

## H6.1 Mediterranean and temperate volcanic field

### Summary

The habitat covers poorly vegetated volcanic areas of Mediterranean and Macaronesian regions, comprising mostly recently deposited volcanic scoriae (tephra), lava flows or orifices in volcanic areas emitting hot gases and vapours in Italy and the Canary Islands. Intense solar radiation, remarkable daily temperature variations, long lasting snow-cover and mechanical disturbances caused by strong winds are usual conditions for this habitat type. Large areas are completely unvegetated or only covered by some lichens and mosses or a scattered and, on fragmentary soils, a discontinuous cover of a few, relic vascular plants. No severe threats seem to seriously endanger the habitat because it mostly falls within nature reserves or protected areas. Public awareness and scientifically-based management of this habitat type are needed.

### Synthesis

This habitat is assessed as Least Concern (LC) in view of its stable trend in quantity, as there have been no declines over the last 50 years. Past, historical or future trends in quality cannot be evaluated, but no indication of negative trend is explicitly indicated.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Least Concern	-	Least Concern	-

### Sub-habitat types that may require further examination

The habitat can be further divided into Mediterranean, Macaronesian and Temperate subtypes, but the two main groups (Macaronesian and Mediterranean) are likely to be both assessed as Least Concern. Temperate volcanic features are extremely rare and may be more threatened, but it is likely that there is no data available.

### Habitat Type

#### Code and name

H6.1 Mediterranean and temperate volcanic field



High mountain vegetation with *Rumex aetnensis* and *Anthemis aethnensis* on recent lava flows on Mount Etna, Sicily, Italy (Photo: Gianpietro Giusso del Galdo).



Volcanic desert with scattered cryptogams, Belvedere, South-East slopes of Mount Etna, Sicily, Italy (Photo: Gianpietro Giusso del Galdo).

## Habitat description

The habitat includes permanent habitats occurring on the volcanic areas of the Mediterranean and Macaronesian regions, and - very rarely - in temperate parts of Europe. The plant communities of such environments are typically characterized by pioneer, floristically poor and endemic-rich bio-coenoses. Soils are very primitive, eroded and, as such, they reflect with unusual fidelity the chemical composition of the bedrock. The severe ecological conditions hamper the development of soils, and hence the habitat usually looks very stony, with a feeble accumulation of finer particles wherever conditions become slightly better.

Intense solar radiation, remarkable daily temperature variations, long lasting snow-cover, and mechanical disturbances caused by strong winds are usual conditions for this habitat type. Vegetation typically is scattered and discontinuous with very low cover values (<25%), chiefly dominated by few, relic vascular plants. Large areas are completely unvegetated or only occupied by a cryptogamic vegetation. The most frequent vascular plants are *Cerastium tomentosum*, *Anthemis aetnensis*, *Scleranthus vulcanicus*, *Rumex aetnensis*, *Senecio aethnensis*, *Saponaria sicula*, *Viola cheirantifolia*, *Silene nocteolens*, and *Argyranthemum tenerifae*. Bryophytes (e.g. *Isopterygium tenerum*, *Campylopus pilifer*, *C. introflexus*, *Calymperes erosum*, etc.) and lichens (e.g. *Stereocaulon vesuvianum*, *Xanthoparmelia conspersa*, etc.) are widely spread.

These habitats are found on recently deposited volcanic scoriae (tephra), lava flows or orifices in volcanic areas emitting hot gases and vapours of Italy (Tuscany, Sicily, Latium and Campania), and the Canary Islands. At lower altitudes or where ecological conditions are more suitable, they are dynamically connected with the hemicrypto-chamaephytic plant communities dominated by dwarf, thorny, cushion-like species and/or grasses. Furthermore, they may be contiguous to the phanaerophytic communities chiefly dominated by conifers (e.g. *Pinus* sp. pl., *Juniperus* sp. pl., etc.). The great phytogeographical and scientific value of these habitats is given by the high number of relic, mostly endemic, taxa. Outside the Mediterranean and Macaronesian region, some marginal (unvegetated) sites are found in the temperate parts of Europe, like in Romania. Subarctic volcanic features on Iceland are considered under habitat H5.1c.

Indicators of quality:

Natural vegetation chiefly occurring in hostile areas not or slightly affected by human activities, as touristic facilities (e.g. skiing areas, etc.). It is generally rather stable, but local surface area variations linked to the volcanic activity may occur.

Indicators of good quality are:

- occurrence of rare, endemic and phyto-geographically significant plants
- no disturbance by hiking, skiing activities, roads, etc.
- contacts with other natural habitats such as cliffs, mountain woodlands, etc.

Characteristic species:

Vascular plants: *Cerastium tomentosum*, *Anthemis aetnensis*, *Scleranthus vulcanicus*, *Rumex aetnensis*, *Senecio aethnensis*, *Saponaria sicula*, *Viola cheirantifolia*, *Silene nocteolens*, *Argyranthemum tenerifae*, *Agrostis canina* ssp. *monteluccii*, *A. castellana*

Bryophytes: *Isopterygium tenerum*, *Campylopus pilifer*, *Campylopus introflexus*, *Calymperes erosum*, *Racomitrium lanuginosum*, *Racomitrium canescens*, *Bryum pallens*, *Ceratodon purpureus*

Lichens: *Stereocaulon vesuvianum*, *Xanthoparmelia conspersa*

## Classification

This habitat may be equivalent to, or broader than, or narrower than the habitats or ecosystems in the following typologies.

EUNIS:

H6.1 Active volcanic features

EuroVeg Checklist:

*Rumici-Astragalion siculi* Poli 1965

*Campylopodion vaporarii* Brullo, Privitera & Puglisi 2004 ex Puglisi & Privitera 2012

*Sclerantho-Myosotidion incrassatae* Brullo, Scelsi & Spampinato 2001

*Linarion purpureae* Brullo 1984

Annex 1:

8320 Fields of lava and natural excavations

Emerald:

H6 Recent volcanic features

MAES-2:

Sparsely or unvegetated land

IUCN:

6 Rocky areas

**Does the habitat type present an outstanding example of typical characteristics of one or more biogeographic regions?**

Yes

Regions

Macaronesian

Mediterranean

Justification

The habitat represents an outstanding example for the Mediterranean and Macaronesian biogeographic regions because of the occurrence of a pool of species, mostly endemic, characterized by a high ecological specialization and a remarkable phyto-geographical value.

### **Geographic occurrence and trends**

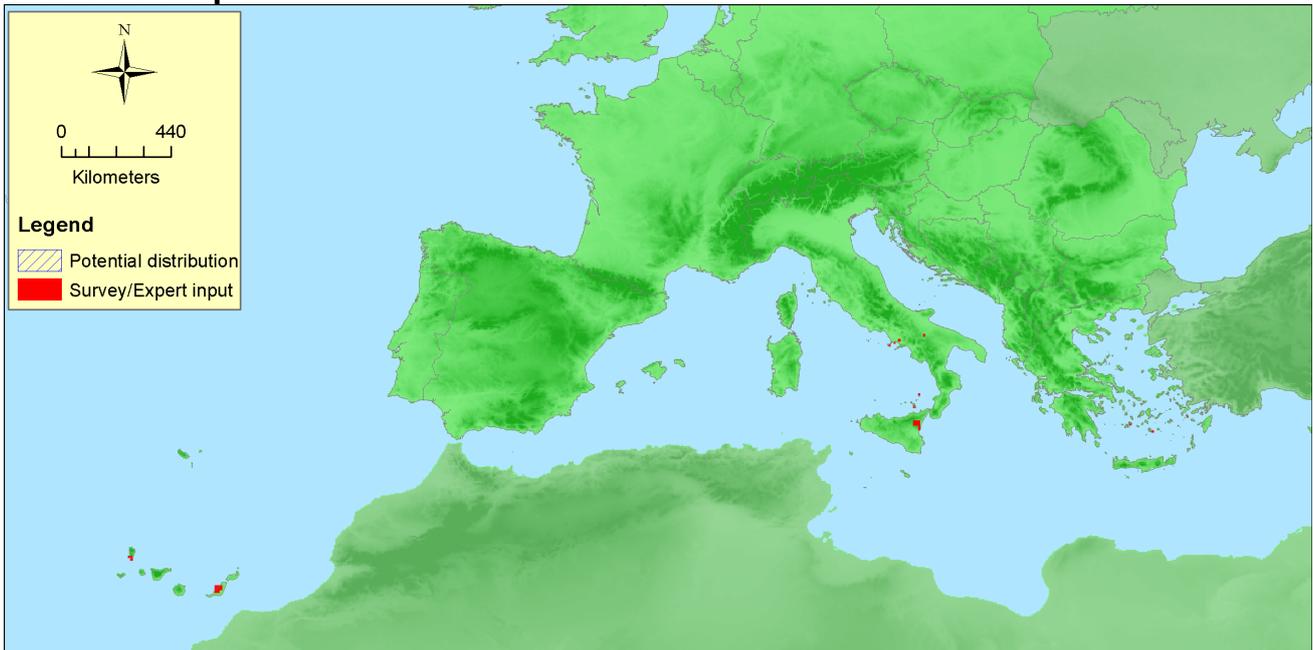
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Italy</i>	Italy mainland: Present Sicily: Present	168 Km <sup>2</sup>	Unknown	Unknown
<i>Portugal</i>	Madeira: Uncertain Portugal Azores: Present Portugal mainland: Present Savage Islands: Uncertain	2 Km <sup>2</sup>	Stable	Unknown
<i>Romania</i>	Present	marginal Km <sup>2</sup>	Unknown	Unknown
<i>Spain</i>	Canary Islands: Present	43 Km <sup>2</sup>	Unknown	Stable

### **Extent of Occurrence, Area of Occupancy and habitat area**

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
EU 28	1540950 Km <sup>2</sup>	28	214 Km <sup>2</sup>	none

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
EU 28+	1540950 Km <sup>2</sup>	28	214 Km <sup>2</sup>	none

### Distribution map



The map is rather complete. Data sources: Art17, EXP.

### How much of the current distribution of the habitat type lies within the EU 28?

100%. The habitat is fully distributed within the EU28. It depends however on the exact definition: how broadly will it be defined.

### Trends in quantity

There is no quantitative data on changes in area of this habitat over the last 50 years. However, some changes will have occurred due to natural dynamics (new lava flows versus succession towards other habitats), but it is likely that these changes are relatively small, falling within a range of maximum 10% fluctuation. Besides, small parts of the habitat will have disappeared due to building of houses and roads. The trend in area therefore is considered as stable or slightly negative.

- Average current trend in quantity (extent)

EU 28: Stable

EU 28+: Stable

- Does the habitat type have a small natural range following regression?

No

*Justification*

The habitat has a large range (EOO).

- Does the habitat have a small natural range by reason of its intrinsically restricted area?

Yes

*Justification*

This habitat is intrinsically small since volcanic areas have a punctiform distribution.

### Trends in quality

There is no quantitative data on changes in quality, but there is also no indication of any important negative changes. Historical and future trends cannot be estimated due to the lacking of data/information.

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

## **Pressures and threats**

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Urban sprawl, residential and commercial development are the most threatening menaces for this habitat type. Other infrastructures (e.g. roads, car parks, etc.) may cause severe depletion of the areas occupied by this habitat.

### **List of pressures and threats**

#### **Mining, extraction of materials and energy production**

Geothermal power production

#### **Transportation and service corridors**

Roads, motorways

Car parks and parking areas

#### **Urbanisation, residential and commercial development**

Urbanised areas, human habitation

Discontinuous urbanisation

Dispersed habitation

#### **Geological events, natural catastrophes**

Volcanic activity

## **Conservation and management**

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The best management for this highly natural habitat is to leave it simply untouched, just avoiding any human interference with its natural processes. Natural succession, if any, cannot be seen as a threat. Increased public awareness about the biological relevance of such apparently inhospitable and sterile environments is important in order to make more effective conservation efforts.

### **List of conservation and management needs**

#### **Measures related to agriculture and open habitats**

Maintaining grasslands and other open habitats

#### **Measures related to spatial planning**

Establish protected areas/sites

Establishing wilderness areas/allowing succession

Legal protection of habitats and species

Manage landscape features

#### **Measures related to hunting, taking and fishing and species management**

Specific single species or species group management measures

### **Conservation status**

Annex I:

8320: MAC U2, MED XX

## When severely damaged, does the habitat retain the capacity to recover its typical character and functionality?

Recover of this habitat is always possible, provided that the natural geo-morphological processes are not hampered.

### Effort required

200+ years
Naturally

## Red List Assessment

### Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	0 %	unknown %	unknown %	unknown %
EU 28+	0 %	unknown %	unknown %	unknown %

Also no quantitative data was available on trends in area, the habitat area is expected to have been stable or slightly declined over the last 50 years. But changes are marginal and fall within natural fluctuations. This leads to the assessment Least Concern. No historical or future trend data is available.

### Criterion B: Restricted geographic distribution

Criterion B	B1			B2			B3		
	EOO	a	b	c	AOO	a		b	c
EU 28	>50.000 Km <sup>2</sup>	No	No	No	>50	No	No	No	No
EU 28+	>50.000 Km <sup>2</sup>	No	No	No	>50	No	No	No	No

Both EOO and number of locations are well above the thresholds and there are no continuous declines or threats. The calculated AOO is smaller than 50, but as subcriteria a, b and c are not met, the habitat is assessed as Least Concern under criterion B.

### Criterion C and D: Reduction in abiotic and/or biotic quality

Criteria C/D	C/D1		C/D2		C/D3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %
EU 28+	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %

Criterion C	C1		C2		C3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %
EU 28+	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %

Criterion D	D1		D2		D3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28	unknown %	unknown%	unknown %	unknown%	unknown %	unknown%
EU 28+	unknown %	unknown%	unknown %	unknown%	unknown %	unknown%

Past, historical and future trends cannot be estimated due to the lack of data/information. Extent of degradation and severity of degradation over the last 50 years are unknown, leading to the conclusion Data Deficient.

### Criterion E: Quantitative analysis to evaluate risk of habitat collapse

Criterion E	Probability of collapse
EU 28	unknown
EU 28+	unknown

There is no quantitative analysis available that estimates the probability of collapse of this habitat type.

### Overall assessment "Balance sheet" for EU 28 and EU 28+

	A1	A2a	A2b	A3	B1	B2	B3	C/D1	C/D2	C/D3	C1	C2	C3	D1	D2	D3	E
EU28	LC	DD	DD	DD	LC	LC	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	LC	DD	DD	DD	LC	LC	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Least Concern	-	Least Concern	-

### Confidence in the assessment

Low (mainly based on uncertain or indirect information, inferred and suspected data values, and/or limited expert knowledge)

### Assessors

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### Reviewers

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### Date of assessment

22/01/2016

### Date of review

16/03/2016

### References

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