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## New national and regional Annex I Habitat records: from #9 to #12

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### Abstract

In this contribution, new data concerning the distribution of the Annex I Habitats 5110, 6110\*, 6510, 7210\* are reported. In particular, five new cells in the EEA 10 km x 10 km reference grid and two new occurrences in Natura 2000 Sites are presented. No Habitat is proposed for elimination from any cell. The novelty of these data refers to the results of the 4th Report ex-Art. 17 on Annex I Habitat Monitoring in Europe. The new data refer to Italy.

Key words: 5110, 6110\*, 6510, 7210\*, biodiversity, conservation, Habitat Directive, Italy.

### Introduction

This is the second issue of the section that Plant Sociology devotes to the standardized recording of novelties on the occurrence of Annex I Habitats in Europe. During the year 2019, the results of the 4<sup>th</sup> Report ex-Art. 17 on Annex I Habitat Monitoring in Europe have been delivered by Member States; updated data are now available on the Eionet Central Data Repository (Eionet, 2019). For this reason, differently from the first issue (records #1 to #8, Gigante *et al.*, 2019), that was based on the results of the 3<sup>rd</sup> Report ex-Art. 17, the data presented here compare to the 4th Report adding further updates to the most recent distribution maps of Annex I Habitats. The phytosociological relevés included in the present contribution will be archived and freely accessible in the national database "VegItaly", managed by the Italian Society of Vegetation Science (Landucci *et al.*, 2014).

### Habitats Records

The newly recorded occurrences are described. A synthetic table is provided (Tab. 1), offering a short overview of the novelties.

**#9. Annex I Habitat: 5110 Stable xerothermophilous formations with *Buxus sempervirens* on rock slopes (*Berberidion* p.) (Gennai M., Gabellini A., Viciani D.)**

**EUNIS Classification system:** F3.12 *Buxus sempervirens* thickets, F6.64 Supra-Mediterranean *Buxus sempervirens* scrub (according to Biondi *et al.*, 2009).

**Biogeographical Region:** Mediterranean

**National Habitat Checklist of reference:** Manuale Italiano di interpretazione degli habitat della Direttiva 92/43/CEE (Biondi *et al.*, 2009).

**Phytosociological reference:** *Rhamno catharticae-Prunetia spinosae* Rivas Goday & Borja ex Tüxen 1962, *Prunetalia spinosae* Tüxen 1952, *Cytision sessilifolii* Biondi in Biondi, Allegranza & Guitian 1988 (Biondi & Blasi, 2015).

**Geographic information:** Italy, Tuscany, Pisa, Pomarance (from Pieve di San Giovanni Battista a Sillano towards Rocca Sillana), 400 m a.s.l., Coordinates: 10.93611 E, 43.26743 N.

**Cells ID in the EEA reference grid:** 10kmE439N224 (Fig. 1).

**Natura 2000 Site Code:** currently not included in any Natura 2000 Site.

Tab. 1 - Syntetic overview of the newly reported data.

Hab ID	Hab name	Cell ID	Country	BR	N2000 Site	Authors
5110	Stable xerothermophilous formations with <i>Buxus sempervirens</i> on rock slopes ( <i>Berberidion</i> p.)	10kmE439N224	Italy	MED	-	Gennai M., Gabellini A., Viciani D.
6110*	Rupicolous calcareous or basophilic grasslands of the <i>Alysso-Sedion albi</i>	10kmE453N217	Italy	MED	SAC IT5220013	Gigante D.
6110*	Rupicolous calcareous or basophilic grasslands of the <i>Alysso-Sedion albi</i>	10kmE450N219	Italy	MED	-	Gigante D.
6510	Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	10kmE457N218	Italy	MED	-	Gigante D., Bonini F.
7210*	Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>	10kmE419N196	Italy	MED	SAC ITB010003	Rivieccio G., Caria M.C., Bagella S.

**Phytosociological table:** Tab. 2 (Rel. 1); taxonomic nomenclature according to Bartolucci *et al.* (2018) and Portale della Flora d'Italia (2019).

**Notes:** the recorded community occurs on ultramafic substrates and, from the phytosociological point of view, shows many similarities with the *Buxus sempervirens*-dominated coenoses on limestone of central Apennines (*Cytisium sessilifolii*, see e.g. Biondi *et al.*, 1988; Pirone *et al.*, 2001) and some others with the Ligurian coenoses on basalts (*Alyssion bertolonii* Pignatti 1977, see Mariotti, 1994, 2008), rather than with *Berberidion* communities, more mesophilous. Nonetheless, in full accordance with Biondi *et al.* (2009), it can be certainly attributed to 5110 Habitat type.

#### #10. Annex I Habitat: 6110\* Rupicolous calcareous or basophilic grasslands of the *Alysso-Sedion albi* (Gigante D.)

**EUNIS Classification system:** E1.1 Inland sand and rock with open vegetation (wider)

**Biogeographical Region:** Mediterranean

**National Habitat Checklist of reference:** Manuale Italiano di interpretazione degli habitat della Direttiva 92/43/CEE (Biondi *et al.*, 2009).

**Phytosociological reference:** *Sedum album*-dominated community (Rel. 1), *Petrorhagio saxifragae-Sedetum sexangularis* Venanzoni & Gigante 1999 (Rels. 2-5), *Alysso alyssoidis-Sedion* Oberd. & T. Müller in T. Müller 1961, *Alysso-Sedetalia* Moravec 1967, *Sedo-Scleranthetea* Br.-Bl. 1955 (Biondi & Blasi, 2015; Mucina *et al.*, 2016).

**Geographic information:** Italy, Umbria, Terni, M. Torre Maggiore, S. Erasmo (Cesi), 780 m a.s.l., Coordinates: 42.614766° N, 12.591492° E (Rel. 1); 778 m a.s.l., Coordinates: 42.614535° N, 12.591469° E (Rel. 2); 761 m a.s.l., Coordinates: 42.614030° N, 12.590547° E (Rel. 3); Italy, Umbria, Terni, Orvieto, M. Palombaro, 706 m a.s.l., Coordinates: 42.792671° N, 12.232752° E (Rel. 4); Italy, Umbria, Terni, Orvieto, M. Piatto, 768 m a.s.l., Coordinates: 42.804541° N, 12.225765° E (Rel. 5).

**Cells ID in the EEA reference grid:** 10kmE453N217 (Rels. 1, 2 and 3), 10kmE450N219 (Rels. 4 and 5) (Fig. 2).

**Natura 2000 Site Code:** only 3 occurrences (Rels. 1, 2 and 3) are included in the SAC IT5220013 "Monte

Tab. 2 - Habitat 5110.

Relevée number	1
Cell ID	10kmE439N224
Longitude	10.93611
Latitude	43.26743
Year	2019
Aspect (°)	N-NE
Slope (°)	10
Altitude (m a.s.l.)	400
Area (m <sup>2</sup> )	80
Cover (%)	75
Diagnostic species	
<i>Buxus sempervirens</i> L.*	2
<i>Cytisium sessilifolii</i> , <i>Prunetalia spinosae</i> , <i>Rhamno catharticae-Prunetea spinosae</i>	
<i>Juniperus oxycedrus</i> L.*	2
<i>Spartium junceum</i> L.	1
<i>Cytisophyllum sessilifolium</i> (L.) O.Lang*	+
<i>Quercetea ilicis</i>	
<i>Phillyrea latifolia</i> L.	2
<i>Quercus ilex</i> L.*	2
<i>Erica arborea</i> L.	2
<i>Ruscus aculeatus</i> L.	1
<i>Lonicera implexa</i> Aiton	+
<i>Osyris alba</i> L.*	+
<i>Smilax aspera</i> L.	+
<i>Asparagus acutifolius</i> L.	+
<i>Clematis flammula</i> L.	+
<i>Asplenium onopteris</i> L.	+
Species of serpentine substrates	
<i>Centauria apolepa</i> Moretti subsp. <i>carueliana</i> (Micheletti) Dostál	1
<i>Odontarrhena bertolonii</i> (Desv.) Jord. & Fourr.	+
<i>Plantago subulata</i> L.	+
<i>Thymus striatus</i> Vahl subsp. <i>acicularis</i> (Waldst. & Kit.) Ronniger	+
<i>Festuca robustifolia</i> Markgr.-Dann.	+
Other species	
<i>Erica scoparia</i> L.	1
<i>Dianthus sylvestris</i> Wulfen	1
<i>Carex halleriana</i> Asso	1
<i>Carex humilis</i> Leyss.	1
<i>Bromopsis erecta</i> (Huds.) Fourr.	1
<i>Fraxinus ornus</i> L.	1
<i>Cistus creticus</i> L. subsp. <i>eriocephalus</i> (Viv.) Greuter & Burdet	1
<i>Festuca inops</i> De Not.	1
<i>Fumana procumbens</i> (Dunal) Gren. & Godr.	+
<i>Galium corrudifolium</i> Vill.	+
<i>Hedera helix</i> L.	+
<i>Sedum rupestre</i> L.	+
<i>Lagurus ovatus</i> L.	+
<i>Silene italica</i> (L.) Pers.	+
<i>Globularia bisnagarica</i> L.	+
<i>Teucrium chamaedrys</i> L.	+
<i>Micromeria graeca</i> (L.) Benth. ex Rchb.	+
<i>Genista pilosa</i> L.	+
<i>Teucrium capitatum</i> L.	+
<i>Stachelina dubia</i> L.	+
<i>Trifolium</i> sp.	+

\*Reference plant species of the Habitat 5110, from European Union (2013) and Biondi *et al.* (2019).

Tab. 3 - Habitat 6110\*.

Relevée number	1	2	3	4	5	
Original relevé number	121	122	123	WP927	42	
Cell ID	10kmE453N217	10kmE453N217	10kmE453N217	10kmE450N219	10kmE450N219	
Latitude	42.614766	42.614535	42.614030	42.792671	42.804541	
Longitude	12.591492	12.591469	12.590547	12.232752	12.225765	
Year	2018	2018	2018	2019	2019	
Aspect (°)	100	150	200	135	-	
Slope (°)	15	20	25	5	0	
Altitude (m a.s.l.)	780	778	761	706	768	
Area (m <sup>2</sup> )	4	4	4	4	4	
Cover (%)	65	55	60	40	45	
Rockiness (%)	20	25	30	35	50	
Stoniness (%)	15	20	10	30	5	
<i>Alyssa alyssoides</i> - <i>Sedion</i> , <i>Alyssa-Sedetalia</i> , <i>Sedo-Scleranthetea</i>						
<i>Sedum album</i> L.*	4	2	3	2	2	5
<i>Sedum sexangulare</i> L.*	+	3	3	3	3	5
<i>Petrorhagia saxifraga</i> (L.) Link subsp. <i>saxifraga</i> *	.	1	2	+	+	4
<i>Alyssum alyssoides</i> (L.) L.*	1	1	1	.	.	3
<i>Petrosedum rupestre</i> (L.) P.V.Heath	.	.	.	.	1	1
<i>Bombycilaena erecta</i> (L.) Smoljan.*	.	.	.	.	+	1
Other species						
<i>Trifolium scabrum</i> L.*	+	+	1	+	.	4
<i>Petrorhagia prolifera</i> (L.) P.W.Ball & Heywood*	2	2	1	.	.	3
<i>Dactylis glomerata</i> L. subsp. <i>glomerata</i>	1	1	+	.	.	3
<i>Trifolium stellatum</i> L.	+	1	1	.	.	3
<i>Triticum vagans</i> (Jord. & Fourr.) Greuter	+	+	+	.	.	3
<i>Silene vulgaris</i> (Moench) Garcke subsp. <i>tenoreana</i> (Colla) Soldano & F.Conti	+	1	+	.	.	3
<i>Festuca centroaenninica</i> (Markgr.-Dann.) Foggi, F.Conti & Pignatti	1	.	.	1	1	3
<i>Centaurea deusta/splendens</i>	.	+	+	+	.	3
<i>Crupina vulgaris</i> Cass.	.	+	+	+	.	3
<i>Teucrium chamaedrys</i> L. subsp. <i>chamaedrys</i>	+	1	.	.	.	2
<i>Erysimum pseudorhaeticum</i> Polatschek	+	+	.	.	.	2
<i>Phleum hirsutum</i> Honck. subsp. <i>ambiguum</i> (Ten.) Cif. & Giacom.	.	2	+	.	.	2
<i>Stachys romana</i> (L.) E.H.L.Krause	.	2	1	.	.	2
<i>Anisantha madritensis</i> (L.) Nevski subsp. <i>madritensis</i>	.	+	2	.	.	2
<i>Melica ciliata</i> L. subsp. <i>ciliata</i> *	.	+	+	.	.	2
<i>Micromeria graeca</i> (L.) Benth. ex Rchb. subsp. <i>tenuifolia</i> (Ten.) Nyman	.	+	+	.	.	2
<i>Helianthemum apenninum</i> (L.) Mill. subsp. <i>apenninum</i>	.	.	.	1	1	2
<i>Crepis neglecta</i> L. subsp. <i>neglecta</i>	.	.	.	+	1	2

Sporadic species. Rel. 1: *Cota tinctoria* (L.) J.Gay subsp. *australis* (R.Fern.) Oberpr. & Greuter +, *Herniaria glabra* L. subsp. *glabra* +, *Plantago lanceolata* L. +; Rel. 2: *Avena barbata* Pott ex Link +, *Onobrychis caput-galli* (L.) Lam. +, *Reichardia picroides* (L.) Roth +, *Trifolium angustifolium* L. subsp. *angustifolium* +; Rel. 3: *Centaurea solstitialis* L. subsp. *solstitialis* +; Rel. 4: *Allium sphaerocephalon* L. subsp. *sphaerocephalon* +, *Allium tenuiflorum* Ten. +, *Bromus squarrosus* L. subsp. *squarrosus* +, *Catapodium rigidum* (L.) C.E.Hubb. subsp. *rigidum*\* +, *Convolvulus cantabrica* L. +, *Hypochaeris achyrophorus* L. +, *Pentanema montanum* (L.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico & M.M.Mart.Ort. +, *Seseli tommasinii* Rchb.f. +, *Xeranthemum cylindraceum* Sm. +; Rel. 5: *Anthyllis vulneraria* L. subsp. *weldeniana* (Rchb.) Cullen 1, *Bromopsis erecta* (Huds.) Fourr. subsp. *erecta* 1, *Galium lucidum* All. subsp. *lucidum* +, *Poterium sanguisorba* L. subsp. *balearicum* (Bourg. ex Nyman) Stace +, *Thymus longicaulis* C.Presl subsp. *longicaulis* +.

\*Reference plant species of the Habitat 6110\*, from European Union (2013) and Biondi *et al.* (2019).

Torre Maggiore (Monti Martani)"

**Phytosociological table** Tab. 3; taxonomic nomenclature according to Bartolucci *et al.* (2018) and Portale della Flora d'Italia (2019).

**#11. Annex I Habitat: 6510 Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) (Gigante D., Bonini F.)**

**EUNIS Classification system:** E2.2 Low and medium altitude hay meadows

**Biogeographical Region:** Mediterranean

**National Habitat Checklist of reference:** Manuale Italiano di interpretazione degli habitat della Direttiva 92/43/CEE (Biondi *et al.*, 2009).

**Phytosociological reference:** *Ranunculo neapolitani-Arrhenatherion elatioris* Allegrezza & Biondi 2011, *Arrhenatheretalia elatioris* Tüxen 1931, *Molinio-Ar-*

*rhatheretalia* Tüxen 1937 (Biondi *et al.*, 2014; Biondi & Blasi, 2015)

**Geographic information:** Italy, Umbria, Perugia, Castel S. Maria, 1067 m a.s.l., Coordinates: 42.713467° N, 13.108978° E.

**Cells ID in the EEA reference grid:** 10kmE457N218 (Fig. 3)

**Natura 2000 Site Code:** currently not included in any Natura 2000 Site

**Phytosociological table** Tab. 4; taxonomic nomenclature according to Bartolucci *et al.* (2018) and Portale della Flora d'Italia (2019).

**Notes:** the area of occurrence is extremely interesting from the floristic-vegetational point of view (see, e.g., Bartolucci *et al.*, 2019). Although as close as 2 km to the border of the SPA IT5210071 and the "Monti Sibillini" National Park, it is not included in any type of protected area.



Fig. 1 - Distribution in Italy of the Habitat 5110: in black the new cells; in grey the cells officially reported in the 4<sup>th</sup>Habitat report ex-Art. 17 (period 2013-2018).



Fig. 2 - Distribution in Italy of the Habitat 6110\*: in black the new cells; in grey the cells officially reported in the 4<sup>th</sup> Habitat report ex-Art. 17 (period 2013-2018).

Tab. 4 - Habitat 6510.

Relevée number	1	2	3	4	
Original relevée number	WF.5	WF.6	WF.7	WF.19	
Cell ID	10kmE457N218	10kmE457N218	10kmE457N218	10kmE457N218	
Latitude	42.713467	42.711222	42.710603	42.713571	
Longitude	13.108978	13.113483	13.113128	13.109173	
Date	04/06/2019	06/06/2019	06/06/2019	06/06/2019	
Area (m <sup>2</sup> )	16	16	16	16	
Altitude (m a.s.l.)	1067	1067	1067	1067	
Exposition (°)	45	320	330	-	
Slope (°)	1	1	1	0	
Cover (%)	98	100	98	0	
					Presences
<i>Ranunculo neapolitani-Arrhenatherion elatioris</i>					
Arrhenatherum elatius (L.) P.Beauv. ex J.Presl & C.Presl subsp. elatius*	4	2a	4	3	5
Ranunculus velutinus Ten.	3	2b	3	2b	5
Centaurea nigrescens Willd. subsp. neapolitana (Boiss.) Dostál	2a	2b	2a	1	5
Ranunculus neapolitanus Ten.	.	1	1	+	4
<i>Arrhenatheretalia, Molinio-Arrhenatheretea</i>					
Holcus lanatus L. subsp. lanatus*	2a	2b	2a	2a	4
Trifolium pratense L.*	1	2a	2b	2a	4
Cerastium holosteoides Fr.	2m	r	+	1	4
Potentilla reptans L.	1	+	+	1	4
Rumex acetosa L. subsp. acetosa*	1	.	r	1	3
Dactylis glomerata L.*	.	2b	2b	.	2
Leontodon hispidus L.*	.	2a	+	.	2
Lychnis flos-cuculi L.*	1	.	.	1	2
Cynosurus cristatus L.*	.	1	1	.	2
Taraxacum officinale (L.) Weber ex F.H.Wigg. s.l.*	.	.	1	.	1
Trifolium repens L.*	.	.	+	.	1
Poa pratensis L. subsp. pratensis*	.	.	+	.	1
Bromus hordeaceus L.*	.	.	+	.	1
Ranunculus repens L.	.	.	.	1	1
Ranunculus acris L.*	.	.	.	+	1
Other species					
Anthoxanthum odoratum L.*	3	3	2b	3	4
Ornithogalum etruscum Parl.	+	2m	1	1	4
Lotus tenuis Waldst. & Kit. Ex Willd.	+	+	+	+	4
Saxifraga bulbifera L.	+	+	.	r	3
Bistorta officinalis Delarbre	1	2a	.	+	3
Ajuga reptans L.	1	+	.	+	3
Narcissus poeticus L.	+	+	.	r	3
Carex umbrosa Host subsp. umbrosa	+	1	.	+	3





Fig. 3 - Distribution in Italy of the Habitat 6510: in black the new cells; in grey the cells officially reported in the 4<sup>th</sup> Habitat report ex-Art. 17 (period 2013-2018).



Fig. 4 - Distribution in Italy of the Habitat 7210\*: in black the new cells; in grey the cells officially reported in the 4<sup>th</sup> Habitat report ex-Art. 17 (period 2013-2018).

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