



**MSFD Guiding  
Improvements in the Black  
Sea  
Integrated Monitoring  
System**



# **Black Sea PHYTOBENTHOS LIST IUCN CRITERIA**

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### Abbreviations used:

Black Sea countries	
BG	BULGARIA
GE	GEORGIA
RO	ROMANIA
RU	RUSSIAN FEDERATION
TR	TURKEY
UA	UKRAINE

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# Definition of the IUCN criteria

(Source: <http://www.iucnredlist.org>)

## **EXTINCT (EX)**

A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

## **EXTINCT IN THE WILD (EW)**

A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

## **CRITICALLY ENDANGERED (CR)**

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered (see Section V), and it is therefore considered to be facing an extremely high risk of extinction in the wild.

## **ENDANGERED (EN)**

A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered (see Section V), and it is therefore considered to be facing a very high risk of extinction in the wild.

## **VULNERABLE (VU)**

A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable (see Section V), and it is therefore considered to be facing a high risk of extinction in the wild.

## **NEAR THREATENED (NT)**

A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

### **LEAST CONCERN (LC)**

A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

### **DATA DEFICIENT (DD)**

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, and a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

### **NOT EVALUATED (NE)**

A taxon is Not Evaluated when it has not yet been evaluated against the criteria.

Red Data List for the Black Sea includes terrestrial and aquatic vascular plants and macroalgae and their current status proposed by the Black Sea countries, with comments relating to the proposed classification.

### **Notes used in the table:**

Exclude - Accidental species

Exclude\* - Least Concern

Exclude\*\* - Commercial species

Exclude\*\*\* - freshwater species

NA = not applicable (species that is not encountered in one country)

NA – in this category are included the species that are not identified in one country, but present in another country, mentioned in the Red List.

NA = category for a taxon deemed to be ineligible for assessment at a regional level. A taxon may be NA because it is not a wild population or not within its natural range in the region, or because it is a vagrant to the region. It may also be NA because it occurs at very low numbers in the region (i.e. when the regional Red List authority has decided to use a “filter” to exclude taxa before the assessment procedure) or the taxon may be classified at a lower taxonomic level (e.g. below the level of species or subspecies) than considered eligible by the regional Red List authority. In contrast to other Red List Categories, it is not mandatory to use NA for all taxa to which it applies; but is recommended for taxa where its use is informative.

(source: [http://www.iucnredlist.org/documents/reg\\_guidelines\\_en.pdf](http://www.iucnredlist.org/documents/reg_guidelines_en.pdf))

# Black Sea Red Data List

Taxonomic groups, species	Proposed status for species in new version of the Black Sea Red Data Book					
	BG	GE	RO	RU	TR	UA
VASCULAR PLANTS (TERRESTRIAL)						
<i>Aegilops geniculata</i> (Roth)			NT			CE
<i>Allium guttatum</i> Steven.			NT			CE
<i>Alyssum borzaeanum</i> E.I. Nyár.			CR			EN
<i>Argusia sibirica</i> (L.) Dandy			CR			EN
<i>Artemisia dzevanovskyi</i> Leonova <i>Cota dubia</i> (Steven) Holub			NA			VU
<i>Asparagus maritimus</i> (L.) Mill.			CR			CE
<i>Asparagus brachyphyllus</i> Turczaninov, 1840			Exclude			VU
<i>Asparagus pallasii</i> Misch.			Exclude			CE
<i>Asparagus litoralis</i> Steven			NT			VU
<i>Asparagus tenuifolius</i> Lam.			LC			CE
<i>Astragalus varius</i> S.G.Gmelin subsp. <i>eupatoricus</i> Sytin			VU			DD
<i>Astrodaucus litoralis</i> (M. Bieb.) Drude			EN			VU
<i>Atraphaxis replicata</i> Lam.			NA			NE
<i>Beta vulgaris</i> L. subsp. <i>maritima</i> (L.) Arcang.			NA			VU
<i>Cakile maritima</i> Scop. subsp. <i>euxina</i> (Pobed.) E.I. Nyár.			EN			VU
<i>Calystegia soldanella</i> (L.) R.Br.			Exclude			EX
<i>Chrysopogon gryllus</i> (L.) Trin.			LC			EN
<i>Cladium mariscus</i> (L.) Pohl s.l.			LC			CE
<i>Crambe koktebelica</i> (Junge) N. Bush.			NA			EN
<i>Crambe maritima</i> L. = <i>C. pontica</i> Stev, ex Rupr., nom.nud.)			EN			EN
<i>Crambe mitridatis</i> Juz.			NA			EN
<i>Crambe pinnatifida</i> W.T.Aiton = <i>C. maritima</i> L. subsp. <i>pinnatifida</i> (W.T.Aiton) Schmalh., <i>C. tataria</i> Sebeok var. <i>pinnatifida</i> (W.T.Aiton) O.E. Schultz			Exclude			EN
<i>Crithmum maritimum</i> L.			NA			CE
<i>Ecballium elaterium</i> (L.) A.Rich.			VU			VU
<i>Echinophora sibthorpiana</i> Guss.			NT			EX

Taxonomic groups, species	Propose status for species in new version of the Black Sea Red Data Book					
	BG	GE	RO	RU	TR	UA
<i>Elymus pycnanthus</i> (Godr.) Melderis, Syn. <i>Agropyron litorale</i> (Host) Dumort., <i>Elytrigia pycnantha</i> (Godr.) Löve			VU			EN
<i>Ephedra distachya</i> L.			NT			EN
<i>Eremogone cephalotes</i> (M.Bieb.) Fenzl. = <i>Arenaria cephalotes</i> M.Bieb.			LC			CR
<i>Eryngium maritimum</i> L.			VU			EN
<i>Euphorbia paralias</i> L. = <i>Esula paralias</i> (L.) Fourr., <i>Tithymalus paralias</i> (L.) Hill			CR			CE
<i>Euphorbia peplis</i> L.			EN			EN
<i>Festuca vaginata</i> Walst. & Kit ex Willd.			NT			EN
<i>Frankenia pulverulenta</i> L.			EN			EN
<i>Glaucium flavum</i> Crantz. = <i>G. luteum</i> Scop.			LC			VU
<i>Hymenolobus procumbens</i> (L.) Nutt. ex Schinz et A. Gray.			VU			
<i>Lepidium turczaninowii</i> Lipsky			NA			CE
<i>Leucojum aestivum</i> L.			VU			CE
<i>Leymus racemosus</i> (Lam.) Tzvelev subsp. <i>sabulosus</i> (M. Bieb.) Tzvelev			VU			LR
<i>Leymus ramosus</i> (Trin.) Tzvelev			NA			LR
<i>Linaria sabulosa</i> Czern. ex Klok.			NA			VU
<i>Lobularia maritima</i> (L.) Desv.			NA			CE
<i>Medicago disciformis</i> DC.			NA			CE
<i>Medicago marina</i> L.			CR			CE
<i>Nymphaea alba</i> L.			LC			EN
<i>Nymphoides peltata</i> (S.G. Gmel.) O.Kuntze			LC			EN
<i>Nitraria schoberi</i> L.			Exclude			CE
<i>Ornithogalum refractum</i> Kit et Schlecht.			LC			VU
<i>Pancracium maritimum</i> L.			NA			VU
<i>Parapholis incurva</i> (L.) C.E.Hubb			CR			VU
<i>Pinus stankewiczii</i> (Sukacz.) Fomin = <i>P. brutia</i> Ten. var. <i>pityusa</i> (Steven) Silba			NA			VU
<i>Polycnemum heuffelii</i> Lang			NT			NE
<i>Polygonum maritimum</i> L.			VU			VU
<i>Sagina maritima</i> G. Don			CR			CE

Taxonomic groups, species	Propose status for species in new version of the Black Sea Red Data Book					
	BG	GE	RO	RU	TR	UA
<i>Salvinia natans</i> (L.) All.			LC			NE
<i>Secale sylvestre</i> Host			LC			EN
<i>Silene caliacre</i> D. Jord. et P. Pan			NA			CE
<i>Silene euxina</i> Rupr.			NA			EN
<i>Tetragonolobus maritimus</i> (L.) Roth.			NA			EX
<i>Theligonum cynocrambe</i> L.			NA			EN
<i>Thymus littoralis</i> Klok. et Shost.			NA			
<i>Trachomitum venetum</i> (L.) Woodson subsp. <i>sarmatiense</i> (Woodson) Avetisjan, <i>T. venetum</i> subsp. <i>tauricum</i> (Pobed.) Greuter et Burdet			CR			EN
<i>Trapa natans</i> L.			VU			VU
<i>Verbascum pinnatifidum</i> Vahl.			NA			VU
<i>Vitex agnus-castus</i> L.			LC			CE
<i>Zostera marina</i> (Linnaeus, 1753)			CR			VU
<i>Zostera noltii</i> (Hörnern, 1832)			EN			VU
AQUATIC MACROPHYTES						
<i>Bambusina brebissonii</i> Kütz. ex Kütz.			Exclude***			Exclude
<i>Batrachospermum ectocarpum</i> Sirodot			Exclude***			Exclude
<i>Batrachospermum moniliforme</i> Roth			Exclude***			Exclude
<i>Bryopsis adriatica</i> (J. Ag.) Menegh.			VU			Exclude
<i>Bulbochaete subquadrata</i> Mrozińska–Webb			Exclude***			Exclude
<i>Callithamnion granulatum</i> (Ducluz.) C. Agardh			EX			Exclude
<i>Chaetomorpha zernovii</i> Woronich.			NA			EN
<i>Chara braunii</i> C.C. Gmelin			Exclude***			Exclude
<i>Chara canescens</i> Desv. et Loisel in Loisel			DD			EN
<i>Chara delicatula</i> C. Agardh = <i>Chara virgata</i> Kützinger, 1834 (valid name acc. WORMS)			DD			Exclude
<i>Chara muscosa</i> J. Groves et Bull.–Webst.			Exclude***			Exclude
<i>Chroodactylon ornatum</i> (C. Agardh)			EX			Exclude
<i>Chroodactylon wolleanum</i> Hansg.			Exclude			Exclude



Taxonomic groups, species	Propose status for species in new version of the Black Sea Red Data Book					
	BG	GE	RO	RU	TR	UA
<i>Cladophora dalmatica</i> Kütz.			VU			Exclude
<i>Cladophora vadorum</i> (Aresch.) Kütz.			CR			Exclude
<i>Cladophoropsis membranacea</i> (Hofm. Bang. ex C. Agardh) Börg.			NA			Exclude
<i>Cladostephus spongiosus</i> (Huds.) C. Agardh			Exclude *			EN
<i>Cladostephus verticillatus</i> (Lightf.) C. Agardh			Exclude *			VU
<i>Codium vermilara</i> (Olivi) Delle Chiaje			NA			EN
<i>Cystoseira barbata</i> (Good. & Wood, 1821)			EN			VU
<i>Cystoseira crinita</i> (Desf. Bory, 1832)			CR			VU
<i>Dictyota dichotoma</i> (Lamour, 1809)			NA			EN
<i>Dasyopsis apiculata</i> (C. Agardh) Zinova			NA			EN
<i>Desmidium baileyi</i> (Ralfs) Nordst.			NA			Exclude
<i>Dictyota dichotoma</i> (Huds.) J.V. Lamour.			NA			VU
<i>Ectocarpus siliculosus</i> (Dillwyn) Lyngb. var. <i>hiemalis</i> (Kjellm.) Gallardo			LC			Exclude
<i>Enteromorpha maeotica</i> Pr.–Lavr.			EX			EN
<i>Euastropsis richteri</i> (Schmidle) Lagerh.			NA			Exclude
<i>Genicularia spirotaenia</i> (de Bary) de Bary			NA			Exclude
<i>Gonatozygon pilosum</i> Wolle			NA			Exclude
<i>Helminthora divaricata</i> (C. Agardh) J. Agardh			NA			EN
<i>Lamprothamnium papulosum</i> (Wallroth) J. Groves			NA			VU
<i>Laurencia coronopus</i> J. Agardh			EX			EN
<i>Lophosiphonia reptabunda</i> (Suhr) Kylin			EX			EN
<i>Nemalion helminthoides</i> (Vellely) Batters			NA			EN
<i>Nitella gracilis</i> (J.E. Sm.) C. Agardh			Exclude***			Exclude
<i>Nitella tenuissima</i> (Desv.) Kütz.			Exclude***			Exclude
<i>Nitellopsis obtusa</i> (Desv. in Loisel) J. Groves			DD			EN
<i>Oedogonium plagiostomum</i> Wittr. ex Hirn var. <i>tanaiticum</i> Y.V. Roll			Exclude***			Exclude
<i>Oocardium stratum</i> Nägeli			Exclude***			Exclude
<i>Osmundea hybrida</i> (DC.) K.W. Nam in K.W. Nam, Maggs & Garbary			NA			VU

Taxonomic groups, species	Propose status for species in new version of the Black Sea Red Data Book					
	BG	GE	RO	RU	TR	UA
<i>Osmundea pinnatifida</i> (Huds.) Stackh			EX			VU
<i>Pediastrum kawraiskyi</i> Schmidle			Exclude***			Exclude
<i>Penium borgeanum</i> Skuja			Exclude***			Exclude
<i>Petalonia zosterifolia</i> (Reinke) Kuntze			EX			VU
<i>Phyllophora brodiaei</i> (Turn J. Ag., 1842)			CR			VU
<i>Phyllophora nervosa</i> (P.C. Grev., 1830)			CR			VU
<i>Phyllophora pseudoceranoioides</i> (S.G. Gmel.) Newroth et R. Taylor			CR			CE
<i>Polysiphonia spinulosa</i> Grev.			EX			VU
<i>Pterosiphonia pennata</i> (C. Agardh) Sauv.			EX			EN
<i>Punctaria latifolia</i> Grev.			LC			VU
<i>Punctaria tenuissima</i> (C. Agardh) Grev.			EX			EN
<i>Pylaiella littoralis</i> (L.) Kjellm.			EX			Exclude
<i>Rhodochorton purpureum</i> (Lightf.) Rosenv.			NA			EN
<i>Roya anglica</i> G.S. West in Hodgetts			Exclude***			Exclude
<i>Siphonocladus pusillus</i> (Kütz.) Hauck			NA			Exclude
<i>Spermatochnus paradoxus</i> (Roth) Kütz.			NA			VU
<i>Sphacelaria nana</i> Nägeli ex Kütz. = <i>Sphacelaria saxatilis</i> (Kuck.) Sauv.			NA			Exclude
<i>Spirogyra reinhardii</i> Chmiel. emend. Gauth.–Lièvre			Exclude***			Exclude
<i>Stigeoclonium fasciculare</i> Kütz.			Exclude***			Exclude
<i>Stilophora tenella</i> (Esper)			EX			VU
<i>Stylonema alsidii</i> (Zanardini) K.M. Drew			EX			EN
<i>Thorea hispida</i> (Thore) Desvaux			Exclude***			Exclude
<i>Tolypella prolifera</i> (Ziz. ex A. Braun) Leonhar.			Exclude***			EN
<i>Vaucheria litorea</i> Hofman et C.Agardh			Exclude***			EN

### IUCN – categories

EX – Extinct (исчезнувший)

EW – Extinct in the Wild (исчезнувший в дикой природе)

CR – Critical Endangered (на грани исчезновения)

EN – Endangered (исчезающий)

VU – Vulnerable (уязвимый)

NT – Near Threatened (редкий)

LC – Least Concern (относительно благополучный)

DD – Data Deficient (не достаточно известен)

NE – Not Evaluated (неоцененный)

# Comments regarding the proposed status

## Romania

### Comments for the vascular plants (terrestrial and aquatic):

*Asparagus brachyphyllus* Turcz., *Asparagus pallasii* Mischz, *Asparagus maritimus* auct. roman., non (L) Miller - according to the Red Book of Romanian vascular plants are synonymous (so are considered to be a single species). We propose to be considered as **CR** species, and to exclude two of them from the list (Dihoru G., Negrean G., 2009).

*Astragalus varius* S.G.Gmelin subsp. *eupatoricus* Sytin - In Romania, *Astragalus varius* S.G.Gmelin is considered to be a **vulnerable** species (**VU**). This subspecies is not mentioned for the Romanian part. Two other taxa were identified : *Astragalus varius* S.G.Gmelin subsp. *albiflorus* (Brândza) Vălev and *Astragalus varius* f. *dobrogensis* (Prodan) Nyarady (Dihoru G., Negrean G., 2009).

*Calystegia soldanella* (L.) R.Br. – misquoted for coastal/seaside Romanian part at Constanta, Agigea, Portita and Danube Delta (Sfântu Gheorghe), so it is proposed to be **EXCLUDE** (xxx – Flora from Romania Socialist Republic, vol I-XIII, 1952-1976).

*Crambe pinnatifida* W.T.Aiton = *C. maritima* l. subsp. *pinnatifida* (W.T.Aiton) Schmalh., *C. tataria* Sebeok var. *pinnatifida* (W.T.Aiton) O.E. Schultz – in Romanian Flora is mentioned the species *C. tataria* Sebeok var. *pinnatifida* O.E. Schultz but for Cluj and Suceava county, so no for coastal/littoral areas. We propose that this species to be **EXCLUDE** from the RBS species list (xxx – Flora from Romania Socialist Republic, vol I-XIII, 1952-1976).

*Crithmum maritimum* L - in Romanian Flora is mentioned: “the species grows in Bulgaria, Cape Kaliakra probably in the future will also be found in Romanian part”, but this species was not later identified in any other papers, as being present in Romania coastal part (xxx – Flora from Romania Socialist Republic, vol I-XIII, 1952-1976).

*Nitraria shoberi* L.- in Romania, this species is mentioned as being present only in Buzau county, across Policiori-Paclele Reservation, nearby Vulcanii Noroiosi, so not in coastal/littoral areas. We propose that this species to be exclude from the present list, because is not a species recorded for the coastal area.

*Trachomitum venetum* (L.) Woodson subsp. *sarmatiense* (Woodson) Avetisjan, *T. venetum* subsp. *tauricum* (Pobed.) Greuter et Burdet – in Red list, for the Romanian part is mentioned only the species *Trachomitum venetum* (L.) Woodson as a **CR** – Critical Endangered (Vanishing) species - not the subspecies (Dihoru G., Negrean G., 2009).

**The following species:**

- *Asparagus tenuifolius* Lam.
- *Chrysopogon gryllus* (L.) Trin.
- *Cladium mariscus* (L.) Pohl s.l.
- *Glaucium flavum* Crantz. = *G. luteum* Scop.
- *Nymphaea alba* L.
- *Nymphoides peltata* (S.G. Gmel.) O.Kuntze
- *Ornithogalum refractum* Kit et Schlecht.
- *Salvinia natans* (L.) All.
- *Secale sylvestre* Host
- *Vitex agnus-castus* L.

We propose to be included in the **LC category**, because for the Romanian part none of them are included in the Red Book or Red List. Are common species for Romania, no reason to be included in this list.

The following species are not mentioned in Romanian Flora (**NA category**):

- *Artemisia dzevanovskyi* Leonova Cota dubia (Steven) Holub
- *Astragalus varius* S.G.Gmelin subsp. *eupatoricus* Sytin
- *Atraphaxis replicata* Lam.
- *Crambe koktebelica* (Junge) N. Bush.
- *Crambe mitridatis* Juz.
- *Eremogone cephalotes* (M.Bieb.) Fenzl. = *Arenaria cephalotes* M.Bieb.
- *Lepidium turczaninowii* Lipsky
- *Leymus ramosus* (Trin.) Tzvelev
- *Linaria sabulosa* Czern. ex Klok.
- *Lobularia maritima* (L.) Desv.
- *Medicago disciformis* DC.
- *Pancracium maritimum* L.
- *Pinus stankewiczii* (Sukacz.) Fomin = *P. brutia* Ten. var. *pityusa* (Steven) Silba
- *Silene caliacre* D. Jord. et P. Pan
- *Silene euxina* Rupr.
- *Tetragonolobus maritimus* (L.) Roth.
- *Theligonum cynocrambe* L.
- *Thymus littoralis* Klok. et Shost.
- *Verbascum pinnatifidum* Vahl.



## Comments for the macroalgae and marine phanerogams:

*Zostera marina* (Linnaeus, 1753) – was not identified in the samples in the last years, and can be considered a rare presence Critically Endangered (CR).

*Zostera (Zosterella) noltei* Hornemann – although strongly affected in the past by eutrophication and dredging operations, nowadays forms well developed meadows at Mangalia and in the northern part of the Romanian shore. Being a sensitive species that is in a slight recovery period, is proposed to maintain it as an endangered species (EN).

The following species are freshwater species (acc. to [www.algaebase.org](http://www.algaebase.org) and <http://www.marinespecies.org>): no reason to be in the marine BS-RDB (so we propose to be **EXCLUDE \*\*\*** from the list).

- *Bambusina brebissonii* Kütz. ex Kütz.
- *Batrachospermum ectocarpum* Sirodot
- *Batrachospermum moniliforme* Roth
- *Bulbochaete subquadrata* Mrozińska–Webb
- *Chara braunii* C.C. Gmellin
- *Chara muscosa* J. Groves et Bull.–Webst.
- *Nitella tenuissima* (Desv.) Kütz.
- *Nitella gracilis* (J.E. Sm.) C. Agardh
- *Oedogonium plagiostomum* Wittr. ex Hirn var. *tanaiticum* Y.V. Roll
- *Oocardium stratum* Nägeli
- *Penium borgeanum* Skuja = *Actinotaenium borgeanum* (Skuja) Kouwets & Coesel, 1984 (valid name acc. WORMS)
- *Pediastrum kawraiskyi* Schmidle
- *Roya anglica* G.S. West in Hodgetts
- *Spirogyra reinhardii* Chmiel. emend. Gauth.–Lièvre
- *Stigeoclonium fasciculare* Kütz.
- *Thorea hispida* (Thore) Desvaux
- *Tolypella prolifera* (Ziz. ex A. Braun) Leonhar.
- *Vaucheria litorea* Hofman et C. Agardh

**The following species were not identified at the Romanian shore (NA category):**

- *Chaetomorpha zernovii* Woronich
- *Cladophoropsis membranacea* (Hofm. Bang. ex C. Agardh) Börg.
- *Codium vermilara* (Olivi) Delle Chiaje
- *Dictyota dichotoma* (Lamour, 1809)
- *Dasyopsis apiculata* (C. Agardh) Zinova
- *Desmidium baileyi* (Ralfs) Nordst.
- *Euaestropis richteri* (Schmidle) Lagerh.
- *Genicularia spirotaenia* (de Bary) de Bary
- *Gonatozygon pilosum* Wolle
- *Helminthora divaricata* (C. Agardh) J. Agardh
- *Lamprothamnium papulosum* (Wallroth) J. Groves
- *Nemalion helminthoides* (Vellay) Batters
- *Osmundea hybrida* (DC.) K.W. Nam in K.W. Nam, Maggs & Garbary
- *Rhodochorton purpureum* (Lightf.) Rosenv.
- *Siphonocladus pusillus* (Kütz.) Hauck
- *Spermatochnus paradoxus* (Roth) Kütz.
- *Sphacelaria nana* Nägeli ex Kütz.= *Sphacelaria saxatilis* (Kuck.) Sauv

According to the bibliographic synthesis, that covers a long period of time, it can be noticed that certain species, included in this list have not been identified in the past decades, so they can be proposed as extincted from the Romanian Black Sea coast.

***Bryopsis adriatica* (J. Ag.) Menegh.** – no recent data about this species, was not identified in samples in the past years, but reported as being a RARE presence in the '90 at the Romanian shore.

***Callithamnion granulatum* (Ducluz.) C. Agardh** – EX - not found at the Romanian shore after 1980s

***Chroodactylon ornatum* (C. Agardh)** - EX. – reported by Maria Celan as being present at the Romanian shore in the 60s-70s, under the name ***Asterocytis ornata* (C.Agardh) G.Hamel, 1924**, but was not detected in subsequent samples (Celan M., 1960).

***Cladophora dalmatica* Kütz.** - not found at the Romanian shore after 2005, so we consider for the moment in **VULNERABLE** category.

***Cladophora vadorum* (Aresch.) Kütz.** - not found at the Romanian shore after 1980s.

***Cladostephus spongiosus* (Huds.) C. Agardh** - just one record of this species in a very old reference (Teodorescu, 1907); not found in collected samples afterwards.

***Cladostephus verticillatus* (Lightf.) C. Agardh** - according to WORMS is synonym with *C. spongiosus*

***Cystoseira barbata* (Good. & Wood, 1821)** - This perennial brown algae suffered at the Romanian shore a drastic decline during the '70s, due to the cumulative action of natural and anthropogenic unfavorable factors, but in recent years is in a recovery process at the Romanian seaside, forming well-developed fields in southern part along Mangalia – 2 Mai – Vama Veche. However, it is still considered a sensitive species to external factors and therefore we proposed to maintain this species in the category **EN** – as an endangered species.

***Cystoseira crinita* (Desf. Bory, 1832)** - a common species during the '60, '70 and the '80s; was not recorded in the last years; it is considered to be a rare presence Critically Endangered (CR).

***Ectocarpus siliculosus* (Dillwyn) Lyngb. var. hiemalis (Kjellm.) Gallardo** - common species at the Romanian shore, during cold season, so we consider the species in the **LC** category

***Enteromorpha maeotica* Pr.–Lavr.** - present during 1962-1981, but only in the brackish water littoral lake near Eforie North; was not identified in the collected samples during 1996-2012. Considered by A. Zinova to be an endemic species for the Black Sea. So, we consider to be in **EX** category.

***Laurencia coronopus* J. Agardh** - detected only in the 60s, was not later identified. Currently the perennial species of the genus *Laurencia* are no longer identified in the collected samples from the Romanian Black Sea coast. Even from the '70, this genus was under the risk of extinction at the Romanian seashore (Bavaru A.,1977).

***Lophosiphonia reptabunda* (Suhr) Kylin** - identified until the early '60s, was not present later at the Romanian coast, so we consider to be in **EX** category.

***Osmundea pinnatifida* (Huds.) Stackh** - detected only in the 60s, was not later identified. Currently the perennial species of the genus *Laurencia* are not present anymore in collected samples from the Romanian Black Sea coast (**EX**).

***Petalonia zosterifolia* (Reinke) Kuntze** - detected only in the 60s, was not later identified.

*Phyllophora brodiaei* (Turn J. Ag., 1842), *Phyllophora nervosa* (P.C. Grev., 1830), *Phyllophora pseudoceranoides* (S.G. Gmel.) Newroth et R. Taylor - Among the perennial species that used to form in the past the „Zernov' s Phyllophora Field” at the Romanian coast, in present were reported only 3 species - *Phyllophora truncata* f. *brodiaei* (Turner) Newroth & Taylor, 1971 (accepted as *Coccotylus brodiei* (Turner) Kützing, 1843), *Phyllophora pseudoceranoides* (S.G.Gmelin) Newroth & A.R.A.Taylor, 1971 and *Phyllophora nervosa* (A.P.de Candolle) Greville, 1830 (accepted as *Phyllophora crispa* (Hudson) P.S.Dixon, 1964) but only as sparse bunches, so these species can be considered Critically Endangered (CR).

***Polysiphonia spinulosa* Grev.** - detected only in the 60s, was not later identified.

***Pterosiphonia pennata* (C. Agardh) Sauv.** - detected only in the 60s, was not later identified.

***Punctaria latifolia* Grev.**- common species at the Romanian shore during cold season – LC category.

***Punctaria tenuissima* (C. Agardh) Grev.** - present during 1962-1981; was not identified in the collected samples during 1996-2012.

***Pylaiella littoralis* (L.) Kjellm.** - species not found after the '70s.

***Stilophora tenella* (Esper)** - present during 1962-1981; was not identified in the collected samples during 1996-2012.

***Stylonema alsidii* (Zanardini) K.M. Drew** - detected only in the 60s, was not later identified.



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