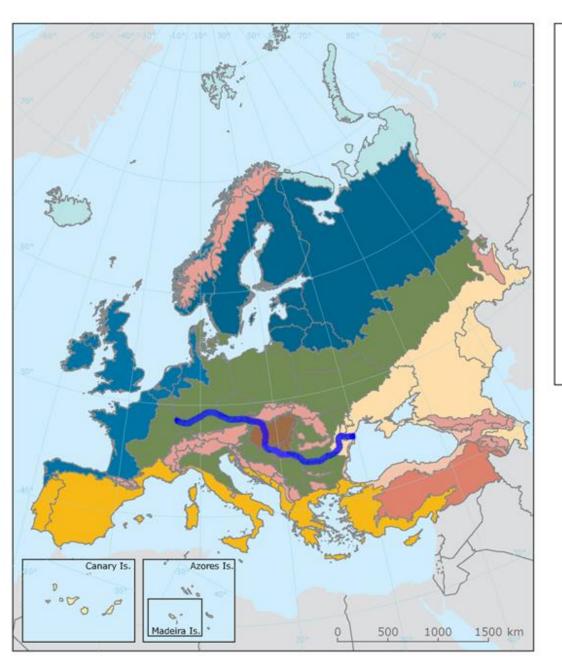


DANUBEparksCONNECTED WP 5 Dry Habitats











WP5 Danube Dry Habitat Corridor

- 5.1 Establishing the DANUBEAPRKS Canyons subsidiary Network
- 5.2 Danube Dry Habitat: Cadastre, maps & gap analyzes
- 5.3 Trying Dry: Pilot Actions
- 5.4 Elaborating the Danube Dry Habitat Corridor Strategy





| Step 1 | Questionnaire WP5: Prepared by Passau, LP and Working Group WP5: sent out until end of May/beginning of June; to be answered by all partners within 3 weeks, presentation of results by Passau at workshop in Kopacki rit (29th/30th June) Originally, the questionnaire was planned for May (see minutes Wachau); postponed due to delay in contracting external expert | Passau (incl. external expert) Working group WP5 LP | |
|---------|--|--|---------|
| Step 2 | Data Acquisition for Danube-wide maps (habitats, orchids), preparation of first draft of maps: What data are available? (Natura 2000, high resolution layer Copernicus, Corinne landcover etc) Presentation of very first draft maps on 29 th /30 th Kopacki rit | Passau (ink. External expert) with support by Vojvodinasume (WP6) | |
| Step 4 | 1st Danube Volunteers Day: nomination of your national volunteers activity (until 1st June at the very latest) kick-off for the volunteers initiative: 29th June, Kopacki rit 1st Danube Volunteers Day activities: between 1st July – October 2017 Facebook campaign: approx. September 2017 | Coordination: NPDA all Partners | |
| Step 5 | Workshop WP5, 29 th /30 th June Kopacki rit: Further development of WP5, results of questionnaire, presentation first maps; first strategic discussion | Passau Kopacki rit | |
| Step 6 | Memorandum of Cooperation Danube Canyons: Further development by the Danube Canyons; preparation for signing it; detailed time schedule still to be decided | Danube Canyons | |
| Step 7 | 8 th /9 th Sept. 2017: meeting in Duna-Ipoly National Park: celebration in Duna-Ipoly National Park, meeting by Danube Canyons to further develop their cooperation; Presentation of results of questionnaire | Danube Canyons Working Group WP5 | |
| Step 9 | Implementation of Pilot Actions: parallel to this process: preparation and implementation of pilot actions by each partner; share the results: we want to promote these visible actions! | All partners with pilot actions | |
| Step 10 | Gap analyzes & dry habitat strategy: Draft document ready for discussion at the workshop in September 2018 (Orth, Austria), finalization based on this discussion and the results of the maps | Passau WP5 working group all partners | |





WP5 Danube Dry Habitat Corridor

- 5.1 Establishing the DANUBEAPRKS Canyons subsidiary Network
- 5.2 Danube Dry Habitat: Cadastre, maps & gap analyzes
- 5.3 Trying Dry: Pilot Actions
- 5.4 Elaborating the Danube Dry Habitat Corridor Strategy





WP5 Expert Working Group

Passau (inkl. External expert),
Danube Canyons incl. Djerdap,
DDBRA, Col, Persina, NPDA

WP5 Danube Dry Habitat Corridor

- 5.1 Establishing the DANUBEAPRKS Canyons subsidiary Network
- 5.2 Danube Dry Habitat: Cadastre, maps & gap analyzes
- 5.3 Trying Dry: Pilot Actions
- 5.4 Elaborating the Danube Dry Habitat Corridor Strategy







WP 5 Dry Habitats – Workshop in Kopački rit

Act. 5.2: Danube Dry Habitat - cadastre, map and gap analysis

Act. 5.4: Elaboration of the Danube Dry Habitat Corridor Strategy

PSU | Prof. Schaller UmweltConsult GmbH

M.Sc. Kerstin Huber

Munich, Germany







PSU – Fields of Activity

Environmental and landscape planning

GIS application and consulting

Landscape architecture







Danube between Straubing and Vilshhofen







psu

Agenda:

- 1. First draft of Danube dry habitat map
- 2. Results of the questionnaire
- 3. Next steps in the generation of dry habitat and orchid maps
- 4. Strategic paper





Dry grasslands

Photos: PS



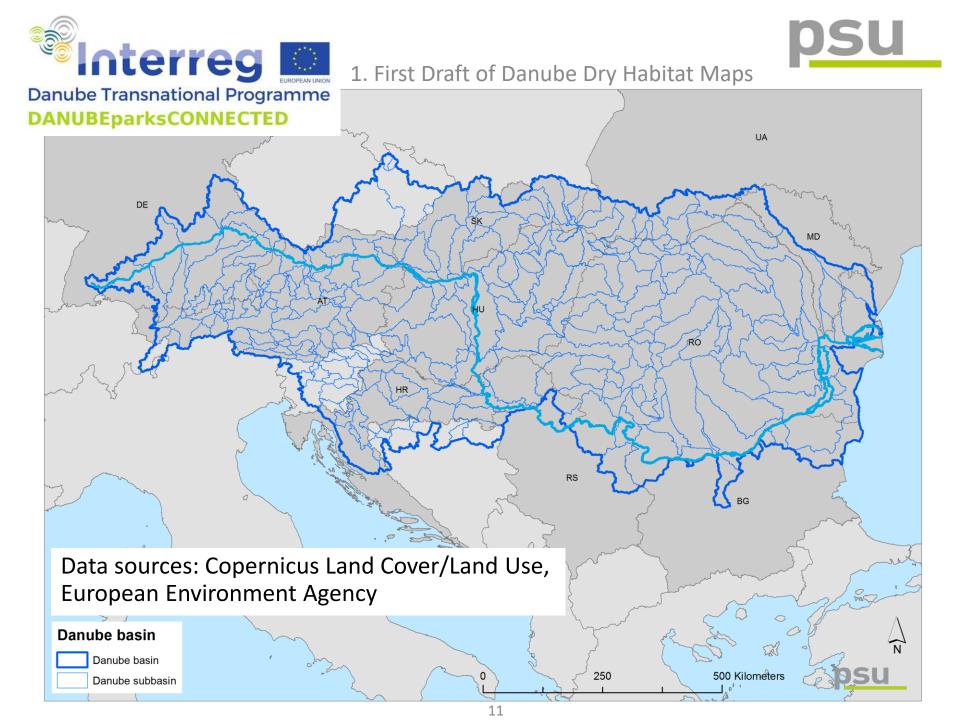




1. First Draft of Danube Dry Habitat Maps



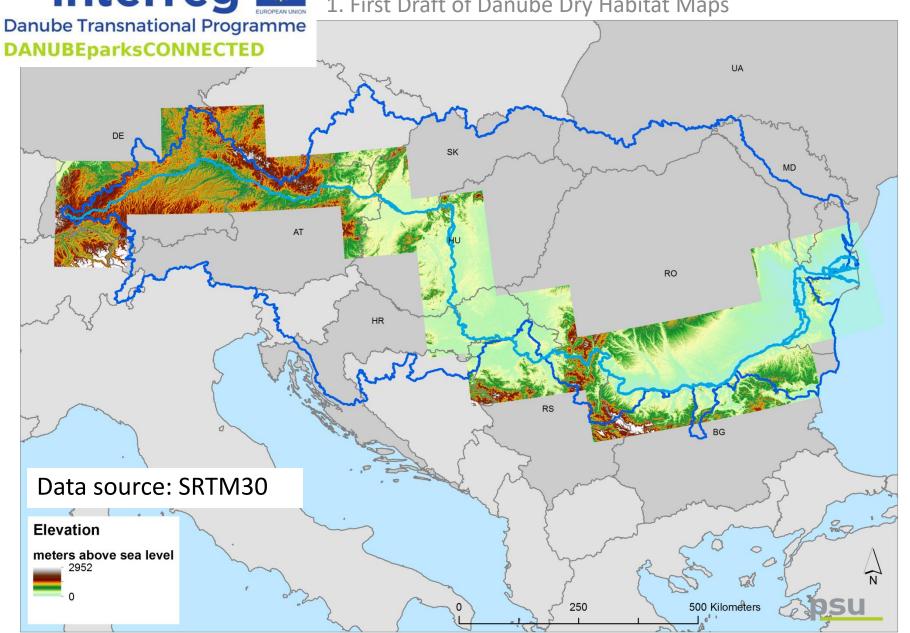


















Natura 2000 Habitat Classes

- 5 km corridor on both sides of the Danube for data selection -

| HABITATCODE | DESCRIPTION | |
|-------------|--|-------------|
| N01 | Marine areas, Sea inlets | |
| N02 | Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins) | |
| N03 | Salt marshes, Salt pastures, Salt steppes | |
| N04 | Coastal sand dunes, Sand beaches, Machair | |
| N05 | Shingle, Sea cliffs, Islets | |
| N06 | Inland water bodies (Standing water, Running water) | |
| N07 | Bogs, Marshes, Water fringed vegetation, Fens | |
| N08 | Heath, Scrub, Maquis and Garrigue, Phygrana | |
| N09 | Dry grassland, Steppes | |
| N10 | Humid grassland, Mesophile grassland | |
| N11 | Alpine and sub-Alpine grassland | |
| N12 | Extensive cereal cultures (including Rotation cultures with regular fallowing) | |
| N13 | Ricefields | |
| N14 | Improved grassland | |
| N15 | Other arable land | |
| N16 | Broad-leaved deciduous woodland | |
| N17 | Coniferous woodland | |
| N18 | Evergreen woodland | |
| N19 | Mixed woodland | |
| N20 | Artificial forest monoculture (e.g. Plantations of poplar or Exotic trees) | |
| N21 | Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas) | |
| N22 | Inland rocks, Screes, Sands, Permanent Snow and ice | |
| N23 | Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites) | |
| N24 | Marine and coastal habitats (general) | |
| N25 | Grassland and scrub habitats (general) | |
| N26 | Woodland habitats (general) | ANII |
| N27 | Agricultural habitats (general) | n |







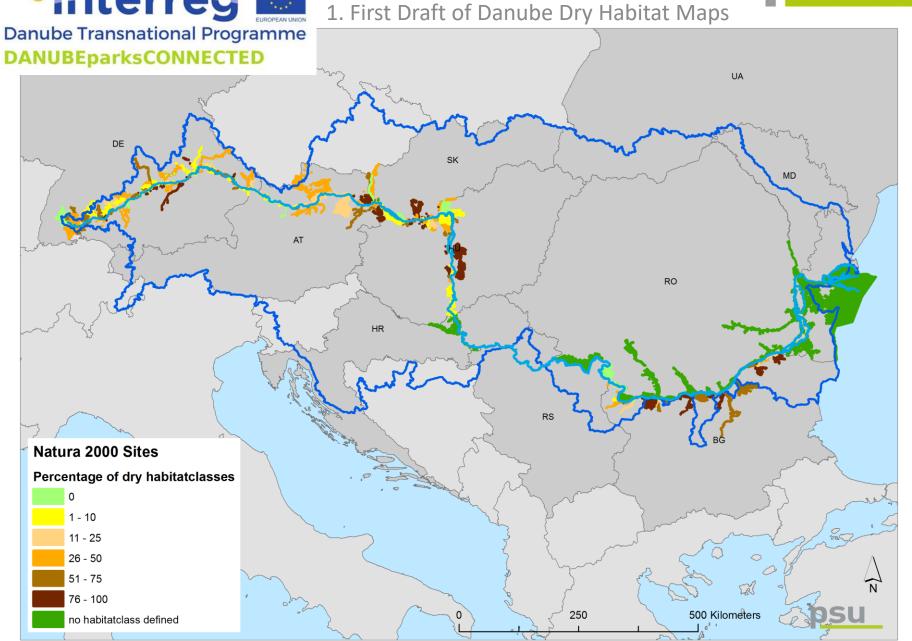
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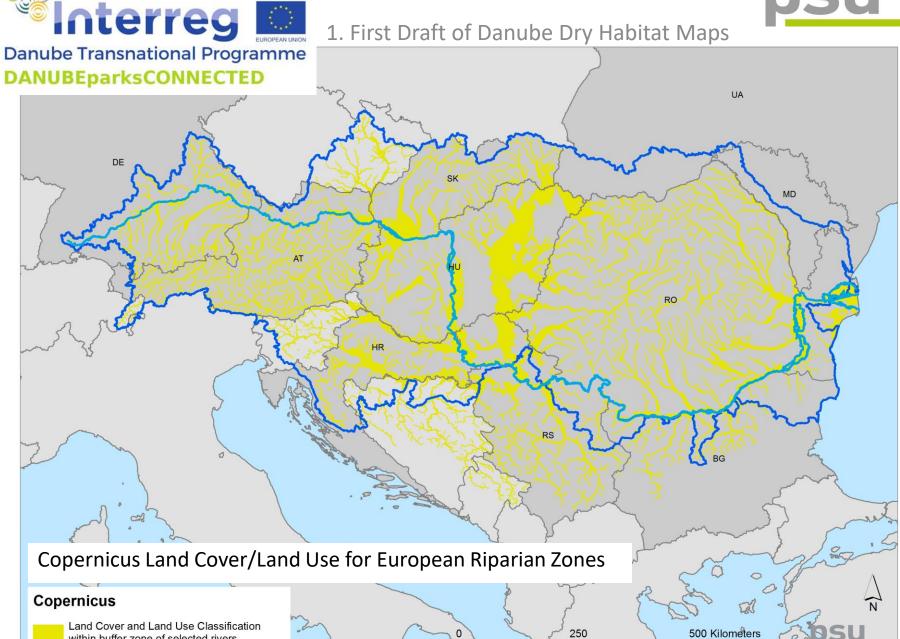


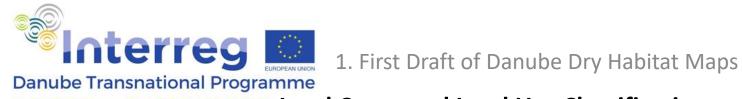




within buffer zone of selected rivers







DANUBEparks COnnected Land Cover and Land Use Classification

1 Urban

- 1.1.1 Dense to medium dense urban fabric (IM.D. >30-100% + industrial, commercial, public, military and private units)
- 1.1.2 Low density urban fabric (IM.D. 0-30%)
 - 1.2.1 Transport infrastructure
 - 1.3.1 Mineral extraction, dump and construction sites
- 1.3.2 Land without current use
- 1.4.1 Green urban areas
- 1.4.2 Sports and leisure facilities

2 Cropland

- 2.1.1 Non-irrigated arable land
- 2.1.2 Greenhouses
- 2.1.3 Irrigated arable land and rice fields
- 2.2.1 Vineyards
- 2.2.2 Fruit trees and berry plantations
- 2.2.3 Olive groves
 - 2.3.1 Annual crops associated with permanent crops
- 2.3.2 Complex cultivation patterns
- 2.3.3 Land principally occupied by agriculture with significant areas of natural
- 2.3.4 Agro-forestry T.C.D. ≥ 30%
- 2.3.5 Agro-forestry T.C.D. < 30%

3 Woodland

- 3.1.1 Broadleaved forest (T.C.D. > 80%)
 - 3.1.2 Broadleaved forest (T.C.D. > 50 80%)
- 3.1.3 Broadleaved forest (T.C.D. > 30 50%)
- 3.1.4 Broadleaved forest (T.C.D. ≥ 10 30%)
- 3.2.1 Coniferous forest (T.C.D. > 80%)
- 3.2.2 Coniferous forest (T.C.D. > 50 80%)
- 3.2.3 Coniferous forest (T.C.D. > 30 50%)
- 3.2.4 Coniferous forest (T.C.D. ≥ 10 30%)
- 3.3.1 Mixed forest (T.C.D. > 80%)
- 3.3.2 Mixed forest (T.C.D. > 50 80%)

- 3.3.3 Mixed forest (T.C.D. > 30 50%)
- 3.3.4 Mixed forest (T.C.D. ≥ 10 30%)
- 3.4.1 Transitional woodland scrub
- 3.5.1 Damaged forest

4 Grassland

- 4.1.1 Managed grassland
- 4.2.1 Natural grasslands prevailingly without trees and scrubs (T.C.D. < 30%)
- 4.2.2 Natural grasslands with trees and scrubs (T.C.D. ≥ 30%)

5 Heathland

- 5.1.1 Moors and heathland
- 5.2.1 Sclerophyllous vegetation

6 Sparsley vegetated land

- 6.1.1 Sparsely vegetated areas
- 6.2.1 Beaches, dunes, sands
- 6.2.2 Bare rocks, burnt areas, glaciers and perpetual snow

7 Wetland

- 7.1.1 Inland freshwater marshes
- 7.1.2 Inland saline marshes
- 7.2.1 Peat bogs

8 Lagoons, coastal wetlands and estuaries

- 8.1.1 Salt marshes & salines
- 8.1.2 Intertidal flats
- 8.3.1 Coastal lagoons
 - 8.3.2 Estuaries

9 Rivers and lakes

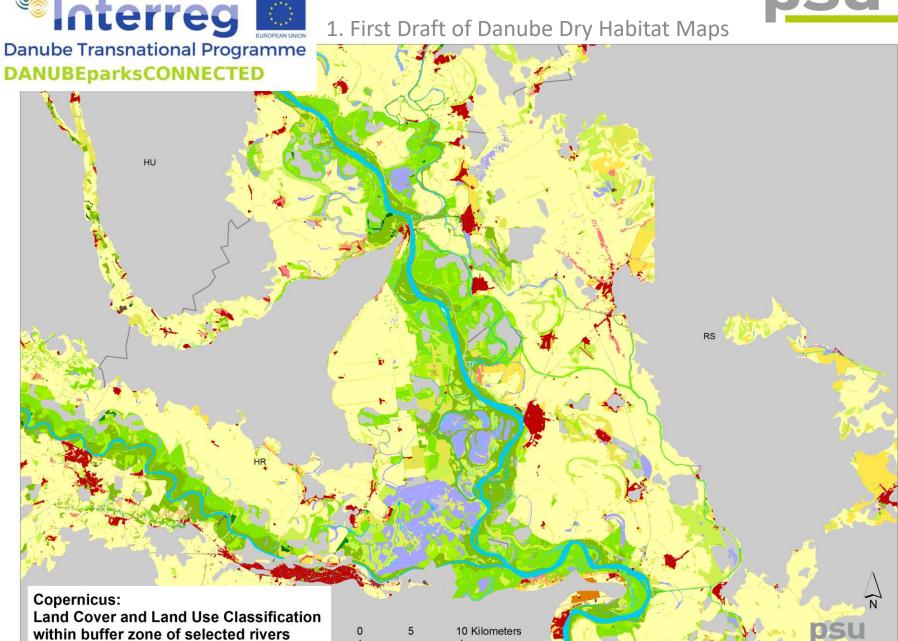
- 9.1.1 Interconnected running water courses
- 9.1.2 Separated water bodies belonging to the river system (dead side-arms, flood ponds,...)
- 9.3.1 Lakes and reservoirs

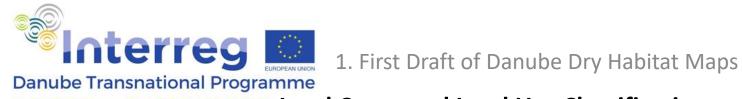
10 Marine (other)

10.1.1 Marine (other)









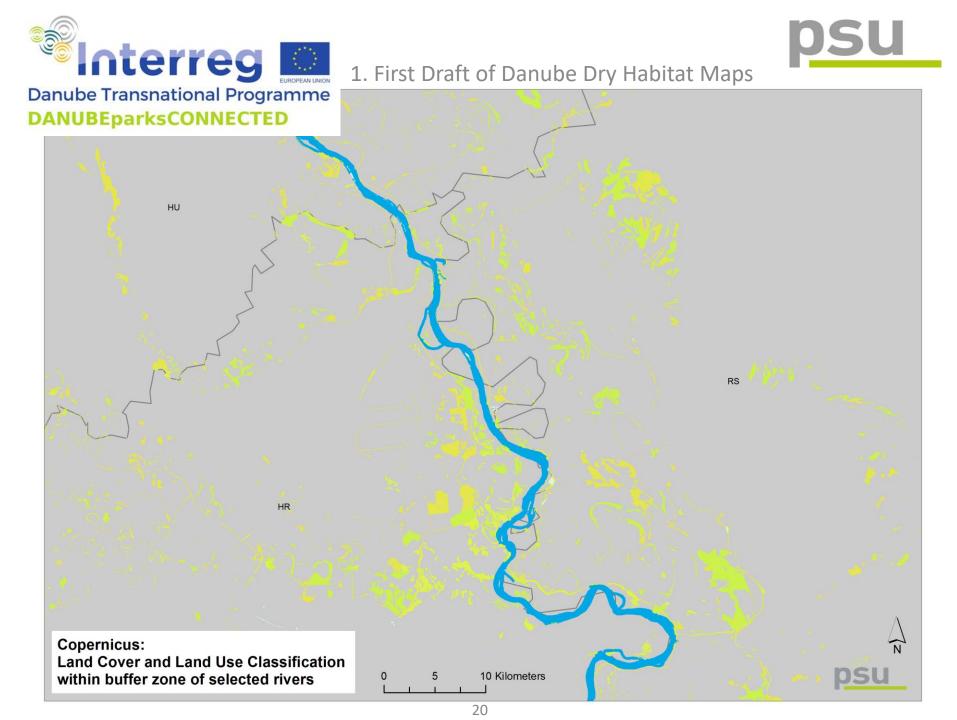
3.3.1 Mixed forest (T.C.D. > 80%)

3.3.2 Mixed forest (T.C.D. > 50 - 80%)

10.1.1 Marine (other)

DANUBEparks COnnected Land Cover and Land Use Classification

1 Urban 3.3.3 Mixed forest (T.C.D. > 30 - 50%) 1.1.1 Dense to medium dense urban fabric (IM.D. >30-100% + industrial, 3.3.4 Mixed forest (T.C.D. ≥ 10 - 30%) commercial, public, military and private units) 3.4.1 Transitional woodland scrub 1.1.2 Low density urban fabric (IM.D. 0-30%) 3.5.1 Damaged forest 1.2.1 Transport infrastructure 4 Grassland 1.3.1 Mineral extraction, dump and construction sites 4.1.1 Managed grassland 1.3.2 Land without current use 4.2.1 Natural grasslands prevailingly without trees and scrubs (T.C.D. < 30%) 1.4.1 Green urban areas 4.2.2 Natural grasslands with trees and scrubs (T.C.D. ≥ 30%) 1.4.2 Sports and leisure facilities 5 Heathland 2 Cropland 5.1.1 Moors and heathland 2.1.1 Non-irrigated arable land 5.2.1 Sclerophyllous vegetation 2.1.2 Greenhouses 6 Sparsley vegetated land 2.1.3 Irrigated arable land and rice fields 6.1.1 Sparsely vegetated areas 2.2.1 Vineyards 6.2.1 Beaches, dunes, sands 2.2.2 Fruit trees and berry plantations 6.2.2 Bare rocks, burnt areas, glaciers and perpetual snow 2.2.3 Olive groves 7 Wetland 2.3.1 Annual crops associated with permanent crops 7.1.1 Inland freshwater marshes 2.3.2 Complex cultivation patterns 7.1.2 Inland saline marshes 2.3.3 Land principally occupied by agriculture with significant areas of natural vegetation 7.2.1 Peat bogs 2.3.4 Agro-forestry T.C.D. ≥ 30% 8 Lagoons, coastal wetlands and estuaries 2.3.5 Agro-forestry T.C.D. < 30% 8.1.1 Salt marshes & salines 3 Woodland 8.1.2 Intertidal flats 3.1.1 Broadleaved forest (T.C.D. > 80%) 8.3.1 Coastal lagoons 3.1.2 Broadleaved forest (T.C.D. > 50 - 80%) 8.3.2 Estuaries 3.1.3 Broadleaved forest (T.C.D. > 30 - 50%) 9 Rivers and lakes 3.1.4 Broadleaved forest (T.C.D. ≥ 10 - 30%) 9.1.1 Interconnected running water courses 3.2.1 Coniferous forest (T.C.D. > 80%) 9.1.2 Separated water bodies belonging to the river system (dead side-arms, 3.2.2 Coniferous forest (T.C.D. > 50 - 80%) flood ponds,...) 3.2.3 Coniferous forest (T.C.D. > 30 - 50%) 9.3.1 Lakes and reservoirs 3.2.4 Coniferous forest (T.C.D. ≥ 10 - 30%) 10 Marine (other)





1. First Draft of Danube Dry Habitat Maps



Preliminary focus of mapping

= Simplified corridor of 5 km on both sides of the Danube

Main data sources used so far

- Natura2000 protected areas
- Copernicus land cover and land use within European riparian zones
- Elevation model SRTM30
- European Environment Agency (EEA) European river catchments

Additionally found:

- Copernicus Permanent Water Bodies
- EEA WISE Large rivers and large lakes
- ITZBund Bundeswasserstrassen



















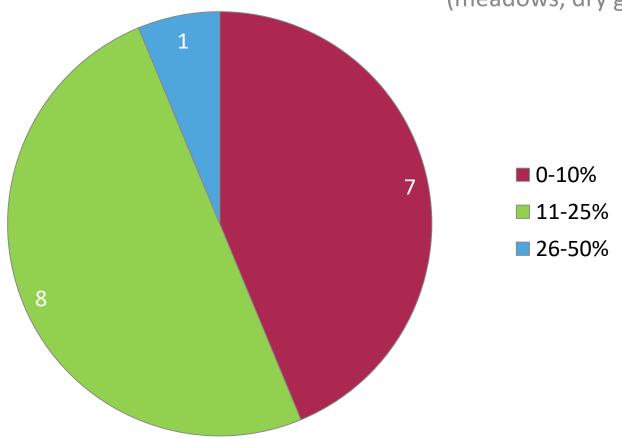






Abundance of open, cultivated landscapes in the PA



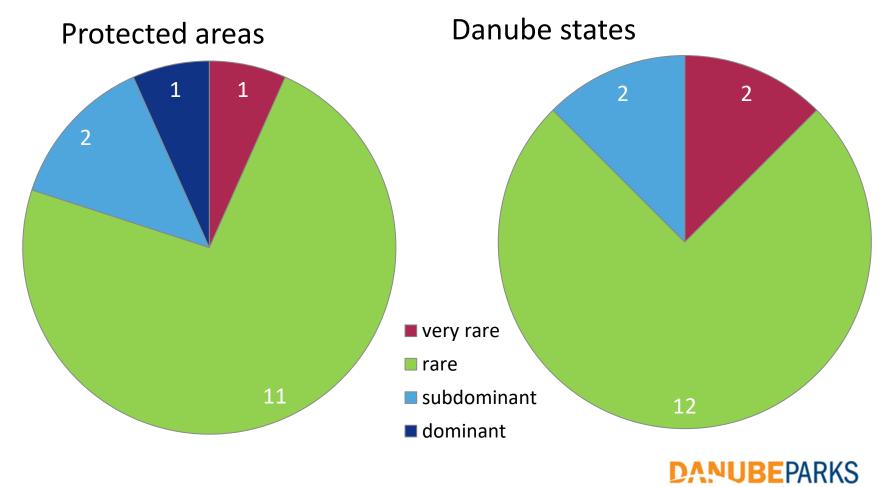








Abundance of (semi)dry habitats

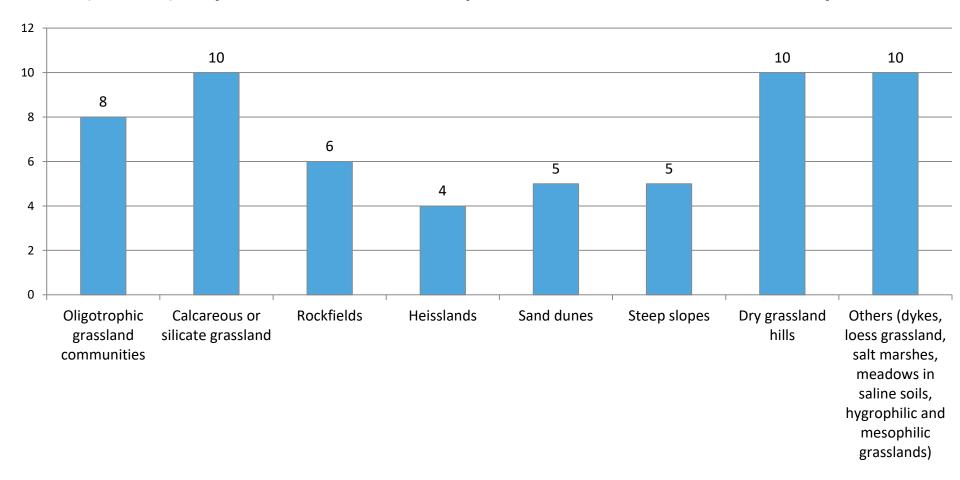








(Semi)dry habitats in the protected areas/close by

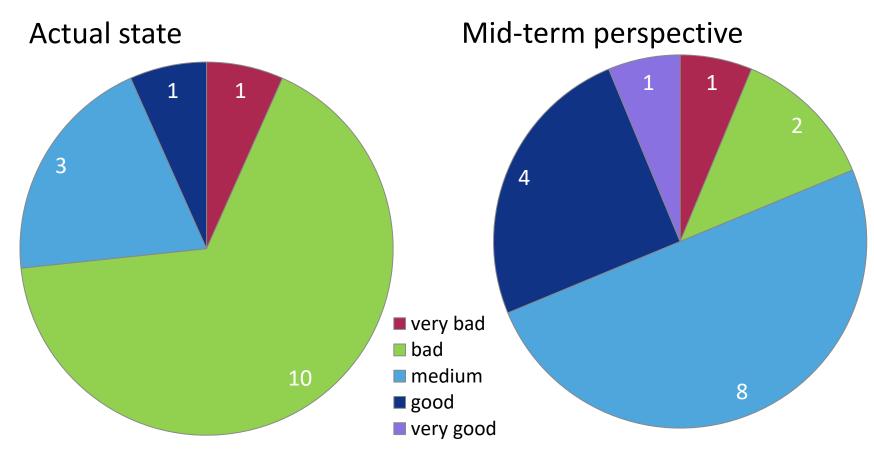








Status of (semi)dry habitat

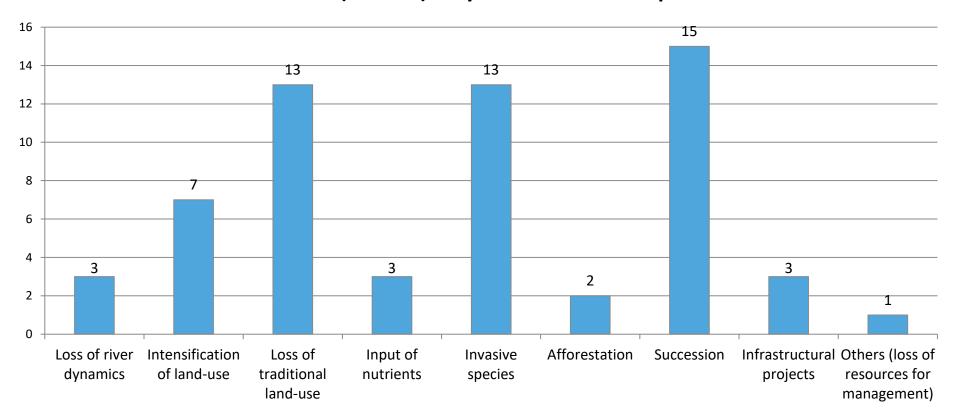








Main threats for (semi)dry habitats in protected areas



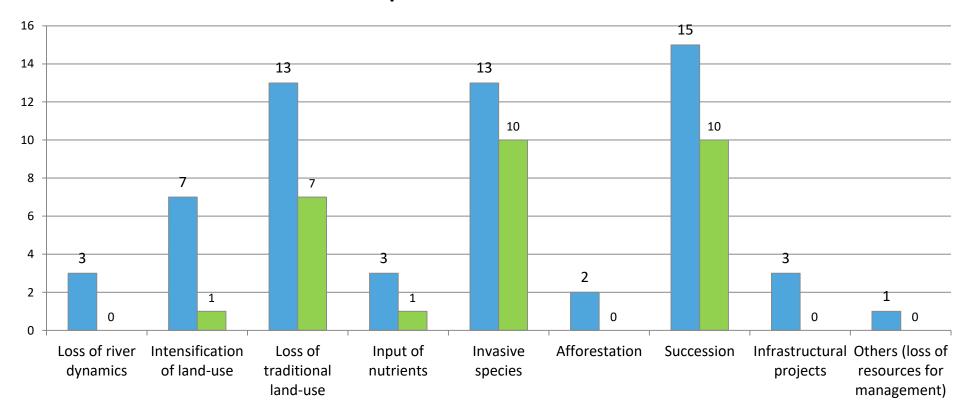








Main threats and implemented measures









Relevance of management of dry habitats in PA

- minor relevant 5
- relevant 7
- highly relevant 4

Already existing management plans or concepts

- special management plans/concepts 3
- as part of general plans/concepts 6
- no plans/concepts 7

Implemented conservation projects since 2010

- 0 projects 5
- 1-5 projects 10

Man-made structures with potential for developing to dry habitats

in 10 protected areas (dams, dykes, artificial pine/robinia plantations)

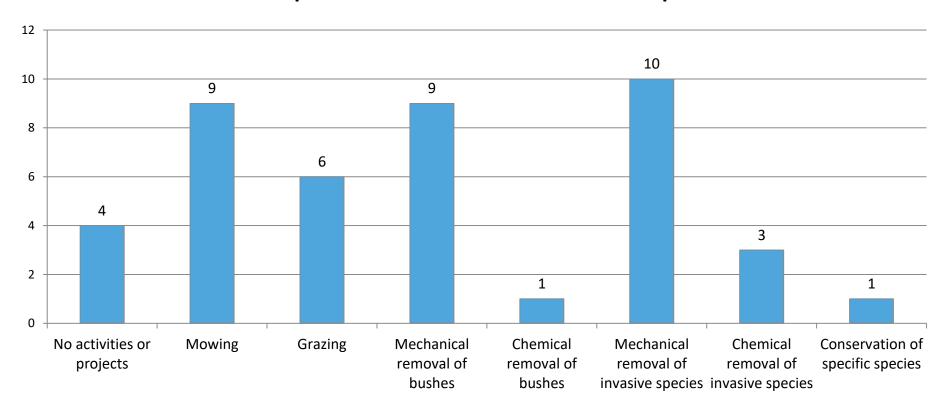








Since 2010 implemented activities for protection

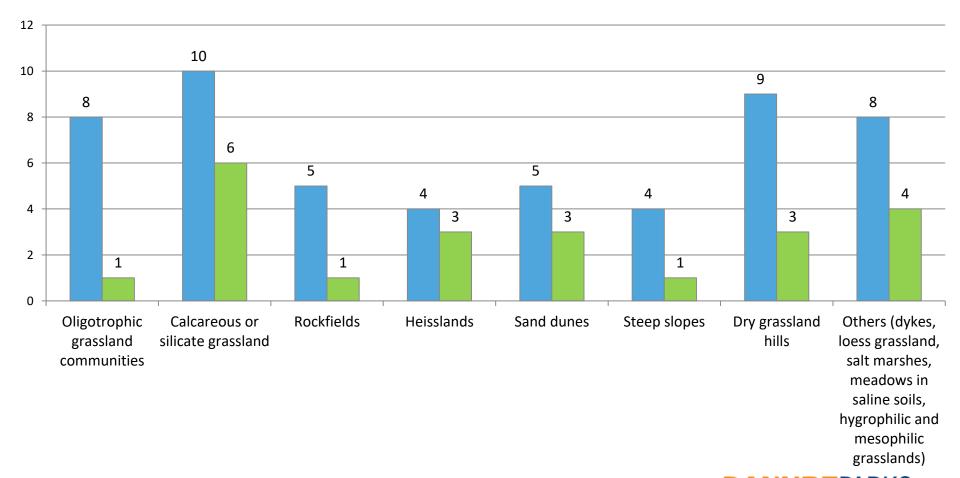








Occurring habitats and addressing projects







Monitoring programs for flagship species

- Flora and/or Fauna 7
- None -7

In all participating PA (15) there are orchid species

- Monitoring measures 9
- Conservation measures 4
- None 4



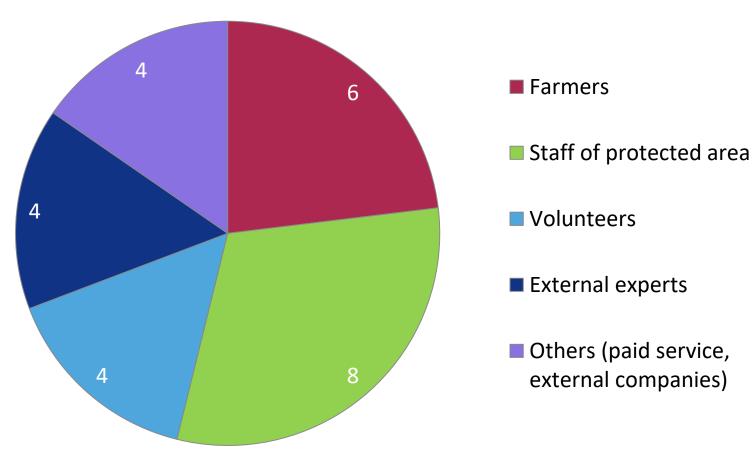
Orchis ustulata







Implementation of measures

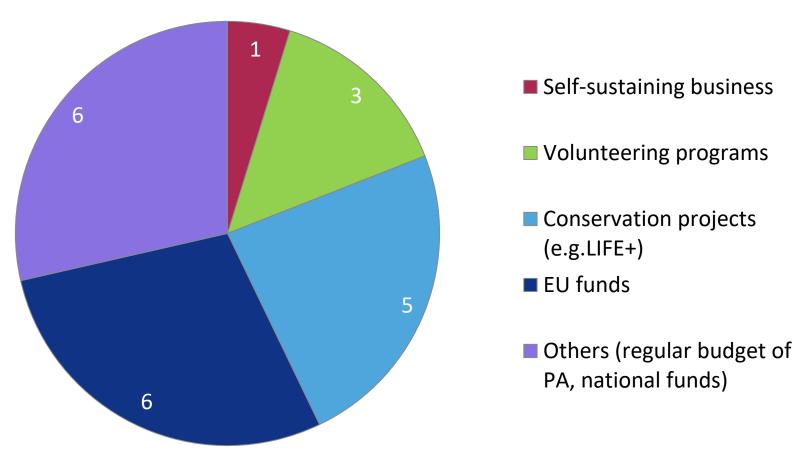








Financing of measures



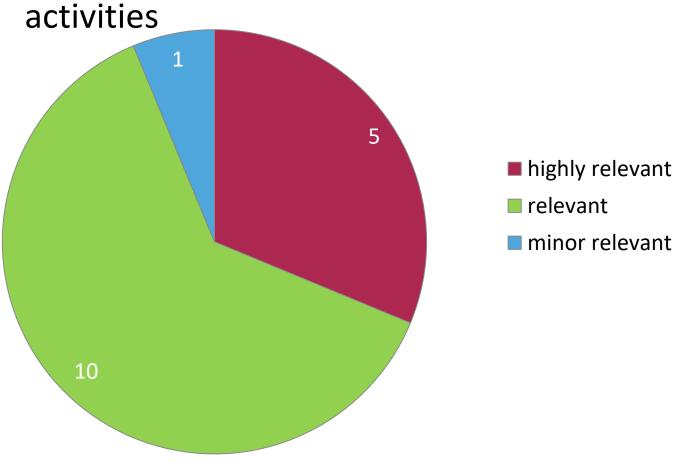








Relevance of dry habitats as focus of Danube-wide



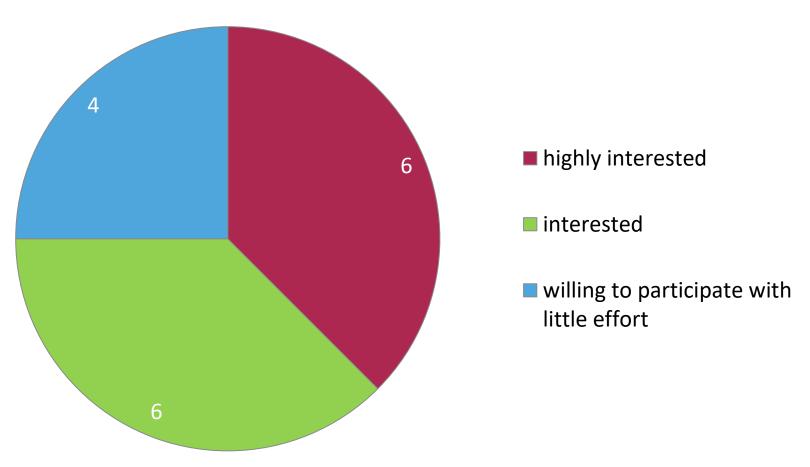








Interest in Danube-wide follow-up projects











Summary of most important results

- Wide variety of dry habitats within the PA, though low in quantity
- Status quo is mostly bad or medium, mainly threatened by succession, invasive species and missing management
- Differing relevance and amount of measures implemented so far
- In total 39 very different activities and projects
- Mostly high relevance of dry habitat and interest in follow up projects













2. Results of the Questionnaire



For PA available maps and data illustrating dry habitats

- Analogue maps 5
- Digital data 10
- None 4

National data available for the Danube region

- Analogue maps 3
- Digital data 9
- None 4

Data related to orchids

- Analogue data 5
- Digital data 8
- None 5















Research of available data

2. Processing of available data

- Copernicus land cover and land use of Europe
- Verification of Copernicus classification
- Specification of Natura2000 Habitats
- Natura2000 Standard Data Forms → inter alia orchids
- Specification of Danube corridor
- •







3. Retrieval of additional data from each network member

- Boundaries of protection areas
- Missing data on Natura 2000 Habitat (Romania, Croatia)
- Data from Serbia comparable to Natura2000
- Dykes
- Biotope mapping
- Mapping of protected species (cf. Artenschutzkartierung ASK Germany)
- Orchids





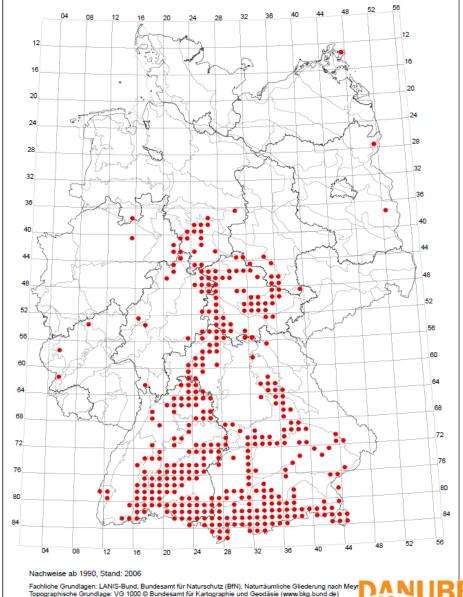
Managementempfehlungen für Arten des Anhangs IV der FFH-Richtlinie (Internethandbuch)
Umweltforschungsplan 2008 - Forschungskennziffer 3508 86 0300

Frauenschuh (Cypripedium calceolus)

Verbreitung der Art in Deutschland



network of protected areas







4. Standards of quality of data

- Current, relevant data
- Digital data, compatible with GIS
- → Important analogue data need to be digitized
- → Remaining analogue data will be catalogued to form a database for future projects

5. Data exchange

- 1 Contact person for each country
- Web link to freely available digital data
- Data transfer via FTP server to PSU or to WP6
- Analogue data as PDF





3. First Draft of Danube Dry Habitat Maps



Planned results of mapping

- Dry habitat map of Danube
- Dry habitat map of each PA
- Conservation status of each site
- Orchid map of Danube
- Orchid map of each PA on an unitary standard

Quality and GIS-procedures depend on available and delivered data

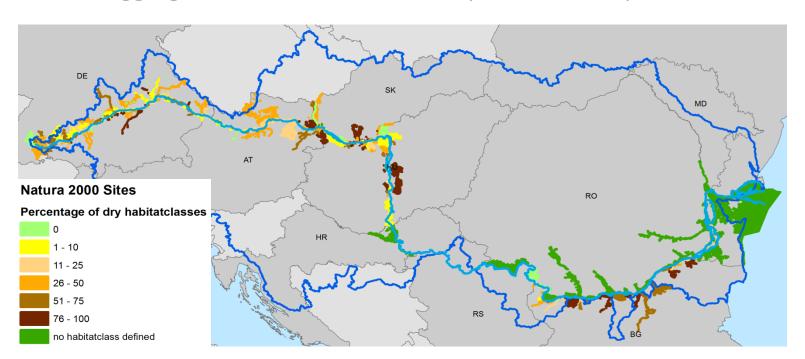






Mapping of orchids

- Orchids listed in FFH annex II, IV and V + IUNC Red List
- Not all species with respective place of origin
- But aggregated illustration like in the previous example

























List of Contents

- 1. Introduction
- 2. Danube dry habitats
- 3. Relevance of rivers for dry habitats
- 4. Causes of threat, necessity for protection and management
- 5. Corridor gap analysis, identification of bottlenecks
- 6. Best practice within DANUBEparks
- 7. Best practice of similar projects
- 8. Catalogue of measures
- 9. Literature







List of Contents

2. Danube dry habitats

2.1 Site conditions for dry habitats:

climate, substrate, land use, erosion, sedimentation, natural disturbances

2.2 Primary dry habitats:

rock vegetation, dry grassland on gravel, salt steppe, inland dunes/sand fields, inland salt meadows

2.3 Secondary dry habitats

dry grasslands, mesoxerophytic grasslands, dry meadows, shrub heaths

2.4 Fauna of dry habitats

relevant species groups







List of Contents

- 3. Relevance of rivers for dry habitats
- 3.1 Interactions between rivers and dry habitats
- 3.2 Particular relevance of the Danube (biogeographic regions)
- 3.3 Species, examples, orchids







List of Contents

4. Status quo and outlook

- 4.1 Quantitative and qualitative overview of Danube dry habitats
- 4.2 Causes of threat
- 4.3 Necessity for protection and management

5. Dry habitat corridor

- 5.1 Gap analysis
- 5.2 Identification of bottlenecks







List of Contents

- 6. Best practice within DANUBEparks
- 6.1 Pilot action 1
- 6.2 Pilot action 2...
- → 39 activities and projects so far according to the questionnaire
- 7. Best practice of similar projects
- 7.1 Best practice 1
- 7.2 Best practice 2...
- 8. Catalogue of measures







| Fact Sheet | | | | |
|--|--------------------------|-----------------------------|--|--|
| Project Name | Responsible Organization | Number | | |
| | | | | |
| Title | | | | |
| | | | | |
| Measure Type | | | | |
| □ mowing | □ mechanical ı | removal of invasive species | | |
| □ grazing | □ chemical rer | noval of bushes | | |
| □ burning | □ chemical rer | noval of invasive species | | |
| □ conservation of specific | cies 🗆 public relation | ons | | |
| ☐ mechanical removal of bush | es <u> </u> | | | |
| | | | | |







| Country | | |
|--------------------------------|-----------------------|--|
| Location | | |
| Area Size | | |
| Initial Habitat Type | | |
| □ dry grassland | □ rockfield | |
| □ mesoxerophytic grassland | □ heissland | |
| □ dry meadows | □ inland sand dune | |
| □ shrub heath | □ inland saline marsh | |
| Planned Objectives and Reasons | | |
| | | |
| | | |







| Start | End |
|--|--------------------------|
| | |
| Implementation Status | |
| □ terminated | □ not started yet |
| □ in progress | |
| In Charge of Implementation | |
| □ staff of responsible organization | □ external paid service |
| □ farmers/shepherds | □ non-profit institution |
| □ volunteers | |
| Financing | |
| □ self-sustaining business | □ national funding |
| □ volunteering program | □ EU funding |
| □ regular budget of responsible organization | |
| Costs | |





| Measure Description • | | |
|-------------------------------------|---------------------------------|--|
| • | | |
| | | |
| Achieved Outputs | | |
| • | | |
| • | | |
| Evaluation | | |
| □ completely successful | ☐ falling short of expectations | |
| □ satisfactory | □ failed | |
| Lessons learned and Recommendations | | |
| | | |







| Transferability to comparable Areas □ easily transferable □ needs substantial adaptation | □ not transferable |
|--|-----------------------------|
| Available Information | |
| □ report | □ digital GIS data |
| □ map | □ publication |
| Sustainability | |
| □ part of a comprehensive action plan to | □ standalone measure |
| connect dry habitats | □ follow-up project planned |
| Photos – before | Photos – afterwards |
| Photos – work in progress | |













Preliminary To Do List

- ✓ Describing implemented projects within PA and beyond by means of the standard form
- ✓ Transferring missing relevant digital data (slide #46) to PSU or to WP6
- ✓ Digitizing most important analogue data
- ✓ Sending internet links to relevant freely available data
- ✓ Transferring remaining relevant analogue data to pool it in a database
- ✓ Identifying one contact person per country for PSU to pool and transfer national digital data
- ✓ (Scientific) papers on the issues of the strategic paper.













2. Results of the Questionnaire



Discussion

- Have the implemented projects been successful in tackling the respective threats?
- What obstacles have you faced in implementing the measures?
- What do you need to be able to better protect and develop dry habitats?
- What can you recommend to other PA when planning measures for dry habitats?
- Why do you rate the mid-term perspective of (semi)dry habitats optimistically?

