

A3.23 Photophilic communities dominated by calcareous, habitat-forming algae.

Summary

Little is known about the habitat formed by these rare bioconcretions that are usually found in the infralittoral zone, on well-illuminated, rocky walls exposed to moderate wave action, and occasionally also at mesolittoral level. The small rims formed by *Titanoderma trochanter* are highly vulnerable to being dislodged by wave action and human activities. The capacity for recovery could be limited. *Tenarea tortuosa*, is a rare, delicate and elegant species, collected as souvenir and although there are no estimations of this pressure, in some areas it could be high. There are no specific conservation actions in place for this habitat at present. It would however, benefit from measures to improve the water quality, prevention of removal as souvenirs and establishment of protected areas.

Synthesis

Although this habitat has a wide geographic distribution, it is present in only relatively small areas. Given its vulnerability to climate change and sea level rise, there is a threatening process that is likely to cause a continuing decline in the quantity and/or quality within the next 20 years. This will affect the habitat over its whole distribution in the Mediterranean although it is uncertain if some areas will be more resilient than others. This habitat has therefore been assessed as Vulnerable for both the EU 28 and EU 28+.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Vulnerable	B2b	Vulnerable	B2b

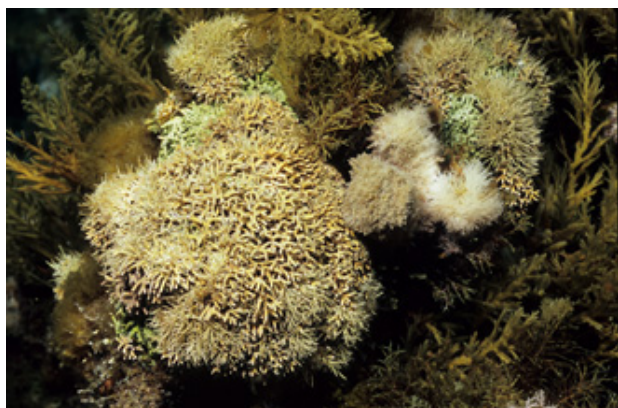
Sub-habitat types that may require further examination

None.

Habitat Type

Code and name

A3.23 Photophilic communities dominated by calcareous, habitat-forming algae.



Assemblage dominated by *Titanoderma trochanter* at 0.5 meters depth, Kas, Turkey (© E. Ballesteros).



Assemblage dominated by *Tenarea tortuosa* and *Dendropoma petraeum* at 1 meter depth, below the reef made by *Neogoniolithon brassica-florida* and *Dendropoma petraeum*, Adrasan, Turkey (© E. Ballesteros).

Habitat description

This habitat occurs in shallow rocky bottoms with large coverage of calcareous, habitat-forming corallines that provide a persistent biogenic structure. It develops on vertical cliffs in well exposed and illuminated conditions. Two red algae species dominate this habitat: *Titanoderma trochanter* and *Tenarea tortuosa*. Both species can occur together. Erect macroalgae grow interspersed with the corallines. They grow in places with a good water quality, a moderate to low hydrodynamism, and above 1.5 meters depth.

Indicators of quality:

There is no information on indicators of quality. Both dominant species seem to be restricted to environments with a good water quality although no quantitative explorations have been performed on this issue to ascertain also what might be indicators for quality assessment.

Characteristic species:

These include: Rhodophyta (red algae): *Titanoderma trochanter*, *Tenarea tortuosa*, *Amphiroa rigida*, *Laurencia obtusa*, *Haliptilon virgatum*, *Jania rubens*, *Lithophyllum incrustans*, *Neogoniolithon brassica-florida*. Phaeophyta: *Dictyota fasciola*, *Padina pavonica*, *Cystoseira compressa*, *Cystoseira crinita*, *Cystoseira barbatula*. Chlorophyta (green algae): *Anadyomene stellata*, *Acetabularia acetabulum*. Mollusca: *Dendropoma petraeum*. Fish: *Sarpa salpa*, *Siganus luridus*, *Parablennius incognitus*, *Parablennius gattorugine*.

Classification

EUNIS (2007):

Level 4: A sub-habitat of 'Mediterranean moderate energy infralittoral rock' (A3.2).

Annex 1:

1170 Reefs

MAES:

Marine- Marine inlets and transitional waters

Marine- Coastal

MSFD:

Shallow sublittoral rock and biogenic reef

EUSeaMap:

Shallow photic rock or biogenic reef

IUCN:

9.2 Subtidal rock and rocky reefs

Barcelona code:

II. 4. 2. Biocenosis of the lower mediolittoral rock

II. 4. 2. 3. Association with *Tenarea undulosa*

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

Yes

Regions

Mediterranean

Justification

The structural species that form this habitat are endemic to the Mediterranean.

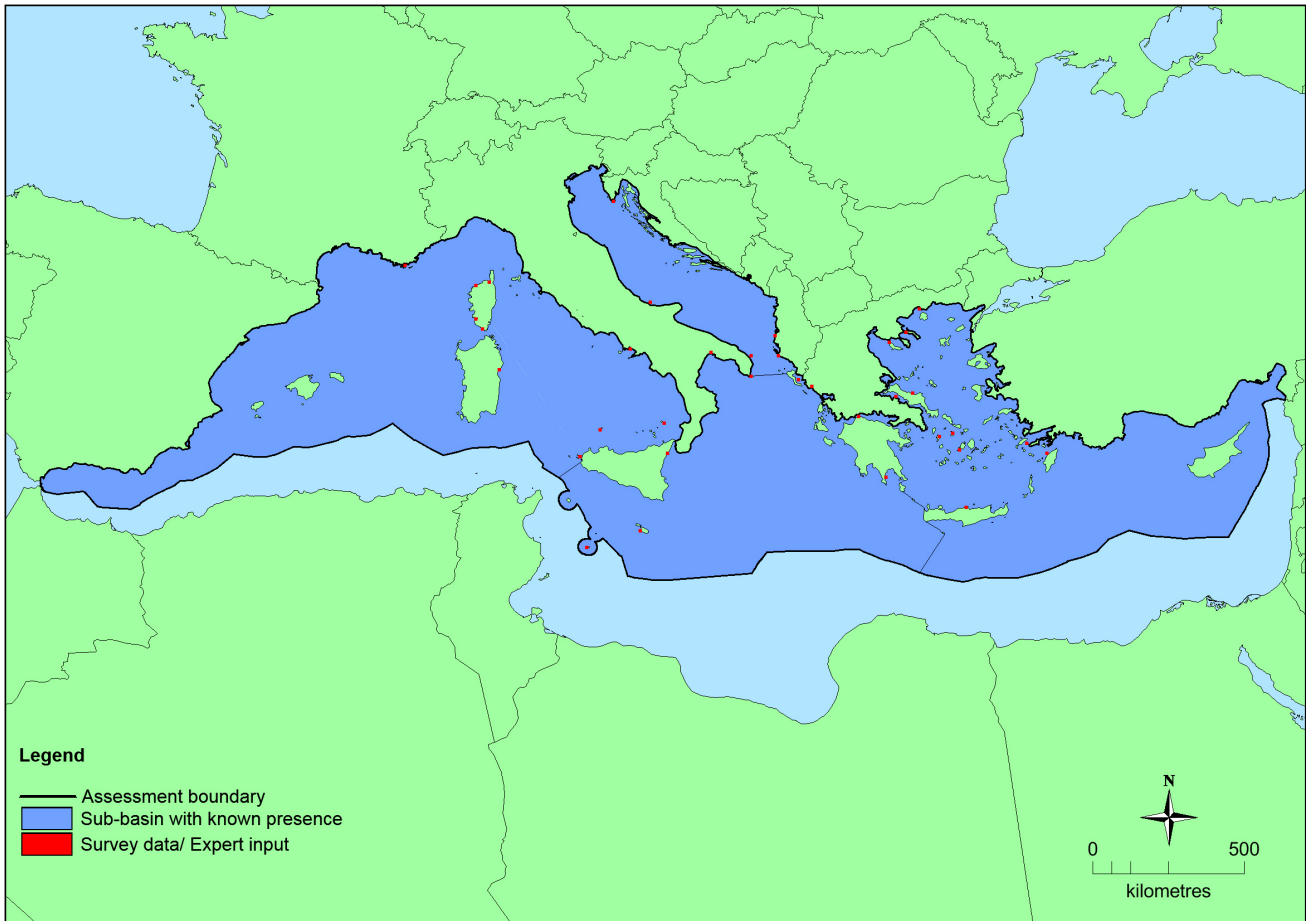
Geographic occurrence and trends

Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Mediterranean Sea</i>	Adriatic Sea: Present Aegian-Levantine Sea: Present Ionian Sea and the Central Mediterranean Sea: Present Western Mediterranean Sea: Present	Unknown Km ²	Unknown	Unknown

Extent of Occurrence, Area of Occupancy and habitat area

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
<i>EU 28</i>	1,249,443 Km ²	33	Unknown Km ²	
<i>EU 28+</i>	1,249,443 Km ²	35	Unknown Km ²	

Distribution map



This map has been generated using data from IUCN and supplemented with expert opinion. EOO and AOO have been calculated on the available data presented in this map however these should be treated with caution as expert opinion is that this may not indicate the full distribution of the habitat. The habitat distribution is based Herbarium (Algarium) Universitatis Tergestinae Nova collectio - G. Bressan in CALCHERB on the web site <http://dbiodbs.units.it/web/alghe/calc01>.

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

This habitat has been found at few locations in the Mediterranean and more than 80% of its known distribution is within EU 28.

Trends in quantity

There is no information on indicators of quantity and trends. Grey literature seems to indicate that some of the reef building species are collected as souvenirs and threatened by other pressures, but the degree of these impacts is unknown.

- Average current trend in quantity (extent)

EU 28: Unknown

EU 28+: Unknown

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

No

Justification

This habitat is present in all the Mediterranean sub-basins therefore it does not have a small natural range.

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

No

Justification

This habitat is present in all the Mediterranean sub-basins therefore it does not have a small natural range.

Trends in quality

There is limited information available to evaluate the trends in quality over the last 50 years as research has been focused on taxonomic and distribution records rather than trends.

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

Pressures and threats

The bioconstructions made by the dominant species, *Titanoderma trochanter* and *Tenarea tortuosa*, are threatened by climate induced pressures and collection as souvenirs. Other important threats are coastal habitat modification, sea level rise and pollution but the scale of such pressures is unknown.

List of pressures and threats

Biological resource use other than agriculture & forestry

Removal for collection purposes

Human intrusions and disturbances

Trampling, overuse

Climate change

pH-changes

Sea-level changes

Conservation and management

Currently, there are no specific conservation actions in place for this habitat. This habitat would benefit from measures to improve the water quality, prevention of removal as souvenirs and establishment of protected areas.

List of conservation and management needs

Measures related to wetland, freshwater and coastal habitats

Restoring/Improving water quality

Measures related to spatial planning

Establish protected areas/sites

Conservation status

Annex 1:

1170: MMED XX

Titanoderma trochanter and *Tenarea tortuosa* are both listed in Annex II to the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean of the Barcelona Convention. They are also included in the National Red List of Endangered species of some Mediterranean countries (e.g. Albania, Spain, France).

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

Unknown. The rims formed by some of these species only adhere to the substrate at a few points and are easily detached or be broken off by hand. Therefore its recovery capacity will depends on the building of the structure.

Effort required

Red List Assessment

Criterion A: Reduction in quantity

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

Little is known about the extent and any trends in quantity of this habitat, although some reports seems to indicate of loss in some locations. No estimates have been made of potential future loss of this habitat. The habitat type has therefore been assessed as Data Deficient under Criterion A for both EU 28 and EU 28+.

Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	>50,000 Km ²	Unknown	Yes	unknown	33	Unknown	Yes	unknown	unknown
EU 28+	>50,000 Km ²	Unknown	Yes	unknown	35	Unknown	Yes	unknown	unknown

This habitat has a restricted distribution (AOO <50) and given its vulnerability to climate change and sea level rise, there is a threatening process that is likely to cause a continuing decline in the quantity and/or quality within the next 20 years. This impact will affect the habitat over its whole distribution in the Mediterranean although it is uncertain if some areas will be more resilient than others. This habitat has been assessed as Least Concern under criteria B1b (for both EU 28 and EU 28+), Vulnerable under criteria B2b (for both EU 28 and EU 28+). This habitat has been assessed as Data Deficient under all other criteria.

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 %

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 %

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%

Since there are no studies available on the past and current conditions of this habitat type, it is not possible to calculate the reductions in abiotic and/or biotic quality. The habitat is therefore assessed as Data Deficient under Criterion C/D for both EU 28 and EU 28+.

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 to estimate the probability of collapse of this habitat type. It is therefore assessed as Data Deficient under Criterion E.

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	DD	DD	DD	DD	LC	VU	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	DD	DD	DD	DD	LC	VU	DD	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
Vulnerable	B2b	Vulnerable	B2b

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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Contributors

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Reviewers

R. Haroun.

Date of assessment

11/11/2015

Date of review

04/04/2016

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