eryngium campestre										
Eryngium campestre										
Festuca jeanpertii ssp. achaica										
Festuca jeanpertii ssp. achaica										
Festuca polita										
Festuca polita										
Festuca species										
Festuca species										
Festuca valesiaca										
Festuca valesiaca										
Filipendula vulgaris										
Filipendula vulgaris										
Galium palustre										
Galium palustre										
Galium verum										
Galium verum										
Hedypnois cretica										
Hedypnois cretica										
Hieracium gaudryi										
Hieracium gaudryi										
Hordeum bulbosum										
Hordeum bulbosum										
Hypericum rumeliacum ssp. apollinis										
Hypericum rumeliacum ssp. apollinis										
Hypochaeris cretensis										
Hypochaeris cretensis										
Leontodon cichoriaceus										
Leontodon cichoriaceus										
Lolium perenne										
Lolium perenne										
Lolium rigidum										
Lolium rigidum										
Lotus angustissimus										
Lotus angustissimus										
Lotus corniculatus										
Lotus corniculatus										
Lotus ornithopodioides										
Lotus ornithopodioides										
Luzula multiflora										
Luzula multiflora										
Marrubium peregrinum										
Marrubium peregrinum										
Marrubium velutinum										
Marrubium velutinum										
Medicago sativa ssp. falcata										
Medicago sativa ssp. falcata										

Plot No	N___	N___	N___	N___	N___	N___	N___	N___	N___	N___
Minuartia attica										
Minuartia attica										
Nepeta nuda										
Nepeta nuda										
Notobasis syriaca										
Notobasis syriaca										
Ononis spinosa										
Ononis spinosa										
Parentucellia latifolia										
Phleum montanum										
Phleum pratense										
Plantago argentea										
Plantago lagopus										
Plantago lanceolata										
Poa bulbosa										
Poa compressa										
Potentilla laciniosa										
Potentilla recta										
Potentilla reptans										
Prunella laciniata										
Ranunculus psilostachys										
Ranunculus sardous										
Rorippa sylvestris										
Rumex conglomeratus										
Rumex pulcher										
Rumex tuberosus										
Sanguisorba minor										
Teucrium capitatum										
Thlaspi perfoliatum										
Thymus longicaulis										
Trifolium arvense										
Trifolium campestre										
Trifolium fragiferum										
Trifolium pallidum										
Trifolium physodes										
Trifolium repens										
Trifolium resupinatum										
Trifolium scabrum										
Trifolium striatum										
Trisetum flavescens										
Triticum baeoticum										
Xanthium spinosum										
Xeranthemum cylindraceum										

* Nevropoli transects **N1**, **N2**, Mourouzos transect **K7**, Mouriza transect **K3**, Gkioza transect **K1**, Panagia-Dremata transect **K2**, Ispomata transects **K4**, **K6**, Souvala transects **S1**, **S3**, **S6**.

3. Literature

Evans D., Arvela M. 2011 Assessment and reporting under Article 17 of the Habitats Directive - Explanatory Notes & Guidelines for the period 2007-2012 - Final Draft. European Topic Centre on Biological Diversity, p. 1-123.