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VEGETATION OF THE ONFERNO NATURE RESERVE (RIMINI – CENTRAL ITALY) AND MANAGEMENT PROBLEMS OF SECONDARY GRASSLANDS

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Abstract

This study presents a floristic and vegetational analysis of the territory of the Onferno Nature Reserve. The site extends over about 120 hectares, and is located in central Italy, in a hilly area near the Adriatic coast. It is characterised by the presence of large gypsum blocks that have karst caves, where important colonies of bats lives. This study of the vegetation allowed the description of six main vegetation series, divided into three different geosigmeta: a geomorphological unit of gypsum substrata (*Gessi di Onferno*); a geomorphological unit of clay substrata (*Formazione del Santerno*); and a geomorphological unit of compact sandstone substrata (*Formazione Montecalvo in Foglia*). This floristic and vegetation studies carried out on the secondary grasslands (EC Habitat 6210) have allowed the evaluation of the grazing effects on the conservation of their biodiversity, and highlight the critical nature of this management method. Furthermore, on the basis of the vegetation studies, the list of habitats according to EC Directive 92/43/CEE has been better defined and updated.

Key words: vegetation, secondary grasslands, habitat, bats, Onferno.

Izvleček

V raziskavi so predstavljeni rezultati floristične in vegetacijske analize na območju naravnega rezervata Onferno. Rezervat obsega več kot 120 hektarjev in je v srednji Italiji v gričevnatem območju ob jadranski obali. V njem so značilni veliki bloki gipsa s kraškimi jamami, kjer živijo pomembne kolonije netopirjev. V vegetacijski anlizi smo opisali šest vegetacijskih serij, razdeljenih v tri različne geosigmete: geomorfološka enota na gipsu (*Gessi di Onferno*); geomorfološka enota na glini (*Formazione del Santerno*) in geomorfološka enota na kompaktnem peščenjaku (*Formazione Montecalvo in Foglia*). Z rezultati floristične in vegetacijske raziskave na sekundarnih travišči (EC Habitat 6210) smo lahko ovrednotili učinke paše na varovanje biodiverzitete in izpostavili kritične točke tega načina gospodarjenja. Na osnovi vegetacijske analize smo lahko bolje določili in dopolnili seznam habitatnih tipov v skladu s habitatno direktivo (EC Directive 92/43/CEE).

Ključne besede: vegetacija, sekundarna travišča, habitatni tipi, netopirji, Onferno.

1. INTRODUCTION

The Onferno Nature Reserve is a protected area of about 120 hectares that is situated in the town of Gemmano, a few kilometers from Rimini, which is an Italian area with one of the highest concentrations of tourists. The area is also a Site of Community Importance (SCI Onferno IT 409 001). Although the landscape has been heavily shaped by human activities, the more important natural elements have been preserved, largely due to the presence of the extended badlands, and especially with the gypsum substrata. This gypsum substrata of the Onferno Nature Reserve is part of the southern-most area of the large geological system of "*Vena del Gesso*", which unites the gypsum outcrops of the Reggio Emilia province with those of Rimini. The originality and richness of the vegetation of these gypsum outcrops in Emilia Romagna have been noted previously (Zangheri, 1936; Corbetta, 1994; Alessandrini, 1996; Laghi & Pastorelli, 2004; Taffetani et al. 2005).

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A particular feature of the Onferno Nature Reserve is the numerous colonies of Chiroptera found in the karst caves that have developed along the base of the chalk complex. These bat communities are very different and they constitute the largest colonies of mixed species in northern Italy, according to Annex II of the Habitats Directive. The breeding colonies have reached about 6,000 bats that belong to seven species: *Miniopterus schreibersii, Myotis blythi, Myotis myotis, Rhynolophus euryale, Rhynolophus hipposideros, Rhynolophus ferrumequinum*, and *Myotis emarginatus* (SIC Onferno listing IT 409 001).

The conservation of these bats is strictly linked to the preservation of their natural environment, and particularly to the *Bromus erectus* grasslands that are their foraging areas (Priority Habitat 6210, under the Habitats Directive 92/43 EEC). Some of the grasslands of the southern sector of the Reserve that are more structured and rich in species can be included in this category; however, others represent more ruderal aspects, although they have the potential to evolve over time into more mature types of pasture. As with all secondary grasslands, their maintenance is highly dependent on the use of animals, either directly (grazing) or more indirectly (mowing). Since the total abandonment of such animal husbandry practices, to maintain these grasslands and to promote the development of further grasslands, the Reserve has for several years followed management programmes designed to ensure their active conservation, such as the Life Project for "Conservation of bats and their foraging areas in the Onferno Nature Reserve SCI site". The aim of the Life Project is of maintaining the great value of environmental biodiversity by improving the fragmentation and crop diversification in agricultural areas, maintaining the existing grasslands, and encouraging the development of abandoned areas towards the formation of permanently managed grasslands, and in this way to preserve and expand the foraging areas of the bats.

In this paper, we present the results of a floristic and vegetational study carried out for environmental characterization prior to the interventions under the Life project, and the evaluation of the subsequent results, in terms of the floristic, vegetational and serial biodiversity of this biocoenosis.

Figure 1: The study area. **Slika 1:** Raziskovano območje.

2. THE STUDY AREA

The Onferno Nature Reserve is located in the hilly subcoastal territories of the province of Rimini, on the border with the Marche Region (Figure 1). According to the biogeographical classification of Rivas-Martínez (Rivas-Martínez et al. 2004), the territory is part of the Eurosiberian Region, Alpino-Caucasic Subregion, Apennine-Balkan Province, Apennine Subprovince.

The bioclimate was evaluated on the basis of data from the meteorological station of the nearby San Marino (Figure 2) and it is an oceanic temperate macrobioclimate (submediterranean variant), of an upper mesotemperate thermotype, and lower subhumid ombrotype (Rivas-Martínez 2008).

With regard to its geology, the area is characterized by early Pliocene native soils (loam and clay), upon which the clay layer of Val Marecchia has overlapped, with the gypsum blocks moved to its centre. The Messinian gypsum and clays of the allochthonous layer discontinuously cover the sedimentary deposits of the Pliocene age; the main gypsum outcrop is the visible part of a large block of gray selenitic gypsum of the Lower Messinian, arising from the Val Marecchia series (Ruggieri 1958; Bertolani & Rossi 1997; Lucchi & Scaravelli 2005). Further new sedimentation then led to the formation of the sandstone and marl of the middle Pliocene, the final phase of the sedimentation (Lucchi & Scaravelli 2005).

3. MATERIALS AND METHODS

3.1 Analisi della vegetazione

To describe the main types of vegetation, 120 phytosociological relevés were carried out in different areas of the Reserve. The cluster analysis was performed by means of the software SYNTAX 2000 (Podani 2001), using complete link and similarity ratio coefficient on the phytosociological data (woods and vegetation of grasslands and badlands), converted according to the ordinal scale proposed by van der Maarel (1979). The study of the dynamic relationships between the different vegetation associations allowed the identification of the vegetation series of the different geomorphological units (geosigmeta) and the description of the landscape of the Onferno Nature Reserve.

The analysis of the vegetation was carried out according to the phytosociological method of the Sigmatist School of Braun-Blanquet, as more recently updated according to the integrated Phytosociological School of Rivas-Martínez (Braun-Blanquet 1964; Tüxen, 1956, 1977, 1979; Biondi 1994, 1996; Gehu & Rivas-Martínez 1981, Rivas-Martínez 2005a, b). All of the data were analyzed by GIS, and the map of the vegetation series was constructed.

For the species nomenclature, in terms of the biological forms and the chorological types, reference was made to "*Flora d'Italia*" (Pignatti

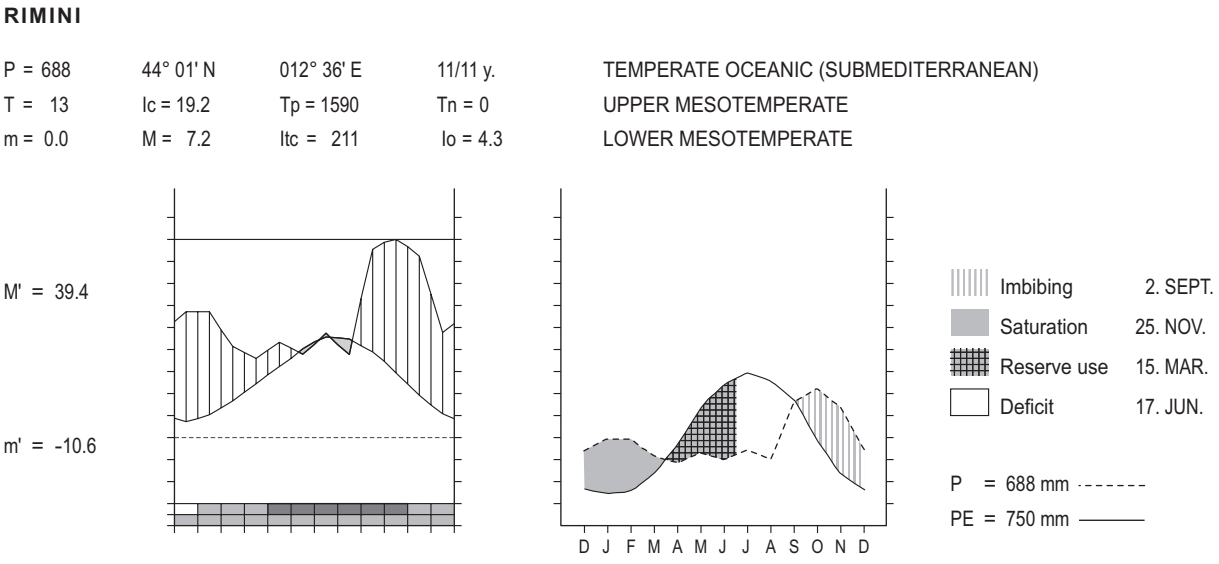

Figure 2: Pluviothermic diagram.
Slika 2: Pluviotermični diagram.

1982), "*Flora Europaea*" (Tutin et al. 1964–80, 1993) and the "Checklist of the Italian Vascular Flora" (Conti et al. 2005). For the syntaxonomic classifications of the vegetational typologies, reference was made to the European literature (Oberdorfer 1994; Rivas-Martínez et al. 2002a, 2002b) and to studies of the Italian vegetation, and the Apennine vegetation in particular (Ferrari 1971; Ferrari & Speranza 1975; Biondi et al. 1986, 1988, 1995, 2001, 2002, 2003, 2006; Pirone 1995; Allegrezza et al. 2002; Poldini et al. 2002; Blasi et al. 2004; Taffetani et al. 2004, 2005, 2009; Gubellini & Zitti 2010).

3.2 Conservation of secondary grasslands: experimental activities.

To evaluate the sustainability in economic management terms and the effectiveness of the reintroduction of grazing animals to maintain the quality of the grasslands, two donkeys and three sheep were kept in a portion (approximately 3 ha) of a selected *Bromus erectus* grasslands for a period of 165 days. Given the absence of any real propensity of the local farms towards livestock breeding and the difficulty of finding and managing grazing animals, the experimental work was carried out with a different number and combinations of animals than those evaluated as optimal in the design phase (Bagella 2001).

The application of ecological indicators for the evaluation of the environmental quality of the agro-ecosystems (Taffetani & Rismondo 2009; Rismondo et al. 2011) has allowed us to highlight some differences in terms of the dynamic evolution of the vegetation of the grasslands, particularly in relation to their management (grazing) and to their substrata. The floristic-vegetational indices used for application to the case study are the maturity index (MI), which can measure the evolutionary value of a plant community, the index of floristic biodiversity (IFB), which is calculated on the basis of species present in the fitosociological relevés, and the indices of the biological forms (IT, therophytes; IH, hemicryptophytes; IF, perennial non-hemicryprophytes), with which it is possible to evaluate the percentage incidence of hemicryptophyte species (IH) within a plant coenosis.

4. RESULTS

4.1 Vegetation

The Multivariate analysis applied separately to the table of forest relevés and grassland relevés allowed to group the relevés in clusters corresponding to the main vegetation types, as shown by the two dendrograms in figures 3 and 4.

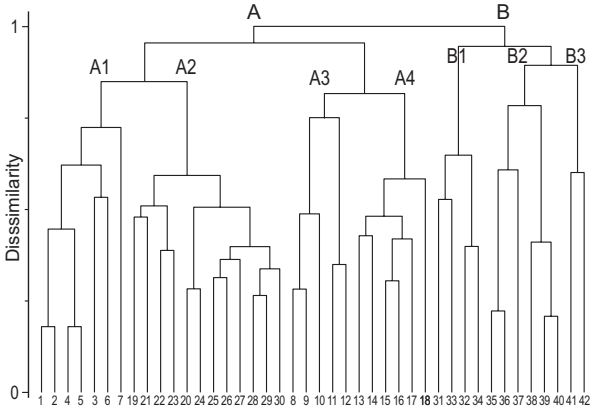

Figure 3: Cluster analysis: dendrogram of woods of Onferno Nature Reserve. Cluster A: *Querco-Fagetea* (A1: *Aceretum obtusati-pseudoplatani;* A2: *Asparago acutifolii-Ostryetum carpinifoliae;* A3: *Roso sempervirentis-Quercetum pubescentis;* A4: *Ruscus aculeatus* variant of *Roso sempervirentis-Quercetum pubescentis* association). Cluster B: *Salici purpureae-Populetea nigrae* (B1: *Symphyto bulbosi-Ulmetum minoris;* B2: *Salicetum apenninae;* B3: *Salicetum albae*).
Slika 3: Klastrska analiza: dendrogram gozdov naravnega rezervata Onferno. Klaster A: *Querco-Fagetea* (A1: *Aceretum obtusati-pseudoplatani;* A2: *Asparago acutifolii-Ostryetum carpinifoliae;* A3: *Roso sempervirentis-Quercetum pubescentis;* A4: *Ruscus aculeatus* varianta asociacije *Roso sempervirentis-Quercetum pubescentis*). Klaster B: *Salici purpureae-Populetea nigrae* (B1: *Symphyto bulbosi-Ulmetum minoris;* B2: *Salicetum apenninae;* B3: *Salicetum albae*).

The dendrogram of woods relevés (Figure 3) shows two main clusters (A and B): cluster A includes the woods of *Querco-Fagetea* with association *Aceretum obtusati-pseudoplatani* of *Fagetalia* order (A1); the association *Asparago acutifolii-Ostryetum carpinifoliae* (A2) and the association *Roso sempervirentis-Quercetum pubescentis* (A3) with the *Ruscus aculeatus* variant (A4) of *Quercetalia* order. Cluster B includes *Salici-Populetea* woods with: association *Symphyto bulbosi-Ulmetum minoris* (B1); association *Salicetum apenninae* (B2) and association *Salicetum albae* (B3). The dendrogram of Figure 4 shows three main clusters (A, B, C): cluster A includes

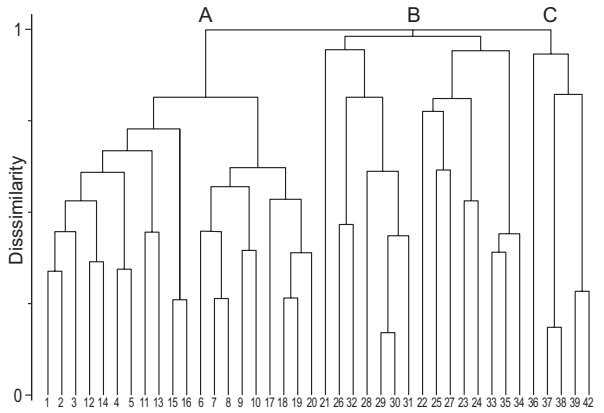

Figure 4: Cluster analysis: dendrogram of grasslands and badlands of Onferno Nature Reserve. Cluster A: *Festuco-Brometea* class; cluster B: *Artemisietea* class; cluster C: *Helianthemetea guttati* class with new association *Vicio variae-Hainardetum cylindricae.*

Slika 4: Klastrska analiza: dendrogram travišč in ruderalnih površin naravnega rezervata Onferno. Klaster A: razred *Festuco-Brometea*; klaster B: razred *Artemisietea*; klaster C: razred *Helianthemetea guttati* z novo asociacijo *Vicio variae-Hainardetum cylindricae.*

grassland relevés of *Festuco-Brometea* class; cluster B includes vegetation of badlands of *Artemisietea* class with the association *Agropyro-Asteretum linosyridis*; cluster C includes *Vicio variae-Hainardetum cylindricae* of *Helianthemetea guttati* class.

4.1.1 Woods

Aceretum obtusati-pseudoplatani Biondi, Casavecchia, Pinzi, Allegrezza & Baldoni 2002
staphyletosum pinnati subass. nova *hoc loco* (*Holotypus* rel. 6, Table. 1).

From the naturalistic point of view, the most interesting forest coenosis is definitely represented by forests of large-leaved linden (*Tilia platyphyllos*) that grow in the chalky ravine that overlooks the entrance to the karst caves inside the underground complex. Fresh, moist air escapes from the caves, which results in local thermal inversion in summer. This sets up a cool and moist microclimate, to which the northern exposure of the cut also contributes.

The linden forests are mainly of a relict form at the base of the east alpine valleys, and they become increasingly more fragmented and scattered moving toward the western alpine mountain area along the Apennine chain. There have been few reports on this type of forest (Taffetani 2000, Biondi et al. 2002; Allegrezza 2003; Catorci et al. 2003; Taffetani et al. 2004; Angiolini et al. 2005).

This linden coenosis of Onferno differs from similar coenoses of the Apennine limestone (Biondi et al. 2002; Taffetani et al. 2004), for its modest altitude, the separation from the Apennine peaks, and the proximity to the Adriatic coast. In addition to the unique ecological and biogeographical characteristics of the study site, the floral composition allows the linden forest of Onferno to be included in the new subassociation, *staphyletosum pinnate*, characterized by the constant and abundant presence of *Tilia platyphyllos* and *Staphylaea pinnnata*, while there is a lack of *Ulmus glabra* and some characteristic species of the association (*Corydalis cava, Asperula taurina, Glechoma hirsuta* and *Cardamine enneaphyllos*). For the differential species of the new subassociation, as well as *Staphylaea pinnnata*, there are species that are particularly rare across the Apennines due to the ravine forest and its rocky soil. These include *Loncomelos pyrenaicus*, a geophyte of mesophilous forest environments of Apennine ravines, *Phyllitis scolopendrium,* a fern closely linked to moist, rocky areas with little light, and *Asparagus acutifolius* and *Lonicera etrusca*, the presence of which is an indicator of the climatic influence of the proximity to the sea, *Lamiastrum galeobdolon* ed *Aegopodium podagraria*.

In the territory of the Reserve, this formation is strictly limited to the gypsum substrata that emerge within the deep incision, which is overlooked by the entrances to the caves. The small size of this forest ecosystem means that the microclimate created within the gorge, and in particular along its base, is strongly limited and influenced by the external environmental conditions, which are characterized by cultivated clay soils. Consequently, the evident floristic diversity and originality of this forest ecosystem is limited.

Roso sempervirentis-Quercetum pubescentis Biondi 1986 (Table 2)

The forest of downy oak that is attributed to the association *Roso sempervirentis-Quercetum pubescentis* has grown in the territory of the Reserve under arid edaphic conditions, on compact sandstone substrata and on gypsum substrata. *Fraxinus ornus, Prunus avium, Cornus mas, Acer campestre* and *Quercus cerris* contribute to the composition of the tree stratum. On the sandstone substrata, the association is seen in its typi-

cal aspect, while on the gypsum substrata, for the outcropping summit areas where the soil layer is thinner, the variant of *Ruscus aculeatus* of the association has developed. This last core forest that grows near to Onferno Castle is characterized by a thinner forest cover and by a more pronounced Mediterranean character, as compared to similar coenoses in the territory, as indicated by the presence of species of the suballiance *Lauro nobilis-Quercenion pubescentis*.

Asparago acutifolii-Ostryetum carpinifoliae Biondi 1982 (Table 3)

The forest of Selve has developed on the marly-sandstone outcrops that form the upper part of the relief that runs along the southern boundary of the Reserve. These marly-sandstone outcrops are subjected to intense erosion because of the collapse caused by the active badlands below them. They have a relatively irregular morphology due to the alternation of flat or slightly uneven surfaces and valley cuts, and sometimes they are closed and shadowy. This leads to some variability of forest types, due to the concentration of thermoxerophilous species on the flatter morphology, and of mesohygrophilous species along the fall lines. The outcropping of the underlying clay substrate results in more moist substrata and provides the right conditions for development of the hop hornbeam (*Ostrya carpinifolia*), which accounts for the scarcity or absence of some species that have a clear Mediterranean character, such as *Smilax aspera, Rubia peregrina* and *Laurus nobilis*.

Symphyto bulbosi-Ulmetum minoris Biondi & Allegrezza 1996 (Table 4)

Small nuclei of *Ulmus minor* woods are found on the clay substrata, where the confluence of the run-off of the surface water promotes the establishment of edaphohygrophilous species, such as *Ulmus minor, Sambucus nigra, Populus nigra, Salix alba, Salix apennina, Arum italicum* and *Agrostis stolonifera*, among others.

The limited size of these forest nuclei accounts for the wide presence of shrub species of the class *Rhamno-Prunetea*.

Salicetum apenninae Pedrotti, Spada & Conti 1996 (Table 5)

In the badland systems, where the surface run-off water collect, there are more or less extensive formations with a dominance of willow and other hygrophilous species. In areas with steeper slopes, and hence on the higher parts of the badlands, the dominant species is *Salix apennina*. The variant of *Milium effusum* identifies the places where there is more water, which occur at the base of the badland.

Salicetum albae Issler 1926 (Table 6)

In the flatter areas along the fall lines of the badlands where the water remains longer, and where there is an actual stream of water, there are formations dominated by *Salix alba*. This coenosis is also found along the banks of the water course at the bottom of the main chalky ravine.

4.1.2 The undergrowth and shrubs

Rubo ulmifolii-Ligustretum vulgare Poldini 1989 (Table 7)

At the edge of the linden wood, with a relatively cool microclimate, there is a shrub layer that includes: *Cornus sanguinea, Ligustrum vulgare, Crataegus monogyna, Prunus spinosa* and *Rubus ulmifolius*.

Spartio juncei-Cytisetum sessilifolii Biondi, Allegrezza & Guitian 1988

In contact with thermophilous forests of the clay and marly-sandstone substrata, the shrub layer that has developed is dominated by *Spartium junceum*, with many Mediterranean species, described by the association *Spartio juncei-Cytisetum sessilifolii*.

4.1.3 Vegetation of the grass edges and the grasslands

Carex flacca community (Table 8)

At the edges of the downy oak forest (*Roso sempervirentis-Quercetum pubescentis*) and the hop hornbeam forest (*Asparagus acutifolii-Ostryetum carpinifoliae*), in areas of transition between the forest coenoses and the grasslands or the cultivated fields, there is herbaceous vegetation that is dominated by *Carex flacca*, which is attributed to the class *Trifolio-Geranietea*, which also includes many species of the classes *Molinio-Arrenatheretea* and *Artemisietea*.

Agrostis stolonifera community (Table 8)

This community is characterized by *Agrostis*

stolonifera, *Poa pratensis* and *Aristolochia rotunda*, and it is the edge vegetation of the elm forest described for the association *Symphyto bulbosi-Ulmetum minoris* that grows along the fall lines on clay substrata.

Geum urbanum community (Table 9)

At the edges of the linden wood on the gypsum substrata, and under conditions of strong shading, edaphic humidity, and low temperatures, there is a narrow strip of herbaceous vegetation with a dominance of *Geum urbanum* and *Buglossoides purpurocaerulea*, included in the class *Galio-Urticetea*.

Ballota nigra community (Table 10)

Again on the gypsum substrata but under edaphoxerophilous conditions, in contact with the downy oak wood near Onferno Castle, there is a nitrophilous vegetation with a dominance of *Ballota nigra*, included in the class *Galio-Urticetea*. As well as the important presence of species of the class *Galio-Urticetea*, such as *Urtica dioica* ssp. *dioica, Geum urbanum* and *Alliaria petiolata*, there is a significant presence of species of the class *Artemisietea*, such as *Artemisia vulgaris, Daucus carota, Carduus pycnocephalus* ssp. *pycnocephalus* and *Picris hieracioides*, among others.

Centaureo bracteatae-Brometum erecti Biondi, Ballelli, Allegrezza, Guitian & Taffetani 1986 (Table 11)

The grasslands in the area are all of human origins, and are therefore strictly dependent on the maintenance of livestock activities for their conservation. The most extensive grasslands have developed on the sandstone substrata in the southwestern sector of the Reserve. These are a semimesophilous coenosis with a dominance of *Bromus erectus* with *Centaurea jacea* ssp. *weldeniana, Galium mollugo* ssp. *erectum, Centaurea scabiosa, Brachypodium rupestre, Lotus corniculatus, Anacamptis pyramidalis, Gymnadenia conopsea* and *Cephalanthera longifolia*, among others. Part of this area was cultivated until fairly recently, as can be seen by the presence of species of the class *Molinio-Arrhenatheretea*. From the chorological point of view, a clear dominance can be seen for Eurasian elements, also if there are substantial Mediterranean elements. Under the more edaphoxerophilous conditions, the coenoses are enriched mainly in Mediterranean species, which describe the variant of *Asperula purpurea*, such as *Teucrium chamaedrys, Asperula purpurea, Helichrysum italicum, Eryngium amethystinum* and *Ononis pusilla*. Along the tops of the badlands on the clay substrata, the pastures are restricted to small areas where a certain degree of stability has been created: these coenoses are identified by the variant of *Elymus repens* ssp. *repens*, along with which there are also *Tussilago farfara* and *Festuca pratensis*.

4.1.4 Vegetation of the badlands

Agropyro-Asteretum linosyridis Ferrari 1971 em. Ferrari 1975 (Table 12)

In the sectors with the outcrops of the clay substrata that have resulted from the formation of a system that has undergone rapid erosion there is the characteristic landscape of the badlands. These are systems of relatively deep valleys that are carved out by water, with the individual cuts separated from each other by thin buttresses. These badland structures are found relatively frequently along all of the Adriatic coast, from Romagna down to Molise, and they have a fairly common floristic cortége, the variations of which are almost exclusively related to the content of sodium and potassium salts; the badlands of the Onferno Reserve are made of clay with a low salt content. Indeed, the association is described by perennial pioneer communities of slightly salty environments, as indicated by the presence of *Elymus athericus*, a sub-halophyte species, and by the absence of salt-tolerant species. The association is included in suballiance *Podospermo laciniati-Elytrigenion athericae*, of the alliance *Inulo viscosae-Agropyrion repentis* (Biondi & Pesaresi 2004).

Here, it is possible to distinguish three aspects of this vegetation type:

- Communities that are found at the base of the badland structures where the landslips result in the accumulation of clay soil from the walls above or from the tops of the badlands adjacent to the cultivated fields. In these communities, there are many species of the order *Agropyretalia*, which is typical of more or less recent post-cultivation situations, and species of the class *Stellarietea mediae*, due to the influence of the adjacent cultivated fields. This vegetation is included in the association *Agropyro-Asteretum linosyridis* (Table 12, Rel. 1–7).

- Communities that have become established at the base of the badlands where water accumulates. Here, the presence of *Elymus athericus* is associated with relatively high cover of *Equisetum telmateja, Holcus lanatus* and *Lathyrus pratensis*. These communities are described by the variant of *Equisetum telmateja* of the association *Agropyro-Asteretum linosyridis* (Table 12, Rel. 8–12).
- Communities with few species that develop in the areas of erosion, which are bare and hard, and where there is a relatively higher concentration of salt. These communities can be identified by the variant of *Scorzonera jacquiniana*, which represents the most pioneer aspect. This vegetation type is not described by the association *Podospermo canae-Plataginetum maritimae* that was described for Sasso Simone and Simoncello, in upper Montefeltro (Biondi et al. 1986), because the present vegetation describes a situation of greater salinity, as can be seen by the presence of *Plantago maritima* (Table 12 Rel. 15–17).

Vicio variae-Hainardetum cylindricae ass. nova *hoc loco* (*Holotypus* rel. 2, Table 13)

We describe the new association *Vicio variae-Hainardetum cylindricae* for the annual pioneer vegetation that grows on the clayey substrata under conditions of thin and compacted soil. Given the low salt content of these clays, compared to similar situations in the Apennines (Biondi et al. 1996), clearly alophilous species such as *Agropyron pungens* and *Salsola soda* are absent, while there is a significant presence of annual terophytes that classifies this type of vegetation in the class *Helianthemetea guttata* (not in the class *Saginetea maritimae*, which includes the association *Hainardo cylindricae-Salsoletum sodae*, of alo-sub-nitrophilous conditions). Moreover, there is a relevant presence of species of the class *Artemisietea vulgaris*. The characteristic species of the new association are *Hainardia cylindrica*, *Vicia villosa* ssp. *varia, Bromus hordeaceus* and *Scorzonera laciniata*.

Arundinetum plinianae Biondi, Brugiapaglia, Allegrezza & Ballelli 1992 (Table 14)

At the base of the slopes of the badlands, there are dense formations of Pliny's reed (*Arundo pliniana*), in which as well as species of the class *Artemisietea*, there are also many species of the class *Rhamno-Prunetea*, such as *Spartium junceum, Prunus spinosa, Rosa canina* and *Rubus ulmifolius*.

4.1.5 Chasmophytic vegetation

Alysso alyssoidis-Sedetum albi Oberd. et Th. Muell. in Th. Muell. 61 (Table 15)

On the sunny chalky cliffs, where there is a thin layer of soil, small populations of plants have settled, dominated by the succulents *Sedum album* and *Sedum dasyphyllum*; which are included in the class *Sedo-Scleranthetea*. There are also therophytes with Mediterranean tendencies, like *Medicago minima, Cerastium semidecandrum, Campanula erinus* and *Hypochoeris achyrophorus*, and species of the classes *Stellarietea mediae* and *Artemisietea vulgaris,* which indicate the contact with man-made environments.

4.1.6 Commensal crop vegetation

Linario spuriae-Stachyetum annuae Lorenzoni 1965 (Table 16)

Most of the cultivated areas are on clay substrata. The commensal vegetation of these cultivated fields has been included in the association *Linario spuriae-Stachyetum annuae,* of the order *Solano nigri-Polygonetalia convolvuli*, and the alliance *Polygono-Chenopodion polyspermi*.

Biforo testiculatae-Adonidetum cupanianae Kropáč 1982 (Table 17)

This association describes the commensal vegetation of the fields on sandstone substrata; these are included in the order *Centaureetalia cyani* and in the alliance *Caucalidion lappulae*.

4.1.7 Syntaxonomic scheme

QUERCO-FAGETEA Br.-Bl. & Vlieger in Vlieger 1937
+ *Fagetalia sylvaticae* Pawlowski in Pawlowski, Sokolowski & Wallisch 1928
- *Tilio platyphylli-Acerion pseudoplatani* Klika 1955
Aceretum obtusati-pseudoplatani Biondi, Casavecchia, Pinzi, Allegrezza & Baldoni 2002
staphyletosum pinnati subass.nova
+ *Q*uercetalia pubescenti-petraeae Klika 1933
- Car*pinion orientalis* Horvat 1958
* *Lauro nobilis-Quercenion pubescentis* Ubaldi (1988) 1995
Asparago acutifolii-Ostryetum carpinifoliae Biondi ex Ubaldi 1995

Roso sempervirentis-Quercetum pubescentis Biondi 1986
Ruscus aculeatus variant

SALICI PURPUREAE-POPULETEA NIGRAE (Rivas-Martínez & Cantó ex Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991) Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2001
+ *Salicetalia purpureae* Moor 1958
- *Salicion albae* Soó 1930 em Moor 1958
Salicetum albae Issler 1926
- *Salicion eleagni* Aichinger 1933 nom. mut. propos. Rivas-Martínez, Diaz, Fernandez Gonzalez, Izco, Loidi, Lousa & Penas 2002
Salicetum apenninae Pedrotti, Spada & Conti 1996
Milium effusum variant
- *Alnion incanae* Pawlowski in Pawlowski, Sokolowski & Wallisch 1928
Symphyto bulbosi-Ulmetum minoris Biondi & Allegrezza 1996

RHAMNO-PRUNETEA Rivas Goday et Boria Carbonell ex Tüxen 1962
+ *Prunetalia spinosae* R. Tx. 1952
- *Cytision sessilifolii* Biondi 1988
Spartio juncei-Cytisetum sessilifolii Biondi in Biondi, Allegrezza et Guitian 1988
- *Berberidion vulgaris* Br.-Bl. 1950
* *Fraxino orni-Berberidenion* Poldini & Vidali 1995
Rubo ulmifolii-Ligustretum vulgare Poldini 1989

GALIO-URTICETEA Passarge ex Kopecky 1969
+ *Galio aparines-Alliarietalia petiolatae* Görs & Müller 1969.
- *Galio-Alliarion petiolatae* Oberdorfer & Lohmeyer in Oberdorfer, Görs, Korneck, Lohmeyer, Müller, Philippi & Seibert 1967
Geum urbanum community
Ballota nigra community

TRIFOLIO MEDII-GERANIETEA SANGUINEI Müller 1962
+ *Origanetalia vulgaris* Müller 1962
- *Geranion sanguinei* Tüxen in Müller 1962
Carex flacca community
Agrostis stolonifera community

FESTUCO-BROMETEA Br.-Bl. & Tüxen ex Br.-Bl. 1949
+ *Brometalia erecti* Br.-Bl. 1936
++ *Leucanthemo vulgaris-Bromenalia erecti* Biondi, Ballelli, Allegrezza & Zuccarello 1995
- *Bromion erecti* Koch 1926
* *Polygalo mediterraneae-Bromenion erecti* Biondi, Allegrezza & Zuccarello 2005
Centaureo bracteatae-Brometum erecti Biondi, Ballelli, Allegrezza, Guitian & Taffetani 1986
Agropyron repens variant
Asperula purpurea variant

SEDO-SCLERANTHETEA Br.-Bl. 1955 em. Th. Müller 1961
+ *Sedo-Scleranthetalia* Br.-Bl. 1955
- *Alysso alyssoidis-Sedion albi* Oberdorfer & Müller in Müller 1961
Alysso alyssoidis-Sedetum albi Oberd. et Th. Muell. in Th. Muell. 61

HELIANTHEMETEA GUTTATI (Br.-Bl. in Br.-Bl., Roussine et Nègre 1952) Rivas Goday et Rivas-Martínez 1963 em. Rivas-Martínez 1978
+ *Helianthemetalia guttati* Br.-Bl. in Br.-Bl., Molinier & Wagner 1940 em. Rivas-Martínez 1978
- *Helianthemion guttati* Br.-Bl. in Br.-Bl., Molinier & Wagner 1940
Vicio variae-Hainardetum cylindricae ass. nova

ARTEMISIETEA VULGARIS Lohmeyer, Preising & Tüxen ex von Rochow 1951
+ *Agropyretalia repentis* Oberdorfer, Müller & Görs in Oberdorfer, Görs, Korneck,Lohmeyer, Müller, Philippi & Seibert 1967
- *Inulo viscosae-Agropyrion repentis* Biondi & Allegrezza 1996
* *Inulo viscosae-Agropyrenion repentis*
Arundinetum plinianae Biondi, Brugiapaglia, Allegrezza & Ballelli 1992
* *Podospermo laciniati-Elytrigenion athericae* (Pirone 1995) stat. nov. Biondi & Pesaresi 2004
Agropyro-Asteretum linosyridis Ferrari 1971 em. Ferrari 1975
Equisetum telmateja variant
Scorzonera jaquiniana variant

STELLARIETEA MEDIAE Tüxen, Lohmeyer & Preising ex von Rochow 1951
+ *Solano nigri-Polygonetalia convolvuli* (Sissingh in Westhoff, Dijk & Passchier 1946) Bolòs 1962
- *Polygono-Chenopodion polyspermi* Koch 1926
Linario spuriae-Stachyetum annuae Lorenzoni 1965
+ *Centaureetalia cyani* Tüxen ex von Rochow 1951
- *Caucalidion lappulae* Tüxen ex von Rochow 1951
Biforo testiculatae-Adonidetum cupanianae Koprác 1982
Scandix pecten-veneris variant

4.2 Plant landscape and map of vegetation series

Based on its geomorphological characteristics, the territory of the Onferno Reserve can be divided into three main landscape systems: geosigmetum of gypsum substrata, geosigmetum of compact sandstone substrata and geosigmetum of clay substrata. The alternation of these three main geomorphological units creates a mosaic of environments in which the nuclei of the clearly Mediterranean vegetation typologies are spatially very close to the nuclei of the strongly mesophilous vegetation also of central European environments.

Within each landscape system, the series of potential vegetation have been reconstructed through the study of the various phytocoenoses present in the territory and the strips of plants that have survived the intense human activities, which have been typically related to the hilly and plain areas.

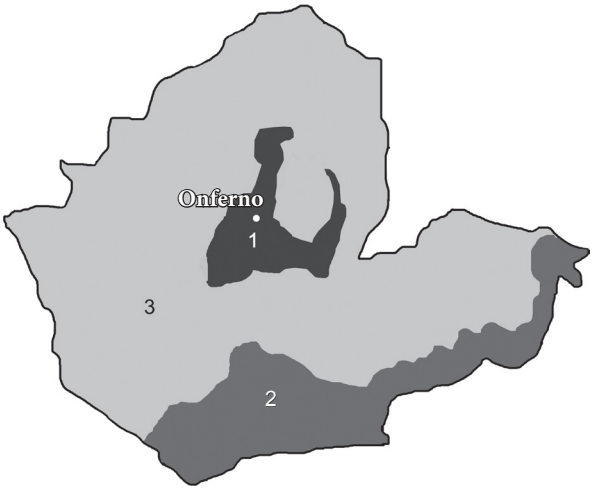

Figure 5: Outline of the three geomorphological units.
Figure 5: Meje treh geomorfoloških enot.

4.2.1 Landscape unit of the gypsum substrata

Two dynamic vegetation series have been identified on the gypsum substrata: in the main ravines, under the cool and damp microclimate conditions, the climatophilous series has developed, for which the mature stage is represented by the linden woods (*Aceretum obtusati-pseudoplatani staphyletosum pinnatae*); while at the tops of the gypsum outcrops, the particularly dry edaphic conditions that arise from the high permeability of the gypsum substrata, have led to the formation of an edaphoxerophilous series where the climax stage is represented by the downy oak (*Roso-Quercetum sempervirentis pubescentis*, as the variant with *Ruscus aculeatus*).

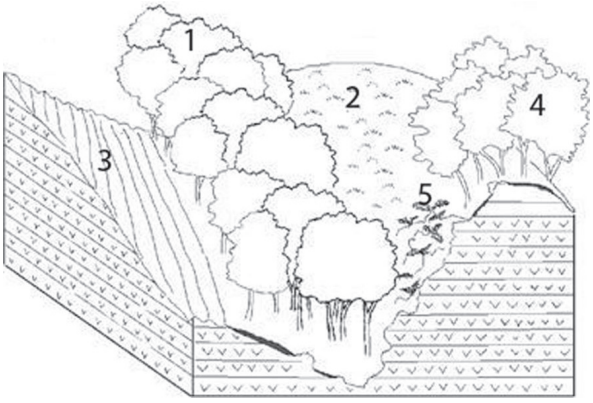

Figure 6: Landscape unit of the gypsum substrata. Climatophilous series of linden: 1. Mesophilous woods of the gypsum gorges with a dominance of linden (*Aceretum obtusati-pseudoplatani, staphyletosum pinnati*); 2. Abandoned fields; 3. Fields with invading vegetation (*Biforo testiculatae-Adonidetum cupanianae*). Edaphoxerofilous series of the downy oak: 4. Deciduous woods of the tops of the gypsum ridges with a dominance of downy oak (*Roso sempervirentis-Quercetum pubescentis*, variant of *Ruscus aculeatus*); 5. Pioneer cliff formations of the shaded gypsum walls with a dominance of *Polypodium cambricum* ssp. *serrulatum.*

Figure 6: Krajinska enota na gipsu. Klimatofilna serija javorja: 1. Mezofilni gozdovi v soteskah v gipsu z prevladujočim javorjem (*Aceretum obtusati-pseudoplatani, staphyletosum pinnati*); 2. Opuščena polja; 3. Polja, ki jih obrašča vegetacija (*Biforo testiculatae-Adonidetum cupanianae*). Edafokserofilna serija puhastega hrasta: 4. Listopadni gozdovi na vrhu slemen gipsa s prevladujočim puhastim hrastom (*Roso sempervirentis-Quercetum pubescentis*, variant z *Ruscus aculeatus*); 5. Pionirske klifske formacije na zasenčenih stenah iz gipsa s prevladujočo vrsto *Polypodium cambricum* ssp. *serrulatum.*

4.2.2 Landscape unit of the compact sandstone substrata (Formation Montecalvo in Foglia)

This landscape unit is found in the southern sector of the Reserve and represents the top layer of the clay ridges. Also in this environmental system there are two series of vegetation: a climatophilous series, where the more mature stage is represented by a forest of *Ostrya carpinifolia* (*Asparagus acutifolii-Ostryetum*

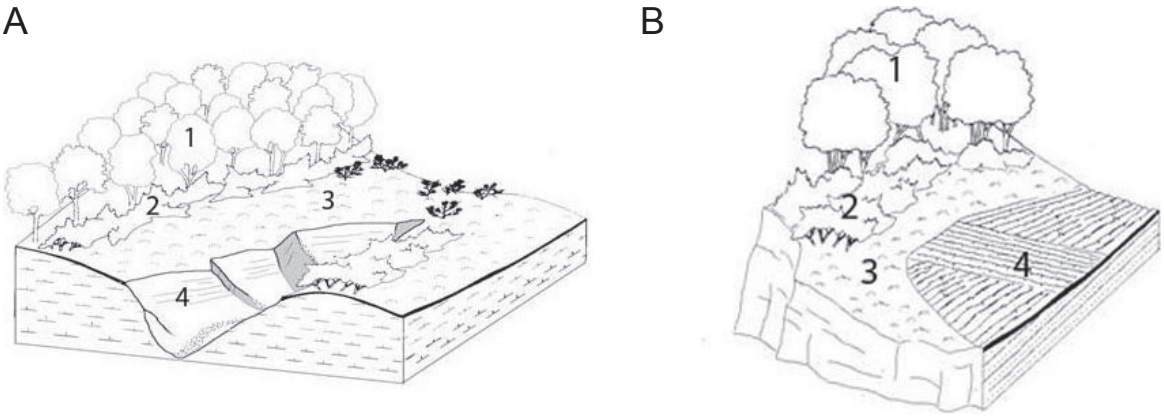

Figure 7: Landscape unit of the sandstone substrata. Climatophilous series (A) 1. Hop hornbeam wood *(Asparago acutifolii-Ostryetum carpinifoliae*); 2. Grouping of *Cornus sanguinea*; 3. Semimesophilous grasslands (*Centaureo bracteatae-Brometum erecti*); 4) Badlands. Edaphoxerophilous series of the sandstone (B): 1. Downy oak wood (*Roso sempervirentis-Quercetum pubescentis*); 2. Grouping of elmleaf blackberry (*Rubus ulmifolius*); 3. Semimesophilous grasslands (*Centaureo bracteatae-Brometum erecti*); 4. Cutivated fields with invading vegetation (*Biforo testiculatae-Adonidetum cupanianae*).

Slika 7: Krajinska enota na peščenjaku: Klimatofilna serija (A) 1. Gozdovi črnega gabra *(Asparago acutifolii-Ostryetum carpinifoliae*); 2. Grmišča vrste *Cornus sanguinea*; 3. Mezofilna travišča (*Centaureo bracteatae-Brometum erecti*); 4) Ruderalne površine. Edafokserofilna serija na peščenjaku (B): 1. Gozdovi puhastega hrasta (*Roso sempervirentis-Quercetum pubescentis*); 2. Grmišča brestovolistne robide (*Rubus ulmifolius*); 3. Mezofilna travišča (*Centaureo bracteatae-Brometum erecti*); 4. Obdelana polja, ki jih postopoma zarašča vegetacija (*Biforo testiculatae-Adonidetum cupanianae*).

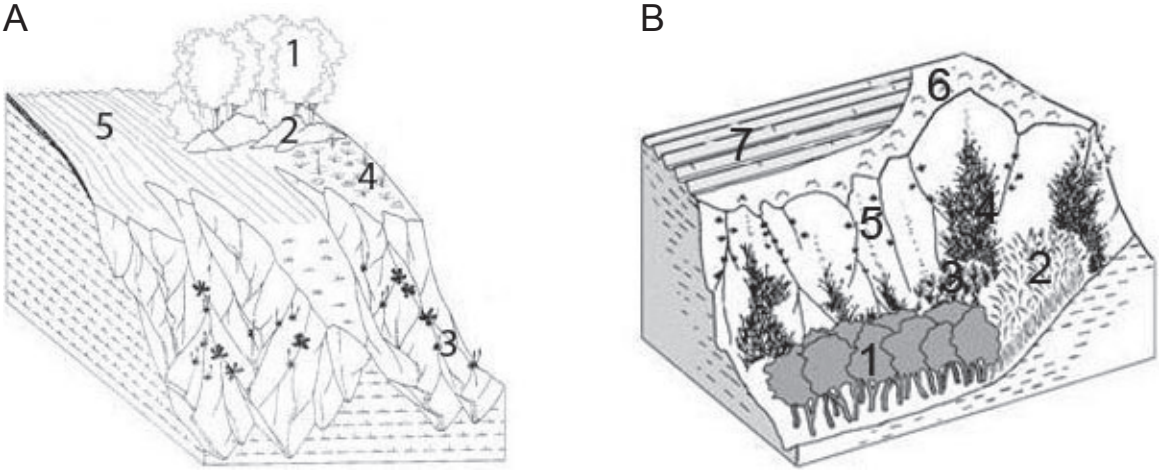

Figure 8: Landscape unit of the clay substrata. Climatophilous series of the downy oak (A): 1. Deciduous woody strips with a dominance of downy oak (grouping of *Quercus pubescens*); 2. Shrub layer arising from the abandonment of cultivation and livestock practices (grouping of *Spartium junceum*); 3. Badland complexes; 4. Abandoned fields (*Senecio erucifolii-Inuletum viscosae*); 5. Cultivated fields with invading vegetation (*Linario spuriae-Stachyetum annuae*). Edaphohygrophilous series of the clay (B): 1. Nuclei of elm wood (*Symphyto bulbosi-Ulmetum minoris*); 2. Formations of Pliny's reed (*Arundinetum plinianae*); 3. *Salicetum albae*; 4. *Salicetum apenninae*; 5. Badland complexes; 6. Neobdelani zeliščni robovi; 7. Cultivated fields with invading vegetation (*Linario spuriae-Stachyetum annuae*).

Slika 8: Krajinska enota na glini. Klimatofilna serija s puhastim hrastom (A): 1. Listopadni gozdni pasovi s prevladujočim puhastim hrastom (skupine s *Quercus pubescens*); 2. Grmišča na opuščenih odelanih in pašenih površinah (skupine s *Spartium junceum*); 3. Ruderalne površine; 4. Opuščena polja (*Senecio erucifolii-Inuletum viscosae*); 5. Obdelana polja, ki se postopoma zarašča vegetacija (*Linario spuriae-Stachyetum annuae*). Edafohigrofilna serija na glini (B): 1. Nukleusi brestovega gozda (*Symphyto bulbosi-Ulmetum minoris*); 2. Formacije Plinijevega trsta (*Arundinetum plinianae*); 3. *Salicetum albae*; 4. *Salicetum apenninae*; 5. Badland complexes; 6. Uncultivated herbaceous edges; 7. Obdelana polja, ki jih postopoma zarašča vegetacija (*Linario spuriae-Stachyetum annuae*).

carpinifoliae); and an edaphoxerophilous series, where the vegetation potential is represented by a forest of *Quercus pubescens* (*Roso sempervirentis-Quercetum pubescentis*). Both of these vegetation series of the grasslands are included in the association *Centaureo bracteatae-Brometum erecti*, which is richer in species of a Mediterranean distribution in the edaphoxerophilous series (variant of *Asperula purpurea*).

4.2.3 Landscape unit of the clay substrata

This is the most extensive landscape unit within the territory of the Reserve. Most of the surface is destined for agricultural activities, while the nuclei of woods are always few in number and small in size. These small forest patches have survived the intense anthropogenic exploitation, and they are, however, important in the reconstruction of the original potentiality of the territory. Two series of vegetation have also been identified in this landscape system. The climatophilous series is the more extensive, with the potential vegetation represented by a forest of downy oak (*Quercus pubescens* aggr.), as a testimony to the few remaining strips of forest. The undergrowth of this wood is a shrub layer with a dominance of broom (*Spartium junceum*); the invading vegetation of the cultivated fields is included in the association *Linario spuriae-Stachyetum annuae.* Under the fall line conditions, where the morphology of the soil leads to an accumulation of water as a result of the surface run-off, the edaphohygrophilous series of clay is established. The most mature stage of this is represented by the wood of *Ulmus minor* (*Symphyto bulbosi-Ulmetum minoris*). In areas characterized by the outcrop of the clay substrata, the climatic conditions have led to the formation of the badland systems over vast areas.

4.3 Effects of grazing

The Table A shows the indices calculated from the phytosociological relevés carried out for the grasslands of *Bromus erectus* of the association *Centaureo bracteatae-Brometum erecti* (Habitat 6210*), with those subjected to grazing compared with the area left to its natural evolution. The area is located close to Monte Croce, in the southern part of the Reserve, and it belongs to the climatophilous series of the sandstone.

Table 18: Floristic-vegetational indices: maturity index (MI), index of floristic biodiversity (IFB), indices of the life-forms (IT, therophytes; IH, hemicryptophytes; IF, perennial non-hemicryprophytes). Application areas: grazing area (A Pasc), edaphoxerophilous series of compact sandstone substrata (Ex Are).

Tabela 18: Floristično-vegetacijski indeksi: indeks razvitosti (MI), indeks floristične biodiverzitete (IFB), indeks življenskih oblik (IT, terofiti; IH, hemikriptofiti; IF, večletni ne hemikriptofiti). Uporaba: paša (A Pasc), edafokserofilne serije na kompaktnem peščenjaku (Ex Are).

	Grazed Area	Not Grazed Area
IM	4,49	4,65
IFB	1,06	0,64
IH	84,69%	80,55%

The analyses of the ecological indices indicate appreciable differences in the limitation of the evolutionary dynamics of the vegetation of the pastured area with respect to the area not subjected to grazing. The maturity index of the grazed area (MI = 4.49) is less than that of the area where the shrubs have been left to proliferate, consequently giving a greater degree of evolution to the non-grazed grasslands. The value of the floristic diversity is significantly higher in the grazed area (IFB = 1.06) with respect to that calculated for the non-grazed area, where the proliferation of shrubs implies a reduction of biodiversity. The greater proportion of hemicryptophytes in the experimental area (IH = 84.69%) indicates the positive effects of the grazing on the stability of these grasslands.

4.4 Critical observations and an update of the habitats of the Onferno nature reserve

The floristic-vegetational investigation carried out as part of this study has allowed the verification of the presence of habitats of Community interest (Biondi et al. 2009) mentioned in the listing of Nature 2000 that was updated in September 2010 for the Onferno Reserve SCI and to define some considerations about their current state of conservation. In some cases, the habitats mentioned in the listing were not found during our investigation in the Onferno Nature Reserve SCI (IT4090001).

4.4.1 Habitats confirmed

Habitat 9180*: *Tilio-Acerion* forests of the slopes, screes and ravines

This refers to the priority habitat described by the subassociation *staphyletosum pinnati* of the association *Aceretosum obtusati-pseudoplatani*. This is limited to the damp gypsum substrata along the deep incisions that overlook the lower entrance of the cave.

The presence of this habitat is confirmed, although it is currently relegated to the lower part of the gypsum ravine, where the optimum ecological conditions are conserved for the development of the typical flora of this vegetation typology and where there are fewer disturbing factors. The surface actually occupied by the forest of *Tilio-Acerion*, therefore, is well below its potential surface.

Habitat 6110*: Rupicolous calcareous or basophilic grasslands of *Alysso-Sedion albi*

Although very localized, the presence of this priority habitat on the warm sides of the gypsum outcrops of Onferno Castle is confirmed, where the vegetation of *Sedum album* (*Alysso-Sedetum albi*) with *Melica ciliata, Campanula erinus, Parietaria communis* and *Mattiola incana* occupies an area of few tens of square meters.

Habitat 6210*: Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia)* (*important orchid sites)

This priority habitat is present predominantly on arenaceous substrata of the south-western areas of the territory, and it has also been identified on small surfaces adjacent to the linden wood.

Given the state of non-use of these areas, it is deemed necessary to promote active conservation activities, such as grazing or mowing, with the aim of limiting the growth of shrubs and the consequent loss of biodiversity. In particular, the management and conservation of the two small areas is strategic, as their proximity to the cave means that they are the prime foraging area for the bats, the maintenance and preservation of which are the main objectives of the Reserve.

Habitat 6220*: Pseudo-steppe with grasses and annuals of *Thero-Brachypodietea*

This habitat refers to the small areas of grassland with annual species that are found in the eroded parts of the badlands, in mosaic with other types of herbaceous vegetation.

Habitat 8210: Calcareous rocky slopes with chasmophytic vegetation

This habitat is represented by the shadowy cliffs of the northern aspects of the gypsum outcrop of Onferno Castle, where there has developed a vegetation characterized by the ferns *Polypodium cambricum, Asplenium trichomanes, Ceterach officinarum* and *Phyllitis scolopendrium* that can be included in the alliance *Cystopteridion*.

Habitat 8310: Caves not open to the public.

Both the caves not open to the public and the main cave of Onferno have been included in this habitat, which are home to numerous colonies of bats, to the cave salamander, and to invertebrates that are specialized for living in underground environments.

Habitat 92A0: *Salix alba* and *Populus alba* forest galleries

Habitat 92A0 refers to the azonal vegetation that is dominated by *Salix alba* and can be found at the base of the badlands and along the more humid fall lines. On the basis of the analyses of the plant landscapes carried out and from the reading of the manual for the interpretation of the habitats, the presence of this formation in the Reserve can be confirmed.

Habitat 91AA*: Eastern white oak woods.

This habitat is represented by forest nuclei dominated by downy oak (*Roso sempervirentis-Quercetum pubescentis*) found both on the sandstone and the gypsum substrata, where it is seen as the variant with *Ruscus aculeatus*.

4.4.2 Habitats not corfirmed

Habitat 5130: *Juniperus communis* formations on heaths or calcareous grasslands.

On the basis of the studies conducted in the territory of the Reserve, it is believed that this listed habitat is not present in this territory. Indeed, *Juniperus communis* is present in the territory of the Reserve, but it occurs sporadically without ever forming real shrubs formations within the pastures.

Habitat 91E0*: Residual alluvial forests with *Alnus glutinosa and Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)

This priority habitat is proposed in the listing of the Onferno SCI, on the basis of this analysis

of the landscape it is not confirmed within the Onferno Nature Reserve, because the ecological areas of this formation are covered by populations with a dominance of *Salix alba* and *Populus alba*.

In contrast, beneath the built-up areas of Onferno along the Burano River, and outside of the current perimeters of the Reserve, there is a riparian formation that could be part of Habitat 91E0. This might suggest an expansion of the protected area of this Reserve.

6. CONCLUSIONS

The Onferno Nature Reserve is characterized by a gypsum outcrop with inside an important colony of bats. In this area, there are also natural and semi-natural habitats that are very interesting in terms of their vegetation and flora (Priority Habitats: 9180*, 6220*, 6210* and 6110*). In this paper, the main vegetation typologies of the area are presented, along with the description of the plant landscape through the identification of the different vegetation series distributed on the main substrata: gypsum, clayey and arenaceous. To protect the colony of bats, a Life Project has been activated, with the aim of conserving the floristic and vegetational biodiversity of the secondary grasslands in the territory, which represent the main foraging site for the bats. The study of the plant communities that were carried out before, during and after the implementation of interventions under the Project, has allowed an evaluation, although preliminary, of the results obtained and has allowed some important considerations of the economic sustainability of the management of this activity.

Despite the evident positive effects of grazing on the stability of the coenosis and on the conservation of the biodiversity, the action of the animals by itself has not proved sufficient to inhibit the growth of shrubs. It was necessary to combine the action of the animals also with the mechanical removal of the woody plants already present in the pastures.

Moreover, the morphology of the territory has led to uneven use of the pasture by the animals, that have used only a minimal part of the available area which is over-grazed (absence of regrowth, pathways and proliferation of weeds).

In the light of these observations, a series of actions were indicated to the management body of the Reserve, for provide a remedy for the proliferation of the shrubs, the over-grazing of a portion of the pastures, and the non-use of the remainder.

Furthermore, on the basis of the vegetation study it has been possible to confirm the current presence of some of the habitats of Community Interest included in the listing of the Onferno Nature Reserve SCI, and to exclude habitats 5130 and 91EO*, which were not identified in this area.

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APPENDIX I

Sporadic species

Table 1
Rel. 1: *Geum urbanum* L. (+); Rel. 3: *Helleborus bocconei* Ten. (+), *Anthriscus sylvestris* (L.) Hoffm. ssp. *sylvestris* (+); Rel. 6: *Alliaria petiolata* (Bieb.) Cavara et Grande (+), *Cornus sanguinea* L. ssp. *sanguinea* (+); Rel. 7: *Agrimonia eupatoria* L. (1.1), *Arabis turrita* L. (+.2), *Quercus ilex* L. (+), *Rubus ulmifolius* Schott (+.2).

Table 2
Rel. 3: *Rosa corymbifera* Borkh. (+), *Hieracium murorum* L. (+), *Pteridium aquilinum* (L.) Kuhn (1.1), *Silene vulgaris* (Moench) Garcke (+); Rel. 4: *Inula salicina* L. (+), *Dactylis glomerata* L. (+), *Polygala nicaeensis* Risso (+.2), *Bromus erectus* Hudson (+.2), *Coronilla scorpioides* (L.) Koch (+), *Inula conyzae* (Griess) Meikle (+); Rel. 5: *Inula salicina* L. (+), *Dactylis glomerata* L. (+), *Polygala nicaeensis* Risso (+), *Bromus erectus* Hudson (+), *Pyrus communis* L. (+), *Aristolochia rotunda* L. (1.2), *Ranunculus bulbosus* L. (+),*Viola odorata* L. (1.2); Rel. 6: *Rosa canina* L. (+); Rel. 7: *Geum urbanum* L. (+), *Polypodium cambricum* L. (+.2), *Alliaria petiolata* (Bieb.) Cavara et Grande (+.2), *Lonicera caprifolium* L. (+); Rel. 9: *Polypodium cambricum* L. (+.2), *Arum italicum* Miller ssp. *italicum* (+); Rel. 10: *Geum urbanum* L. (+), *Rosa corymbifera* Borkh. (+), *Galium mollugo* L. ssp. *erectum* Syme (+), *Helianthemum nummularium* (L.) Miller (+); Rel. 11: *Juglans regia* L. (+), *Quercus ilex* L. (1.2).

Table 3
Rel. 1: *Rubus ulmifolius* Schott (1.2), *Lathyrus sylvestris* L. ssp. *sylvestris* (+), *Populus alba* L. (+), *Rosa canina* L. (+), *Populus canescens* (Aiton) Sm. (+); Rel. 2: *Lathyrus sylvestris* L. ssp. *sylvestris* (+), *Aegopodium podagraria* L. (+); Rel. 3: *Ligustrum vulgare* L. (+.2), *Brachypodium rupestre* (Host) R. et S. (+.2), *Astragalus glycyphyllos* L. (+); Rel. 4: *Rubus ulmifolius* Schott (+), *Ligustrum vulgare* L. (+), *Robinia pseudoacacia* L. (+); Rel. 5: *Vincetoxicum hirundinaria* Medik. (+), *Pyrus communis* L. (+); Rel. 7: *Dianthus balbisii* Ser. ssp. *liburnicus* (Bartl.) Pign. (+); Rel. 9: *Geum urbanum* L. (+.2); Rel. 10: *Carex halleriana* Asso (+.2); Rel. 11: *Juniperus communis* L. (+).

Table 4
Rel. 1: *Agrostis stolonifera* L. (+.2), *Anthriscus sylvestris* (L.) Hoffm. ssp. *sylvestris* (+), *Asparagus acutifolius* L. (+), *Bunium bulbocastanum* L. (+.2), *Geranium robertianum* L. (+), *Sorbus domestica* L. (+), *Vicia bithynica* (L.) L. (+); Rel. 2: *Populus canescens* (Aiton) Sm. (1.2), *Vicia villosa* Roth ssp. *varia* (Host) Corb. (+.2); Rel. 3: *Carex flacca* Schreber ssp. *serrulata* (Biv.) Greuter (1.2), *Equisetum arvense* L. (+), *Inula salicina* L. (+); Rel. 4: *Quercus pubescens* Willd. ssp. *pubescens* (2.3).

Table 5
Rel. 2: *Eupatorium cannabinum* L. (+.2); Rel. 5: *Ranunculus bulbosus* L. (+), *Tussilago farfara* L. (+); Rel. 6: *Galium mollugo* L. ssp. *erectum* Syme (+.2), *Gymnadenia conopsea* (L.) R. Br. (+), *Lathyrus sylvestris* L. ssp. *sylvestris* (1.2), *Ononis spinosa* L. (+), *Plantago media* L. (+), *Polygala nicaeensis* Risso (+).

Table 8
Rel. 1: *Salix apennina* Skvortsov (+); Rel. 4: *Stachys officinalis* (L.) Trevisan (+), *Dipsacus fullonum* L. (+), *Agropyron pungens* (Pers.) R. et S. (1.1), *Centaurea bracteata* Scop. (1.1), *Anacamptis pyramidalis* (L.)L.C.Rich. (+); Rel. 5: *Teucrium chamaedrys* L. (+.2), *Geum urbanum* L. (+), *Arabis sagittata* (Bertol.) DC. (1.1), *Bromus erectus* Hudson (+.2); Rel. 6: *Dorycnium hirsutum* (L.) Ser. (+).

Table 9
Rel. 1: *Hypericum perforatum* L. (1.1), *Centaurium erythraea* Rafn (+), *Sanguisorba minor* Scop. (+), *Equisetum telmateja* Ehrh. (1.1), *Melissa romana* Miller (1.2), *Rubus ulmifolius* Schott (2.3); Rel. 2: *Festuca heterophylla* Lam. (+.2), *Rosa canina* L. sensu Bouleng. (+), *Medicago sativa* L. (+); Rel. 3: *Brachypodium sylvaticum* (Hudson) Beauv. (1.2), *Clematis vitalba* L. (+), *Eranthis hyemalis* (L.) Salisb. (+), *Leopoldia comosa* (L.) Parl. (1.1), *Poa sylvicola* Guss. (+.2), *Orobanche hederae* Duby (+), *Tamus communis* L. (+), *Bromus ramosus* Hudson (+), *Arum italicum* Miller (+), *Ranunculus ficaria* L. ssp *ficaria* (1.2); Rel. 4: *Viola alba* Besser ssp. *dehnhardtii* (Ten.) W. Becker (1.2), *Cyclamen hederifolium* Aiton (+.2), *Melica uniflora* Retz. (+.2), *Melittis melissophyllum* L. (1.2), *Torilis arvensis* (Hudson) Link (+.2); Rel. 5: *Ballota nigra* L. (2.3), *Anthemis tinctoria* L. (+), *Verbascum blattaria* L. (+).

Table 10
Rel. 1: *Tordylium apulum* L. (+), *Agropyron repens* (L.) Beauv. (+.2); Rel. 2: *Sonchus oleraceus* L. (1.1), *Rumex conglomeratus* Murray (+), *Ranunculus ficaria* L. (+.2), *Dactylis glomerata* L. (+); Rel. 3: *Sonchus oleraceus* L. (+), *Malva sylvestris* L. (+.2), *Tordylium apulum* L. (+), *Rumex conglomeratus* Murray (+); Rel. 4: *Malva sylvestris* L. (+); Rel. 5: *Sonchus asper* (L.) Hill (+), *Lamium purpureum* L. (+), *Anagallis arvensis* L. (+), *Polygonum aviculare* L. (1.1), *Verbena officinalis* L. (+), *Potentilla reptans* L. (1.2), *Galium album* Miller (1.2), *Plantago media* L. (1.1); Rel. 6: *Buglossoides purpurocaerulea* (L.) Johnston (2.2), *Verbena officinalis* L. (1.1), *Potentilla reptans* L. (1.2), *Galium album* Miller (2.2), *Medicago sativa* L., (+), *Torilis arvensis* (Hudson) Link (+.2), *Festuca heterophylla* Lam. (+.2), *Rosa canina* L. sensu Bouleng. (+), *Ligustrum vulgare* L. (+), *Trifolium pratense* L. (+.2), *Prunella vulgaris* L. (+.2), *Trifolium repens* L. (+.2); Rel. 7: *Sonchus asper* (L.) Hill (1.1), *Lamium purpureum* L. (2.3), *Anagallis arvensis* L. (+), *Polygonum aviculare* L. (1.1), *Verbena officinalis* L. (1.2), *Vicia villosa* Roth (+.2), *Cerinthe major* L. (+.2), *Euphorbia helioscopia* L. (+).

Table 11
Rel. 1: *Bellevalia romana* (L.) Sweet (+); Rel. 2: *Cephalanthera longifolia* (Hudson) Fritsch (+); Rel. 3: *Cephalanthera longifolia* (Hudson) Fritsch (+), *Spartium junceum* L. (1.2); Rel. 6: *Ranunculus velutinus* Ten. (+), *Cornus sanguinea* L. ssp. *sanguinea* (+), *Mentha spicata* L. (+.2); Rel. 7: *Lathyrus latifolius* L. (+), *Cynosurus echinatus* L. (+); Rel. 8: *Cornus sanguinea* L. ssp. *sanguinea* (+), *Lathyrus latifolius* L. (1.1), *Cephalanthera damasonium* (Miller) Druce (+); Rel. 10: *Trifolium medium* L. ssp. *medium* (1.2), *Primula vulgaris* Hudson ssp. *vulgaris* (1.1), *Robinia pseudoacacia* L. (1.1); Rel. 11: *Cornus sanguinea* L. ssp. *sanguinea* (+), *Spartium junceum* L. (2.3); R.14: *Prunus spinosa* L. ssp. *spinosa* (+); R.15: *Bellevalia romana* (L.) Sweet (+), *Vicia tenuifolia* Roth (1.2), *Geranium columbinum* L. (+), *Melilotus sulcata* Desf. (+), *Rapistrum rugosum* (L.) All. (+), *Tordylium apulum* L. (+); Rel. 16: *Bellevalia romana* (L.) Sweet (+), *Vicia tenuifolia* Roth (1.2), *Geranium columbinum* L. (+), *Melilotus sulcata* Desf. (+), *Rapistrum rugosum* (L.) All. (+), *Tordylium apulum* L. (+.2), *Gladiolus italicus* Miller (+), *Sherardia arvensis* L. (+), *Sonchus asper* (L.) Hill (+), *Vicia parviflora* Cav. (+); Rel. 17: *Ranunculus velutinus* Ten. (+), *Cephalanthera damasonium* (Miller) Druce (+), *Mentha spicata* L. (+), *Rosa balsamica* Besser (+), *Rosa canina* L. (+); Rel. 18: *Ranunculus velutinus* Ten. (+), *Trifolium medium* L. ssp. *medium* (+.2), *Lonicera etrusca* Santi (+); Rel. 19: *Trifolium medium* L. ssp. *medium* (+.2), *Lonicera etrusca* Santi (+.2).

Table 12
Rel. 1: *Chaerophyllum temulum* L. (+), *Rubus ulmifolius* Schott (+), *Tordylium apulum* L. (1.1); Rel. 2: *Sherardia arvensis* L. (+.2), *Vicia bithynica* (L.) L. (+), *Adonis annua* L. (+), *Anagallis arvensis* L. (+.2); Rel. 3: *Gladiolus italicus* Miller (+.2), *Typhoides arundinacea* (L.) Moench (+.2), *Bromus hordeaceus* L. (+.2), *Sonchus oleraceus* L. (+), *Clematis vitalba* L. (1.1), *Cruciata laevipes* Opiz (1.2), *Aristolochia rotunda* L. (+); Rel. 4: *Galega officinalis* L. (+), *Gladiolus italicus* Miller (+), *Chaerophyllum temulum* L. (+), *Typhoides arundinacea* (L.) Moench (+), *Bromus hordeaceus* L. (1.1), *Sherardia arvensis* L. (+), *Sonchus oleraceus* L. (+); Rel. 6: *Clinopodium vulgare* L. (+); Rel. 8: *Rubus ulmifolius* Schott (1.2), *Vicia tenuifolia* Roth (1.1); Rel. 9: *Galega officinalis* L. (+); Rel. 12: *Avena fatua* L. (1.1); Rel. 13: *Melilotus elegans* Salzm. (1.2); R.15: *Hainardia cylindrica* (Willd.) Greuter (1.1).

Table 13
Rel. 1: *Rapistrum rugosum* (L.) All. 1.1, *Bromus tectorum* L. ssp. *tectorum* +, *Catapodium rigidum* (L.) Hubbard +, *Brachypodium rupestre* (Host) R. et S. +; Rel. 2: *Centaurium pulchellum* (Swartz) Druce ssp. *pulchellum* +.2; Rel. 3: *Tragopogon porrifolius* L. +.2; Rel. 4: *Lolium multiflorum* Lam. +; Rel. 5: *Odontites lutea* (L.) Clairv. +.

Table 14
Rel. 1: *Dorycnium hirsutum* (L.) Ser. (+.2), *Sanguisorba minor* Scop. (+); Rel. 4: *Ranunculus repens* L. (+.2), *Poa pratensis* L. (+), *Lathyrus aphaca* L. ssp. *aphaca* (+); Rel. 5: *Dorycnium herbaceum* Vill. (1.2), *Brachypodium rupestre* (Host) R. et S. (+.2), *Agrimonia eupatoria* L. (+), *Phleum bertolonii* DC. (+), *Vicia villosa* Roth ssp. *varia* (Host) Corb. (1.1), *Linum corymbulosum* Rchb. (+). Rel. 6: *Holcus lanatus* L. (1.2), *Festuca arundinacea* Schreber (+.2), *Galium mollugo* L. ssp. *erectum* Syme (1.1), *Carex flacca* Schreber ssp. *serrulata* (Biv.) Greuter (+.2), *Genista tinctoria* L. (+), *Galega officinalis* L. (+), *Salix apennina* Skvortsov (1.2), *Juncus inflexus* L. (+.2), *Lathyrus sylvestris* L. ssp. *sylvestris* (+), *Populus nigra* L. (+).

Table 16
Rel. 1: *Centaurium pulchellum* (Swartz) Druce (+); Rel. 3: *Dipsacus fullonum* L. (+), *Vicia tenuissima*

(Bieb.) Sch. et Th. (+); Rel. 4: *Agropyron repens* (L.) Beauv. (+.2), *Geranium columbinum* L. (+), *Ballota nigra* L. (+.2), *Trifolium campestre* Schreber (+), *Prunella vulgaris* L. (+); Rel. 5: *Carduus pycnocephalus* L. (+), *Cirsium vulgare* (Savi) Ten. (+), *Typhoides arundinacea* (L.) Moench (+), *Poa pratensis* L. (+.2), *Trifolium pratense* L. (1.2), *Verbena officinalis* L. (+), *Plantago lanceolata* L. (+), *Rumex crispus* L. (+).

Table 17
Rel. 3: *Anthemis tinctoria* L. (+); Rel. 4: *Tordylium apulum* L. (+.2), *Verbena officinalis* L. (+), *Galium mollugo* L. ssp. *erectum* Syme (+.2), *Potentilla reptans* L. (1.2); Rel. 5: *Cruciata laevipes* Opiz (+.2), *Inula conyzae* (Griess) Meikle (+), *Picris hieracioides* L. (+), *Lathyrus pratensis* L. (+).

APPENDIX II

Localities of relevés

Table 1
Rel. 1–7: Onferno Nature Reserve: in the chalky ravine that overlooks the entrance to the karst caves, next to Castello di Onferno.

Table 2
Rel. 1–5: Onferno Nature Reserve: next to Ca Bernardo.
Rel. 6–11: Onferno Nature Reserve: next to Castello di Onferno on gypsum substrata.

Table 3
Rel. 1–12: Onferno Nature Reserve: at location Le Selve.

Table 4
Rel. 1–4: Onferno Nature Reserve: on clay substrata to the left of Castello di Onferno and at the base of the badlands next to Fornace.

Table 5
Rel. 1–6: Onferno Nature Reserve: badlands of Ripa della Morte and badlands of Fornace.

Table 6
Rel. 1–2: Onferno Nature Reserve: badlands of Ripa della Morte.

Table 7
Rel. 1: Onferno Nature Reserve: next to Castello di Onferno.

Table 8
Rel. 1–5: Onferno Nature Reserve: at location Le Selve.
Rel. 6–7: Onferno Nature Reserve: on clay substrata to the left of Castello di Onferno.

Table 9
Rel. 1–6: Onferno Nature Reserve: at the edges of the linden wood in the chalky ravine.

Table 10
Rel. 1–5: Onferno Nature Reserve: on the gypsum substrata near the visitor center of the Castello di Onferno.

Table 11
Rel. 1–20: Onferno Nature Reserve: Monte Croce.

Table 12
Rel. 1–15: Onferno Nature Reserve: badlands of Ripa della Morte.

Table 13
Rel. 1–5: Onferno Nature Reserve: badlands of Ripa della Morte.

Table 14
Rel. 1–6: Onferno Nature Reserve: at the base of the badlands next to Fornace.

Table 15
Rel. 1–3: Onferno Nature Reserve: on the sunny chalky cliffs of the Castello di Onferno

Table 16
Rel. 1–3: Onferno Nature Reserve: on clay substrata next to Arcella.
Rel. 4–5: Onferno Nature Reserve: on clay substrata next to Ca Parantonio.

Table 17
Rel. 1–3: Onferno Nature Reserve: on sandstone substrata next to Ca Bernardo.
Rel. 4–6: Onferno Nature Reserve: on sandstone substrata next to Monte Croce.

Table 1 (Tabela 1): *Aceretum obtusati-pseudoplatani* Biondi, Casavecchia, Pinzi, Allegrezza & Baldoni 2002 *staphyletosum pinnatae subass* nova
Tilio platyphylli-Acerion pseudoplatani Klika 1955
Fagetalia sylvaticae Pawlowski in Pawlowski, Sokolowski & Wallisch 1928
Querco-Fagetea Br.-Bl. & Vlieger in Vlieger 1937

		Rel. n.	1	2	3	4	5	6*	7	
		Date	6. 12. 1998	6. 12. 1998	6. 12. 1998	5. 4. 2006	5. 4. 2006	5. 4. 2006	5. 4. 2006	PRESENCES
		Altitude (m)	305	295	270	280	280	260	410	
		Exposure	NNO	N	E	N	NE	NE	NE	
		Slope	40°	40°	50°	30°	30°	30°		
		Area	80mq	100mq	70mq	120mq	120mq	150mq	50mq	
		Coverage	100%	100%	100%	100%	100%	100%	100%	
		Characteristic and differential species of the association								
P scap	SE-EUROP.	*Acer opalus* Mill. ssp. *obtusatum* (Waldst. et Kit. ex Willd.) Gams.	1.1	1.1	3.3	2.2	2.2	1.2	.	6
G rhiz/Ch frut	EURIMEDIT.	*Ruscus aculeatus* L.	2.3	2.3	1.2	3.3	2.3	1.2	.	6
G rhiz	STENOMEDIT.	*Arum italicum* Miller ssp. *italicum*	.	.	+	+.2	+	2.3	1.1	5
G bulb	EUROP.-CAUC.	*Galanthus nivalis* L.	.	.	.	1.2	1.2	1.2	2.2	4
H scap	ENDEM.	*Pulmonaria apennina* Cristof. et Puppi	.	.	.	.	.	+.2	.	1
		Differential species of the subassociation								
P caesp	S-EUROP.-SUDSIB.	*Staphylea pinnata* L.	1.2	1.2	2.3	+	+	2.3	.	6
G bulb	EURIMEDIT.	*Loncomelos pyrenaicus* (L.) Hrouda ex J. Holub s.l.	1.1	+	+	1.2	1.1	+	.	6
G rhiz/NP	STENOMEDIT.	*Asparagus acutifolius* L.	+	+	.	1.1	+	+	+	6
P lian	EURIMEDIT.	*Lonicera etrusca* Santi	1.1	+	.	+.2	+	.	+	5
H ros	CIRCUMBOR. TEMP.	*Phyllitis scolopendrium* (L.) Newman ssp. scolopendrium	+.2	.	+	.	.	+	.	3
H scap	EUROP.-CAUC.	*Lamiastrum galeobdolon* L.	.	.	.	.	.	2.3	.	1
G rhiz	EUROSIB.	*Aegopodium podagraria* L.	.	.	.	.	.	1.2	.	1
		Characteristic and differential species of the alliance and order								
P scap	EUROP.-CAUC.	*Tilia platyphyllos* Scop.	4.5	4.4	2.2	3.4	2.3	3.4	3.4	7
P scap	EUROP.-CAUC.	*Acer campestre* L.	1.1	1.1	+.1	1.1	+	1.1	.	6
H caesp	PALEOTEMP.	*Melica uniflora* Retz.	.	.	+.2	+.2	+.2	+.2	.	5
P scap	PONTICO	*Prunus avium* L. ssp. avium	.	.	.	+	+	+	.	3
P caesp	CENTRO-EUROP.	*Crataegus laevigata* (Poir.) DC.	.	.	.	1.2	+	+	.	3
G rhiz	CENTRO-EUROP.	*Cardamine bulbifera* (L.) Crantz	.	.	+	.	.	1.2	.	2
G rhiz	EUROP.-CAUC.	*Mercurialis perennis* L.	.	.	+.2	.	.	3.3	.	2
P scap	EUROP.-CAUC.	*Acer pseudoplatanus* L.	.	.	.	.	.	+	.	1
Ch suffr	EUROP.-CAUC.	*Euphorbia amygdaloides* L.	.	+	.	.	.	.	.	1

		Characteristic and differential species of the *Querco-Fagetea* class								
P scap	S-EUROP.-SUDSIB.	*Fraxinus ornus* L. ssp. *ornus*	1.2	2.2	1.2	1.2	1.2	1.2	1.1	7
P lian	EURIMEDIT.	*Hedera helix* L.	1.2	1.2	2.3	1.2	2.3	2.3	3.4	7
H ros	EUROP.-CAUC.	*Primula vulgaris* Hudson ssp. *vulgaris*	+	+	.	+	+	+	+.2	6
H scap	EUROSIB.	*Viola reichenbachiana* Jordan ex Boreau	1.2	1.2	+	+.2	+.2	+.2	.	6
G rad	EURIMEDIT.	*Tamus communis* L.	1.1	1.1	+	+	+	+	.	6
H ros	EURIMEDIT.	*Viola alba* Besser ssp. *dehnhardtii* (Ten.) W. Becker	.	+.2	+	+.2	+.2	+.2	1.2	6
H caesp	PALEOTEMP.	*Brachypodium sylvaticum* (Hudson) Beauv.	+.2	+.2	+.2	.	+.2	+.2	.	5
G rhiz	CIRCUMBOR.	*Hepatica nobilis* Miller	1.2	+	.	+.2	+.2	+.2	.	5
H scap	C-EUROP.	*Melittis melissophyllum* L.	+.2	+.2	.	+	+	+	.	5
P caesp	EUROP.-CAUC.	*Lonicera xylosteum* L.	1.2	.	.	+.2	+	+	.	4
G bulb	OROF. C-EUROP.	*Lilium bulbiferum* L. ssp. *croceum* (Chaix) Baker	.	+.2	.	+	+.2	+	.	4
P caesp	SE-EUROP.	*Quercus pubescens* Willd. ssp. *pubescens*	2.2	1.2	2.2	.	.	.	1.2	4
P caesp	EUROP.-CAUC.	*Sambucus nigra* L.	.	.	1.1	.		+.2	1.2	3
P scap	N-EURIMEDIT.	*Quercus cerris* L.	.	.	.	2.2	1.2	1.1	.	3
P caesp	EUROP.-CAUC.	*Corylus avellana* L.	.	.	2.2	.	.	1.1	.	2
P caesp/P scap	CIRCUMBOR.	*Ostrya carpinifolia* Scop.	.	.	.	.	+	+	.	2
P scap	EURIMEDIT.	*Sorbus domestica* L.	.	.	.	.	+	+	.	2
G rhiz	S-EUROP.-SUDSIB.	*Lathyrus venetus* (Miller) Wohlf.	+	+.2	.	.	.	.	.	2
P caesp	S-EUROP.-SUDSIB.	*Cornus mas* L.	.	.	+	+	.	.	.	2
H scap	PALEOTEMP.	*Campanula trachelium* L. ssp. *trachelium*	+	.	.	.	.	.	.	1
G rhiz	OROF. S-EUROP.	*Anemone trifolia* L.	.	.	.	.	.	1.2	.	1
H scap	EUROP.-CAUC.	*Stachys officinalis* (L.) Trevisan	.	.	+.2	.	.	.	.	1
		Other species								
P caesp	PALEOTEMP.	*Crataegus monogyna* Jacq.	2.3	2.2	.	2.2	2.2	1.2	1.1	6
P caesp	EURASIAT.	*Euonymus europaeus* L.	.	.	+	+	+	+.2	+	5
G bulb	N-STENOMEDIT.	*Cyclamen hederifolium* Aiton	.	.	.	+.2	+.2	+	2.3	4
G rhiz	S-EUROP.	*Eranthis hyemalis* (L.) Salisb.	.	.	.	+	+	+	+.2	4
P lian	EUROP.-CAUC.	*Clematis vitalba* L.	.	.	1.1	.	+	1.1	.	3
T par	EURIMEDIT.	*Orobanche hederae* Duby	.	.	.	+	+.2	.	1.1	3
G bulb	EURASIAT.	*Ranunculus ficaria* L.	.	.	.	+	+	.	+.2	3
NP	CENTRO-EUROP.	*Emerus majus* Mill. ssp. *emeroide*s (Boiss. & Spruner) Soldano & Conti	.	+	.	+.2	.	+	.	3
H ros	EURIMEDIT.	*Polypodium cambricum* L.	.	.	.	+.2	.	1.2	+.2	3
P caesp	STENOMEDIT.	*Laurus nobilis* L.	.	.	1.1	+	.	.	.	2
P caesp	AVV.	*Robinia pseudoacacia* L.	.	.	.	+	.	.	+	2
T par	PALEOTEMP.	*Orobanche minor* Sm.	+.2	+.2	.	.	.	.	.	2
P caesp	EUROP.-CAUC.	*Prunus spinosa* L. ssp. *spinosa*	.	.	.	+	+	.	.	2
P lian	STENOMEDIT.	*Rubia peregrina* L.	.	+.2	.	+	.	.	.	2
P caesp	EUROP.-CAUC.	*Ulmus minor* Miller	.	.	+	.	.	+	.	2
		Sporadic species	1	0	2	0	0	2	4	

Table 2 (Tabela 2): *Roso sempervirentis-Quercetum pubescentis* Biondi 1986
Lauro nobilis-Quercenion pubescentis Ubaldi (1988) 1995
Carpinion orientalis Horvat 1958
Quercetalia pubescenti-petraeae Klika 1933
Querco-Fagetea Br.-Bl. & Vlieger in Vlieger 1937

		Rel. n.	1	2	3	4	5	6	7	8	9	10	11	
		Date	6. 22. 2000	6. 23. 2000	6. 22. 2000	6. 13. 2002	6. 13. 2002	6. 18. 1998	7. 17. 2006	7. 2. 1998	10. 16. 2001	6. 26. 2001	7. 17. 2006	PRESENCES
		Altitude (m)	445	445	450	225	225	250	275	445	330	275		
		Exposure	N-E	NE	N-NE	S	E-NE	O	E-NE	NNO	NE		E	
		Slope	35-40°	20°	30°	30°	30°	30°	20°	30°	20°		30°	
		Area	60mq	100mq		40mq	60mq	80mq	120mq	80mq	90mq	60mq	120mq	
		Coverage	100%		100%	80%	80%	100%	100%	100%	100%	100%	100%	
		Characteristic and differential species of the association												
P caesp	SE-EUROP.	*Quercus pubescens* Willd. ssp. *pubescens*	4.4	4.5	4.4	4.4	4.5	3.3	3.3	3.4	3.3	3.3	2.3	11
P lian	EURIMEDIT.	*Lonicera etrusca* Santi	1.1	+	1.2	2.2	1.2	.	.	.	+	+	+	8
NP	STENOMEDIT.	*Rosa sempervirens* L.	.	.	.	+.2	+.2	.	.	+.2	1.1	1.2	+.2	6
P lian	STENOMEDIT.	*Rubia peregrina* L.	.	.	.	.	.	.	.	+	+.2	+.2	.	3
		Differential species of the *Ruscus aculeatus* variant												
P scap	EURIMEDIT.	*Sorbus domestica* L.	.	.	.	1.1	+	2.2	+	1.2	1.1	+	.	7
G rhiz/Ch frut	EURIMEDIT.	*Ruscus aculeatus* L.	.	.	.	.	.	1.2	2.3	1.2	+.2	+.2	2.3	6
P scap	EUROP.-CAUC.	*Acer campestre* L.	.	+	.	.	+	.	1.1	1.1	+	+	.	6
P caesp	S-EUROP.-SUDSIB.	*Cornus mas* L.	.	.	.	.	.	.	+	+	+	.	1.2	4
		Characteristic and differential species of the suballiance and alliance												
NP	CENTRO-EUROP.	*Emerus majus* Mill. ssp. *emeroides* (Boiss. & Spruner) Soldano & Conti	1.2	+	+	.	.	+	+	+	+.2	+.2	+	9
G rhiz/NP	STENOMEDIT.	*Asparagus acutifolius* L.	.	.	.	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	8
P caesp	STENOMEDIT.	*Laurus nobilis* L.	.	+	.	.	.	.	+	1.1	+	+	+	6
H scap	C-EUROP.	*Melittis melissophyllum* L.	+	+	1.1	.	.	.	.	1.1	+	.	+.2	6
P caesp	EUROP.-CAUC.	*Lonicera xylosteum* L.	.	+	.	.	.	+	+.2	1.2	+.2	.	.	5
P caesp	OROF. SW-EUROP.	*Cytisophyllum sessilifolium* (L.) O. Lang	+.2	.	+.2	.	1.1	.	.	.	.	.	.	3
H bienn	S-EUROP.-SUDSIB.	*Arabis turrita* L.	.	.	.	.	.	+	.	.	+.2	.	+	3
P caesp	S-EUROP.-SUDSIB.	*Mespilus germanica* L.	.	+	.	.	.	.	1.2	.	.	+	.	3
G rhiz	ENDEM.	*Helleborus bocconei* Ten.	.	1.1	.	.	.	.	.	.	+	.	.	2
G rhiz	PALEOTEMP.	*Epipactis helleborine* (L.) Crantz	.	.	.	+	+	.	.	.	.	.	.	2
P scap	SE-EUROP.	*Acer opalus* Mill. ssp. *obtusatum* (Waldst. et Kit. ex Willd.) Gams.	.	+	.	.	.	.	.	.	.	.	+.2	2
H scap	OROF. SE-EUROP.	*Peucedanum verticillare* (L.) Koch	.	.	.	+	+	.	.	.	.	.	.	2
P caesp	STENOMEDIT.	*Viburnum tinus* L.	.	.	.	.	.	.	.	.	.	.	+.2	1
G bulb	OROF. C-EUROP.	*Lilium bulbiferum* L. ssp. *croceum* (Chaix) Baker	.	.	+	.	.	.	.	.	.	.	.	1

G bulb	W-EUROP.	*Bunium bulbocastanum* L.	.	.	.	.	.	.	.	.	.	+	.	1
G bulb	EURASIAT.	*Orchis purpurea* Hudson	.	.	.	.	.	.	.	.	.	+	.	1
		Characteristic and differential species of the order and class												
H ros		*Viola alba* Besser ssp. *dehnhardtii* (Ten.) W. Becker	+.2	+.2	1.2	+.2	+.2	+.2	1.2	+.2	+.2	+.2	1.2	11
P scap	S-EUROP.-SUDSIB.	*Fraxinus ornus* L. ssp. *ornus*	+	.	+	.	+	3.4	3.3	2.2	2.3	2.3	3.4	9
P lian	EURIMEDIT.	*Hedera helix* L.	3.3	3.4	1.2	.	2.3	2.2	1.2	3.3	1.2	1.2	.	9
H scap	PONTICA	*Buglossoides purpurocaerulea* (L.) Johnston	.	.	.	.	.	.	+.2	+	+.2	+.2	+.2	5
H caesp	PALEOTEMP.	B*rachypodium sylvaticum* (Hudson) Beauv.	+.2	+.2	.	.	.	+.2	.	+.2	.	.	+.2	5
P scap	PONTICO	*Prunus avium* L. ssp. avium	1.1	2.2	2.2	.	+	.	+	.	.	.	.	5
H caesp	PALEOTEMP.	*Melica uniflora* Retz.	.	+.2	.	.	.	.	.	+.2	+	.	+.2	4
P caesp	CENTRO-EUROP.	*Crataegus laevigata* (Poir.) DC.	.	.	.	.	.	+	.	+	+	.	.	3
P scap	N-EURIMEDIT.	*Quercus cerris* L.	1.2	1.1	.	.	.	.	2.3	.	.	.	.	3
P caesp	EUROP.-CAUC.	*Sambucus nigra* L.	.	+	.	.	.	+	+.2	.	.	.	.	3
G bulb	N-STENOMEDIT.	*Cyclamen hederifolium* Aiton	.	.	.	.	.	.	+	.	1.1	.	+	3
P scap	EUROP.-CAUC.	*Tilia platyphyllos* Scop.	.	.	.	.	.	.	.	+	+	.	.	2
G bulb	EURIMEDIT.	*Loncomelos pyrenaicus* (L.) Hrouda ex J. Holub s.l.	.	.	.	.	.	.	+	.	+	.	.	2
G rhiz	EURIMEDIT.	*Cephalanthera damasonium* (Miller) Druce	+	.	.	+	.	.	.	.	.	.	.	2
Ch suffr	EUROP.-CAUC.	E*uphorbia amygdaloides* L.	.	.	.	.	.	.	.	.	+	.	.	1
P scap	AVV. NATUR.	*Malus domestica* (Borkh.) Borkh.	.	+	.	.	.	.	.	.	.	.	.	1
G bulb	EUROP.-CAUC.	*Galanthus nivalis* L.	.	.	.	.	.	.	.	.	.	.	+.2	1
G rhiz	OROF. S-EUROP.	*Anemone trifolia* L.	.	.	2.3	.	.	.	.	.	.	.	.	1
P scap	EUROP.-CAUC.	Q*uercus robur* L.	.	.	.	.	.	+.2	.	.	.	.	.	1
		Other species												
G rad	EURIMEDIT.	*Tamus communis* L.	1.1	1.1	1.1	+	1.1	1.1	1.1	.	+	+	+	10
P caesp	PALEOTEMP.	C*rataegus monogyna* Jacq.	+.2	1.2	2.2	1.1	1.1	1.1	1.2	1.1	1.1	1.1	.	10
P caesp	EURASIAT.	*Cornus sanguinea* L. ssp. *sanguinea*	+	2.3	1.1	.	+.2	1.2	+	+.2	+	1.2	.	9
P caesp	EUROP.-CAUC.	*Prunus spinosa* L. ssp. *spinosa*	+.2	.	+	1.2	1.2	+.2	+	1.1	.	+.2	.	8
G rhiz	EUROP.	*Carex flacca* Schreber ssp. *serrulata* (Biv.) Greuter	+.2	+	1.2	2.3	2.2	.	.	+.2	.	+.2	.	7
P caesp	EURASIAT.	*Euonymus europaeus* L.	1.1	+	.	.	+	1.1	+	.	+	+	.	7
P caesp	EUROP.-CAUC.	*Ulmus minor* Miller	1.1	1.1	.	.	.	.	.	+	+	1.1	.	5
NP	EUROP.-CAUC.	*Ligustrum vulgare* L.	.	.	.	.	.	.	1.2	+	+	1.1	+.2	5
H caesp	SUBATL.	*Brachypodium rupestre* (Host) R. et S.	1.2	.	.	1.2	1.2	.	.	.	+.2	+.2	.	5
NP	EURIMEDIT.	*Rubus ulmifolius* Schott	3.3	2.2	1.1	.	.	+.2	.	.	.	.	.	4
T par	EURIMEDIT.	*Orobanche hederae* Duby	.	.	.	.	+	.	1.1	+	+	.	.	4
P caesp	C-EUROP.	*Viburnum lantana* L.	.	1.2	.	.	.	.	.	+.2	+.2	.	.	3
P caesp	AVV.	*Robinia pseudoacacia* L.	+	1.1	.	+	.	.	.	.	.	.	.	3
P lian	EUROP.-CAUC.	*Clematis vitalba* L.	.	.	.	.	.	.	+.2	.	.	+.2	+	3
Ch suffr	EURASIAT.	*Genista tinctoria* L.	.	.	.	+	+	.	.	.	.	+	.	3
Ch suffr	EURIMEDIT.	*Teucrium chamaedrys* L.	.	.	.	1.2	+.2	.	.	.	.	+	.	3
H scap	CIRCUMBOR.	*Clinopodium vulgare* L.	.	.	+	.	.	.	.	.	+.2	+	.	3
P caesp	EURIMEDIT.	*Spartium junceum* L.	.	.	.	1.2	+	.	.	.	.	+	.	3
		Sporadic species	0	0	4	6	8	1	4	0	2	4	2	

Table 3 (Tabela 3): *Asparago acutifolii-Ostryetum carpinifoliae* Biondi ex Ubaldi 1995
Lauro nobilis-Quercenion pubescentis Ubaldi (1988) 1995
Carpinion orientalis Horvat 1958
Quercetalia pubescenti-petraeae Klika 1933
Querco-Fagetea Br.-Bl. & Vlieger in Vlieger 1937

		Rel. n.	1	2	3	4	5	6	7	8	9	10	11	12	
		Date	8. 2. 2000	8. 2. 2000	4. 5. 2007	8. 3. 2000	8. 1. 2001	8. 3. 2000	7. 2. 1998	7. 2. 1998	7. 2. 1998	7. 2. 1998	8. 1. 2001	8. 1. 2001	PRESENCES
		Altitude (m)	475	475	373	420	370	450	465	490	480	480	340	340	
		Exposure	NO	NO	NE	NO	NO	N	ONO	NNO	NNO	NO	NE	NE	
		Slope	30°	30°	30°	30°	30°	30°	40°	15°	10°	30°	20°	40°	
		Area	120mq	150mq	120 mq	100mq	50mq	120mq	60mq	100mq	60mq	60mq	50mq	50mq	
		Coverage	100%	100%	100	100%	90%	100%	100%	100%	100%	100%	100%	95%	
		Characteristic and differential species of the association													
P caesp/P scap	CIRCUMBOR.	*Ostrya carpinifolia* Scop.	2.2	3.3	4.4	2.3	2.3	3.4	3.3	3.4	3.3	3.4	4.4	3.3	12
H scap	PONTICA	*Buglossoides purpurocaerulea* (L.) Johnston	+.2	+.2	+.2	+	+	+	+	+	+.2	+.2	+	+	12
G rhiz/NP	STENOMEDIT.	*Asparagus acutifolius* L.	+.2	1.1	+	+	+	+	1.1	+	+	+	.	+	11
		Characteristic and differential species of the suballiance and alliance													
G rhiz/ Ch frut	EURIMEDIT.	*Ruscus aculeatus* L.	+.2	1.2	1.2	2.3	1.2	+.2	1.2	+.2	.	1.2	1.2	+.2	11
NP	CENTRO-EUROP.	*Emerus majus* Mill. ssp. *emeroides* (Boiss. & Spruner) Soldano & Conti	.	+	1.2	+	+.2	+	+	+	1.1	+	+	1.1	11
H scap	C-EUROP.	*Melittis melissophyllum* L.	.	+.2	.	.	+	.	1.1	+	+	+	.	+	7
G rhiz	ENDEM.	*Helleborus bocconei* Ten.	+	+	+	+	+	+	+	.	.	.	.	.	7
H scap	PALEOTEMP.	*Sanicula europaea* L.	.	+.2	.	.	.	.	.	+	+.2	.	+.2	+.2	5
G bulb	OROF. C-EUROP.	*Lilium bulbiferum* L. ssp. *croceum* (Chaix) Baker	.	.	+.2	.	.	.	.	.	.	.	+	+	3
NP	STENOMEDIT.	*Rosa sempervirens* L.	.	.	.	.	+	.	.	.	+	.	.	.	2
P scap	SE-EUROP.	*Acer opalus* Mill. ssp. *obtusatum* (Waldst. et Kit. ex Willd.) Gams.	.	.	.	.	.	.	.	.	.	+	1.2	.	2
G bulb	NW-STENOMEDIT.	*Cyclamen repandum* Sm. ssp. *repandum*	.	.	1.2	.	.	.	.	.	.	.	.	.	1
P caesp	OROF. SW-EUROP.	*Cytisophyllum sessilifolium* (L.) O. Lang	.	.	.	.	.	.	.	.	.	.	.	+	1
G bulb	EURASIAT.	*Orchis purpurea* Hudson	.	.	1.1	.	.	.	.	.	.	.	.	.	1
H caesp	EURASIAT.	*Bromus ramosus* Hudson	.	.	.	.	.	.	.	.	.	.	+.2	.	1
		Characteristic and differential species of the order and class													
P caesp	SE-EUROP.	*Quercus pubescens* Willd. ssp. *pubescens*	2.3	1.1	2.3	2.2	1.1	1.1	2.3	1.1	1.1	1.1	1.1	2.2	12
P lian	EURIMEDIT.	*Hedera helix* L.	2.3	2.2	1.2	2.2	2.3	3.3	2.3	2.3	1.2	1.2	2.2	2.2	12
P scap	S-EUROP.-SUDSIB.	*Fraxinus ornus* L. ssp. *ornus*	1.1	+	2.3	2.3	3.3	.	2.2	2.2	2.3	1.1	1.1	1.2	11
H ros	EURIMEDIT.	*Viola alba Besser* ssp. *dehnhardtii* (Ten.) W. Becker	1.2	+.2	+.2	.	+.2	+	1.2	.	+.2	+.2	+	+.2	10
G rhiz	CIRCUMBOR.	*Hepatica nobilis* Miller	+	+	+.2	.	+.2	+	+.2	.	+	+.2	+.2	+.2	10

P caesp	EUROP.-CAUC.	*Lonicera xylosteum* L.	.	1.1	+	.	.	+	1.1	+.2	+	+.2	+.2	1.1	9
P caesp	S-EUROP.-SUDSIB.	*Cornus mas* L.	.	1.1	.	+	+	1.2	1.1	1.2	2.2	1.1	+	.	9
P caesp	EUROP.-CAUC.	*Corylus avellana* L.	1.1	1.2	.	1.2	.	1.2	+	.	2.3	1.2	1.2	+	9
H ros	EUROP.-CAUC.	*Primula vulgaris* Hudson ssp. *vulgaris*	1.1	+.2	+.2	1.1	.	.	.	+	1.1	1.1	.	+	8
P scap	EURIMEDIT.	*Sorbus domestica* L.	1.1	1.1	.	1.1	1.1	1.1	.	.	+	+	.	.	7
H scap	ENDEM.	P*ulmonaria apennina* Cristof. et Puppi	.	+	.	+.2	.	1.1	.	.	.	1.2	+	1.2	6
H scap	EUROSIB.	*Viola reichenbachiana* Jordan ex Boreau	.	.	1.2	+.2	.	.	.	+.2	.	1.2	+.2	+	6
H caesp	PALEOTEMP.	*Brachypodium sylvaticum* (Hudson) Beauv.	.	+.2	.	.	.	+.2	+.2	+.2	.	.	.	+.2	5
P scap	PONTICO	*Prunus avium* L. ssp. *avium*	1.1	+	.	+	.	.	.	.	.	.	+	.	4
G rhiz	S-EUROP.-SUDSIB.	*Lathyrus venetus* (Miller) Wohlf.	.	.	.	.	.	.	.	.	+	+.2	+	+.2	4
H scap	EUROP.-CAUC.	*Stachys officinalis* (L.) Trevisan	.	.	.	.	+	.	+	.	.	.	+	+	4
G rhiz	CENTRO-EUROP.	*Euphorbia dulcis* L.	.	.	+	.	.	.	.	.	+	.	.	+	3
P lian	EURIMEDIT.	*Lonicera etrusca* Santi	+	.	1.1	.	.	.	.	.	.	.	.	.	2
P scap	EUROP.-CAUC.	*Acer campestre* L.	.	+	.	.	.	1.1	.	.	.	.	.	.	2
H caesp	PALEOTEMP.	*Melica uniflora* Retz.	+.2	+.2	.	.	.	.	.	.	.	.	.	.	2
NP	S-MEDIT.-SUBATL.	*Rosa arvensis* Hudson	.	1.1	.	.	.	+	.	.	.	.	.	.	2
Ch suffr	EUROP.-CAUC.	*Euphorbia amygdaloides* L.	+	+	.	.	.	.	.	.	.	.	.	.	2
P scap	N-EURIMEDIT.	*Quercus cerris* L.	+	.	.	+	.	.	.	.	.	.	.	.	2
P caesp	CENTRO-EUROP.	*Crataegus laevigata* (Poir.) DC.	.	.	.	.	.	+	.	.	.	+	.	.	2
G bulb	EURASIAT.	*Allium ursinum* L.	.	.	.	.	.	.	.	.	.	+	.	.	1
G rhiz	EURIMEDIT.	*Cephalanthera damasonium* (Miller) Druce	.	.	.	.	.	.	.	+	.	.	.	.	1
G bulb	EURIMEDIT.	*Loncomelos pyrenaicus* (L.) Hrouda ex J. Holub s.l.	.	.	+	.	.	.	.	.	.	.	.	.	1
P scap	C-EUROP.-CAUCAS.	*Carpinus betulus* L.	.	.	.	.	.	+	.	.	.	.	.	.	1
P scap	AVV. NATUR.	*Malus domestica* (Borkh.) Borkh.	+	.	.	.	.	.	.	.	.	.	.	.	1
H scap	PALEOTEMP.	*Campanula trachelium* L. ssp. *trachelium*	.	+	.	.	.	.	.	.	.	.	.	.	1
		Other species													
P caesp	PALEOTEMP.	*Crataegus monogyna* Jacq.	1.1	1.1	1.1	1.1	+	+	1.2	1.1	1.1	1.1	+	+	12
P caesp	C-EUROP.	*Viburnum lantana* L.	+	1.2	.	+	+.2	1.1	1.2	1.1	+.2	1.2	1.1	1.2	11
G rad	EURIMEDIT.	*Tamus communis* L.	+	+	1.1	.	.	+	+	1.1	+	+	+	+	10
P caesp	EURASIAT.	*Cornus sanguinea* L. ssp. *sanguinea*	3.3	1.1	2.2	1.2	+.2	+	.	.	.	+	+	1.1	9
P lian	EUROP.-CAUC.	*Clematis vitalba* L.	+	+	1.1	.	+	.	.	1.1	1.1	+	+	+	9
P caesp	STENOMEDIT.	*Pyracantha coccinea* M. J. Roemer	1.1	.	1.2	.	+	.	.	+.2	+	.	.	+	6
G rhiz	EUROP.	*Carex flacca* Schreber ssp. *serrulata* (Biv.) Greuter	+.2	+.2	+.2	.	.	.	+.2	.	+.2	.	.	1.2	6
H scap	EUROSIB.	*Serratula tinctoria* L.	.	.	.	.	+.2	.	+	.	+	+	+	1.1	6
P caesp	EUROP.-CAUC.	*Prunus spinosa* L. ssp. *spinosa*	+	+	.	.	+	.	.	.	+	+	.	.	5
P caesp	EURASIAT.	*Euonymus europaeus* L.	+	.	.	.	.	+.2	.	+	.	.	.	.	3
H scap	EUROSIB.	*Hieracium murorum* L.	+	+	.	.	.	.	.	.	.	.	.	+	3
G rhiz	COSMOPOL.	*Pteridium aquilinum* (L.) Kuhn	+	.	.	.	.	.	.	+	.	.	.	+	3
P caesp	EUROP.-CAUC.	*Ulmus minor* Miller	1.1	.	.	+	+	.	.	.	.	.	.	.	3
		Sporadic species	5	2	3	3	2	0	1	0	1	1	0	1	

Table 4 (Tabela 4): *Symphyto bulbosi-Ulmetum minoris* Biondi & Allegrezza, 1996
Alnion incanae Pawlowski in Pawlowski, Sokolowski and Wallisch 1928
Salicetalia purpureae Moor 1958
Salici purpureae-Populetea nigrae (Rivas-MartÍnez & Cantó ex Rivas-MartÍnez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991) Rivas-MartÍnez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã and Penas 2001

		Rel. n.	1	2	3	4	
		Date	5/11/2001	5/11/2001	5/11/2001	5/11/2001	PRESENCES
		Altitude (m)	325	190	420	190	
		Exposure	NO		S		
		Slope	20°		0°		
		Area	50mq	60mq	40mq	40mq	
		Coverage	100%	100%	100%	100%	
		Characteristic and differential species of the association					
P caesp	EUROP.-CAUC.	*Ulmus minor* Miller	5.5	3.4	4.4	3.3	4
P caesp	EUROP.-CAUC.	*Sambucus nigra* L.	.	.	+	1.2	2
		Characteristic and differential species of the suballiance, alliance, order and class					
G rhiz	STENOMEDIT.	*Arum italicum* Miller ssp. *italicum*	1.2	1.1	.	+	3
H caesp	PALEOTEMP.	*Brachypodium sylvaticum* (Hudson) Beauv.	+.2	.	1.1	.	2
P scap	PALEOTEMP.	*Populus nigra* L.	.	+	.	+	2
P scap	PALEOTEMP.	*Salix alba* L.	.	+	.	+	2
NP	ENDEM.	*Salix apennina* Skvortsov	.	+	2.3	.	2
G bulb	EURIMEDIT.	*Aristolochia rotunda* L.	1.1	.	.	.	1
		Characteristic and differential species of the *Rhamno-Prunetea* class					
P caesp	PALEOTEMP.	*Crataegus monogyna* Jacq.	2.3	1.1	+	1.1	4
P caesp	EUROP.-CAUC.	*Prunus spinosa* L. ssp. spinosa	1.1	+	2.3	+	4
NP	EURIMEDIT.	*Rubus ulmifolius* Schott	1.2	1.1	+	1.2	4
P caesp	EURASIAT.	*Cornus sanguinea* L. ssp. sanguinea	+	.	+.2	1.1	3
P caesp	EURASIAT.	*Euonymus europaeus* L.	1.2	+	.	1.2	3
NP	PALEOTEMP.	*Rosa canina* L.	+	+.2	.	+	3
P lian	EUROP.-CAUC.	*Clematis vitalba* L.	+	1.1	.	1.1	3
NP	EUROP.-CAUC.	*Ligustrum vulgare* L.	.	.	.	1.2	1
P lian	EURIMEDIT.	*Lonicera etrusca* Santi	+	.	.	.	1
		Other species					
H scap	EURASIAT.	*Galium mollugo* L. ssp. *erectum* Syme	+.2	1.1	.	+	3
P scap	EUROP.-CAUC.	*Acer campestre* L.	+	.	+	1.2	3
G rhiz	CIRCUMBOR.	*Elymus repens* (L.) Gould ssp. *repens*	.	+.2	.	1.2	2
H scap	EURIMEDIT.	*Ballota nigra* L.	.	+.2	.	+.2	2
T scap	EURASIAT.	*Chaerophyllum temulum* L.	.	1.2	.	+.2	2
H ros	PALEOTEMP.	*Potentilla reptans* L.	.	1.2	.	+.2	2
P caesp	W-STENOMEDIT.	*Tamarix gallica* L.	+.2	+	.	.	2
G rad	EURIMEDIT.	*Tamus communis* L.	+	.	1.1	.	2
P lian	EURIMEDIT.	*Hedera helix* L.	4.4	.	1.1	.	2
		Sporadic species	7	2	3	1	

Table 5 (Tabella 5): *Salicetum apenninae* Pedrotti, Spada, Conti, 1996
Salicion eleagni Aichinger 1933 nom. mut. propos. Rivas-Martínez, Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002; *Salicetalia purpureae* Moor 1958
Salici purpureae-Populetea nigrae (Rivas-Martínez & Cantó ex Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991) Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2001

		Rel. n.	1	2	3	4	5	6	
		Date	6/25/ 2001	6/25/ 2001	6/25/ 2001	6/23/ 2000	6/23/ 2000	6/23/ 2000	PRESENCES
		Altitude (m)	270	270	270	350	370	370	
		Exposure/Slope				N/10°	N/30°	N/30°	
		Area	40mq	30mq	30mq	60mq			
		Coverage	100%	100%	100%	100%	100%	100%	
		Characteristic species of the association							
NP	ENDEM.	*Salix apennina* Skvortsov	3.3	3.4	2.3	2.3	4.5	4.4	6
		Differential species of the Milium effusum variant							
G rhiz	CIRCUMBOR.	*Milium effusum* L.	2.3	1.2	+.2	.	.	.	3
G rhiz	STENOMEDIT.	*Arundo plinii* Turra	1.2	+.2	.	.	.	.	2
G rhiz	EURASIAT.	*Petasites hybridus* (L.) Gaertn., Meyer et Sch. ssp. *hybridus*	+.2	1.1	.	.	.	.	2
H scap	E-EUROP.-PONTICA	*Galega officinalis* L.	+	+.2	+	.	.	.	3
		Characteristic and differential species of the suballiance, alliance, order and class							
G rhiz	CIRCUMBOR.	*Equisetum telmateja* Ehrh.	.	+	1.1	1.2	1.1	1.1	5
H rept	CIRCUMBOR.	*Agrostis stolonifera* L.	+.2	+.2	+.2	.	.	.	3
H caesp	PALEOTEMP.	*Brachypodium sylvaticum* (Hudson) Beauv.	.	.	.	+.2	+.2	+.2	3
P scap	PALEOTEMP.	*Populus alba* L.	.	.	+	.	.	.	1
P caesp	EUROP.-CAUC.	*Ulmus minor* Miller	.	.	+	.	.	.	1
H scap	CIRCUMBOR.	*Artemisia vulgaris* L.	.	+	.	.	.	.	1
P scap	PALEOTEMP.	*Salix alba* L.	.	+	.	.	.	.	1
P caesp	EUROSIB.	*Salix viminalis* L.	.	.	+	.	.	.	1
P lian	EUROP.-CAUC.	*Clematis vitalba* L.	.	.	.	+	.	.	1
		Characteristic and differential species of the *Rhamno-Prunetea* class					.	.	
NP	EURIMEDIT.	*Rubus ulmifolius* Schott	1.1	1.1	1.1	1.1	1.1	1.1	6
P caesp	EURASIAT.	*Cornus sanguinea* L. ssp. *sanguinea*	1.1	+	.	3.4	1.2	2.2	5
P caesp	PALEOTEMP.	*Crataegus monogyna* Jacq.	.	+	+	.	+	1.1	4
NP	PALEOTEMP.	*Rosa canina* L.	+	+	+	.	.	.	3
P caesp	EURIMEDIT.	*Spartium junceum* L.	+	1.1	.	1.2	.	.	3
P caesp	S-EUROP.-SUDSIB.	*Cornus mas* L.	.	.	1.2	.	.	.	1
NP	CENTRO-EUROP.	*Emerus majus* Mill. ssp. *emeroides* (Boiss. & Spruner) Soldano & Conti	.	.	+	.	.	.	1
		Other species							
H bienn	PALEOTEMP.	*Daucus carota* L.	+	+	+	.	.	.	3
Ch suffr	EURASIAT.	*Genista tinctoria* L.	+.2	+	+	.	.	.	3
H scap	EUROSIB.	*Leucanthemum vulgare* Lam. ssp. *vulgare*	+	+	.	.	.	+	3
H scap	OROF. SE-EUROP.	*Peucedanum verticillare* (L.) Koch	+	.	+	.	+	.	3
NP	STENOMEDIT.	*Rosa sempervirens* L.	1.1	+	+	.	.	.	3
G rhiz	EUROP.	*Carex flacca* Schreber ssp. *serrulata* (Biv.) Greuter	1.2	1.2	.	.	.	.	2
H scap	CIRCUMBOR.	*Clinopodium vulgare* L.	.	.	.	.	+	+	2
H caesp	PALEOTEMP.	*Dactylis glomerata* L.	+	+	.	.	.	.	2
H caesp	CIRCUMBOR.	*Holcus lanatus* L.	.	+.2	.	.	+	.	2
H scap	EUROP.-CAUC.	*Inula salicina* L.	.	+.2	.	.	+	.	2
H ros	PALEOTEMP.	*Potentilla reptans* L.	+	+	.	.	.	.	2
		Sporadic species	0	1	6	0	0	2	

Table 6 (Tabela 6): *Salicetum albae* Issler 1926
Salicion albae Soó 1930 em Moor 1958
Salicetalia purpureae Moor 1958
Salici purpureae-Populetea nigrae (Rivas-Martínez & Cantó ex Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991) Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2001

		Rel. n.	1	2	
		Date	6/22/2000	6/26/2001	
		Altitude (m)	440	190	PRESENCES
		Exposure			
		Slope	0°	0°	
		Area	50mq	20mq	
		Coverage	100%	100%	
		Characteristic and differential species of the association			
P scap	PALEOTEMP.	*Populus nigra* L.	1.1	+.2	2
P scap	PALEOTEMP.	*Salix alba* L.	3.3	4.4	2
NP	ENDEM.	*Salix apennina* Skvortsov	1.2	+.2	2
		Characteristic and differential species of the suballiance, alliance, order and class			
G rhiz	CIRCUMBOR.	*Equisetum telmateja* Ehrh.	+.2	+.2	2
P caesp	EUROSIB.	*Salix triandra* L.	.	2.2	1
H caesp	PALEOTEMP.	*Brachypodium sylvaticum* (Hudson) Beauv.	+.2	.	1
		Characteristic and differential species of the *Rhamno-Prunetea* class			
P caesp	EURASIAT.	*Cornus sanguinea* L. ssp. *sanguinea*	2.3	+	2
NP	EURIMEDIT.	*Rubus ulmifolius* Schott	1.1	+	2
P caesp	PALEOTEMP.	*Crataegus monogyna* Jacq.	.	+	1
P caesp	EURASIAT.	*Euonymus europaeus* L.	1.2	.	1
P caesp	EUROP.-CAUC.	*Cornus sanguinea* L. ssp. *sanguinea*	+.2	.	1
NP	PALEOTEMP.	*Rosa canina* L. sensu Bouleng.	.	+	1
		Other species			
H scap	EURIMEDIT.	*Pulicaria dysenterica* (L.) Bernh.	+	+.2	2
G rad	EURIMEDIT.	*Tamus communis* L.	1.1	+	2
P scap	AVV.	*Acer negundo* L.	1.1	.	1
G rhiz	EUROSIB.	*Aegopodium podagraria* L.	+	.	1
G rhiz	CIRCUMBOR.	*Elymus repens* (L.) Gould ssp. *repens*	.	1.2	1
H scap	CIRCUMBOR.	*Artemisia vulgaris* L.	+	.	1
H scap	EURIMEDIT.	*Ballota nigra* L.	.	+.2	1
P lian	EUROP.-CAUC.	*Clematis vitalba* L.	.	+	1
H scap	CIRCUMBOR.	*Clinopodium vulgare* L.	+	.	1
H bienn	EURIMEDIT.	*Dipsacus fullonum* L.	.	+	1
H scap	PALEOTEMP.	*Epilobium hirsutum* L.	.	1.2	1
G rhiz	CIRCUMBOR.	*Equisetum arvense* L.	.	1.2	1
H scap	E-EUROP.-PONTICA	*Galega officinalis* L.	.	+.2	1
H scap	EURASIAT.	*Galium mollugo* L. ssp. *erectum* Syme	.	1.1	1
H scap	PALEOTEMP.	*Hypericum perforatum* L.	+	.	1
H scap	OROF. SE-EUROP.	*Peucedanum verticillare* (L.) Koch	+	.	1
H scap	EUROSIB.	*Picris hieracioides* L.	+	.	1
H ros	PALEOTEMP.	*Potentilla reptans* L.	+	.	1
G rhiz	PALEOTEMP.	*Tussilago farfara* L.	.	1.1	1

Table 7 (Tabella 7): *Rubo ulmifolii-Ligustretum vulgare* Poldini 1989
Fraxino orni-Berberidenion Poldini & Vidali 1995
Berberidion vulgaris Br.-Bl. 1950
Prunetalia spinosae R. Tx. 1952
Rhamno-Prunetea Rivas Goday et Boria Carbonell ex Tüxen 1962

		Rel. n.	1
		Date	5/4/2006
		Altitude (m)	275
		Exposure	S-SE
		Slope	20°
		Area	20mq
		Coverage	100%
		Characteristic and differential species of the association	
P caesp	EURASIAT.	*Cornus sanguinea* L. ssp. *sanguinea*	1.1
NP	EUROP.-CAUC.	*Ligustrum vulgare*	1.1
		Characteristic and differential species of the suballiance, alliance, order and class	
NP	EURIMEDIT.	*Rubus ulmifolius* Schott	1.2
P lian	EURIMEDIT.	*Hedera helix* L.	1.2
P caesp	EUROP.-CAUC.	*Prunus spinosa* L. ssp. *spinosa*	3.3
P caesp	PALEOTEMP.	*Crataegus monogyna* Jacq.	1.1
P caesp	EURASIAT.	*Euonymus europaeus* L.	1.1
G rhiz	STENOMEDIT.	*Asparagus acutifolius* L.	+
		Other species	
H scap	PALEOTEMP.	*Anthriscus sylvestris* (L.) Hoffm. ssp. *sylvestris*	+.2
H scap	EURIMEDIT.	*Ballota nigra* L.	+
P scap	S-EUROP.-SUDSIB.	*Fraxinus ornus* L. ssp. *ornus*	1.2
H scap	CIRCUMBOR.	*Geum urbanum* L.	+.2
P caesp	STENOMEDIT.	*Olea europaea* L.	+
P scap	PONTICO	*Prunus avium* L. ssp. *avium*	+
P scap	N-EURIMEDIT.	*Quercus cerris* L.	1.2
P caesp	SE-EUROP.	*Quercus pubescens* Willd. ssp. *pubescens*	1.2
P caesp	EUROP.-CAUC.	*Ulmus minor* Miller	+.2
H ros	EURIMEDIT.	*Viola alba* Besser ssp. *dehnhardtii* (Ten.) W. Becker	+.2

Table 8 (Tabela 8): *Carex flacca* community
Geranion sanguinei Tüxen in Müller 1962
Origanetalia vulgaris Müller 1962
Trifolio medii-Geranietea sanguinei Müller 1962

		Rel. n.	1	2	3	4	5	6	7	
		Date	6/22/2000	6/22/2000	6/23/2000	7/2/1998	6/26/2001	5/11/2001	5/11/2001	PRESENCES
		Altitude (m)	440	445	440	490	275	325	325	
		Exposure	NE	O	N	NNO	NO	NO	NO	
		Slope				15°	40°	20°	20°	
		Area	16mq	10mq	8mq	40mq	8mq	30mq	5mq	
		Characteristic species of the *Carex flacca* community								
G rhiz	EUROP.	*Carex flacca* Schreber	2.2	2.2	3.3	2.3	2.3	.	.	5
Ch suffr	EURASIAT.	*Genista tinctoria* L.	+.2	.	.	1.2	1.2	.	.	3
		Characteristic species of the *Agrostis stolonifera* community								
H scap	EURASIAT.	*Ranunculus bulbosus* L.	.	+	.	.	.	+	1.1	3
H rept	CIRCUMBOR.	*Agrostis stolonifera* L.	.	.	.	.	.	1.2	2.2	2
H caesp	CIRCUMBOR.	*Poa pratensis* L.	.	.	.	.	.	1.1	+	2
H caesp	PALEOTEMP.	*Brachypodium sylvaticum* (Hudson) Beauv.	.	.	.	.	.	1.2	+.2	2
G bulb	EURIMEDIT.	*Aristolochia rotunda* L.	.	.	.	.	.	1.1	+.2	2
		Characteristic and differential species of the alliance, order and class								
H scap	CIRCUMBOR.	*Clinopodium vulgare* L.	1.1	1.2	1.2	+	1.1	.	.	5
H caesp	SUBATL.	*Brachypodium rupestre* (Host) R. et S.	2.3	1.2	+	+.2	+.2	.	.	5
H bienn	EUROP.-CAUC.	*Inula conyza* DC.	.	+	.	+	+	+	.	4
H scap	EUROP.-CAUC.	*Inula salicina* L.	+	.	+	+.2	.	+.2	.	4
H scap	PALEOTEMP.	*Hypericum perforatum* L.	.	1.1	.	1.1	.	1.1	+	4
H scap	EURASIAT.	*Galium album* Miller	.	.	.	.	1.1	1.2	2.2	3
H scap	OROF. SE-EUROP.	*Peucedanum verticillare* (L.) Koch	1.2	+	.	.	+.2	.	.	3
H ros	EURIMEDIT.	*Viola alba* Besser ssp. *dehnhardtii* (Ten.) W. Becker	.	+.2	+	.	1.2	.	.	3
H scap	SUBCOSMOP.	*Agrimonia eupatoria* L.	.	.	.	.	.	1.1	+	2
G rhiz	W-EURASIAT.	*Trifolium medium* L.	.	+.2	+	.	.	.	.	2
		Characteristic and differential species of the class *Molinio Arrhenateretea*								
H caesp	PALEOTEMP.	*Dactylis glomerata* L.	+	+	+	+	+.2	1.2	+.2	7
H scap	PALEOTEMP.	*Lathyrus pratensis* L.	1.2	1.2	.	1.1	+.2	1.1	+.2	6
T scap	EURIMEDIT.	*Blackstonia perfoliata* (L.) Hudson	+	+	+	+	+	.	.	5

H caesp	CIRCUMBOR.	*Holcus lanatus* L.	1.1	+.2	+	.	+	.	.	4
H scap	PALEOTEMP.	*Lotus corniculatus* L.	.	.	+.2	.	.	+.2	+.2	3
T scap	SUBCOSMOP.	*Geranium robertianum* L.	.	.	.	.	.	+	1.1	2
H scap	PALEOTEMP.	*Anthriscus sylvestris* (L.) Hoffm.	.	.	.	.	.	+	+.2	2
H scap	EURIMEDIT.	*Pulicaria dysenterica* (L.) Bernh.	.	.	.	1.1	.	.	+.2	2
H scap	EUROSIB.	*Trifolium pratense* L.	.	.	+.2	.	.	.	.	1
H ros	EUROP.-CAUC.	*Primula vulgaris* Hudson	.	.	+.2	.	.	.	.	1
H caesp	PALEOTEMP.	*Festuca arundinacea* Schreber	.	.	+	.	.	.	.	1
H scap	PALEOTEMP.	*Verbena officinalis* L.	.	.	.	+	.	.	.	1
H ros	EURASIAT.	*Plantago lanceolata* L.	.	.	.	+	.	.	.	1
G bulb	EURASIAT.	*Gymnadenia conopsea* (L.) R. Br.	.	.	+	.	.	.	.	1
		Other species								
H scap	EUROSIB.	*Leucanthemum vulgare* Lam.	1.2	2.2	2.2	+.2	.	+.2	+	6
H scap	S-EUROP.-PONT.	*Dorycnium pentaphyllum* Scop. ssp. *herbaceum* (Vill.) Rouy	1.2	.	.	4.5	+.2	+.2	+	5
H bienn	PALEOTEMP.	*Daucus carota* L.	+	+	+	.	.	+	.	4
H bienn	CENTRO-EUROP.	*Anthemis tinctoria* L.	+.2	.	1.1	+	+	.	.	4
P lian	EURIMEDIT.	*Hedera helix* L.	.	.	.	.	+.2	+.2	1.2	3
H bienn	PALEOTEMP.	*Centaurium erythraea* Rafn	+.2	+	.	+	.	.	.	3

Table 9 (Tabela 9): *Geum urbanum* community

Galio-Alliarion petiolatae Oberdorfer & Lohmeyer in Oberdorfer, Görs, Korneck, Lohmeyer, Müller, Philippi & Seibert 1967

Galio aparines-Alliarietalia petiolatae Görs & Müller, 1969.

Galio-Urticetea Passarge ex Kopecky 1969

		Rel. n.	1	2	3	4	6	
		Date	6/23/ 2000	6/23/ 2000	5/4/ 2006	5/4/ 2006	10/16/ 2001	PRESENCES
		Altitude (m)	300	415	285	290		
		Exposure	N-NW	NO	S-SW	SE	N-NW	
		Slope	5°		20°	30°	10°	
		Area	10mq	10mq	30mq	20mq	30mq	
		Characteristic species of the *Geum urbanum* community						
H scap	CIRCUMBOR.	*Geum urbanum* L.	3.3	1.1	2.2	1.1	2.3	5
H scap	PONTICA	*Buglossoides purpurocaerulea* (L.) Johnston	2.3	.	2.3	2.3	.	3
		Characteristic and differential species of the alliance, order and class						
H scap	EURIMEDIT.	*Ballota nigra* L.	1.2	.	1.2	.	.	2
H scap	PALEOTEMP.	*Anthriscus sylvestris* (L.) Hoffm.	.	+	.	.	.	1
H scap	EURIMEDIT.	*Pulicaria dysenterica* (L.) Bernh.	.	+	.	.	.	1
T scap	EURASIAT.	*Chaerophyllum temulentum* L.	1.2	.	.	.	1.2	2
H bienn	PALEOTEMP.	*Alliaria petiolata* (Bieb.) Cavara et Grande	.	.	.	+	.	1
		Characteristic and differential species of the *Trifolio-Geranietea* class						
H scap	CIRCUMBOR.	*Clinopodium vulgare* L.	1.2	2.2	.	.	.	2
H bienn	S-EUROP.-SUDSIB.	*Arabis turrita* L.	.	.	+.2	+	.	2
H scap	EURASIAT.	*Galium album* Miller	2.2	1.2	.	.	.	2
		Characteristic and differential species of the *Molinio Arrhenateretea* class						
H ros	PALEOTEMP.	*Potentilla reptans* L.	+.2	+	.	.	.	2
H scap	EURASIAT.	*Ranunculus bulbosus* L.	.	1.1	1.2	.	.	2
G rhiz	EUROP.	*Carex flacca* Schreber	.	.	.	+.2	.	1
H scap	PALEOTEMP.	*Lathyrus pratensis* L.	.	+	.	.	.	1
H scap	PALEOTEMP.	*Verbena officinalis* L.	+	.	.	.	.	1
H rept	PALEOTEMP.	*Trifolium repens* L.	+	.	.	.	.	1
		Characteristic and differential species of the *Artemisietea* class						
H scap	EUROSIB.	*Picris hieracioides* L.	+	+	.	.	+	3
H bienn	PALEOTEMP.	*Daucus carota* L.	1.1	.	.	.	+	2
H scap	CIRCUMBOR.	*Artemisia vulgaris* L.	+	.	.	.	.	1
H bienn	EURIMEDIT.	*Arctium minus* (Hill) Bernh.	+	.	.	.	.	1
H bienn	PALEOTEMP.	*Verbascum blattaria* L.	+.2	.	.	.	.	1
H bienn	PALEOTEMP.	*Cirsium vulgare* (Savi) Ten.	+	.	.	.	.	1
		Other species						
H caesp	SUBATL.	*Brachypodium rupestre* (Host) R. et S.	.	.	2.3	1.2	.	2
P lian	EURIMEDIT.	*Hedera helix* L.	1.2	2.2	.	.	1.2	3
G bulb	EURIMEDIT.	*Ornithogalum pyrenaicum* L.	.	.	1.1	.	.	1
		Sporadic species	3	6	10	5	3	

Table 10 (Tabela 10): ***Balloto nigrae-Melissetum romanae*** **Brullo, Minissale, Scelsi & Spampinato 1993**
Balloto-Conion maculati Brullo in Brullo & Marcenò 1985
Galio aparines-Alliarietalia petiolati Görs & Müller 1969
Galio-Urticetea Passarge ex Kopecky 1969

		Rel. n.	1	2	3	4	5	
		Date	3/20/ 2001	3/20/ 2001	3/20/ 2001	10/16/ 2001	10/16/ 2001	PRESENCES
		Altitude (m)	355	355	355	355	355	
		Exposure	E-NE	N	N	NW	N	
		Slope	30°	20°	10°	10°	20°	
		Area	50mq	50mq	30mq	60mq	50mq	
		Characteristic species of the association						
H scap	EURIMEDIT.	*Ballota nigra* L.	1.1	2.3	1.1	3.3	1.2	5
		Differential species of *Cruciata laevipes* variant						
H scap	EURASIAT.	*Cruciata laevipes* Opiz	.	.	.	.	3.4	1
		Characteristic and differential species of the alliance, order and class						
H scap	SUBCOSMOP.	*Urtica dioica* L.	+.2	+.2	+	.	+.2	4
T scap	EURASIAT.	*Chaerophyllum temulentum* L.	+.2	+	+	.	.	3
T scap	EURASIAT.	*Galium aparine* L.	+.2	2.2	1.1	.	.	3
H scap	E-MEDIT.-MONT	*Lamium garganicum* L. ssp. *garganicum*	3.4	2.3	5.5	.	.	3
H bienn	PALEOTEMP.	*Alliaria petiolata* (Bieb.) Cavara et Grande	+.2	+.2	.	.	.	2
		Characteristic and differential species of the *Artemisietea* class						
H scap	CIRCUMBOR.	*Artemisia vulgaris* L.	+	+	+	.	+	4
H bienn	PALEOTEMP.	*Daucus carota* L.	.	.	+	+	+	3
H scap	EUROSIB.	*Picris hieracioides* L.	.	.	.	1.1	1.1	2
T scap	EURIMEDIT.	*Picris echioides* L.	.	.	.	+	+.2	2
H bienn	MEDIT.-TURAN.	*Carduus pycnocephalus* L.	.	1.1	1.1	.	.	2
G rhiz	PALEOTEMP.	*Convolvulus arvensis* L.	.	.	.	1.1	.	1
H bienn	EURIMEDIT.	*Arctium minus* (Hill) Bernh.	.	1.2	.	.	.	1
		Other species						
T rept	COSMOP.	*Stellaria media* (L.) Vill.	+.2	1.1	1.2	1.2	1.2	5
G rhiz	STENOMEDIT.	*Arum italicum* Miller	1.2	+	1.1	+	1.1	5
T scap	PALEOTEMP.	*Mercurialis annua* L.	1.1	1.1	+	.	+	4
H scap	EURIMEDIT.-MACARON.	*Parietaria diffusa* M. et K.	2.3	+.2	1.2	(+.2)	.	4
H bienn	PALEOTEMP.	*Silene alba* (Miller) Krause	+	+.2	.	1.1	2.3	4
P lian	EURIMEDIT.	*Hedera helix* L.	+.2	+	+.2	.	.	3
NP	EURIMEDIT.	*Rubus ulmifolius* Schott	+	+	+	.	.	3
T scap	PALEOTEMP.	*Geranium rotundifolium* L.	.	+	+.2	+.2	.	3
T scap	AVV.	*Conyza canadensis* (L.) Cronq.	(+.2)	.	.	1.1	+	3
T scap	EURASIAT.	*Veronica hederifolia* L.	1.2	1.2	.	+.2	.	3
T scap	PALEOTEMP.	*Fumaria officinalis* L. ssp *officinalis*	+	+.2	.	.	.	2
H scap	EURASIAT.	*Ranunculus bulbosus* L.	.	.	.	+	1.2	2
		Sporadic species	4	4	1	8	8	

Table 11 (Tabela 11): *Centaureo bracteatae-Brometum erecti* Biondi, Ballelli, Allegrezza, Guitian & Taffetani 1986
Polygalo mediterraneae-Bromenion erecti Biondi, Allegrezza & Zuccarello 2005
Bromion erecti Koch 1926

		Rel. n.	1	2	3	4	5
		Date	22/06/2000	22/06/2000	23/06/2000	22/06/2000	01/08/2001
		Altitude (m)	495	510	380	545	500
		Exposure	E	NE	O	N	E
		Slope	15°	30°	40°	40°	40°
		Area	50mq		30mq	50mq	50mq
		Coverage	100	100	100	100	100
		Characteristic and differential species of the association					
H scap	SE-EUROP.	*Centaurea jacea* L. ssp. *gaudini* (Boiss. & Reut.) Gremli	1.2	1.2	1.2	+.2	1.1
H scap	EURASIAT.	*Galium mollugo* L. ssp. erectum Syme	.	+.2	.	.	.
H caesp	EURASIAT.	*Centaurea scabiosa* L. ssp. *scabiosa*	.	1.1	.	.	.
		Differential species of the *Agropyron repens* variant					
G rhiz	CIRCUMBOR.	*Elymus repens* (L.) Gould ssp. *repens*	.	.	.	.	.
G rhiz	PALEOTEMP.	*Tussilago farfara* L.	.	.	+	.	.
H caesp	EURASIAT.	*Festuca pratensis* Hudson	.	.	.	.	.
		Differential species of the *Asperula purpurea* variant					
H scap	SE-EUROP-PONTICA	*Eryngium amethystinum* L.	.	.	.	.	.
Ch suffr	EURIMEDIT.	*Teucrium chamaedrys* L.	.	.	.	.	1.2
Ch suffr	OROF. SE-EUROP.	*Asperula purpurea* (L.) Ehrend.	.	.	.	.	.
Ch suffr	S-EUROP.	*Helichrysum italicum* (Roth) Don	.	.	.	.	.
H scap	EURIMEDIT.	*Ononis pusilla* L. ssp. pusilla	.	.	.	.	.
		Characteristic and differential species of the suballiance, alliance and suborder					
H caesp	PALEOTEMP.	*Dactylis glomerata* L.	1.1	1.1	+	1.1	+
H scap	S-EUROP.-PONT.	*Dorycnium herbaceum* Vill.	1.2	1.2	1.2	1.2	+.2
H caesp	SUBATL.	*Brachypodium rupestre* (Host) R. et S.	2.3	1.2	1.2	1.2	+.2
H caesp	EUROSIB.	*Briza media* L.	+.2	+	1.1	+.2	+.2
H bienn	PALEOTEMP.	*Daucus carota* L.	+	.	+	.	+
H scap	PALEOTEMP.	*Lotus corniculatus* L.	+.2	+.2	.	.	+.2
H bienn	PALEOTEMP.	*Centaurium erythraea* Rafn	+	+	.	.	+
H scap	EUROSIB.	*Leucanthemum vulgare* Lam. ssp. *vulgare*	+.2	+.2	1.2	.	.
Ch suffr	EURIMEDIT.	*Ononis spinosa* L.	.	+	.	.	1.2
H bienn	EURIMEDIT.	*Linum bienne* Miller	.	.	.	.	.
Ch suffr	EURASIAT.	*Genista tinctoria* L.	.	+.2	.	+.2	.
T scap	EURIMEDIT.	*Blackstonia perfoliata* (L.) Hudson	+	+	+	.	+
H scap	PALEOTEMP.	*Hypericum perforatum* L.	+	+	.	.	.
H scap	ENDEM. ALP.	*Centaurea nigrescens* Willd.	.	.	.	.	.
H ros	EURASIAT.	*Plantago lanceolata* L.	+	.	.	.	.
H scap	EUROSIB.	*Trifolium pratense* L.	+	+	.	.	.
H scap	MEDIT.-MONT.	*Onobrychis viciifolia* Scop.	.	.	.	.	.
H bienn	CENTRO-EUROP.	*Cota tinctoria* (L.) J. Gay	+	+	.	.	.
G bulb	EURASIAT.	*Gymnadenia conopsea* (L.) R. Br.	.	.	.	+	.
H scap	EURASIAT.	*Ranunculus bulbosus* L.	.	.	.	.	.
H scap	EURIMEDIT.	*Polygala nicaeensis* Risso ssp. *mediterranea*	.	.	.	.	.
G bulb	EURIMEDIT.	*Anacamptis pyramidalis* (L.)L.C.Rich.	.	.	.	.	.
T scap	PALEOTEMP.	*Medicago lupulina* L.	+.2	.	.	.	.

Leucanthemo vulgaris-Bromenalia erecti Biondi, Ballelli, Allegrezza & Zuccarello 1995
Brometalia erecti Br.-Bl. 1936
Festuco-Brometea Br.-Bl. & Tüxen ex Br.-Bl.1949

6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
10/10/ 2006	10/10/ 2006	10/10/ 2006	10/10/ 2006	10/10/ 2006	23/06/ 2000	23/06/ 2000	23/06/ 2000	18/06/ 1998	11/05/ 2001	11/05/ 2001	10/10/ 2006	10/10/ 2006	10/10/ 2006	10/10/ 2006	
457	522	530	540	520	375	380	370	280	320	320	560	530	518	520	
NE	NW	N	NW	N	NO	N	O	O	E	E	N	NE	NW	SE	
15	20°	40°	20°	30°	30°	30°	40°	30°	35°	35°	30	30	10	10	
30	30mq	30mq	30mq	30mq	50mq	60mq	30mq	40mq	50mq	40mq	30	30	30	30	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	PRESENCES
1.2	+.2	+.2	1.2	+.2	.	+	.	1.1	1.1	+	1.2	1.2	+.2	+	18
1.2	.	.	.	.	.	.	.	.	+.2	+	.	.	.	.	4
.	.	.	.	1.2	.	.	.	.	.	.	.	.	2.2	.	3
.	.	.	.	.	2.2	+.2	1.2	+	+.2	+.2	+.2	.	.	.	7
.	.	.	.	.	1.2	1.2	2.2	+	.	.	.	.	.	.	5
+.2	.	.	.	.	.	.	.	1.2	.	.	.	.	.	.	2
+	.	+	.	+	.	.	.	.	.	.	.	1.1	+	+	6
.	.	.	.	.	.	.	.	.	.	.	+.2	1.2	+.2	1.2	5
.	.	.	.	.	.	.	.	.	.	.	+.2	1.2	1.2	1.2	4
.	.	.	.	.	.	.	.	.	.	.	1.2	2.3	.	+	3
.	.	.	.	.	.	.	.	.	.	.	.	.	+	1.1	2
1.1	1.1	1.1	+.2	+.2	+	.	+	1.1	1.1	2.2	1.1	1.1	+	1.2	19
+	1.2	2.3	2.3	1.2	1.2	2.2	1.2	2.3	1.2	+	.	2.3	1.2	+.2	19
2.3	2.3	1.2	1.2	1.2	1.2	1.1	1.2	1.2	.	.	+.2	1.2	+.2	2.3	18
+	1.1	1.1	1.1	1.1	1.1	1.1	+.2	1.1	.	.	.	1.1	1.1	+	17
+	+	+	1.1	1.1	.	.	+	.	.	.	1.1	+	+	+	13
.	1.2	+.2	+.2	+.2	+.2	+.2	.	+.2	1.2	+.2	.	.	.	.	12
+	+	+	.	+	+	.	.	.	.	.	1.1	+	+	+	12
.	.	.	.	.	+.2	+	+.2	+	.	.	.	1.1	+	+.2	10
.	.	.	.	.	+	1.2	.	.	1.2	1.2	.	1.2	+.2	.	8
.	1.1	1.1	+.2	1.1	.	.	.	.	.	.	1.2	1.2	+	+	8
.	.	.	.	.	.	1.1	.	1.2	.	.	.	+.2	+.2	+	7
.	.	.	+	+	+	.	.	.	.	.	.	.	.	.	7
+	+	+	.	.	.	.	.	.	.	.	.	.	.	+	6
.	.	.	.	.	+	.	.	.	.	.	+.2	1.1	+	+	5
.	.	.	.	.	.	.	.	.	.	.	1.1	+	+	+	5
.	.	+	.	.	.	.	.	.	+.2	.	.	.	.	.	4
.	.	.	.	.	.	.	.	.	.	.	.	1.1	1.2	1.1	3
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	2
.	.	.	.	.	.	.	.	.	+.2	+	.	.	.	.	2
.	.	.	.	.	.	.	.	+.2	.	.	.	.	.	.	1
.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	1
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1

		Rel. n.	1	2	3	4	5
		Characteristic and differential species of the order and class					
H caesp	PALEOTEMP.	*Bromus erectus* Hudson	3.3	4.4	4.4	3.4	3.3
H caesp	EURIMEDIT.	*Phleum bertolonii* DC.	+.2	+	+.2	.	.
Ch suffr	EURIMEDIT.	*Dorycnium hirsutum* (L.) Ser.	.	.	.	+	1.1
H scap	PALEOTEMP.	*Dianthus balbisii* Ser. ssp. *liburnicus* (Bartl.) Pign.	.	.	+	+	1.1
H scap	OROF. S-EUROP.	*Linum viscosum* L.	+	+.2	+	1.2	+
T scap	EURIMEDIT.	*Odontites lutea* (L.) Clairv.	.	.	.	.	.
H scap	EUROSIB.	*Achillea millefolium*	.	.	.	.	.
H scap	EURIMEDIT.	*Eryngium campestre* L.	.	.	.	.	+
H scap	PALEOTEMP.	*Sanguisorba minor* Scop.	.	.	.	.	+
Ch suffr	EUROP.-CAUC.	*Helianthemum nummularium* (L.) Miller	.	.	.	.	.
H scap	EURASIAT.	*Medicago sativa* L.	.	.	.	.	.
H bienn	EURIMEDIT.	*Tragopogon porrifolius* L.	.	.	.	.	.
H bienn	SE-EUROP.	*Arabis sagittata* (Bertol.) DC.	.	.	.	.	.
T scap	PALEOTEMP.	*Trifolium campestre* Schreber	.	.	.	.	.
H ros	EUROP.-CAUC.	*Hieracium pilosella* L.	.	.	.	.	.
		Characteristic and differential species of the *Artemisietea* class					
H scap	EURASIAT.	*Senecio erucifolius* L.	1.1	.	+.2	.	+
H scap	EURIMEDIT.	*Dittrichia viscosa* (L.) Greuter	+	.	+.2	.	.
H scap	STENOMEDIT.	*Carlina corymbosa* L.	+	+	.	.	.
H scap	EUROSIB.	*Picris hieracioides* L.	+	.	+	.	.
H bienn	PALEOTEMP.	*Cirsium vulgare* (Savi) Ten.	.	.	.	.	.
H scap	PALEOTEMP.	*Cichorium intybus* L.	.	.	.	.	.
G rhiz	PALEOTEMP.	*Convolvulus arvensis* L.	.	.	.	.	.
H scap	CIRCUMBOR.	*Artemisia vulgaris* L.	.	.	.	.	.
H bienn	MEDIT.-TURAN.	*Carduus pycnocephalus* L. ssp. *pycnocephalus*	.	.	.	.	.
		Characteristic and differential species of the *Molinio-Arrhenatheretea* class					
G rhiz	EUROP.	*Carex flacca* Schreber ssp. *serrulata* (Biv.) Greuter	+	.	.	1.1	1.2
H scap	EUROP.-CAUC.	*Inula salicina* L.	+.2	+.2	.	+.2	1.2
H caesp	CIRCUMBOR.	*Poa pratensis* L.	+	.	.	.	.
H scap	PALEOTEMP.	*Lathyrus pratensis* L.	+	.	.	.	.
H caesp	CIRCUMBOR.	*Holcus lanatus* L.	+	+	.	.	.
T scap	CIRCUMBOR.	*Rhinanthus minor* L.	1.1	+	.	.	.
		Other species					
H scap	EURIMEDIT.	*Pulicaria dysenterica* (L.) Bernh.	.	.	.	.	.
H scap	CIRCUMBOR.	*Clinopodium vulgare* L.	.	.	.	+	+
H scap	CIRCUMBOR.	*Solidago virgaurea* L.	.	.	.	.	.
H scap	W-STENOMEDIT.	*Sulla coronaria* (L.) Medik.	.	.	+	.	.
H scap	PALEOTEMP.	*Silene vulgaris* (Moench) Garcke	.	+	.	.	+
P lian	EUROP.-CAUC.	*Clematis vitalba* L.	.	.	.	.	.
H scap	OROF. SE-EUROP.	*Peucedanum verticillare* (L.) Koch	.	.	.	+	+
NP	EURIMEDIT.	*Rubus ulmifolius* Schott	.	.	.	.	.
G bulb	EURIMEDIT.	*Muscari comosum* (L.) Mill.	.	.	.	.	.
H scap	SUBCOSMOP.	*Agrimonia eupatoria* L.	.	.	.	.	.
T scap	EURIMEDIT.-TURAN.	*Vicia sativa* L.	.	.	.	.	.
P caesp	PALEOTEMP.	*Crataegus monogyna* Jacq.	.	.	.	.	.
G rhiz	COSMOPOL.	*Pteridium aquilinum* (L.) Kuhn	.	.	.	+	1.1
G bulb	OROF. C-EUROP.	*Lilium bulbiferum* L. ssp. *croceum* (Chaix) Baker	.	.	.	+	+
H scap	EUROSIB.	*Peucedanum cervaria* (L.) Lepeyr.	.	.	.	.	.
G rhiz	CIRCUMBOR.	*Equisetum telmateja* Ehrh.	.	.	.	.	.
H scap	ENDEM.	*Scabiosa uniseta* Savi	.	.	.	.	.
		Sporadic species	1	1	2	0	0

6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
2.3	3.4	2.3	3.4	2.3	2.2	4.4	2.3	3.4	3.3	3.3	4.4	3.3	3.4	3.4	20
1.1	1.1	+.2	1.1	1.1	.	+.2	.	1.2	.	.	.	+	+	+	13
.	.	+	1.2	+.2	+.2	.	+	.	1.1	.	.	+.2	+.2	+	11
.	.	.	.	+.2	+	+.2	+	.	.	.	.	1.1	1.1	1.1	10
.	.	.	.	.	+	+.2	+.2	1.1	.	.	.	.	.	.	9
+	.	.	+.2	+	.	.	.	.	.	.	+.2	+	+	+.2	7
+	+	+	.	.	.	.	.	.	.	.	.	1.2	+	+	6
.	.	.	.	.	.	+	.	.	.	.	.	+	+	.	4
.	.	.	.	.	.	.	.	.	.	.	.	.	+	1.1	3
.	.	.	.	.	.	.	.	+.2	.	.	.	.	+.2	+.2	3
.	+	+	.	.	.	.	.	.	.	.	+	.	.	.	3
.	.	.	.	.	.	+	.	.	.	+	.	.	.	.	2
.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	2
.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	1
.	.	.	.	.	.	.	.	.	.	.	.	.	.	1.2	1
1.1	1.1	+	1.1	+.2	.	.	.	+	.	(+)	1.1	+	+	.	13
+.2	+.2	.	1.2	+	1.2	1.2	1.2	1.2	+.2	1.2	.	.	.	1.2	13
.	+	+	.	+	.	.	.	.	.	.	+	1.1	+	+	9
+	.	.	+	.	+	.	.	.	.	.	+	+	+	.	8
.	.	.	.	.	.	+	.	.	+	+	.	.	.	.	3
+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	1
+.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	1
1.2	1.2	2.3	2.3	2.3	.	+	.	2.2	.	.	2.3	1.2	1.2	1.2	14
1.2	+.2	1.2	.	.	.	+.2	+.2	.	.	.	1.2	+	2.2	+.2	13
+	+.2	+.2	1.1	1.1	.	.	.	.	.	.	1.1	1.1	+	+	10
1.1	1.1	+	.	.	.	.	.	.	.	.	.	.	.	.	4
+.2	.	.	.	.	.	.	.	+.2	.	.	.	.	.	.	4
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
+.2	+.2	+.2	.	.	+.2	+.2	1.2	.	+	+	+.2	+.2	+.2	.	11
+	+	+	.	+.2	+	.	.	.	.	.	.	1.2	+.2	1.1	10
+.2	+	+.2	.	1.1	.	.	.	.	.	.	+	1.1	1.1	+.2	8
.	.	.	+	.	.	.	.	.	+.2	+.2	+	.	+.2	1.2	7
+	+	.	.	.	.	.	.	.	.	.	.	+.2	+	1.1	7
+	.	.	.	+	.	.	.	.	.	.	+.2	+	+	+	6
.	.	+	.	.	+	.	.	.	.	.	.	+	+	.	6
+	.	.	.	+	1.2	.	.	.	.	.	+.2	+.2	+	.	6
+	+	+	.	.	.	.	.	.	.	.	+	+	+	.	6
+	+	+	.	.	.	.	.	.	+	+	.	.	.	.	5
1.1	1.1	+	.	.	.	.	.	.	1.1	1.1	.	.	.	.	5
.	.	.	.	.	+	.	.	+	.	.	+	+	+	.	5
.	.	.	.	1.2	.	.	.	.	.	.	.	1.2	1.1	.	5
.	.	.	.	+	.	.	.	.	.	.	.	1.1	+	.	5
+	+	2.2	.	.	.	.	.	.	.	.	.	.	1.1	.	4
+.2	+	.	+	+	.	.	.	.	.	.	.	.	.	.	4
.	.	.	.	+	.	.	.	.	.	.	.	+	+	+	4
3	2	3	0	3	2	0	0	1	6	10	5	3	2	0	

Table 12 (Tabella 12): *Agropyro-Asteretum linosyridis* Ferrari 1971 em. Ferrari 1975

Podospermo laciniati-Elytrigenion athericae (Pirone 1995) stat. nov. Biondi & Pesaresi 2004

Inulo viscosae-Agropyrion repentis Biondi & Allegrezza 1996

Agropyretalia repentis Oberdorfer, Müller & Görs in Oberdorfer, Görs, Korneck, Lohmeyer, Müller, Philippi & Seibert 1967

Artemisietea vulgaris Lohmeyer, Preising, & Tüxen ex von Rochow 1951

		Rel. n.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
		Date	02/08/ 2000	11/05/ 2001	22/05/ 2000	22/05/ 2000	11/05/ 2001	22/06/ 2000	23/06/ 2000	23/06/ 2000	18/06/ 2098	18/06/ 2098	22/06/ 2000	22/06/ 2000	22/06/ 2000	22/06/ 2000	22/06/ 2000	PRESENCES
		Altitude (m)	480	320	315	315	205	495	375	350	270	270	495	495	280	270	280	
		Exposure	N	NE	E	E		N	E	N			N		SE	ENE	N	
		Slope	20°	10°	20°	20°		20°	35°	10°			20°		50°	50°	20°	
		Area	20mq	30mq	30mq	30mq	30mq	50mq	20mq	15mq	30mq	30mq	30mq	60mq	10mq	10mq	10mq	
		Coverage	100	30	100	100	100	100	20	100	100	100	100	100	50%	30%	50%	
		Characteristic and differential species of the association																
G rhiz	EURIMEDIT.	*Elymus athericus* (Link.) Kerguélen	1.1	+.2	1.2	3.4	4.4	1.1	1.1	+	1.2	1.1	1.2	2.2	+.2	+.2	1.2	15
H bienn	PALEOTEMP.	*Scorzonera laciniata* L.	1.1	.	1.2	+	1.1	.	+.2	.	.	.	.	.	.	.	.	5
		Differential species of the *Equisetum telmateja* variant																
G rhiz	CIRCUMBOR.	*Equisetum telmateja* Ehrh.	.	.	.	.	.	.	.	3.4	3.3	3.3	3.3	1.1	.	.	.	5
		Differential species of the *Scorzonera jaquiniana* variant																
H scap	S-EUROP.-SUDSIB.	*Scorzonera jacquiniana* (W.D.J. Koch) Boiss.	.	.	.	.	.	.	.	.	.	.	.	.	2.3	2.3	2.3	3
		Characteristic and differential species of the suballiance and alliance																
H bienn	PALEOTEMP.	*Daucus carota* L.	1.2	1.1	1.1	3.3	1.1	.	2.2	.	.	.	.	+	1.1	2.2	1.1	10
H scap	EURIMEDIT.	*Pulicaria dysenterica* (L.) Bernh.	.	.	.	.	+.2	.	1.2	.	+.2	1.2	1.1	+.2	.	.	.	6
H scap	EURIMEDIT.	*Dittrichia viscosa* (L.) Greuter	.	+.2	+	.	1.2	.	.	.	1.1	+	.	.	.	.	.	5
H scap	W-STENOMEDIT.	*Sulla coronaria* (L.) Medik.	.	2.2	+	.	.	.	+.2	.	.	.	.	.	+	+	.	5
H scap	PALEOTEMP.	*Verbena officinalis* L.	1.1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	2
T scap	EURIMEDIT.	*Blackstonia perfoliata* (L.) Hudson	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	2
H scap	SUBCOSMOP.	*Rumex crispus* L.	.	.	1.1	1.1	.	.	.	.	.	.	.	.	.	.	.	2
H bienn	PALEOTEMP.	*Centaurium erythraea* Rafn	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	1
		Characteristic and differential species of the order and class																
H caesp	PALEOTEMP.	*Dactylis glomerata* L.	+	.	1.2	.	1.2	.	+.2	.	1.1	1.1	+	.	.	.	.	7
H scap	EUROSIB.	*Picris hieracioides* L.	2.3	.	+	+	.	.	1.1	+	.	.	.	.	.	+	.	6
H caesp	CIRCUMBOR.	*Poa pratensis L.*	+.2	.	1.1	+.2	.	.	.	+	.	.	.	+	.	.	.	5
G rhiz	PALEOTEMP.	*Tussilago farfara* L.	.	+	+	.	+	.	1.1	.	.	.	.	.	+	.	.	5
G rhiz	PALEOTEMP.	*Convolvulus arvensis* L.	.	.	+.2	+	.	.	.	.	.	.	.	1.1	+	.	.	4
H ros	EURASIAT.	*Plantago lanceolata* L.	+	+	.	1.2	.	.	.	.	.	.	.	.	.	.	.	3
G rad	EURASIAT.	*Cirsium arvense* (L.) Scop.	(+)	.	.	+.2	.	.	.	.	.	.	.	+	.	.	.	3
H scap	CIRCUMBOR.	*Artemisia vulgaris* L.	3.3	.	.	.	.	.	.	1.2	.	.	.	+	.	.	.	3
G rhiz	CIRCUMBOR.	*Elymus repens* (L.) Gould ssp. repens	.	.	+	+.2	.	.	.	.	.	.	.	.	.	.	.	2

H bienn	EURIMEDIT.	*Dipsacus fullonum* L.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	2
H scap	PALEOTEMP.	*Cichorium intybus* L.	1.1	.	.	+	.	.	.	.	.	.	.	.	.	.	.	2
H bienn	EURASIAT.	*Melilotus officinalis* (L.) Pallas	.	.	1.2	.	.	.	.	.	.	.	.	.	.	.	.	1
H bienn	CENTRO-EUROP.	*Cota tinctoria* (L.) J. Gay	.	.	+.2	.	.	.	.	.	.	.	.	.	.	.	.	1
H bienn	EURIMEDIT.	*Arctium minus* (Hill) Bernh.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	1
		Characteristic and differential species of the *Festuco-Brometea* class																
H scap	EURASIAT.	*Galium mollugo* L. ssp. *erectum* Syme	.	.	2.2	+	+	1.2	.	.	.	.	1.2	2.3	.	.	.	6
H scap	PALEOTEMP.	*Hypericum perforatum* L.	2.2	.	+.2	.	.	.	.	1.2	.	.	.	.	.	.	.	3
H scap	EUROSIB.	*Leucanthemum vulgare* Lam. ssp. *vulgare*	.	.	.	.	.	.	+	1.2	+.2	.	.	.	.	.	.	3
H scap	S-EUROP.-PONT.	*Dorycnium herbaceum* Vill.	.	+.2	1.2	+.2	.	.	.	.	.	.	.	.	.	.	.	3
H scap	PALEOTEMP.	*Lotus corniculatus* L.	+.2	.	.	.	.	.	+.2	.	.	.	.	.	.	.	.	2
H scap	OROF. S-EUROP.	*Linum viscosum* L.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	.	2
H caesp	SUBATL.	*Brachypodium rupestre* (Host) R. et S.	.	.	.	.	.	.	.	.	.	.	1.1	.	.	.	.	1
H scap	PALEOTEMP.	*Sanguisorba minor* Scop.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	1
H caesp	EUROSIB.	*Briza media* L.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	1
H scap	EURASIAT.	*Medicago sativa* L.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
H ros	EURASIAT.	*Plantago media* L.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	1
H scap	EURASIAT.	*Ranunculus bulbosus* L.	.	.	.	.	1.1	.	.	.	.	.	.	.	.	.	.	1
H bienn	EURIMEDIT.	*Tragopogon porrifolius* L.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	1
		Characteristic and differential species of the *Molinio-Arrhenatheretea* class																
H caesp	CIRCUMBOR.	*Holcus lanatus* L.	+.2	.	+.2	.	.	2.2	.	1.1	2.3	2.3	2.2	1.1	.	.	.	8
H scap	PALEOTEMP.	*Lathyrus pratensis* L.	.	.	+	.	.	2.2	.	1.2	+.2	1.2	2.3	1.2	.	.	.	7
H ros	PALEOTEMP.	*Potentilla reptans* L.	.	+.2	3.4	2.2	1.1	.	.	.	.	.	.	.	.	.	.	4
H scap	EURASIAT.	*Thalictrum flavum* L.	.	.	.	.	.	1.1	.	.	1.1	.	2.2	2.2	.	.	.	4
H scap	EURASIAT.	*Rumex conglomeratus* Murray	.	.	+	+	.	.	.	.	.	.	.	+	.	.	.	3
H scap	EUROSIB.	*Trifolium pratense* L.	.	.	.	+.2	+	.	.	.	.	.	.	.	.	.	.	2
H caesp	EURASIAT.	*Festuca pratensis* Hudson	.	.	.	.	.	.	.	.	+	1.2	.	.	.	.	.	2
H rept	PALEOTEMP.	*Trifolium repens* L.	+	.	.	+.2	.	.	.	.	.	.	.	.	.	.	.	2
H scap	CIRCUMBOR.	*Prunella vulgaris* L. ssp. vulgaris	2.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
T scap	CIRCUMBOR.	*Rhinanthus minor* L.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	1
		Other species																
G bulb	CENTRO-MEDIT.	*Bellevalia romana* (L.) Sweet	.	+	+	.	.	+	.	.	.	.	.	+	.	.	.	4
H caesp	EURIMEDIT.	*Phleum bertolonii* DC.	.	.	+	.	.	.	+.2	.	+	1.1	.	.	.	.	.	4
H scap	ENDEM. ALP.	*Centaurea nigrescens* Willd.	.	.	.	.	.	+.2	.	+.2	+	.	.	+.2	.	.	.	4
T scap	EURIMEDIT.-TURAN.	*Vicia sativa* L.	.	+	1.2	+	+	.	.	.	.	.	.	.	.	.	.	4
H scap	EURASIAT.	*Vicia cracca* L.	.	.	1.2	.	.	.	.	.	+	1.2	.	.	.	.	.	3
T scap	S-EUROP.-SUDSIB.	*Geranium columbinum* L.	.	+	.	1.2	+	.	.	.	.	.	.	.	.	.	.	3
H scap	EUROP.-CAUC.	*Inula salicina* L.	.	.	.	.	.	3.4	.	.	.	.	+.2	2.3	.	.	.	3
H scap	EURIMEDIT.	*Stachys germanica* L.	1.2	.	+	+	.	.	.	.	.	.	.	.	.	.	.	3
T scap	EURIMEDIT.	*Rapistrum rugosum* (L.) All.	.	2.2	.	.	.	.	.	.	.	.	.	.	+	.	+	3
T scap	EURASIAT.	*Sonchus asper* (L.) Hill	.	+	.	.	.	.	.	.	.	.	.	.	1.1	.	+	3
T scap	AVV.	*Avena sativa* L.	+	.	+	+.2	.	.	.	.	.	.	.	.	.	.	.	3
		Sporadic species	3	5	7	7	0	1	0	2	1	0	0	1	1	0	1	

Table 13 (Tabela 13): *Vicio variae-Hainardetum cylindricae* ass. nova (type rel. n.2)
Helianthemion guttati Br.-Bl. in Br.-Bl., Molinier & Wagner 1940
Helianthemetalia guttati Br.-Bl. in Br.-Bl., Molinier & Wagner 1940 em. Rivas-Martínez 1978
Helianthemetea guttati (Br.-Bl. in Br.-Bl., Roussine et Nègre 1952) Rivas Goday et Rivas-Martínez 1963 em. Rivas-Martínez 1978

		Rel. n.	1	2*	3	4	5	
		Date	6/25/ 2001	6/25/ 2001	6/25/ 2001	6/25/ 2001	6/25/ 2001	PRESENCES
		Altitude (m)	280	290	310	345	330	
		Exposure	SE	NE	NE	N	N	
		Slope	50°	15°	15°	20°	20°	
		Area	10mq	15mq	15mq	5mq	5mq	
		Coverage	30%	100%	100%	60%	60%	
		Characteristic and differential species of the association						
T scap	EURIMEDIT.	*Hainardia cylindrica* (Willd.) Greuter	2.3	2.2	+.2	3.3	2.2	4
T scap	EURIMEDIT.	*Vicia villosa* Roth ssp. *varia* (Host) Corb.	.	+.2	1.2	+	+	4
T scap	SUBCOSMOP.	*Bromus hordeaceus* L.	.	1.1	+.2	+.2	+	4
H bienn	PALEOTEMP.	*Scorzonera laciniata* L.	.	+.2	1.1	.	.	2
		Characteristic and differential species of the alliance, order and class						
T scap	S-MEDIT.	*Melilotus sulcata* Desf.	.	+	+	+	+	4
T scap	S-EUROP.-SUDSIB.	*Trifolium echinatum* Bieb.	.	+.2	.	1.2	1.2	3
T scap	STENOMEDIT.	*Linum corymbulosum* Rchb.	+	+.2	+	.	.	2
T scap	EURIMEDIT.	*Trifolium stellatum* L.	.	+.2	1.2	.	.	2
T scap	STENOMEDIT.	*Hypochoeris achyrophorus* L.	1.1	.	.	.	.	1
T scap	PALEOTEMP.	*Trifolium arvense* L.	1.2	.	.	.	.	1
		Characteristic and differential species of *Artemisietea* class						
T scap	EURIMEDIT.	*Helminthotheca echioides* (L.) Holub	.	+	+	+	+	4
H scap	W-STENOMEDIT.	*Sulla coronaria* (L.) Medik.	.	+	+	+	1.1	4
H bienn	PALEOTEMP.	*Daucus carota* L.	.	+	+	.	+	3
H ros	EURASIAT.	*Plantago lanceolata* L.	.	1.2	+	.	+	3
G rhiz	CIRCUMBOR.	*Elymus repens* (L.) Gould ssp. *repens*	.	3.4	3.3	.	.	2
H scap	EUROSIB.	*Picris hieracioides* L.	.	1.2	+	.	.	2
G rhiz	PALEOTEMP.	*Convolvulus arvensis* L.	.	.	.	+	+	2
H caesp	PALEOTEMP.	*Dactylis glomerata* L.	.	+.2	+.2	.	+	3
H caesp	CIRCUMBOR.	*Poa pratensis* L.	.	+	+	.	.	2
H scap	EURIMEDIT.	*Dittrichia viscosa* (L.) Greuter	.	+	+	.	.	2
H scap	CIRCUMBOR.	*Artemisia vulgaris* L.	.	.	+	.	.	1
G rhiz	COSMOP.	*Cynodon dactylon* (L.) Pers.	.	.	.	.	+.2	1
		Other species						
T scap	PALEOTEMP.	*Trifolium campestre* Schreber	.	1.2	1.1	+	+	4
G bulb	CENTRO-MEDIT.	*Bellevalia romana* (L.) Sweet	.	+	+	.	.	2
H scap	PALEOTEMP.	*Lotus tenuis* W. et K.	.	+.2	+	.	.	2
H caesp	EURIMEDIT.	*Phleum bertolonii* DC.	.	+.2	+.2	.	.	2
T scap	SUBCOSMOP.	*Torilis arvensis* (Hudson) Link	.	.	.	+	+	2
H rept	PALEOTEMP.	*Trifolium repens* L.	.	+.2	.	.	+	2
T scap	EURASIAT.	*Avena fatua* L.	.	+	+	.	.	2
T scap	EURIMEDIT.-TURAN.	*Vicia sativa* L.	.	1.1	+	.	.	2
H caesp	CIRCUMBOR.	*Lolium perenne* L.	.	.	.	2.2	1.1	2
		Sporadic species	4	1	1	1	1	

Table 14 (Tabella 14): *Arundinetum plinianae* Biondi, Brugiapaglia, Allegrezza & Ballelli 1992

Inulo viscosae-Agropyrenion repentis

Inulo viscosae-Agropyrion repentis Biondi & Allegrezza 1996

Agropyretalia repentis Oberdorfer, Müller & Görs in Oberdorfer, Görs, Korneck, Lohmeyer, Müller, Philippi & Seibert 1967

Artemisietea vulgaris Lohmeyer, Preising, & Tüxen ex von Rochow 1951

		Rel. n.	1	2	3	4	5	6	
		Date	6/23/ 2000	6/18/ 1998	6/18/ 1998	6/18/ 1998	6/25/ 2001	6/25/ 2001	PRESENCE
		Altitude (m)	380	305	275	290	280	270	
		Exposure	E	O	O	N	NE		
		Slope	45°	40°	30°	40°	20°		
		Area	30mq	50mq	50mq	40mq	20mq	40mq	
		Coverage	100%	100	100	100	100%	100%	
		Characteristic and differential species of the association							
G rhiz	STENOMEDIT.	*Arundo pliniana* Turra	5.5	5.5	5.5	5.5	5.5	4.5	6
P caesp	EURASIAT.	*Cornus sanguinea* L. ssp. *sanguinea*	+	.	.	.	.	1.1	2
		Characteristic and differential species of the alliance, order and class							
G rhiz	PALEOTEMP.	*Tussilago farfara* L.	.	+	+	+	.	+.2	4
G rhiz	CIRCUMBOR.	*Elymus repens* (L.) Gould ssp. *repens*	.	1.1	.	+.2	+.2	.	3
G rhiz	PALEOTEMP.	*Convolvulus arvensis* L.	.	1.1	1.1	1.1	.	.	3
H scap	EURIMEDIT.	*Dittrichia viscosa* (L.) Greuter	.	.	.	.	1.2	1.2	2
H scap	EURIMEDIT.	*Pulicaria dysenterica* (L.) Bernh.	+	.	.	+	.	.	2
H scap	CIRCUMBOR.	*Artemisia vulgaris* L.	+	.	.	.	.	.	1
H scap	W-STENOMEDIT.	*Sulla coronaria* (L.) Medik.	.	.	.	.	+	.	1
T scap	EURIMEDIT.	*Blackstonia perfoliata* (L.) Hudson	.	.	.	.	+	.	1
		Characteristic and differential species of the *Rhamno-Prunetea* class							
P caesp	EURIMEDIT.	*Spartium junceum* L.	.	1.2	.	2.3	.	+	3
P caesp	EUROP.-CAUC.	*Prunus spinosa* L. ssp. *spinosa*	+	+.2	.	.	.	+	3
NP	PALEOTEMP.	*Rosa canina* L.	.	.	.	.	1.2	+	2
NP	EURIMEDIT.	*Rubus ulmifolius* Schott	.	.	.	+.2	.	.	1
P caesp	PALEOTEMP.	*Crataegus monogyna* Jacq.	.	1.1	.	.	.	.	1
P caesp	OROF. SW-EUROP.	*Cytisophyllum sessilifolium* (L.) O. Lang	.	.	.	.	.	+	1
P lian	EUROP.-CAUC.	*Clematis vitalba* L.	.	.	.	+	.	.	1
		Other species							
H scap	OROF. S-EUROP.	*Linum viscosum* L.	+	+	1.1	+	.	.	4
H scap	OROF. SE-EUROP.	*Peucedanum verticillare* (L.) Koch	+	+	+	+	.	.	4
G bulb	CENTRO-MEDIT.	*Bellevalia romana* (L.) Sweet	.	+	1.1	+	.	.	3
H caesp	PALEOTEMP.	*Dactylis glomerata* L.	.	.	.	.	+	+	2
H scap	EUROSIB.	*Leucanthemum vulgare* Lam. ssp. *vulgare*	+.2	.	.	.	.	+.2	2
		Sporadic species	2	0	0	3	6	10	

Table 15 (Tabela 15): *Alysso alyssoidis-Sedetum albi* Oberd. et Th. Mueller in Th. Mueller 61
Alysso alyssoidis-Sedion albi Oberdorfer & Müller in Müller 1961
Sedo-Scleranthetalia Br.-Bl. 1955
Sedo-Scleranthetea Br.-Bl. 1955 em. Th. Müller 1961

		Rel. n.	1	2	3	
		Date	5/11/2001	5/11/2001	5/11/2001	PRESENCES
		Exposure	SE	SE	SE	
		Slope	10°	10°	80°	
		Area	2mq	4mq	1mq	
		Coverage	90%	90%	90%	
		Characteristic and differential species of the association, alliance, order and class				
Ch succ	EURIMEDIT.	*Sedum album* L.	3.3	2.3	1.2	3
Ch succ	EURIMEDIT.	*Sedum dasyphyllum* L.	1.2	2.3	.	2
T rept	EURIMEDIT.	*Trifolium scabrum* L. ssp. *scabrum*	1.2	1.2	.	2
		Characteristic and differential species of the *Helianthemetea guttati* class				
T scap	EURIMEDIT.	*Medicago minima* (L.) Bartal var. *minima*	1.2	+.2	.	2
T scap	EURASIAT.	*Cerastium semidecandrum* L.	.	+	+.2	2
T scap	STENOMEDIT.	*Campanula erinus* L.		1.1		1
T scap	STENOMEDIT.	*Hypochoeris achyrophorus* L.	.	.	1.2	1
		Other species				
T scap	EURIMEDIT.	*Catapodium rigidum* (L.) Hubbard	+.2	+.2	+.2	3
T scap	STENOMEDIT.	*Tordylium apulum* L.	1.1	+.2	.	2
T scap	EURIMEDIT.	*Bromus diandrus* Roth	+	+	.	2
H scap	EURIMEDIT.	*Geranium pyrenaicum Burm*. f. ssp. *pyrenaicum*	1.1	1.1	.	2
T rept	COSMOP.	*Stellaria media* (L.) Vill.	+.2	+.2	.	2
T scap	EURIMEDIT.	*Bromus madritensis* L.	+.2	+.2	.	2
T scap	MEDIT.-TURAN.	Crepis *sancta* (L.) Babc. ssp. *sancta*	+	+	.	2
H scap	PALEOTEMP.	*Sanguisorba minor* Scop.	.	1.1	.	1
H scap	EUROP.-CAUC.	*Parietaria officinalis* L.	.	+	.	1
H bienn	MEDIT.-TURAN.	*Carduus pycnocephalus* L. ssp. *pycnocephalus*	.	+	.	1
H scap	S-EUROP.-SUDSIB.	*Chondrilla juncea* L.	.	+	.	1
T scap	EURIMEDIT.-TURAN.	*Vicia sativa* L.	.	+	.	1
T scap	EURIMEDIT.	*Rhagadiolus stellatus* (L.) Willd.	.	+	.	1
T scap	MEDIT.-TURAN.	*Astragalus hamosus* L.	.	+	.	1
T scap	STENOMEDIT.	*Erodium malacoides* (L.) L'Hér. ssp. *malacoides*	.	+	.	1

Table 16 (Tabella 16): *Linario spuriae-Stachyetum annuae* Lorenzoni 1965
Polygono-Chenopodion polyspermi Koch 1926
Solano nigri-Polygonetalia convolvuli (Sissingh in Westhoff, Dijk & Passchier 1946) Bolòs 1962
Stellarietea mediae Tüxen, Lohmeyer & Preising ex von Rochow 1951

		Rel. n.	1	2	3	4	5	
		Date	6/25/ 2001	6/25/ 2001	6/25/ 2001	6/26/ 2001	6/26/ 2001	PRESENCES
		Altitude (m)	290	310	330	220	280	
		Exposure	NE	NE	NO	NO	NO	
		Slope	15°	15°	20°	20°	10°	
		Area	30mq	20mq	40mq	40mq	50mq	
		Coverage	20%	15%	100%	15%	15-30%	
		Characteristic and differential species of the association						
T scap	EURIMEDIT.	*Helminthotheca echioides* (L.) Holub	1.1	1.1	.	+	+	4
T scap	EURIMEDIT.	*Kickxia elatine* (L.) Dumort.	+	.	+	+	1.1	4
		Characteristic and differential species of the alliance and order						
T rept	EURIMEDIT.	*Anagallis arvensis* L.	1.1	+	1.1	1.1	1.1	5
T scap	AVV.	*Thlaspi arvense* L.	.	.	+	.	+	2
T scap	AVV.	*Veronica persica* Poiret	.	.	.	+.2	1.1	2
T scap	CIRCUMBOR.	*Fallopia convolvulus* (L.) Holub	.	.	.	.	+	1
T scap	EURIMEDIT.	*Ajuga chamaepitys* (L.) Schreber	.	.	.	.	+	1
		Characteristic and differential species of the class						
T scap	E-MEDIT.-MONT.	*Papaver rhoeas* L. ssp. *rhoeas*	1.1	1.1	+	1.1	+	5
T scap	EURIMEDIT.	*Lolium multiflorum* Lam.	+	1.1	1.1	+	1.1	5
T scap	EURIMEDIT.	*Legousia speculum-veneris* (L.) Chaix	1.1	+.2	1.1	+.2	.	4
T scap	EURASIAT.	*Avena fatua* L.	+	1.1	1.1	.	+	4
T scap	SUBCOSMOP.	*Alopecurus myosuroides* Hudson	.	+	+	.	+.2	3
T scap	EURIMEDIT.	*Rapistrum rugosum* (L.) All.	+	1.1	.	.	+	3
T scap	EURIMEDIT.	*Nigella damascena* L.	.	.	+	+	+	3
T scap	EURIMEDIT.	*Consolida regalis* S. F. Gray	1.1	+	.	.	+	3
T scap	EURIMEDIT.	*Sherardia arvensis* L.	.	+.2	.	1.1	.	2
T scap	EURIMEDIT.-TURAN.	*Vicia sativa* L.	.	.	+	+	.	2
T scap	EURASIAT.	*Sonchus asper* (L.) Hill	+	.	.	.	+	2
T rept	COSMOP.	*Stellaria media* (L.) Vill.	.	.	.	+	+	2
T scap	PALEOTEMP.	*Veronica arvensis* L.	.	.	+	+	.	2
T scap	MEDIT.-TURAN.	*Papaver argemone* L. ssp. *argemone*	.	(+)	+	.	.	2
T scap	STENOMEDIT.	Anthemis *arvensis* L. ssp. *arvensis*	+.2	+	.	+.2	2.2	2
T scap	EURIMEDIT.	*Scandix pecten-veneris* L.	.	.	.	+	.	1
T scap	EURIMEDIT.	*Lathyrus aphaca* L. ssp. *aphaca*	.	.	+	.	.	1
T scap	PALEOTEMP.	*Ranunculus arvensis* L.	+	.	.	.	.	1
G rad	EURASIAT.	*Cirsium arvense* (L.) Scop.	.	.	.	+	.	1
T rept	COSMOP.	*Polygonum aviculare* L.	.	.	.	.	1.1	1
T scap	MEDIT.ATL.(EURI)	*Adonis annua* L.	.	.	.	.	+	1
H scap	EURASIAT.	*Medicago sativa* L.	.	+	.	.	.	1
T scap	PALEOTEMP.	*Mercurialis annua* L.	.	.	.	.	+	1
T scap	AVV.	*Avena sativa* L.	.	.	.	+	.	1
		Other species						
H bienn	PALEOTEMP.	*Daucus carota* L.	+	+	+	1.1	+	5
T scap	EURASIAT.	*Galium aparine* L.	+	+	+	+	+	5
G rhiz	PALEOTEMP.	*Convolvulus arvensis* L.	+	1.1	.	1.1	+	4

		Rel. n.	1	2	3	4	5	
T scap	EURIMEDIT.	*Vicia villosa* Roth ssp. *varia* (Host) Corb.	+	(+)	1.2	+.2	.	4
T scap	EURIMEDIT.	*Hainardia cylindrica* (Willd.) Greuter	+.2	1.2	+.2	.	.	3
T scap	SUBCOSMOP.	*Torilis arvensis* (Hudson) Link	.	.	1.1	1.1	+	3
H bienn	CENTRO-EUROP.	*Anthemis tinctoria* L.	.	.	+	.	+	2
G bulb	CENTRO-MEDIT.	*Bellevalia romana* (L.) Sweet	1.1	+	.	.	.	2
T scap	EURIMEDIT.	*Brassica nigra* (L.) Koch	.	.	.	+	2.2	2
H scap	PALEOTEMP.	*Lotus tenuis* W. et K.	+	(+)	.	.	.	2
T scap	N-EUROP.	*Matricaria inodora* L.	+.2	+	.	.	.	2
		Sporadic species	1	0	2	5	8	

Table 17 (Tabela 17): *Biforo testiculatae-Adonidetum cupanianae* Kropáč 1982
Caucalidion lappulae Tüxen ex von Rochow 1951
Centaureetalia cyani Tüxen ex von Rochow 1951
Stellarietea mediae Tüxen, Lohmeyer & Preising ex von Rochow 1951

		Rel. n.	1	2	3	4	5	6	
		Date	5/22/2000	5/22/2000	5/22/2000	5/22/2000	5/22/2000	5/22/2000	PRESENCES
		Altitude (m)	310	350	470	335	325	329	
		Exposure	N	N-E		N-W	N-E	N-W	
		Slope	20°	10°	0°	10°	20°	10°	
		Area	40mq	60mq	60mq	40mq	40mq	50mq	
		Coverage	80%	70%	80%	100%		100%	
		Characteristic and differential species of the association and the *Scandix pecten veneris* variant							
T scap	SUBCOSMOP.	*Alopecurus myosuroides* Hudson	1.2	1.2	1.2	+	+	.	5
T scap	EURIMEDIT.	*Scandix pecten-veneris* L.	.	+	+.2	+	+	.	4
G bulb	EURIMEDIT.	*Gladiolus italicus* Miller	+	.	+.2	.	+	.	3
T scap	MEDIT.ATL.(EURI)	*Adonis annua* L.	.	.	+	.	.	+.2	2
		Characteristic and differential species of the alliance and order							
T scap	EURIMEDIT.	*Rapistrum rugosum* (L.) All.	+.2	+.2	+.2	+	+.2	.	5
T scap	E-MEDIT.-MONT.	*Papaver rhoeas* L. ssp. *rhoeas*	3.3	2.3	2.2	.	+.2	+.2	5
T scap	EURIMEDIT.	*Sherardia arvensis* L.	+.2	+	+.2	1.2	+.2	.	5
T scap	EURIMEDIT.	*Nigella damascena* L.	.	+	+	+	.	.	3
T scap	AVV.	*Bifora radians* Bieb.	+	.	+	+	.	.	3
T scap	EURIMEDIT.	*Legousia speculum-veneris* (L.) Chaix	+	+	1.1	.	.	.	3
T scap	EURIMEDIT.	*Consolida regalis* S. F. Gray	.	+	+	.	.	1.1	3
T scap	PALEOTEMP.	*Ranunculus arvensis* L.	+	+.2	1.1	.	.	.	3
T scap	EURIMEDIT.	*Ajuga chamaepitys* (L.) Schreber	+	.	.	+	.	.	2
		Characteristic and differential species of the class							
T scap	EURIMEDIT.	*Helminthotheca echioides* (L.) Holub	+	+	.	1.1	+	.	4
T scap	AVV.	*Thlaspi arvense* L.	1.1	+	.	+	.	+	4
T scap	STENOMEDIT.	*Cerinthe major* L.	+	.	.	1.2	2.2	+.2	4
T scap	EURIMEDIT.	*Lolium multiflorum* Lam.	+.2	1.2	.	.	1.2	.	3
T scap	EURIMEDIT.-TURAN.	*Vicia sativa* L.	.	1.1	+	1.1	.	.	3
T rept	EURIMEDIT.	*Anagallis arvensis* L.	1.1	+	+.2	.	.	.	3
T scap	AVV.	*Veronica persica* Poiret	1.1	+.2	1.1	.	.	.	3
T scap	EURIMEDIT.	*Lathyrus aphaca* L. ssp. *aphaca*	.	1.1	1.2	.	+.2	.	3
T scap	MEDIT.-TURAN.	*Torilis nodosa* (L.) Gaertner	.	.	+	1.1	.	1.2	3
T scap	EURASIAT.	*Sonchus oleraceus* L.	.	.	+	+	+	.	3

		Rel. n.	1	2	3	4	5	6	
G rad	EURASIAT.	*Cirsium arvense* (L.) Scop.	.	.	.	.	+	+	2
T rept	COSMOP.	*Polygonum aviculare* L.	1.1	+	.	.	.	.	2
T scap	EURIMEDIT.	*Cerastium glomeratum* Thuill.	.	+	+	.	.	.	2
T scap	PALEOTEMP.	*Medicago lupulina* L.	.	.	.	+.2	.	1.1	2
T scap	SUBCOSMOP.	*Bromus hordeaceus* L.	+	1.2	.	.	.	.	2
H scap	W-STENOMEDIT.	*Sulla coronaria* (L.) Medik.	.	.	+	+.2	.	.	2
T scap	CIRCUMBOR.	*Fallopia convolvulus* (L.) Holub	.	+	.	.	.	.	1
T scap	PALEOTEMP.	*Fumaria officinalis* L. ssp. *officinalis*	+.2	.	.	.	.	.	1
T scap	EURASIAT.	*Sonchus asper* (L.) Hill	.	.	.	.	.	+	1
H scap	EURASIAT.	*Medicago sativa* L.	.	.	.	.	1.1	.	1
T scap	COSMOP.	*Euphorbia helioscopia* L. ssp. *helioscopia*	+	.	.	.	.	.	1
T scap	EURIMEDIT.	*Knautia integrifolia* (L.) Bertol. ssp. *integrifolia*	.	+	.	.	.	.	1
		Other species							
G bulb	CENTRO-MEDIT.	*Bellevalia romana* (L.) Sweet	1.1	1.1	1.1	1.1	1.1	1.1	6
T scap	AVV.	*Avena sativa* L.	+	2.2	2.2	1.2	2.2	1.1	6
T scap	S-EUROP.-SUDSIB.	*Geranium columbinum* L.	+.2	1.2	+	2.2	1.1	2.2	6
G rhiz	STENOMEDIT.	*Arum italicum* Miller ssp. *italicum*	+	.	.	+	+	+	4
H scap	EURASIAT.	*Vicia cracca* L.	+	+.2	.	2.2	+.2	.	4
T scap	EURASIAT.	*Galium aparine* L.	+	.	+	.	+	.	3
G rhiz	CIRCUMBOR.	*Elymus repens* (L.) Gould ssp. *repens*	.	.	.	+.2	+.2	+.2	3
H scap	EURASIAT.	*Ranunculus bulbosus* L.	+.2	+	+	.	.	.	3
H bienn	PALEOTEMP.	*Daucus carota* L.	1.2	+	+	.	.	.	3
G rhiz	PALEOTEMP.	*Convolvulus arvensis* L.	1.1	+	.	.	.	1.2	3
H caesp	CIRCUMBOR.	*Poa pratensis* L.	+	+.2	+.2	.	.	.	3
T scap	EURIMEDIT.	*Vicia tenuissima* (Bieb.) Sch. et Th.	.	.	+	.	.	+.2	2
H scap	EUROSIB.	*Trifolium pratense* L.	.	.	.	.	+.2	+.2	2
		Sporadic species	0	0	1	4	4	0	