



Detailed draft conclusions on the representation of habitats from Res. No. 4 (1996) of the Bern Convention in the Emerald Network sites in Liechtenstein (Alpine)

Glossary:

SUF (Sufficient): the occurrence of the species/habitat type is sufficiently well covered by the current Emerald Network; no further sites are required.

IN MIN (Insufficient minor): no new sites are required, but this species/habitat type should be added to the list of qualifying features on one or several sites that have already been proposed for other species/habitat types.

IN MOD (Insufficient moderate): one or several additional sites (or extensions of sites) must be proposed to achieve a sufficient coverage of the Emerald network for this species/ habitat type.

IN MAJ (Insufficient major): none of the sites where this species/habitat type occurs have been proposed so far; in order to achieve a sufficient coverage of the Emerald network for the species/habitat type, one or several sites must therefore be proposed.

SR (Scientific reserve): further research is required to identify the most appropriate sites for this species/habitat type (research on identifying the most appropriate sites, on clarifying the correspondence of a habitat present to the definition of Res. 4 habitats, etc.)

SR REF (Scientific reserve on the Reference List): the regular occurrence of this species/habitat type is still uncertain and needs to be confirmed

EXCL REF (Exclude from the Reference List): this species/habitat type is not naturally occurring and will be removed from the Reference List; no sites are required for this species/habitat type

CD (Correction of data): the information about this species/habitat type in the Standard Data Form needs to be corrected/completed/deleted

Codes can be combined, for example 'IN MOD/ CD' would indicate that additional sites are required and that the existing proposals need to be corrected or complemented.

Code	Habitat Name	iso	bio geo	Sites 2021	habitat assessment 2021	Draft Conclusion Comments	Draft Conclusion
C1.1	Permanent oligotrophic lakes, ponds and pools	LI	ALP			No site. Beiser and Staub reported alpine oligotrophic waters with Potamogeton alpinus and Chara species	IN MAJ?
C1.222	Floating Hydrocharis morsus-ranae rafts	LI	ALP			No site. Occurrence of species Hydrocharis morsus-ranae in Liechtenstein is indicated (e.g. IUCN Red List; Efremov et al. 2020), the related Natura 2000 habitat 3150 was mapped in Rhine valley in Germany close to the border with Liechtenstein.	IN MAJ?
C1.223	Floating Stratiotes aloides rafts	LI	ALP			No site. Occurrence of species Stratiotes aloides in Liechtenstein is indicated (e.g. IUCN Red List; Efremov et al. 2020), the related Natura 2000 habitat 3150 was mapped in Rhine valley in Germany close to the Liechtenstein boundary.	IN MAJ?
C1.224	Floating Utricularia australis and Utricularia vulgaris colonies	LI	ALP			No site. The species Utricularia australis is listed in the Red List of Liechtenstein, IUCN Red List indicates occurrence of U. vulgaris in Liechtenstein; the related Natura 2000 habitat 3150 was mapped in Rhine valley in Germany close to the Liechtenstein boundary.	IN MAJ?
C1.226	Floating Aldrovanda vesiculosa communities	LI	ALP			No site. Occurrence of species Aldrovanda vesiculosa in Liechtenstein is indicated in IUCN Red List; the related Natura 2000 habitat 3150 was mapped in Rhine valley in Germany close to the Liechtenstein boundary.	IN MAJ?
C1.25	Charophyte submerged carpets in mesotrophic waterbodies	LI	ALP			No site. The related Natura 2000 habitat 3140 mapped in Austria at border with LI and in Germany in Rhine valley close to LI.	IN MAJ?
C1.32	Free-floating vegetation of eutrophic waterbodies	LI	ALP			No site. The related Natura 2000 habitat 3150 was mapped in Rhine valley in Germany close to the Liechtenstein boundary.	IN MAJ?
C1.33	Rooted submerged vegetation of eutrophic waterbodies	LI	ALP			No site. The related Natura 2000 habitat 3150 was mapped in Rhine valley in Germany close to the Liechtenstein boundary.	IN MAJ?
C1.3411	Ranunculus communities in shallow water	LI	ALP			No site. Ranunculus trichophyllus (growing in water) is included in the Red List of Liechtenstein.	IN MAJ?
C1.3413	Hottonia palustris beds in shallow water	LI	ALP			No site. Occurrence of species Hottonia palustris in Liechtenstein is indicated in IUCN Red List; the related Natura 2000 habitat 3150 was mapped in Rhine valley in Germany close to the border with Liechtenstein.	IN MAJ?

Code	Habitat Name	iso	bio geo	Sites 2021	habitat assessment 2021	Draft Conclusion Comments	Draft Conclusion
C2.12	Hard water springs	LI	ALP			No site. Beiser and Staub specified four communities of this habitat in Liechtenstein.	IN MAJ?
C2.18	Acid oligotrophic vegetation of spring brooks	LI	ALP			No site. Beiser and Staub reported vegetation types belonging to this habitat (Cardamino-Montion): few locations in the mountainous spring areas that are low in lime or base (e.g. Guschgiel, Bremstallhalda).	IN MAJ?
C2.19	Lime rich oligotrophic vegetation of spring brooks	LI	ALP			No site. Beiser and Staub reported vegetation types belonging to this habitat, e.g. limestone brooks at higher altitudes or moss stands of the gypsum spring streams. The related Natura 2000 habitat 3260 was mapped in Austria at border with LI and in Rhine valley both in Austria and Germany close to LI.	IN MAJ?
C2.25	Acid oligotrophic vegetation of fast flowing streams	LI	ALP			No site. The related Natura 2000 habitats 3200 and 3260 were mapped in Austria at the border with LI.	IN MAJ?
C2.26	Lime rich oligotrophic vegetation of fast flowing streams	LI	ALP			No site. The related Natura 2000 habitat 3260 was mapped in Austria at border with LI and in Rhine valley both in Austria and Germany close to LI.	IN MAJ?
C2.27	Mesotrophic vegetation of fast flowing streams	LI	ALP			No site. The related Natura 2000 habitat 3260 was mapped in Austria at border with LI and in Rhine valley both in Austria and Germany close to LI.	IN MAJ?
C2.28	Eutrophic vegetation of fast flowing streams	LI	ALP			No site. The related Natura 2000 habitat 3260 was mapped in Austria at border with LI and in Rhine valley both in Austria and Germany close to LI.	IN MAJ?
C2.33	Mesotrophic vegetation of slow-flowing streams	LI	ALP			No site. The related Natura 2000 habitat 3260 was mapped in Austria at border with LI and in Rhine valley both in Austria and Germany close to LI.	IN MAJ?
C2.34	Eutrophic vegetation of slow-flowing streams	LI	ALP			No site. The related Natura 2000 habitat 3260 was mapped in Austria at border with LI and in Rhine valley both in Austria and Germany close to LI.	IN MAJ?
C3.2	Water fringing reedbeds and tall helophytes other than canes	LI	ALP			No site. Staub and Amann: Caricetum elatae, Caricetum gracilis, Caricetum acutiformis.	IN MAJ?

Code	Habitat Name	iso	bio geo	Sites 2021	habitat assessment 2021	Draft Conclusion Comments	Draft Conclusion
C3.51	Euro-Siberian dwarf annual amphibious swards (but excluding C3.5131 Toad-rush swards)	LI	ALP			No site. The related Natura 2000 habitat 3130 was mapped in Austria at border with LI.	IN MAJ?
C3.55	Sparsely vegetated river gravel banks	LI	ALP			No site. Protected in close Emerald site CH0000009 Ruin'Aulta in Switzerland	IN MAJ?
C3.62	Unvegetated river gravel banks	LI	ALP			No site. Habitat possibly occurring along streams.	IN MAJ?
D2.3	Transition mires and quaking bogs	LI	ALP			No site. Staub and Amann listed under Transition mires two associations (Caricetum rostratae and Caricetum lasiocarpae), under fens is reported also Schoenetum nigricantis.	IN MAJ?
D4.1	Rich fens, including eutrophic tall-herb fens and calcareous flushes and soaks	LI	ALP	2	(2A)		SUF?
D5.2	Beds of large sedges normally without free-standing water	LI	ALP	2	(1A 1C)	The habitat area quite small, the habitat is usually quite widespread.	SUF?
E1.11	Euro-Siberian rock debris swards	LI	ALP			No site. The related Natura 2000 habitat 6110 was mapped in Austria at the border with LI.	IN MAJ?
E1.2	Perennial calcareous grassland and basic steppes	LI	ALP			No site. Relatively common habitat. The related Natura 2000 habitat 6210 was mapped in Austria at the border with LI.	IN MAJ?
E1.71	Nardus stricta swards	LI	ALP			No site. The related Natura 2000 habitat 6230 was mapped in Austria at the border with LI.	IN MAJ?
E2.2	Low and medium altitude hay meadows	LI	ALP	2	(1B 1C)	1B1C means low representation of the habitat in the network (less than 17 % of national habitat area)	IN MOD?

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E2.3	Mountain hay meadows	LI	ALP			No site. The related Natura 2000 habitat 6520 was mapped in Austria at border with LI.	IN MAJ?
E3.4	Moist or wet eutropic and mesotrophic grassland	LI	ALP	1	(1B)	1B means low representation of the habitat in the network (less than 15 % of national habitat area)	IN MOD?
E3.5	Moist or wet oligotrophic grassland	LI	ALP	2	(2A)		SUF?
E4.11	Boreo-alpine acidocline snow-patch grassland and herb habitats	LI	ALP			No site. The related Natura 2000 habitat 6150 was mapped in Austria at border with LI.	IN MAJ?
E4.12	Boreo-alpine calcicline snow-patch grassland and herb habitats	LI	ALP			No site. The related Natura 2000 habitat 6170 was mapped in Austria at border with LI. The habitat is protected in the neighbouring Natura site AT3415000 Alpenmannstreu Gamperdonatal.	IN MAJ?
E4.3	Acid alpine and subalpine grassland	LI	ALP			No site. The related Natura 2000 habitats 6150 and 6230 were mapped in Austria at the border with LI.	IN MAJ?
E4.4	Calcareous alpine and subalpine grassland	LI	ALP			No site. The related Natura 2000 habitat 6170 was mapped in Austria at the border with LI. The habitat is protected in the neighbouring Natura site AT3415000 Alpenmannstreu Gamperdonatal.	IN MAJ?
E5.4	Moist or wet tall-herb and fern fringes and meadows	LI	ALP	1	(1A)		SUF?
E5.5	Subalpine moist or wet tall-herb and fern stands	LI	ALP			No site. The related Natura 2000 habitat 6430 was mapped in Austria at the border with LI. The habitat is protected in the Natura site AT3415000 Alpenmannstreu Gamperdonatal.	IN MAJ?
F2.2	Evergreen alpine and subalpine heath and scrub	LI	ALP			No site. Schmider and Burnand (1988) listed Rhododendro hirsuti-Pinetum montanae, Erico-Pinetum montanae	IN MAJ?

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F9.1	Riverine scrub	LI	ALP			No site. The habitat is protected in Emerald site CH0000009, located close to LI. The related Natura 2000 habitat 3240 was mapped in Austria at the border with LI.	IN MAJ?
G1.11	Riverine Salix woodland	LI	ALP			No site. The related Natura 2000 habitats 3240 and 91E0 were mapped in Austria at the border with LI.	IN MAJ?
G1.12	Boreo-alpine riparian galleries	LI	ALP			No site. Schmider and Burnand (1988) listed Calamagrostio-Alnetum incanae	IN MAJ?
G1.21	Riverine Fraxinus - Alnus woodland, wet at high but not at low water	LI	ALP			No site. Schmider and Burnand (1988) listed Carici remotae-Fraxinetum, Pruno-Fraxinetum. Habitat protected in Emerald sites in CH close to LI: CH0000018, CH0000019	IN MAJ?
G1.22	Mixed Quercus - Ulmus - Fraxinus woodland of great rivers	LI	ALP			No site. Schmider and Burnand (1988) listed Ulmo-Fraxinetum listeretosum	IN MAJ?
G1.6	Fagus woodland	LI	ALP			No site. Schmider and Burnand (1988) listed more than 10 types of beech forests from Liechtenstein.	IN MAJ?
G1.7	Thermophilous deciduous woodland	LI	ALP			No site. Schmider and Burnand (1988) listed Sileno nutantis-Quercetum	IN MAJ?
G1.A1	Quercus - Fraxinus - Carpinus betulus woodland on eutrophic and mesotrophic soils	LI	ALP			No site. The related Natura 2000 habitat 9170 was mapped in Rhine valley in Austria close to border with LI.	IN MAJ?
G1.A4	Ravine and slope woodland	LI	ALP			No site. Schmider and Burnand (1988) listed several ravine communities (e.g. Corydalido-Aceretum, Abieti-Fagetum polystichetosum or Asperulo taurinae-Tilietum, Aceri-Fraxinetum).	IN MAJ?
G3.1B	Alpine and Carpathian subalpine Picea forests	LI	ALP			No site. Schmider and Burnand (1988) listed Polygalo chamaebuxi-Piceetum, Veronico latifoliae-Piceetum, Sphagno-Piceetum calamagrostietosumvillosae, Piceo-Adenostyletum, Calamagrostio variae-Piceetum"	IN MAJ?

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G3.21	Eastern Alpine siliceous Larix and Pinus cembra forests	LI	ALP			No site. The related Natura 2000 habitat 9420 was mapped in Austria close to the border with LI.	IN MAJ?
G3.22	Eastern Alpine calcicolous Larix and Pinus cembra forests	LI	ALP			No site. The related Natura 2000 habitat 9420 was mapped in Austria close to the border with LI.	IN MAJ?
G3.31	Pinus uncinata forests with Rhododendron ferrugineum	LI	ALP			No site. Schmider and Burnand (1988) listed Rhododendro ferruginei-Pinetum montanae	IN MAJ?
G3.32	Xerocline Pinus uncinata forests	LI	ALP			No site. The related Natura 2000 habitat 9430 was mapped in Austria close to the border with LI.	IN MAJ?
G3.44	Spring heath Pinus sylvestris forests	LI	ALP			No site. Schmider and Burnand (1988) listed Molinio-Pinetum silvestris, Erico-Pinetum silvestris, Pyrolo-Pinetum silvestris	IN MAJ?
H1	Terrestrial underground caves, cave systems, passages and waterbodies	LI	ALP			No site. Caves occur in Liechtenstein. The related habitat 8310 was mapped in Austria at the border with LI.	IN MAJ?
H2.1	Cold siliceous screes	LI	ALP			No site. The related Natura 2000 habitat 8110 was mapped in Austria close to LI's border.	IN MAJ?
H2.2	Cold limestone screes	LI	ALP			No site. The related Natura 2000 habitat 8120 was mapped in Austria at the LI's border, it is protected in sites AT3415000 and AT3416000.	IN MAJ?
H2.3	Temperate-montane acid siliceous screes	LI	ALP			No site. The related Natura 2000 habitat 8150 was mapped in Austria close to LI's border.	IN MAJ?
H2.4	Temperate-montane calcareous and ultra-basic screes	LI	ALP			No site. The related Natura 2000 habitat 8120 was mapped in Austria at the LI border, it is protected in sites AT3415000 and AT3416000.	IN MAJ?
H2.6	Calcareous and ultra-basic screes of warm exposures	LI	ALP			No site. The related Natura 2000 habitat 8160 was mapped in Austria close to LI's border.	IN MAJ?

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H3.1	Acid siliceous inland cliffs	LI	ALP			No site. The related Natura 2000 habitat 8220 was mapped in Austria close to LI's border.	IN MAJ?
H3.2	Basic and ultra-basic inland cliffs	LI	ALP			No site. The related Natura 2000 habitat 8210 was mapped in Austria at the LI's border, it is protected in site AT3419000.	IN MAJ?
H3.511	Limestone pavements	LI	ALP			No site. The related Natura 2000 habitat 8240 was mapped in Austria close to LI's border.	IN MAJ?
X04	Raised bog complexes	LI	ALP			No site. The related Natura 2000 habitats 7110 and 7120 were mapped in Austria close to LI's border. The habitat is protected in Emerald site CH0000018, located not far from LI's border.	IN MAJ?