Note to the Article 17 checklist - issues related to the species taxonomy

The European Topic Centre on Biological Diversity (ETC/BD) is a consortium of nine organisations
under a Framework Partnership Agreement with the European Environment Agency

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TAXONOMICAL ISSUES

General principles used by the ETC/BD

Several species listed in the Annexes of the Habitats Directive have been recently revised and are now considered to be two or more species. Conversly other species were included in larger newly defined species often loosing their specific or even subspecific status.

In the 2001-2006 Article 17 reporting different Member States have treated these recent changes of taxa differently, some have followed recent taxonomic treatments while others reported the species as they were described at the time when the Habitats Directive was adopted.

A common understanding of the taxa by all Member States concerned remains a crucial condition for merging the Member State reports in order to produce a European level assessment of the conservation status. In the framework of preparation of the Article 17 species check-list Member States were invited to comment on taxonomic issues by which they are concerned.

This document summarizes the outcomes of the 2 rounds of consultation of Article 17 species check-list concerning the issues linked to recent changes in the taxonomy. For each issue a possible solution for the 2007-2012 reporting is proposed. The basic rule is to report at the species level in line with current understanding about taxonomy of a species if the species can be distinguished morphologically or occur in distinct geographical areas.

It is however impotant to underline that an interpretation of the species (if known) at the time when the Annexes of the Directive were drafted or ammended (basically how the species was understood by the legislator around 1992, or at the time the Annexes where amended for species added in 1997 etc.) is a guiding principle of presented proposals.

Problems encountered

In some rare cases Member States suggested to add under the name listed in the Directive new species names, the relations of which to the Directive name is ambiguous. If literature references used in this document do not indicate the link of a new species name with a known concept of Directive species around the time the Annexes of the Directive were drafted, the new species were not included in the Article 17 check-list. This is the case for example of species which were already around 1990 recognised as distinct species or subspecies of other species not included in the Directive, and the synonymy with a name listed in the Directive is of much older date. However in these situations decision was restricted by available literature. We have attributed the species codes to these species and included them in the species code list that will be published together with the Article 17 species check-list in the Article 17 Reference portal.

If the link between a new name and a name listed in the Directive is unclear, for example when interpretation of a species in the time the Annexes of the Directive were drafted was unclear (*Salmo macrostigma*) the species were included in the Article 17 check-list with a remark “reserve”.

Some of the species names listed in the Directive are not recognised as valid names at present and different names are accepted as valid. In some cases ‘replacing of the valid name’ results from new definition of a taxon. For example in some cases, according to the current understanding a Directive name actually identifies a form or a variety of other species, the name of which is now correctly used as a valid name replacing prevoius Directive species name (*Euphorbia lambi, Coregonus oxyrhynchus*). In this situation the Directive species lost its specific status. During consultations some Member States have indicated their preference for using valid names in the Article 17 reporting. An automatic replacing of the Directive names by the names which are currently recognised as valid can have implications on the extent of the Directive species. These issues require further work in future. It is though recommended to use the Directive names in the Article 17 reporting for the period 2007-2012.

Very recent taxonomic changes (published only recently), unless they concern rare species, are not reflected in this document to allow evaluation of trends. In the case of very recent taxonomical split it is suggested to submit a joint report covering both newly recognised species (for example *Eptesicus serotinus)* for the 2007-2012 reporting and to report separately for each of the species in future.

This document aims to find practical solutions for the 2007-2012 reporting exercise reflecting the current knowledge. It does not include legally binding definitions of the species listed in the Annexes of the Directive.

FISH

The principal taxonomic reference used was FishBase and Kottelat & Freyhof 2007 (if other reference is not indicated in the text)

Acipenser sturio x Acipenser oxyrinchus

Acipenser sturio listed in the Directive

Country concerned: DE

Background information

Until recently now extinct populations of **Baltic sturgeon** were considered to belong to European sturgeon *A. sturio*, but the recent genetical data suggested that they are also genetically close to the population of American A. *oxyrinchus.* Ludwig et al. (2002) discovered that these populations shared the same mitochondrial DNA with American sturgeon and shall be though classified as A. *oxyrinchus.*

Later on these results were contested by Tiedemann et al. 2007, who showed that nuclear genome of Baltic sturgeon included components of genetical materials of both species *A. sturio* and A. *oxyrinchus* and so the Baltic population were not A. *oxyrinchus* but they were of a hybrid origin. These results (the possibility of existence of hybrid population in the Baltic Sea) were further confirmed in the study of the chromosome banding in both sturgeon species (Fontana et al. 2009)

German authorities however consider A. *oxyrinchus* as autochtonous in the Baltic Sea (following the note of the Commission).

- Separate report for both *Acipenser sturio* and *Acipenser oxyrinchus* is recommended corresponding to the HD name *Acipenser sturio* .

Names retained in the check-list:

- *Acipenser sturio*
- *Acipenser oxyrinchus*

Alosa agone

Countries concerned: IT, BG

Background information

According to the Bianco 2002 *Alosa fallax* the Atlantic shad is not present in the Mediterranean basin; the species present should be referred to as *Alosa agone*. However this interpretation was not widely recognized. Recent taxonomic review (Kottelat & Freyhof 2007) followed by other references (IUCN Red list 2008, fishbase) define *A. agone* as a lacustrine species occuring only in several lakes in Switzerland and northern Italy, which is in line with its original description in Kottelat 1997. All other populations/forms occurring in Italy and elsewhere in the Mediterranean are considered as *A. fallax.* This interpretation was used by all Mediterranean countries in the previous reporting.

- In order to keep consictency with the Article 17 report for the periond 2000-2006 and having in mind unfavourble conservations status of *A. agone* it is recommended to provide a separate report for *Alosa agone* lacustrine species occuring in northern Italy Other Mediterranean population should be reported as *A. fallax*.

Names retained in the check-list:

- *Alosa fallax*
- *Alosa agone*

Alburnus albidus

Listed in the Directive as *Alburnus albidus* (*Alburnus vulturius*)

Countries concerned: IT, SI

- SR TAX There is a controversy in interpretation of this species in Italy and Slovenia. This issue requires further discussion in future. It is recommended to report as in the previous report.

Names retained in the check-list:

- *Alburnus albidus* LR Slovenia

Aphanius fasciatus

Countries concerned: GR

Background information

Previously, despite the known variability, all of the populations of *Aphanius* occurring in Greece were considered as *A. fasciatus*. *A. almiriensis* was described as the new species in 2007 from the populations firstly discovered in 1997 by Kottelat et al 2007 within the range of *A. fasciatus.* The geographical range of *A. almiriensis* is very restricted (it is known to survive only in one locality out of two known before) therefore separate reports for *A. fasciatus* and *A. almiriensis* should not represent substantial increase of the work load.

- Separate reporting for *Aphanius almiriensis* and *Aphanius fasciatus* corresponding to the HD name *Aphanius fasciatus* is suggested. However the status of *A. almiriensis* may require further discussion in future.

Names retained in the check-list:

- *Aphanius fasciatus*
- *Aphanius almiriensis* LR

Aphanius iberus

Countries concerned: ES

Background information

The western Atlantic populations of *A. iberus* are recently attributed to the new species *A. beaticus*. The geographical range of *A. baeticus* is very restricted therefore the separate reports for *A. iberus* and *A. beaticus* should not represent substantial increase of the work load.

- Separate reporting for *A. iberus* and *A. beaticus* corresponding to the HD name *Aphanius iberus* is suggested.

Names retained in the check-list:

- *Aphanius iberus*
- *Aphanius beaticus*

Barbus plebejus

Countries concerned BG, GR, IT, SI

Background information

The understanding of this taxon varied in the past. According to some authorities the species covered population occurring in the Northern Adriatic basin in Italy and Slovenia. Some old authors included under this taxon also subspecies occurring in the Balkan Peninsula (Greece and Bulgaria) recognized as *B. cyclolepis* complex which are recently considered as distinct species. Some authorities have extended the definition of this taxon also for Iberian populations of *B. haasi*, which they considered as subspecies of *B. plebejus (*Lellek 1987*)*.

Spain does not consider *B. haasi* as derived from the *B.plebejus*. Regarding Balkan population of previous *B. cyclolepis* complex, there seem to be a certain level of consensus between two Balkan countries in interpreting the HD name *B. plebejus* and both countries BG and GR recognize this Annex II species in their territory (those are actually the species of *B. cyclolepis* complex which are present, respectively *Barbus cyclolepis, Barbus strumicae* and *Barbus bergi* in BG and *Barbus cyclolepis, Barbus euboicus, Barbus pergamonensis, Barbus prespensis, Barbus sperchiensis, Barbus strumicae* in GR*)*

- The separate report for *Barbus bergi, Barbus cyclolepis, Barbus strumicae, Barbus euboicus, Barbus pergamonensis, Barbus plebejus, Barbus prespensis, Barbus sperchiensis* is suggested correspnding to the HD name *Barbus plebejus*. However the status of the species of *B. cyclolepis* complex is not clear.

Names retained in the check-list:

- *Barbus bergi*
- *Barbus cyclolepis*
- *Barbus strumicae*
- *Barbus euboicus*
- *Barbus pergamonensis*
- *Barbus plebejus*
- *Barbus prespensis*
- *Barbus sperchiensis*

Barbus meridionalis

Countries concerned: ES, FR, IT, BG, HU, SK, SI, PL, RO, GR, AT

Background information

Several distinct species are recently recognized from the range of the previous *B. meridionalis*: *B. petenyi, B. balcanicus, B. carpathicus* occurring in the Eastern Europe and *B.caninus* occurring in Italy (Lellek 1987, Maitland 1995, Kotlik et al. 2002). Although the status of *B. peloponnesius, B rebeli* from Greece and records known from Austria is not clear local experts consider them as corresponding o the HD name *B. meridionalis.*

B peloponnesius was historically considered by some authors as a subspecies of *B. meridionalis* (see eg. in Almaca 1984), but already Karaman 1971 has distinguished is as a unique species (Karakousis et al 1995) and other authors followed this interpretation. *B. rebeli* was first described as a distinct species in 1926 from Albania. Later it was considered as a synonym (Kottelat 1997) or a subspecies of *Barbus peloponnesius.*

B. meridionalis is restricted to northern Iberian Peninsula and southern France. The morphological distinction of *B. balcanicus, B. petenyi* and *B. carpathicus* is not possible and the species are recognized based on the molecular markers. On top of that these species have sympatric occurrence and the taxonomy of this group in some parts of natural range is unclear.

- It is thus suggested to provide a joint report for *B. meridionalis* including all of the above-mentioned species. However the status of B. *peloponnesius and B. rebeli* from Greece and populations from Austria remains unclear.

Names retained in the check-list:

- *Barbus meridionalis*

Names to add to the code list

- *Barbus petenyi*
- *Barbus balcanicus*
- *Barbus carpathicus*

- *Barbus caninus*
- *Barbus peloponnesius* LR
- *Barbus rebeli* LR

Barbus albanicus and Barbus graecus

Countries concerned: GR

Two other species *Luciobarbus albanicus* and *Luciobarbus graecus* occurring in Greece were proposed by Greece as corresponding to Annex II species of *Barbus*. These are included under the Annex V *Barbus spp.* Around the time the habitats directive have been drafted they were recognized as a distinct species by several taxonomic authorities (Economidis 1991, Kottelat 1997). Studied references do not indicate their link to the Annex II species of *Barbus*.

Barbus spp (Annex V)

For the species of the Annex V it is suggested to report under the HD genus name *Barbus*

Names retained in the check-list:

- *Barbus albanicus*
- *Barbus barbus*
- *Barbus bocagei*
- *Barbus graecus*
- *Barbus graellsii*
- *Barbus guiraonis*
- *Barbus haasi*
- *Barbus macedonicus*
- *Barbus microcephalus*
- *Barbus sclateri*
- *Barbus steindachneri*
- *Barbus tyberinus*
- *Barbus waleckii*

Valid names IN IUCN (*in fishbase still genus Barbus)

- *Luciobarbus albanicus** synonym *Barbus albanicus*
- *Luciobarbus bocagei* synonym *Barbus bocagei*
- *Luciobarbus graecus* synonym *Barbus graecus*
- *Luciobarbus graellsii* synonym *Barbus graellsii*
- *Luciobarbus guiraonis* synonym *Barbus guiraonis*
- *Luciobarbus microcephalus* synonym *Barbus microcephalus*
- *Luciobarbus sclateri* synonym *Barbus sclateri*
- *Luciobarbus steindachneri* synonym *Barbus steindachneri*

Chalcalburnus chalcoides

Countries concerned AT, DE, GR, BG, SI

Background information

According to the current knowledge *Alburnus* (*Chalcalburnus) chalcoides* s str. does not occur in the EU. Recently several species from *A. chalcoides* species group are recognized in the Black sea basin: *A. mandrensis*, *A. mento*,, *A. schischkovi*, *A. sarmaticus* . In Greece *A. volviticus* was introduced as a replacement name for *Chalcalburnus chalcoides macedonicus* occurring in the lake Volvi and new species, *A. vistonicus* was described within *A. chlacoides* group from lake Vistonis drainage. Another species *A.belvicus* was proposed by Greece to be considered as corresponding to the HD name *Chalcalburnus chalcoides.*

The status of *Alburnus belvica* the species which Greece have proposed to include under the HD name *Chalcalburnus chalcoides* is unclear. According to the available reference it should not be considered as linked to the HD species *Chalcalburnus chalcoides.* It was recognised as a distinct species since 1980'ies or by some authorities synonymised with *A. alburnus.*

- Separate report for *A. mandrensis* (BG)*, A. mento* (AT, DE*), A. schischkovi* (BG), *A. volviticus* (GR), *A. vistonicus* (GR), *A. sarmaticus* (BG, SI) is recommended.
- The status of *Alburnus belvica* remains unclear

Names retained in the check-list:

Alburnus mandrensis

Alburnus mento

Alburnus schischkovi

Alburnus volviticus

Alburnus vistonicus

Alburnus sarmaticus

Names to add to the code list

Alburnus belvica LR

Chondrostoma spp.

The species listed in the Directive are *Ch. polylepis, Ch. willkommii, Ch. toxostoma, Ch lusitanicum, Ch. soetta, Ch. genei*

Countries concerned:ES, PT

Only Spain and Portugal are concerned by recent changes in the taxonomy within the genus *Chorndrostoma*. The previous Article 17 report from Portugal already reflected these changes. All of the recently recognised species occur in geographically distinct area, the geographical ranges of some of them are restricted, and therefore separate reporting is suggested.

- species listed in the Directive: *Ch. polylepis* (ES, PT) , *Ch. willkommii* (ES, PT), *Ch. toxostoma* (FR), *Ch. lusitanicum* (PT), *Ch soetta, Ch. genei*.
- a separate report for *Ch. arrigonis* (ES)*, Ch. miegii* (ES)*, Ch. turiense* (ES) corresponding to the HD name *Ch. toxostoma* from Spain
- a separate report for *Ch. almacai* (PT) corresponding to the HD name *Ch. lusitanicum* in Portugal
- a separate report for *Ch. duriense* (ES, PT) corresponding to the HD name *Ch. polylepis*

Names retained in the check-list:

- *Chondrostoma soetta*
- *Chondrostoma genei*
- *Chondrostoma polylepis*
- *Chondrostoma willkommii*
- *Chondrostoma duriense*

- *Chondrostoma lusitanicum*
- *Chondrostoma almacai*
- *Chondrostoma toxostoma*
- *Chondrostoma arrigonis*
- *Chondrostoma miegii*
- *Chondrostoma turiense*

Valid names

- *Pseudochondrostoma polylepis* synonym *Chondrostoma polylepis*
- *Pseudochondrostoma willkommii* synonym *Chondrostoma willkommii*
- *Pseudochondrostoma duriense* synonym *Chondrostoma duriense*
- *Iberochondrostoma lusitanicum* synonym *Chondrostoma lusitanicum*
- *Iberochondrostoma almacai* synonym *Chondrostoma almacai*
- *Parachondrostoma toxostoma* synonym *Chondrostoma toxostoma*
- *Parachondrostoma arrigonis* synonym *Chondrostoma arrigonis*
- *Parachondrostoma miegii* synonym *Chondrostoma miegii*
- *Parachondrostoma turiense* synonym *Chondrostoma turiense*
- *Protochondrostoma genei* synonym *Chondrostoma genei*

Cobitis taenia

Countries concerned: IT, ES, PT, BG, GR rest of EU except IE

Background information

The species recently described under the Cobitis taenia occurring in the eastern, central and western Europe (*C. taenia, C. elongatoides, C. tanaitica, C. strumicae*) hybridize to form asexual lineages. The geographical ranges of the species involved in the hybridization overlaps and a morphological distinction is not possible. It is thus recommended to provide a joint report for all species identified as belonging to *Cobitis taenia* hybrid complex occurring in central, northern and Western Europe (Janko et al 2007) (including the Black Sea populations of C. strumicae) under the name listed in the Directive. Recently *C. pontica* occurring in Bulgaria in Veleka drainage was described. The position of this species in the *C. taenia* hybrid complex is not clear, recent studies indicate that it is possible reproductive isolation from *C. taenia*. *C. strumicae* forms hybrids with the other species only locally and is geneticcally distanct from the species of *C. taenia* hybrid complex. However, Janko et al 2007 included it into the hybrid complex.

In the Iberian Peninsula three known species (*C. vettonica, C. paludica, C. calderoni*) described within *Cobitis taenia* occupies distinct areas and shall be reported separately.

Two species occurring in the Adriatic peninsula (*C. bilineata* and *C. zanandreai*) can be distinguished morphologically and they naturally occur in geographically distinct areas.

The species described in Greece (*C. punctilineata, C. stephanidisi, C. ohridana, C. vardarensis, C. meridionalis, C. punctilineata, C. arachthosensis, C. hellenica*) were described also from distinct geographical areas. Except *C. arachthosensis* and *C. punctilineata* they were described from the populations previously considered as *C. taenia* (Economidis & Nalbant 1996, Freyhof et al. 2008,, Erk'akan, et al. 1998).

- Joint report for *Cobitis teania* hybrid complex including *C. taenia, C. elongatoides, C. tanaitica, C. strumicae* and their hybrids corresponding to the HD name *Cobitis teania.*
- It is however not clear whether *C. pontica* is a part of *C. taenia* hybrid complex. A separate report for this species is recommended, but due to very recent split a joint report within *C. taenia* hybrid complex is possible.

- Separate report for all recognised species occuring in Italy and Iberian Peninsula is recommended.
- Separate report for all recognised sepcies occuring in Greece is recommended if possible. Regarding *C. strumicae* only local hybridization (Bulgaria) with other members of the *C. taenia* hybrid complex was described. Is is possible to report separately for this species.

Names retained in the check-list:

- *Cobitis taenia* SR TAX
- *Cobitis vettonica*
- *Cobitis paludica*
- *Cobitis calderoni*
- *Cobitis bilineata*
- *Cobitis zanandreai*
- *Cobitis punctilineata*
- *Cobitis stephanidisi*
- *Cobitis ohridana*
- *Cobitis vardarensis*
- *Cobitis meridionalis*
- *Cobitis puncticulata*
- *Cobitis arachthosensis*
- *Cobitis hellenica*
- *Cobitis strumicae*
- *Cobitis pontica* SR TAX

Names to add to the code-list

- *Cobitis taenia*
- *Cobitis elongatoides*
- *Cobitis tanaitica*
- *Cobitis strumicae*

Coregonus oxyrhynchus

Countries concerned: DE, DK

Background information

The description/definition of this species was recently adapted to fulfill the taxonomical criteria. Several scientific references suggest that the species concept of *C.oxyrhynchus*, which natural populations are thought to survive only in the Vidaa River in DK is questionable. According to the current knowledge actually the Vidaa population should be attributed to common *C. marenae*. *C.oxyrhynchus* as it is defined recently is extinct and it occurred in southern North Sea (UK, DE, NL, marginally BE and FR).

However this should not change the usage of the Annex II name, which was included into and listed in Annex II in 1992 under *Coregonus oxyrhinchus*, as a name for the Danish/German Widau population.

- Report for *Coregonus oxyrhynchus* sensu HD

Names retained in the check-list:

- *Coregonus oxyrhynchus*

Coregonus spp. Annex V species

Countries concerned: AT, DE, DK, EE, FI, FR, LT, LV, NL, PL, SE, UK.

Background information

The taxonomy of this group is relatively complex, and numerous species are known to occur in Europe. The distinction of sympatric or allopatric species is usually very complicated. It is suggested to provide joint reports for "*C. albula* complex" including "cisoes" and "*C. lavaretus* complex" including all "whitefishes". The relationship of *C. pollan (c. autumnalis autumnalis)* to previously mentioned species groups is not clear. Kottelat & Freyhof 2007 mentions following EU species belonging to the *C. albula* species group: *C. albula, C. fontanae, C. lucinensis, C. trybomi* and *C. vandesius*.

- joint reports for "*C. albula* complex" including "cisoes" and "*C. lavaretus* complex" including all "whitefishes". The relationship of *C. pollan (c. autumnalis autumnalis)* to previously mentioned species groups (*C. albula* complex) is not clear. As it occurs only in the UK and Ireland and both countries are able to provide a separate report it is suggested to report separately.
- It should be however possible to report on top of that separately for species of particular conservation concern.

Names retained in the check-list:

- *Coregonus albula*
- *Coregonus lavaretus*
- *Coregonus pollan* SR TAX

Names to add to the code-list:

- *Coregonus fontanae*
- *Coregonus lucinensis*
- *Coregonus trybomi*
- *Coregonus vandesius*

Cottus gobio

Countries concerned: AT, BE, BG, CZ, DE, EE, ES, FR, HU, IT, LT, LU, LV, NL, PL, RO, SE, SI, SK, UK

Background information

The taxonomy of this species has been revised recently and there are several species recognised from the previous range of *Cottus gobio*: *C. rondeleti, C. perifretum, C. duranii, C. hispaniolensis*, *C. aturi, C. gobio, C. koshewnikovi, C. microstomus, C. scaturigo, C. haemusi, C. transsilvaniae, C. metae, C. rhenanus, C. sabaudicus* Some of them were previously described as the subspecies but some of them are completely new. On the other hand in some countries still further research is needed to define distribution of newly described species; some of the above listed species may hide other undescribed species. The ranges of most of the species are sympatric so different species can occur in adjacent areas, or in one river system. The proposal is to provide a joint report for *C. gobio* s. l. including all of the above mentioned species.

- provide a joint report covering newly described species under the HD name *Cottus gobio.*

Names to retian in the check-list:

- *Cottus gobio* SR TAX

Names retained in the check-list:

- *Cottus rondeleti*
- *Cottus perifretum*
- *Cottus duranii*
- *Cottus hispaniolensis*
- *Cottus aturi*
- *Cottus koshewnikovi*
- *Cottus microstomus*
- *Cottus scaturigo*
- *Cottus haemusi*
- *Cottus transsilvaniae*
- *Cottus metae*
- *Cottus rhenanus*
- *Cottus sabaudicus*

Eudontomyzon spp.

Countries concerned: AT, BG, CZ, DE, GR, HU, PL, RO, SI, SK

- report for *Eudontomyzon danfordi*, *Eudontomyzon mariae* (including populations of *Eudontomyzon vladykovi*), *Eudontomyzon graecus*, *Eudontomyzon hellenicus*

Names retained in the check-list:

- *Eudontomyzon danfordi*
- *Eudontomyzon mariae*
- *Eudontomyzon graecus*
- *Eudontomyzon hellenicus*

Names to add to the code-list:

- *Eudontomyzon vladykovi*

Valid names (fishbase)

- *Caspiomyzon graecus* synonym *Eudontomyzon graecus*
- *Caspiomyzon hellenicus* synonym *Eudontomyzon hellenicus*

Gobio spp.

Countries concerned:

G. albipinnatus CZ, DE, PL, SK, (AT, BG, HU, RO, SI)

G. uranoscopus GR

G. kessleri HU, RO

Background information

According to the recent knowledge *Gobio (Romanogobio) albipinatus* does not occur within the EU It is thus suggested to report separately for two species which are present; *G. belingi* and *G.vladykovi*. These two species inhabits different river drainages, *G. belingi* occurring in the Baltic Sea basin and *G.vladykovi* in the Danube river system.

Separate report should be provided also for *G. uranoscopus* and *G. elimeius.* The second mentioned species was recently described to cover the populations in Greece.

The other species of this genus was recently split to several species, 2 of which are believed to occur within EU, *G. banaticus* and *G. kessleri.* However *G. banaticus* is not generaly recognised as a distinct species.

- Separate report should be provided for two species which are present within the EU *G. belingi* and *G.vladykovi* corresponding to the HD name *Gobio albipinnatus* (non EU species)
- Separate report should be provided also for *G. uranoscopus* and *G. elimeius* corresponding to the HD name *Gobio uranoscopus*
- A report for *G. kessleri* should include the doubtfull species *G. banaticus*

Names retained in the check-list:

- *Gobio belingi*
- *Gobio vladykovi*
- *Gobio uranoscopus*
- *Gobio elimeius*
- *Gobio kessleri*

Names to add to the code-list:

- *Romanogobio banaticus*

Valid names

- *Romanogobio belingi* synonym *Gobio belingi*
- *Romanogobio vladykovi* synonym *Gobio vladykovi*
- *Romanogobio uranoscopus* synonym *Gobio uranoscopus*
- *Romanogobio elimeius* synonym *Gobio elimeius*
- *Romanogobio kessleri* synonym *Gobio kessleri*
- *Romanogobio banaticus* no synonyms

Knipowitschia (Padogobius) panizzae

Countries concerned GR

Background information

Knipowitschia panizzae was probably eroneously recorded from western Greece (river Evinos in Ahnelt & Bianco (1990)) and its occurrence was actually never confirmed. The status of *Knipowitschia goerneri* and *Knipowitschia milleri,* two species which Greece have proposed in their comments to the Article 17 checklist to include under the HD name *Knipowitschia panizzae,* is unclear

Knipowitschia milleri was described in Ahnelt & Bianco (1990) as *Orsinigobius milleri* the species definitively distinct from *K. panizzae. K. goerneri* was described in Ahnelt 1991 as a species endemic to island Corfu. Both species are freshwater while *K. panizzae* is euryhaline.

- According to the available reference it is not possible to conclude that *Knipowitschia goerneri* and *Knipowitschia milleri* are linked to the HD *Knipowitschia panizzae.*

Names retained in the check-list:

- *Knipowitschia panizzae*

Names to add to the code list

- *Knipowitschia goerneri* LR
- *Knipowitschia milleri* LR

Leucicus souffia - Leuciscus keadicus

Countries concerned GR

Background information

The subspecies *Leuciscus souffia keadicus* occuring in the river Evrotas (Peloponnèse, Greece) was elevated to the species rank under the name *Leuciscus keadicus*. The species is endemic to Greek Evrotas drainage and so it occurs in geographically distinct area then *L. suoffia*. Latter the subgenus *Squalius* was recognised as valid genus. It is suggested to report for this species separately under the name *Leuciscus kaedicus* to keep a logical link to *Leuciscus souffia* name in the Directive.

- Separate report for *Squalius keadicus* in GR under the name *Leuciscus keadicus*

Names retained in the check-list:

- *Leuciscus keadicus*

Valid name

- *Squalius keadicus* synonym *Leuciscus keadicus*

Leucicus souffia - Leuciscus muticellus

Countries concerned: IT

Background information

The previous subsepcies *Leuciscus souffia muticellus* (occuring in Italy) is recently recognised as full species. *L. souffia* s. st. occurs in Italy marginally in the boundary region with Slovenia (Kottelat & Freyhof 2007) . Althoug morohological distinction is possible from pragmatic reasons (marginal occurrence of *L. souffia* s st. in Italy, the only country concerned by this split) the joint report covering both species is recommended under the name listed in the Directive

- Joint report for *Telestes souffia* and *Telestes (Leuciscus) muticellus* under the HD name *Leucicus souffia*

Names retained in the check-list:

- *Leucicus souffia*

Names to add to the code-list:

- *Leuciscus muticellus*

Valid name

- *Telestes muticellus* synonym of *Leuciscus muticellus*

Phoxinellus spp.

Countries concerned: GR

Background information

The exact definition of "*Phoxinellus spp.* Sensu HD" is not clear. The taxonomy of the genus *Phoxinellus* was unclear around the time the Annexes of the Habitats Directive were drafted. The following species *Phoxinellus pleurobipunctatus, Phoxinellus stymphalicus, Phoxinellus epiroticus*

and their subspecies (*Phoxinellus epiroticus prespensis, Phoxinellus stymphalicus thesproticus, Phoxinellus stymphalicus marathonicus*) were in the past considered as species of the genus *Phoxinellus* by some taxonomic authorities (Maitland 1995, Economidis 1991, Economidis 1995, Kottelat 1997).

It should be further noted that in early 80-ies the genus name *Phoxinellus* was sometimes used as a synonym of the genus name *Pseudophoxinus.* Currently recognised species *Telestes beoticus* was in some references cited as *Pseudophoxinus beoticus* eg. Economidis 1995.

Another species proposed by Greece *Pelasgus laconicus* was described as a new species, *Pseudophoxinus laconicus* in Kottelat& Barbieri 2004 from southern Peloponese from the previous range of *P. stymphalicus*.

- Separate report for *Pelasgus epiroticus*, *Pelasgus laconicus*, *Pelasgus marathonicus*, *Pelasgus prespensis*, *Pelasgus stymphalicus*, *Pelasgus thesproticus*, *Telestes beoticus, Telestes pleurobipunctatus*. As genus *Phoxinellus* s. str. does not occur in the EU valid genus names are preferred. However the status of some of these species (*Pelasgus laconicus)* remains unclear.

Names retained in the check-list:

- *Pelasgus epiroticus*
- *Pelasgus laconicus* LR
- *Pelasgus marathonicus*
- *Pelasgus prespensis*
- *Pelasgus stymphalicus*
- *Pelasgus thesproticus*
- *Telestes beoticus*
- *Telestes pleurobipunctatus*

Pomatoschistus canestrini

Countries concerned: GR

Background information

According to Maitland 1995 *Pomatoschistus canestrini* is the species of brackish waters endemic to northern Adriatic region. Greece in their comments to the Article 17 checklist proposed that further *Economidichthys pygmaeus* and *Economidichthys trichonis* should be included under the HD *Pomatoschistus canestrini*.

Economidichthys pygmaeus was described originally as *Gobio pygmaeus* and later cited as *E. pygmaeus* in Economidis & Miller 1990. According to these authors *G. pymeus* was earlier believed to be a subsepcies of *P. canestrinii*, opinion which persited over 1960's-1970's. But already the 1980'authors consider it as a separate species.

Economidichthys trichonis was described in Economidis & Miller 1990 from the lake Trichonis.

Both species were latter listed in the Economidis 1991 under the currently valid names *Economidichthys pygmaeus* and *Economidichthys trichonis* (Economou 2007).

- According to the available reference it is not possible to conclude that *Economidichthys pygmaeus* and *Economidichthys trichonis* are linked to the HD *Pomatoschistus canestrini* as in the time the Annexes of the Directive were drafted they were both recognised by local taxonomic authorities as distinct species.

Names retained in the check-list:

- -

Names to add to the code-list:

- *Economidichthys pygmaeus* LR

- *Economidichthys trichonis* LR

Rhodeus sericeus amarus

Countries concerned: GR, BG

Background information

Previous subspecies *Rhodeus sericeus amarus* is according to the current taxonomic views represented in Europe by two distinct species. *R. amarus* (occurring widely in EU) and *R. meridionalis* (described from Vardar river and recently known to occur more widely in Greece and marginally in Bulgaria). These two species are recognised mainly on the basis of genetical differences, morphological distinction is not possible. It is though suggested to provide a joint report including both species under the name listed in the Directive.

- Joint report including both currently recognised species *Rhodeus amarus* and *Rhodeus meridionalis* under the HD name *Rhodeus sericeus amarus* is recommended, as the species are recognized mainly on the basis of molecular markers and morphological differences are of limited value.

Names retained in the check-list:

- *Rhodeus sericeus amarus*

Names to add to the code-list:

- *Rhodeus amarus*
- *Rhodeus meridionalis*

Rutilus alburnoides

Countries concerned GR

Background information

Greece in their comments to the Article 17 checklist mentions that *Tropidophoxinellus hellenicus* and *Tropidophoxinellus spartiaticus* should be included under the HD name *Rutilus alburnoides*.

Tropidophoxinellus hellenicus was described and further on treated as a subspecies of *Rutilus alburnoides.* It was included as separate species *Tropidophoxinellus hellenicus* in Economidis 1991 checklist. It needs to be acknowledged that the time lap between the publication of Economidis 1991 work and the approval of Annexes is very short. On the top of that the generic position of this species was considered unclear by some authors.

The status of *T. spartiacus* is unclear. The species was described and further on treated as *Rutilus spartiaticus.* It was included in the Economidis 1991 under the currently valid name *Tropidophoxinellus spartiaticus,* (Economou 2007). According to the available reference it is not possible to conclude that *Tropidophoxinellus spartiaticus* is linked to the HD species *Rutilus alburnoides.*

- Separate report for *Tropidophoxinellus hellenicus* is recommended corresponding to the HD name *Rutilus alburnoides*. The status of *Tropidophoxinellus spartiaticus* remains unclear.

Names retained in the check-list:

- *Tropidophoxinellus hellenicus*

Names to add to the code-list:

- *Tropidophoxinellus spartiaticus* LR

Rutilus rubilio

Countries concerned: GR

Background information

Greece in their comments to the Article 17 checklist mentiones that *Rutilus prespensis, Rutilus ylikiensis,* and *Rutilus panosi* should be included under the HD name *Rutilus rubilio.*

According to Maitland 1995 *Rutilus rubilio* is a species endemic to the rivers of the Tyrrhenian slope in central Italy. Crivelli 1996 extended the species range to north-eastern Adriatic including Albania. Daoulas & Economidis1984 and Daoulas & Kattoulas 1985 mentioned *R. rubilio* form the lake Trichonis in western Greece.

Rutilus prespensis was noted in Lelek 1987 as a subspecies of *Rutilus rubilio*. Later it was recognized as a distincts species eg Kottelat 1997 endemic of lake Prespa or as a subspecies of *R. ohridanus* (Economidis 1991 In Economou 2007).

Rutilus ylikiensis appeared first as *Rutilus aula rubella* var. *ylikiensis* Stephanidis 1939 from Lake Yliki, Greece. It was later (Economidis 1991 In Economou 2007) described as *Rutilus ylikiensis* the species known from several lakes in Greece.

Rutilus panosi was described as *Rutilus panosi* in Bogutskaya & Iliadou 2006 from the Trichonis Lake in Greece (CAS), the locality from which 1980-iest authors mentioned *R. rubilio* . It was reffered to as *Rutilus ylikiensis* in Economidis 1991 (In Economou 2007). Economidis 1991 mention neither *R. panosi* nor *R. rubilio* from Greece.

- The status of *Rutilus panosi*, *Rutilus ylikiensis* is not clear. According to the available reference it is not possible to clarify whether these species should be considered as linked to the HD species *Rutilus rubilio.* For time being they are included in the Article 17 check-list with the reserve.
- *Rutilus prespensis* was considered as a subspecies of *Rutilus rubilio,* although around the time the HD annexes were drafted it was considered as a distinct taxon by some authors (Economidis 1991). It needs to be acknowledged that the time lap between the publication of Economidis 1991 work and the approval of Annexes is very short.

Names retained in the check-list:

- *Rutilus prespensis*
- *Rutilus ylikiensis* LR
- *Rutilus panosi* LR

Rutilus pigus

Countries concerned: AT, DE, HU, IT, RO, SI, SK.

Background information

Rutilus virgo a former subspecies of *Rutilus pigus* is recently recognises as a distinct species. The original name *R. pigus* correspond to the species present within EU only in Italy while new species *Rutilus virgo* occurs Europe-wide

- Separate reports for *Rutilus virgo* and *Rutilus pigus* corresponding the the HD name *Rutilus pigus* are recommended.

Names retained in the check-list:

- *Rutilus virgo*
- *Rutilus pigus*

Sabanejewia aurata

Countries concerned: AT, DE, HU, IT, RO, SI, SK.

Countries concerned RO (*S. balcanica, S. vallachica, S. bulgarica*) HU (?), BG (*S. balcanica, S. bulgarica*), SK (*S. balcanica*), PL (*S. baltica*), CZ (*S. balcanica*), LT (*S. balcanica*) GR (*S. balcanica*), AT (*S. balcanica*), SI (*S. balcanica*).

Background information

Several subspecies of this species have been recently elevated to the species status (*S. balcanica, S. baltica, S. vallachica, S.bulgarica*). *S. aurata* s. st., the name listed in the Directive, does not occur in the EU.

S. balcanica populations (even geographically close) exhibit important morphological and ecological differences. Despite this fact Kottelat & Freyhof 2007 in their work treat all Balkan and Danube populations as one species *S. balcanica.* Morphologically intermediate forms which represent intergrades between pairs of currently described valid species are known to occur in the Danube system in Romania (Iftime 2002)

- With regard to problems of differentiation between species especially in Danube basin it is recomended to submit a joint report for *S. balcanica, S. baltica, S. vallachica, S.bulgarica* under the HD name *S. aurata.* For future it will be important however to consider the possibility to submit separate reports for all newly recognized species.

Names retained in the check-list:

- *Sabanejewia aurata*

Names to add to the code-list:

- *Sabanejewia balcanica*
- *Sabanejewia vallachica*
- *Sabanejewia bulgarica*
- *Sabanejewia baltica*

Salmo macrostigma

Countries concenred : IT, GR, FR

Countries concerned: AT, DE, HU, IT, RO, SI, SK.

Background information

The taxonomic status of the south-east European trouts (*Salmo macrostigma*) was ambiguous at the time the Directive was approved and till present has not been clarified. In general *Salmo (trutta) macrostigma* was in past used for classifying various populations of brown trout occurring in the Tyrrhenian drainage of Italian Peninsula, Sicily, Sardinia Corsica, Greece, Mediterranean drainages in Bulgaria, Turkey and in Morocco and Algeria (Schoffman & Susnik 2007, Maitland 1995, Lellek 1987, Zerunian 2003. Kottelat & Freyhof 2007).

According to the current knowledge *S. macrostigma* is not a valid name for European populations as *Salmo macrostigma* s str. does not occur in Europe. Instead the name *S. cetti* is used for the western peri-mediterranean populations in Sicily, Corsica, Sardinia and Italy. The information on 'macrostigma' salmons from Balkan Peninsula is very incomplete. Kottelat &Freyhof 2007 mentioned *S. farioides* as a name corresponding to Balkan populations. However other species of trout are recently recognized from Greece, of which a link to previous 'macrostigma' is not clear.

- Separate report for *S.cetti S. farioides, S. dentex, S. louroensis, S. macedonicus, S. pelagonicus* and *S. peristericus* are recomended. However the status of these species remains unclear, Only *S.cetti* and *S. farioides* seem to be in relation with the HD *Salmo macrostigma*.

Names retained in the check-list:

- *Salmo cetti* SR TAX
- *Salmo farioides* SR TAX
- *Salmo dentex* LR
- *Salmo louroensis* LR
- *Salmo macedonicus* LR

- *Salmo pelagonicus* LR
- *Salmo peristericus* LR

Zingel spp.

- Separate report for all EU species : *Zingel balcanicus, Zingel asper, Zingel streber, Zingel zingel* is recommended.

Names retained in the check-list:

- *Zingel balcanicus*
- *Zingel asper*
- *Zingel streber*
- *Zingel zingel* i

AMPHIBIANS

The principal taxonomic reference used was Fauna Europaea (if other reference is not indicated in the text)

Bombina variegata

Countries concernued :IT

Background information

Bombina pachypus was recently distinguished from *Bombina variegata.* However Fauna Europea does not recognize *Bombina pachypus* as a distinct species but as a subspecies of *B.variegata*.

- Joint report for for *Bombina variegata*, including also populations of *Bombina pachypus*

Names retained in the check-list:

- *Bombina variegata*

Names to add to the code-list:

- *Bombina pachipus*

Hyla arborea

Countries concerned IT, SI

Background information

Hyla intermedia was recently distinguished from *H. arborea.* The species occurs in Italy and according to the IUCN Red list one small population occurs on the boundary with Italy in Slovenia. The species from which it was separated, *Hyla arborea* occurs marginally in NE Italy.

Because of marginal position of population of *H intermedia* in Slovenia and of *H. arborea* in Italy, from the practical point of view it is suggested to report for *Hyla arborea* s. l. including populations of both before mentioned species.

- Joint report for both species *Hyla intermedia* and *H. arborea* under the HD name *Hyla arborea*

Names retained in the check-list:

- *Hyla arborea*

Names to add to the code-list:

- *Hyla intermedia*

Mertensiella luschani (Salamandra luschani)

CONCLUSION

Countries concerned :GR

Background information

The former species *Mertensiella luschani* belongs to the genus *Lyciasalamandra* and its subspecies have been elevated to species rank as *Lyciasalamandra* luschani. In the Greek Red data Book of Threatened Animals *L. luschani* is considered as Vulnerable and *L.helverseni* as Critically Endangered.

- Due to different conservation status separate report for *Lyciasamlamandra helverseni* and *Lyciasalamandra luschani* is recommended corresponding to the HD name *Mertensiella luschani*. The genus name *Lyciasamlamandra* is prefered as a combination *Mertensiella helverseni* in not available only *Mertensiella luschani helverseni*

Names retained in the check-list:

- *Lyciasamlamandra helverseni*
- *Mertensiella luschani*

Rana ridibunda

Countries concerned: GR

Background information

Within the Greek populations of *Rana ridibunda* three new species have been identified *Pelophylax cretensis, Pelophylax cerigensis* and *Pelophylax kurtmuelleri.* There are certain doubts about the validity of the last mentioned taxon *Pelophylax kurtmuelleri* and some authors are more in favour of its subspecific status. Another species previously considered to be a subspecies of *Pelophylax ridibundus* is now recognised by some authorities as a distinct species *Rana bedriagae*. However the taxonomy and distribution of this species is unclear.

- Despite some ambiguities in the taxonomy of this group and regarding the fact that only Greece is concerned by the new taxonomical splits it is possible to report separately for *Pelophylax kurtmuelleri* ,*Pelophylax cerigensis, Pelophylax cretensis, Pelophylax ridibundus, Pelophylax bedriaga* corresponding to the HD species *Rana ridibunda.* The taxonomic status of *Rana kurtmuelleri* and *Rana bedriagae* remains unclear.
- For *Pelophylax ridibundus* HD species name should be used and for other species the HD genus name is suggested.

Names retained in the check-list:

- *Rana kurtmuelleri* SR TAX
- *Rana cerigensis*
- *Rana cretensis*
- *Rana ridibunda*
- *Rana bedriagae* SR TAX

Valid names (IUCN Red list)

- *Rana bedriagae* valid name *Pelophylax bedriagae*
- *Rana kurtmuelleri* valid name *Pelophylax kurtmuelleri*
- *Rana cerigensis* valid name *Pelophylax cerigensis*
- *Rana cretensis* valid name *Pelophylax cretensis*

- *Rana ridibunda* valid name *Pelophylax ridibundus*

Salamandrina terdigitata

Countries concerned: IT

Background information

Within *Salamandrina terdigitata* new species, *S. perspicillata,* was recognised (Canestrelli et al 2006) occurring in northern half of Apenine peninsula.

- Joint report for *Salamandrina terdigitata* and *S. perspicillata* is suggested (morphological similarities, relatively recent recognition of the new species and geographical proximity) under the HD name *Salamandrina terdigitata.*

Names retained in the check-list:

- *Salamandrina terdigitata*

Names to add to the code-list:

- *Salamandrina perspicillata*

Speleomantes italicus

The Habitats Directive lists following species: *Hydromantes (Speleomantes) ambrosii, Hydromantes (Speleomantes) flavus, Hydromantes (Speleomantes) genei, Hydromantes (Speleomantes) imperialis, Hydromantes (Speleomantes) strinatii, Hydromantes (Speleomantes) supramontis* in Annex II and IV

- *Hydromantes (Speleomantes) italicus* is mentioned as the synonym of *Hydromantes (Speleomantes) strinatii (*in Annex IV only), which was described as the subspecies of *H. italicus* and later recognized as a valid species. No report is expected for *Hydromantes italicus*.

Triturus carnifex

Countries concerned GR, BG

Background information

Triturus macedonicus has been described as a separate species by Arntzen et al. (2007) corresponding to the Balkan populations of former *T. carnifex*. However in the IUCN Red List both newly recognized species are evaluated together as *T. carnifex*.

- Regarding distinct geographical location it is suggested to report separately for Balkan populations of previous *T. carnifex* under the name *T. macedonicus*.

Names retained in the check-list:

- *Triturus macedonicus*
- *Triturus carnifex*

REPTILES

The principal taxonomic reference used was FaunaEuropea (if other reference is not indicated in the text)

Chamaeleo chamaeleon

Background information

The Pylos population, previously considered as belonging to *Ch. chameleon* and recently recognized as *Ch. africanus. Ch. africanus* is not listed in the Habitats Directive. African chameleon is relativelly common African species occuring in Europe only marginally.

- No report is expected for *Ch. africanus.*

Names retained in the check-list:

- -

Names to add to the code-list:

- *Chamaeleo africanus* LR

Elaphe longissima

Background information

E. longissima was recently split into two species (previously subspecies) *E. longissima* and *E. lineata* (occurring in the southern Italy) by Lenk & Wuster 1999 (In Lenk et al 2001).

- Separate report is suggested for both *E. longissima* and *E. lineata* corresponding to HD name *Elaphe longissima.*

Names retained in the check-list:

- *Elaphe longissima*
- *Elaphe lineata*

Valid names (IUCN)

- *Zamenis longissimus* synonym *Elaphe longissima*
- *Zamenis lineatus* synonym *Elaphe lineata*

Elaphe quatuorlineata

- Separate report for *Elaphe sauromates* and *Elaphe quatuorlineata* is in line with the 2000-2006 reporting. ON the top of that the EU 27 regional IUCN concervation status of both species differs. Euro-asian species *E. sauromates* is LC and european *E. quadrolineata* is NT due to habitat loss and population decline.

Names retained in the check-list:

- *Elaphe sauromates*
- *Elaphe quatuorlineata*

Emys orbicularis

Background information

Emys orbicularis is a species (complex) with high intraspecific variability and several subspecies are known. One of its previous subspecies is recently recognized as a distinct species *E. trinacris* based on molecular distinction; the species is morphologically indistinct (Fritz *et al*. 2005). It is endemic to Sicily.

- Due to very recent split the joint report for both species *Emys orbicularis* and *E. trinacris* under the the HD name Emys orbicularis is possible. In future it will be however preferable to report separately for *Emys orbicularis* and *E. trinacris* corresponding to the HD name *Emys orbicularis* This option would be preferred already for 2013 reporting.

Names retained in the check-list:

- *Emys orbicularis*

Names to add to the code-list:

- *Emys trinacris*

Lacerta bonnali

Background information

In the time prior to the approval of the Directive only *L.monticola* was recognised as a valid species, having two subspecies *L. monticola bonnali* representing populations in the Pyrenees and *L. monticola monticola* occurring on the Iberian Peninsula. The former was elevated to the rank of species in the publication of Arribas 1993 (the article was submitted in 1991 and accepted 21/01/1992 – Massary 2010). So in the moment of the approval of the Directive all known Pyrenean populations were recognised as *L bonnali* or *L. monticola*, the ambiguity of the situation resulted probably in listing both names in the Directive.

Within *L. bonnali* Arribas 1993b described new subspecies *L.bonnali aranica*, which was later elevated to the rank of species. Arribas 1994 described previously unknown populations from eastern Pyrenees occurring apart of the previously known range of *L.bonnali* as a new species *L. aureoli*. As stresses Arribas 1999 its populations were never included in other taxa and absolutely new to the scientist. The species status of these populations was not unanimously accepted in the time of its description. There are certain doubts whether *L.aureoli* can be included under the concept of *L. bonnali* (*L. monticola*) listed in the Directive. This issue requires further discussion.

- Separate report is recommended for all three species: *L.bonnali*, *L.aranica* and *L.aurelioi*. Still clarification is needed as to whether *L.aureoli* can be included under the concept of *L. bonnali* (*L. monticola*) listed in the HD.

Names retained in the check-list:

- *Lacerta bonnali*
- *Lacerta aranica*
- *Lacerta aurelioi* LR

Valid names

- *Iberolacerta bonnali* synonym *Lacerta bonnali*
- *Iberolacerta aranica* synonym *Lacerta aranica*
- *Iberolacerta aurelioi* synonym *Lacerta aurelioi*

Lacerta danfordii

Background information

Eiselt & Schmidtler 1986 in their taxonomic study on the Lacerta danfordi complex list only *Lacerta anatolica* and *Lacerta oertzeni* (both previously considered as subspecies of *L. danfordi*) as occurring on the islands of Greece. Although not considered present in Europe, *L. danfordi* was listed as such in the Habitats Directive. As *L.danfordi* s.st. does not occur in the EU, it is suggested to report for *Lacerta anatolica* and *Lacerta oertzeni* separately.

- Report for *Lacerta anatolica* and *Lacerta oertzeni* separately

Names retained in the check-list:

- *Lacerta anatolica*
- *Lacerta oertzeni*

Valid names (IUCN)

- *Anatololacerta anatolica* synonym *Lacerta anatolica*
- *Anatololacerta oertzeni* synonym *Lacerta oertzeni*

Lacerta viridis/L. bilineata

The Directive lists *L. viridis*

Background information

Former *Lacerta viridis* was based on hybridization experiments and molecular studies split into *L. viridis* s.st.and *L. bilineata*. Later this split was contested but further it was proved that they represent separate haplotype clades so there is enough scientific evidence to consider them as separate species.

However the morphological distinction of these species is not straightforward, both species occur in close geographical proximity in the northern Adriatic region (IT, SI) and the precise boundary of the distribution of two species is unknown (Bohme et al 2007, Krofel et al. 2009).

- Due to problematic identification of the species in the southern part of the EU range and possible uncertainties regarding the precise limits of distribution it is suggested to submit a joint report for *L.viridis* and *L bilineata* under the name listed in the Directive. However on top of that it is possible to submit separate reports.

Names retained in the check-list:

- *Lacerta viridis*

Names to add to the code-list:

- *Lacerta bilineata*

Mauremys caspica

The valid name of EU populations of former *Mauremys caspica* is *Mauremys rivulata*

- ALthough *Mauremys caspica* does not occur within the EU it is suggested to report under the HD name *Mauremys caspica.*

Names retained in the check-list:

- *Mauremys caspica*

Names to add to the code-list:

- *Mauremys rivulata*

Podarcis erhardii

Within *Podarcis erhardii* two new species have been identified *Podarcis cretensis* and *Podarcis levendis*

- As the data on he conservation status (IUCN) are available for both newly described species and as they are narrow endemics it is suggested to report separately for *Podarcis cretensis, P. erhardii* and *P. levendis* despite the very recent recognition of new species (Lymberakis et al. 2008 following the work of Poulakakis et al. 2003)

Names retained in the check-list:

- *Podarcis cretensis*
- *Podarcis erhardii*
- *Podarcis levendis*

INVERTEBRATES

The principal taxonomic reference used was Fauna Europea (if other reference is not indicated in the text)

Carabus variolosus ssp. nodulosus (C.variolosus)

Background information

The listing of the species in the annexes of the Directive was proposed by HU and CZ. There is an evidence that this was actually *Carabus variolosus variolosus* an eastern-european species/subsepcies. Both species *Carabus variolosus* and *Carabus nodulosus* are included in the list of the protected species of Hungary. The Natura 2000 sites and the Article 17 report from Hungary concern only *Carabus variolosus, Carabus nodulosus* is considered as a separate species concerned neither by site proposal nor Article 17 reporting. On contrary Slovenia, where only *C. nodulosus* is present (Fauna Europea) have included the species in their first proposal of Natura 2000 sites.

Muller – Kroehling 2006 studied taxonomic views on the specific or subspecific status *of Carabus nodulosus.* The author came to the conclusion that at the time the amendment of appendix II took place, a majority of taxonomic opinion favored the subspecific rank, and there definitely was no majority for the opposite opinion. He considers the majority opinion as decisive for this question unless there is evidence from amendment that would indicate the contrary. This interpretation is favoured also by the European Carabidologist Group. In the statement of the XIII European Carabidologis Meeting in Bulgaria it is recommended to acknowledge that the species *Carabus variolosus* included in the Annexes of the Directive encompasses the species in the broader sense and not only in the sense of *C. variolosus variolosus*.

- The status of *C. (variolosus) nodulosus* is not clear; this issue requires further discussion. For precautionary reason MS are encouraged to submit also their reports for *C. (variolosus) nodulosus* under the name *C. (variolosus) nodulosus.* The HD name *Carabus variolosus* should be used for *C. (variolosus) variolosus*

Names retained in the check-list:

- *Carabus (variolosus) nodulosus* LR
- *Carabus variolosus*

Osmoderma eremita

Background information

The taxonomy of this species has been revised but still further data are needed to clarify the status of new species/semi-species and distribution limits of potential species so far described within *Osmoderma eremita* s.l. (Audisio et al. 2007, Audisio et al. 2008).

- It is suggested to provide a joint report covering all potential species of hermit beetle under the HD name *Osmoderma eremita.*

Names retained in the check-list:

- *Osmoderma eremita* SR TAX

Names to add to the code-list:

- *Osmoderma barnabita*
- *Osmoderma lassallei*
- *Osmoderma cristinae*
- *Osmoderma italica*

Discus defloratus

Background information

The validity of this taxon was contested at the time the HD Annexes were drafted. The species was considered originally as the endemic of Madeira. However Wells &Chatfied 1992 did not include it in their list of the endemic species of Madeira. Helsdingen et al. (1996) mention that the species

was recognized eroneusly based on a single shell which was then found to belong to common European species *Trichia striolata*. The authors recommend removing of this species from the Annexes of Bern Convention and Habitats Directive.

Names retained in the check-list:

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Unio crassus

Background information

Potential ocuurence of *Unio crassus* in the Iberian peninsula was always controversial. Literature mentiones *Unio crassus bavatus* occurring in PT and ES. Several of these findings were considered as *Unio* cf *crassus* in Reis 2006 (In Reis & Araujo 2009). Recent revision of this species by Reis & Araujo 2009 shows that these specimens belong to the separate speices from Unio crassus group - *Unio tumidiformis.*

Unio crassus was erroneously mentioned by several authors in early 2000 but actually these findings correspond to *Unio pictorum*. (Reis & Araujo 2009).

- Unio pictorum is not a species listed in the Annexes of the Habitats Directive.
- Following the available reference *Unio tumidiformis* (occuring in ES and PT) is the valid name of specimens previously considered as *Unio crassus bavatus*. A report for *Unio tumidiformis* is recommended under the valid name. It has to be however emphasized that the taxonomy of Iberian *Unio* had been controversial in past.

Names retained in the check-list:

- *Unio crassus*
- *Unio tumidiformis* LR

MAMMALS

Eptesicus serotinus

Countries concerned: PT, ES

Background information

Ibanez et al. 2006 described from the southern Iberian Peninsula morphologically and genetically distinct species *E. isabellinus. E. isabellinus* occurs in the southern part of ES and PT. The species is mentioned in the Red data of vertebrates of Spain where one common assessment is made for both species with *Eptesicus serotinus* and *Eptesicus isabellinus.*

- Due to the very recent split (Ibanez et al. 2006.) a joint report including both species *Eptesicus serotinus* and *Eptesicus isabellinus* is recommended under the name "*Eptesicus serotinus".* In future it will be however preferable to report separately for these species
- Optional report can be submitted for both species separately

Names retained in the check-list:

- *Eptesicus serotinus*

Names to add to the code-list:

- *Eptesicus isabellinus*

Myotis nattereri

Countries concerned FR, ES, PT (only M. nattereri is present)

Background information

M. escalerai was described as the full species ecologically, morphologically and genetically distinct from *M. natterii* by Ibanez et al. 2006. *M. escallerai* was thought to be an Iberian endemic, occurring both in Spain and Portugal, but latter the presence of the species was confirmed from French Pyrenees (Evin et al 2009). The species is mentioned in the Red data of vertebrates of Spain where common assessment is made together for both species Myotis *escalerai* and *Myotis nattereri.*

- Due to the very recent split (Ibanez et al. 2006.) joint report including both species, *Myotis nattereri* and *Myotis escalarai*, is recommended under the name "*Myotis nattereri".* In future it will be however preferable to report separately for *Myotis nattereri* and *Myotis escalarai.*
- Optional report can be submitted for both species separately

Names retained in the check-list:

- *Myotis nattereri*

Names to add to the code-list:

- *Myotis escalarai*

Rupicapra spp

Spanish comment: '*We would like to bring up a taxonomical/nomenclatural issue having to do with Rupicapra spp. We have observed inconsistencies in the way the species of this genus are referred to in the annexes of the Habitats Directive. For example, the subspecies Rupicapra pyrenaica ornata (from the Abruzzo Mountains in Itaty) is listed in annexes II and IV; whereas annexe V includes all Rupicapra rupicapra (with the exception of Rupicapra rupicapra ornata). (Note the inconsistency in the species name in bold characters. It is clear that the current taxonomic changes of the genus have not been properly updated in the annexes).*

On the other hand, R. pyrenaica parva and R. pyrenaica pyrenaica are the two subspecies of the genus present in Spain, and none of them is listed in the annexes of the Habitats Directive. Therefore, according to the annexes, Spain does not need to prepare a report for Rupicapra pyrenaica. Paradoxically, the current species checklist states that Spain should report on Rupicapra rupicapra for the Mediterranean, Atlantic and Alpine regions, but according to the current taxonomy of this genus, this taxon is not present in Spain.'

Masisni&Lovari 1987- *Rupicapra pyrenaica* is generally recognized as a distinct species since the mid-eighties grouping French-Iberian and peninsular Italian populations of chamois.

FR has reported for the species *R. pyrenaica* occuring in the ALP region in Pyrenees. ES has reported for R. rupicapra in ALP, MED and ATL region.

- The status of the French-Iberian chamois (R. pyrenaica parva and R. pyrenaica pyrenaica) should be clarified. For precautionary reason MS are encouragted to submit also their reports for *Rupicapra pyrenaica*

Names retained in the check-list:

- *Rupicapra pyrenaica* LR

Pipistrellus pipistrellus, Pipistrellus pygmaeus, Pipistrellus hanaki

Countries concerned: (wide spread)

Background information

The previous species *P. pipistrellus* was splitted into two distinct speices *Pipistrellus pipistrellus* and *Pipistrellus pygmaeus*. Most of the countries have already reported separately for these two species except Poland, Latvia, Lithuania and Estonia.

New species from Lybia was described within *P.pygmaeus* lineage and named *P.hanaki* (Benda et al. 2004). It occurs also in Greece

- It is suggested to report separately for two bat species *Pipistrellus pipistrellus* and *Pipistrellus pygmaeus*.
- Due to very recent split it is possible to submit joint report for *Pipistrellus pygmaeus* and *P.hanaki* under the name *Pipistrellus pygmaeus.* The possibility to report separately for *Pipistrellus pygmaeus* and *P.hanaki* should be considered, as this option will be recommended for future reporting.

Names retained in the check-list:

- *Pipistrellus pipistrellus*
- *Pipistrellus pygmaeus*.
- *Pipistrellus hanaki*

PLANTS

Aquilegia bertolonii

Countries concerned: FR

Background information

Some authors propose the taxonomic split of *Aquilegia bertolonii*. However, new species *A. reuteri* is not unanimously recognised as a species (Flora Europea, Tela Botanica: synonym of *Aquilegia bertolonii*)

- Joint report including both species/subsepcies

Names retained in the check-list:

- *Aquilegia bertolonii*

Armeria neglecta

Countries concerned: PT

- There are doubts about the validity of this taxon. The taxon was described on the basis of several speciemens and its specific status is considered doubtfull. Recently *A. neglecta* is recognised as a synonym of *A. littoralis.* No evaluation of conservation status is required.

Names retained in the check-list:

- *Armeria neglecta* SR TAX

Biscutella neustriaca

Countries concerned: FR

The specific status of the *Biscutella neustriaca* was questioned recently this however should not change the use of the DIrective name.

- Report for *Biscutella neustriaca* sensu HD, for populations described in past as *B. neustriaca*.

Names retained in the check-list:

- *Biscutella neustriaca*

Carex panormitana

Countries concerned: GR

Background information

The species is endemic to Italy. However according to Bergmeier & Papaioannou 2008 *Carex acuta* has been interpreted by the team responsible for the implemention of the Habitats Directive in Greece as an Annex II plant species (Dafis et al. 1996, Dimopoulos et al. 2005), as most

taxonomists treat *Carex panormitana*, listed in Annex II, as a synonym of *C. acuta*. Euro+Med Plant database considers *C. acuta* as missaplied name for *C. panoramita.*

- The species is not present in Greece

Names retained in the check-list:

- *Carex panoramita* occurs only in IT

Centaurium rigualii

Countries concerned: ES

Background information

Bayer and González (1991) conclude that *Centaurium rigualii* is not a rare Spanish endemism, but a local form of *Centaurium quadrifolium barrelieri* found in disturbed habitats. Authors concern name *Centaurium rigualii* as a synonym of *Centaurium quadrifolium barrelieri.* Originally the species was discribed from several specimens by Esteve in 1968. Several other species of *Centaurium* were tentativelly recognised from the same locality.

- The validity of this taxon was contested at the time the HD Annexes were drafted. The specimens on which the description of this species had been based were considered to be a morphological variety of common *Centaurium quadrifolium barrelieri.* There are doubts about the validity of this taxon. No evaluation of conservation status is required.

Names retained in the check-list:

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Euphorbia lambii

Countries concerned ES

Euphorbia lambii was considered endemic to the island of La Gomera. Recently its synonymy with *Euphorbia bourgeana* was confirmed (IUCN, Benares et al. 2004). Originally *Euphorbia bourgeauana* was considered as an endemic of Tenerife. In the Red data book of plants of Spain (Benares et al. 2004) the classical taxonomic treatment of these species is followed. Mollera & Rovira 2005 after having studied the material of both species treats *E. lambii* as an ecological form of *E. bourgeana.*

- Report for *Euphorbia lambii* sensu HD, for populations described in past as *Euphorbia lambii* under the HD name.

Euphrasia mendonçae

Countries concerned: PT

Background information

This species was described from several specimens collected in 1932. Since that time it has not been found despite new surveys conducted in 1990 and 1996 (Article 17 report from PT) . Latter different species was found in the same locality, *Euphrasia hirtelli*, which led some authors to the hypothesis that specimens of *E. mendoncae* could be an aberrant form of that species (Costa et al. 1998). Recently the species is considered as a synonym of *E. minima*, however its previously recognised species status remains unclear.

- There are doubts about the validity of this taxon. No evaluation of conservation status is required.

Names retained in the check-list:

- *Euphrasia mendoncae* SR TAX

Iberis arbuscula

Countries concerned: GR

Iberis arbuscula Runemark is a homotypic synonym of Iberis runemarkii Greuter & Burdet. When describing Iberis arbuscula, Runemark was apparently not aware of the fact that there already existed an Iberis arbuscula Spach (1838). (GR comment)

- To avoid confusion with *Iberis arbuscula* Spach (1838) the report under the valid name *Iberis runemarkii* is recommended.

Names retained in the check-list:

- *Iberis runemarkii*

Reseda decursiva

Countries concerned: ES

Background information

The taxonomy of this species was revied in Arenga 2005. According to this author the species was recorded first time as *R. propinqua* from Gibraltar in 1889 based on the similiarity with specimens of this species described from Lybia. The species was later cited by several authors, without visiting the locality of its original description. Later *R. decursiva* was used as a synonym of *R. propinqua*. In 1960 Ramos Nunes records the species *R. decursiva* from the locality where *R. propinquata* was recorded first time (Gibraltar). Arenga 2005 refering to his unpublished Phd study (Arenga 1991) after studying the specimen from Gibraltar and other specimens from northern Africa concludes that *R. decursiva* does not occur in Spain.

- There are doubts about the validity of this taxon. According to current knowledge the species was erroneously recorded in Iberia later studies have determined it as *R. alba* ssp *alba*. No evaluation of conservation status is required. However legal protection should cover a biological entity to which the name corresponded at the time the Annexes of the Directive were drafted.

Names retained in the check-list:

- *Reseda decursiva* SR TAX

Rhynchosinapis erucastrum ssp. cintrana

Countries concerned: PT

The species was originally described and for a long time considered as an endemic of Sintra mountains in wetern Portugal. In the 1980ies it twas mentioned in litterature under several names inlcuding *Rhynchosinapis pseudoerucastrum* ssp.. *cintrana* or *Coincya pseudoerucastrum* ssp.. *cintrana* (GREUTER & RAUS 1983). Its taxonomy was revised several times in past and now it is included in the taxon *Coincya monensis* ssp.*cheiranthos* (Flora iberica – on line, EURO+MED), which has wider distribution across the western Europe and north-western Africa.

- Report for *Rhynchosinapis erucastrum* ssp. *cintrana* **sensu HD, for populations described in past as** *Rhynchosinapis erucastrum* ssp. *cintrana*

Silene furcata ssp. angustiflora

Countries concerned: FI, SE

Background information

The valid name of *Silene furcata ssp. angustiflora* is *S. involucrata ssp. tenella.* Karlsson 2000 mentions that the epitet *angustiflorum* was not available as it was used to designate a variant of siberian subspecies *S. involucrata ssp. involucrata (Silene furcata ssp. furcata)*

- Report under the HD name *Silene furcata* ssp. *angustiflora*

Sorbus teodorii

Countries concerned: SE, FI

Sorbus teodorii is not accepted as a valid species by many authors, and is often considered as a clonal form or variety included under *Sorbus meinichii.* This issue requires further discussion.

- Report under the HD name *Sorbus teodorii*

Names retained in the check-list:

- *Sorbus teodori* SR TAX

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