**Environmental Management**

**Ecological sustainability assessment of water distribution for the maintenance of ecosystems, their services and biodiversity**

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**Online Resource 3:** Crosswalk EWD typology and EUNIs habitat classification with information on water dependence

| EWD Code | EWD-Layer | EUNIS Lvl 1* | EUNIS Lvl 2* | EUNIS Lvl 3* | Water dependence** (likely water source) | Ecosystem group |
|----------|-----------|--------------|--------------|--------------|---------------------------------|----------------|
| Inland surface waters |
| 41 | Lakes | C | C1 | C1.1-C1.6 | w (aq) | wetland |
| 42 | Permanent freshwater lakes (>8ha), incl. Floodplain lakes | C | C1 | C1.1-C1.4 | w (aq) | wetland |
| 43 | Seasonal/Intermittent freshwater lakes (>8ha), incl. Floodplain lakes | C | C1, C3 | C1.6, C3 | w (aq) | wetland |
| 44 | Permanent saline, brackish or alkaline lakes | C | C1 | C1.5 | w (aq) | wetland |
| 45 | Seasonal/Intermittent saline, brackish or alkaline lakes and flats | C | C1 | C1.6, C3, C1.5 | w (aq) | wetland |
| 46 | Rivers | C | C2 | \ | w (aq) | wetland |
| 47 | Permanent Rivers, streams or creeks, incl. inland delatas | C | C2 | C2.2, C2.3, C2.4, C2.6 | w (aq) | wetland |
| 48 | Freshwater springs, oases | C | C2 | C2.1 | w (aq) | wetland |
| 49 | Seasonal/Intermittent Rivers, streams or creek | C | C2 | C2.5 | w (aq) | wetland |
| 50 | Wetlands (mires, bogs and fens) | D/E/F | \ | \ | w | wetland |
|   | Description                                                                 | ID | Subcategory | Reference                  |
|---|-----------------------------------------------------------------------------|----|-------------|---------------------------|
| 51| Permanent freshwater marshes, pools, marshes and swamps on inorganic soils; with emergent vegetation water-logged for at least most of the growing season (herb dominated) | D  | D4, D5      | w, (GW) wetland           |
| 52| Permanent or seasonal wetlands, incl. Pan, Brackish/Saline/alkaline marshes or pools | D  | D6          | w, (GW) wetland           |
| 53| Seasonal/Intermittent freshwater marshes/pools on inorganic soils, incl. Sloughs, potholes, seasonally flooded meadows, sedge marshes (Herb dominated) | D/E| D4, D5, (E3, E5) | w, (GW) wetland           |
| 54| Alpine wetlands, incl. Alpine meadows, temporary waters from snow melt      | D/E| D1, D2, D3, D4, D5, E4 | w, (GW) wetland           |
| 55| Wetland, non-forested bogs, fens and mires, incl. Shrub cover              | D/F| D1, D2, D4, D5, F9 | w, (GW) wetland           |
|   | **Grasslands**                                                             |    |             |                           |
| 56| Natural Grass                                                              | E  | E1, E2, E5  | E1.1-E1.C, E2.1-E28, E5.1-E5.3, E3.1-E3.b, E5.4, E5.5, F4.1 | t-b wetland |
| 57| Wet grasslands and hydrophilious tall-forb stand, degenerated or drained wetlands | E/F| E3, E5, F4  | w, (GW/U/S) wetland       |
| 58| Alpine grasslands                                                           | E  | E4          | w, (GW/U/S) wetland       |
|   | **Heathland, shrub and tundra**                                           |    |             |                           |
| 59| Shrub Cover, closed-open, evergreen or deciduous                           | F  | F2-F8       | t terrestrial/trees       |
| 60| Wetland, regularly flooded with shrub or herbaceous vegetation on organic or inorganic soils | F  | F9          | w wetland                |
| 61| Tundra wetlands, incl. Tundra pools, temporary waters from snow melt       | F  | F1          | w wetland                |
| Code | Description                                                                 | G   | X   | t-exclude | Zoned Category         |
|------|-----------------------------------------------------------------------------|-----|-----|-----------|------------------------|
| 62   | Deciduous woodland, closed or open                                          | G   | G1  |           | t-w (predominantly dry) terrestrial/trees |
| 63   | Regularly/seasonally flooded woodlands and tree-dominated wetlands, incl. Freshwater swamp forests, wooded swamps on inorganic soils, Forested peatlands, peat swamp forests | G   | G1, G3, G4 |           | w wetland |
| 64   | Wetland, regularly flooded, saline water with tree cover                   | G   | G1, G4  |           | w wetland |
| 65   | Broadleaved evergreen woodland                                              | G   | G2  |           | t-w (predominantly dry) terrestrial/trees |
| 66   | Needle-leaved/coniferous, evergreen or deciduous woodland                  | G   | G3  |           | t-w (predominantly dry) terrestrial/trees |
| 68   | Mixed broadleaved and coniferous woodland                                   | G   | G4  |           | t-w (predominantly dry) terrestrial/trees |
| 70   | Tree Cover burnt                                                           | G   | G5  | G5.8      | t terrestrial/trees    |

### Complexes

| Code | Description                                                                 | G   | X   | t-exclude | Zoned Category         |
|------|-----------------------------------------------------------------------------|-----|-----|-----------|------------------------|
| 71   | Mosaic: Tree cover / Other natural vegetation                               | G   | X09, X10, X13, X14, X15, X16 |           | t-w terrestrial/trees  |

### Other habitats beyond our scope

| Code | Description                                                                 | G   | X   | t-exclude | Zoned Category         |
|------|-----------------------------------------------------------------------------|-----|-----|-----------|------------------------|
| 72   | Alpine mixed                                                                 | J   |     |           | t exclude terrestrial/trees |
| 73   | Built up                                                                    | J   |     |           | t exclude artificial    |
| 74   | Crop Land                                                                   | I   |     |           | t exclude crop land     |
| 75   | Extensive Grassland                                                         | I   |     |           | t exclude terrestrial/trees |
| 76   | Intensive Grassland                                                         | I   |     |           | t exclude terrestrial/trees |
| Page | Description                                                                 | Code | Zuordnung | Notes                          |
|------|-----------------------------------------------------------------------------|------|-----------|--------------------------------|
| 77   | Karst and other subterranean hydrological systems, inland                    | H    | keine weitere Zuordnung | w exclude wetland |
| 78   | Artificial water bodies, reservoirs, treatment areas, channels, inc.        | J    | keine weitere Zuordnung | w (anthrop) wetland |
|      | combined with natural water bodies or wetlands or terrestrial habitats      |      |            |                                |
| 79   | Unvegetated or sparsely vegetated habitats                                  | H    | keine weitere Zuordnung | t exclude unspecified |
| 80   | Marine or Coastal mixed landscapes (deltas)                                  | A    | keine weitere Zuordnung | w (coast) wetland |
| 81   | Human-made wetlands incl. Agricultural landscapes                           |      |            | w (anthrop) wetland |

**Legend:**
- = ecosystem types excluded from further GDE analysis

Water dependence/water source:
- w = wet/wetland; t = dry/terrestrial; t-w = dry to wet; (aq) = aquatic ecosystem; (GW) = groundwater dependent; (U) = flooding; (S) = waterlogged; (anthrop) = anthropogenic ecosystem; (coast) = coastal ecosystem

**References:**

* EEA (2019): EUNIS habitat classification 2007 (Revised descriptions 2012) amended 2019; available at: https://www.eea.europa.eu/data-and-maps/data/eunis-habitat-classification/habitats/eunis-habitats-complete-with-descriptions.xls.

** EC (2013): Interpretation Manual of the European Habitats EUR 28, European Commission DG Environment; available at: https://ec.europa.eu/environment/nature/legislation/habitatsdirective/*

** BfN (2006): Wasserrahmenrichtlinie, wasserabhängige Lebensraumtypen nach Anhang I der FFH-Richtlinie; available at: https://www.bfn.de/themen/natura-2000/management/kooperation-mit-nutzern/groundwassernutzung.html.

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