

Crop Wild Relatives (CWR) in Brandenburg / Germany: Establishing a system for reporting and monitoring *in-situ*- conservation

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introduction to the project

CWR / WVK: definition and inventories

data sources of CWR-observations

model structure and database

migration, analyse and presentation of data

summary



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partners and support

- state agency for environment,.. Brandenburg (LUGV)
- forestry competence center Eberswalde (LFE)
- Univ. of applied sciences Eberswalde (FHE),
Dept. forest and environment

the project is part of the national biological diversity research and application program, cofinanced by the Federal agency for agriculture and food (BLE).

running 2007-2010



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International and national benchmarks

International: **Convention of biological diversity (CBD 1993)**, **Global plan of action (GPA)** for conserving and sustainable use of PGR for food and agriculture (1996), **International treaty about PGR for food and agriculture (2004)**



responsibility for conservation,
duty for documentation and reporting



National program for conserving and sustainable use of PGR (BMELV)

→ guaranting conservation of
PGR *in situ* und *ex situ*



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german PGR-inventory: categories of use

12 categories:

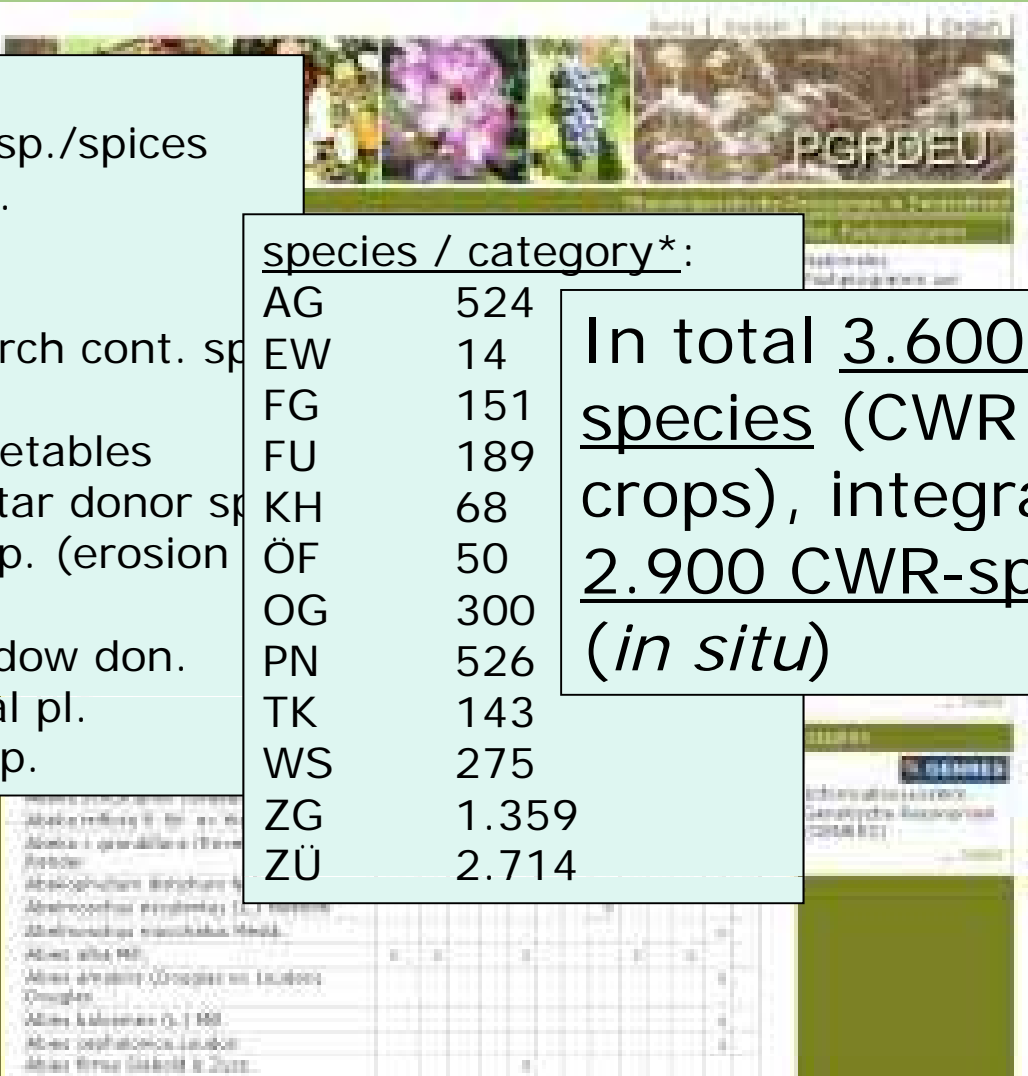
- AG – medicinal sp./spices
- EW – protein sp.
- FG – forest sp.
- FU – fodder sp.
- KH – sugar-/starch cont. sp.
- ÖF – oil sp.
- OG – fruits, vegetables
- PN – pollen/nectar donor sp.
- TK – technical sp. (erosion fix.,...)
- WS – wind, shadow don.
- ZG – ornamental pl.
- ZÜ – breeding sp.

•species possibly in more
•than one category

species / category*:

AG	524
EW	14
FG	151
FU	189
KH	68
ÖF	50
OG	300
PN	526
TK	143
WS	275
ZG	1.359
ZÜ	2.714

In total 3.600 PGR-species (CWR & crops), integrated ca. 2.900 CWR-species (*in situ*)



Definition of CWR (*Crop Wild Relatives*), german term Wildlebende Verwandte von Kulturpflanzen (WVK)

... wild species, related to crops and useable wild species with economic importance...
native or migrated taxa, but able to regenerate...
wild existing as collected as cultivated...



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realization of CWR-species inventory

1. step:

compiling of german cultivated species (ca. 300 species, 190 genera; excluded ornamental plants)

....existing wild relatives in german flora?

2. step:

compiling only native, becoming wild or migrant species: ca. 215 species; 154 genera („CWR-working catalogue")

- cereal, maize and potato are most important crops for germany, but without any native relatives!
- **beets, cabbage and carrot, meadow plants, forest plants, some fruits, grapewine, hop and several pharmaceutical plants and spices are native or they have wild relatives as part of the german wild flora**



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CWR-examples:

- Apium graveolens*, *A. repens*:
- high economic importance,
 - cultivars, breeding
 - food and processing



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from tree to medicine...

Salix sp.: -processing and use



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Arnica montana:

- collected, cultivated
- economic value



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Allium ursinum:

- wild species, useable
- cultivation started, no cultivars
- economic use, processing for food



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CWR database, steps for realization

1. classifying of crop wild relatives for Germany → CWR-species catalogue
2. analyzing quality of data and data structure of existing files and collections in Brandenburg → selection of useful and useable sources
3. categories for the description of occurring PGR → descriptors
4. developing of structure of database for data management → Database model
5. combining of data from different sources → interrogation, integration to database, combining with geo-data (GIS)
6. data transfer to *in-situ-inventory* of central administration → PGRDEU (database for the documentation of PGR, a. BLE)
7. testing and demonstrating of selection and aggregation of data for reporting → visualisation/ WebGIS



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summary of used CWR data from Brandenburg

source	Number of records original	Number of records CWR/WVK
Brandenburg biotope mapping BBK	1,3 mio.	ca. 527.000
Special observations from LUA	598	98
WinArt	811	216
Documentation of genetic resources elm tree species and black poplar	378	378
Data of forestal gene conservation LFE	775	219
native, regional trees (GHG-inv.)	2.928	897
ÖUB, environmental monitoring	9.260	1.801
Florein Data	482.819	167.802

Listed observations of regional CWR-species:

ca. 700.000



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Documentation of CWR-observations

asked and available data:

Observation

(view, "Population")

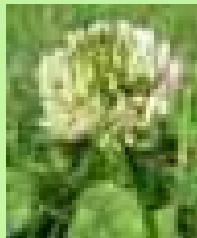
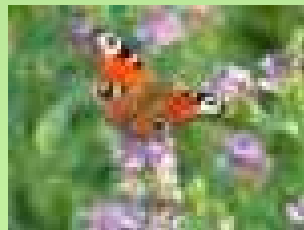
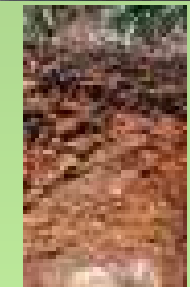
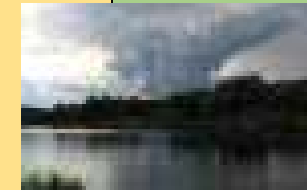
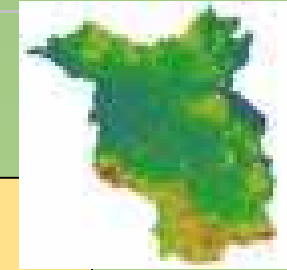
- Taxon
- Abundance
- Threat
- Vitality



Site

level above NN

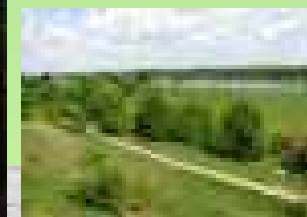
- data of climate
- soil type
- Biotope character, FFH-type, natural region
- protected area
- property



summarizing of data



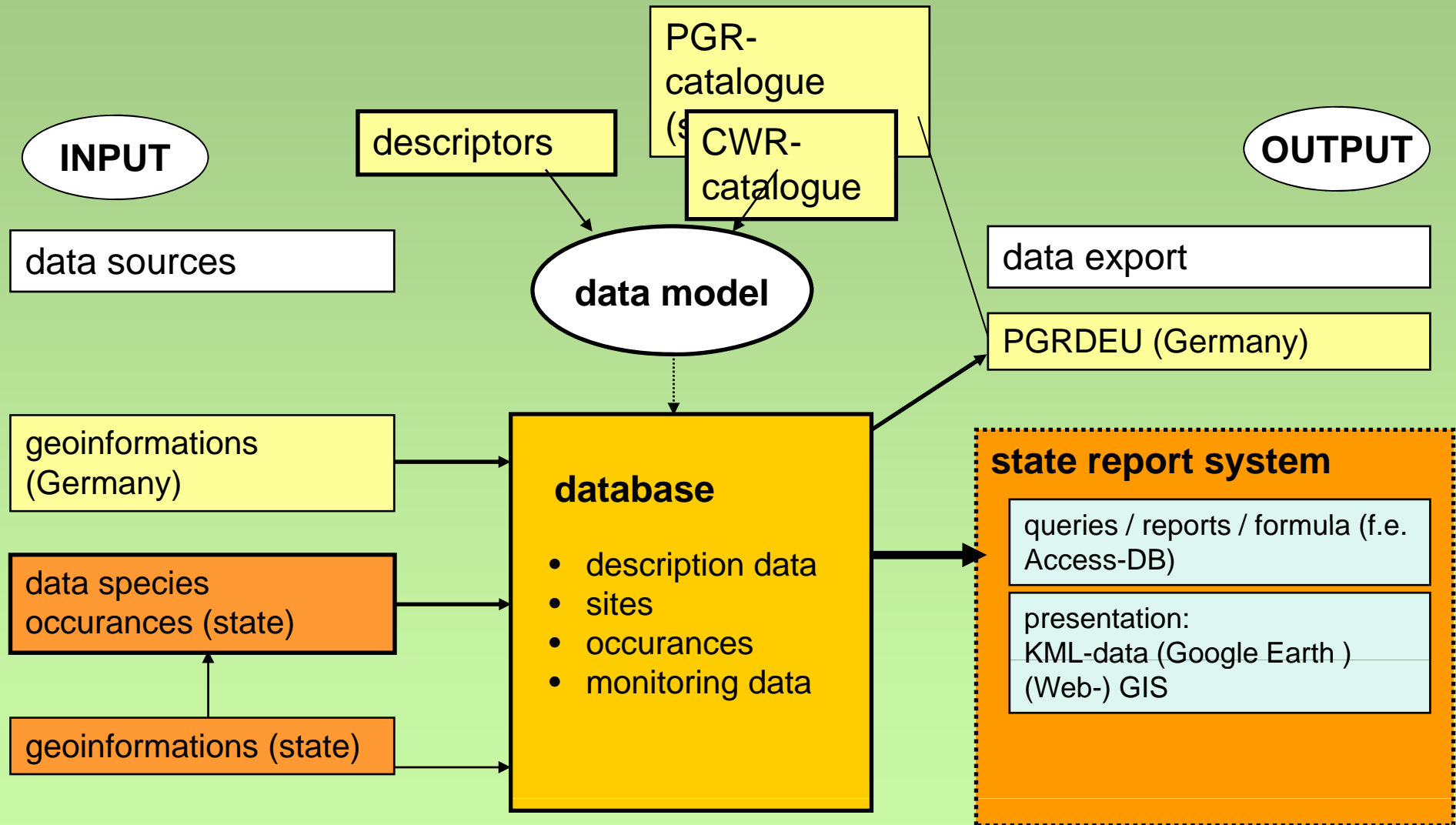
Analysing and presenting of data



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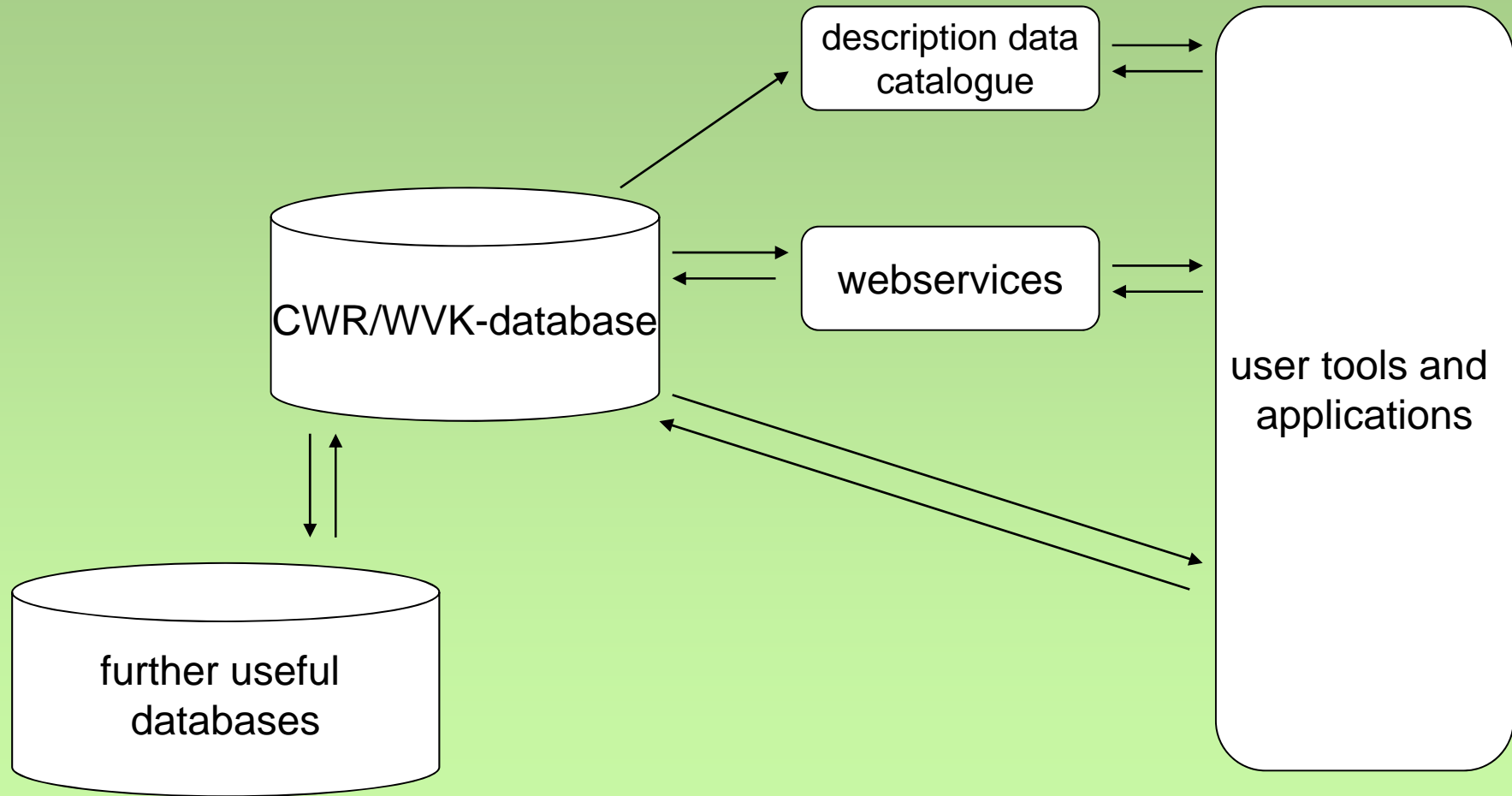
CWR/WVK – report- and monitoring system: structure



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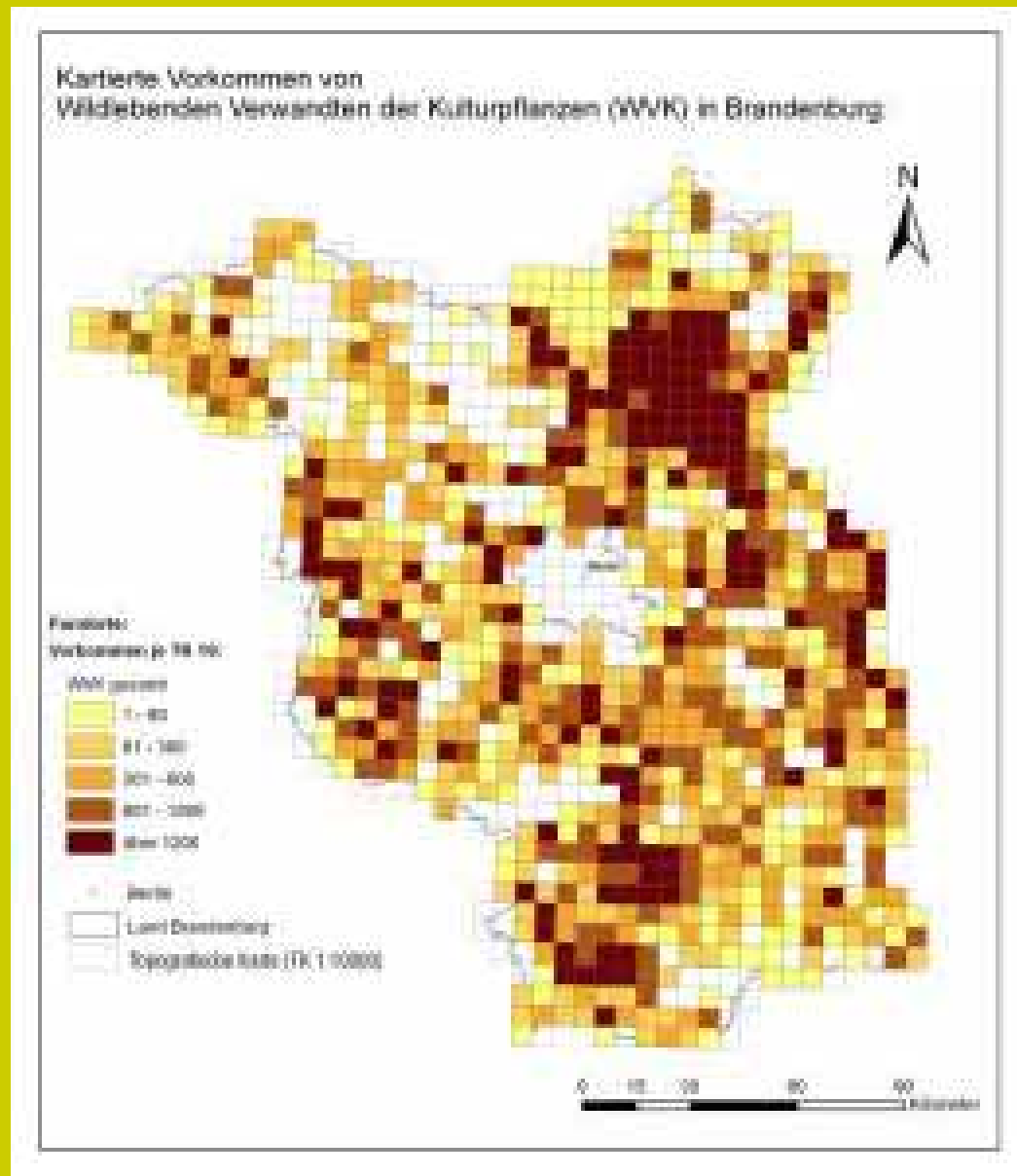
integration of CWR/WVK-database to geo data infrastructure - outlook and vision -



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existence of CWR in Brandenburg



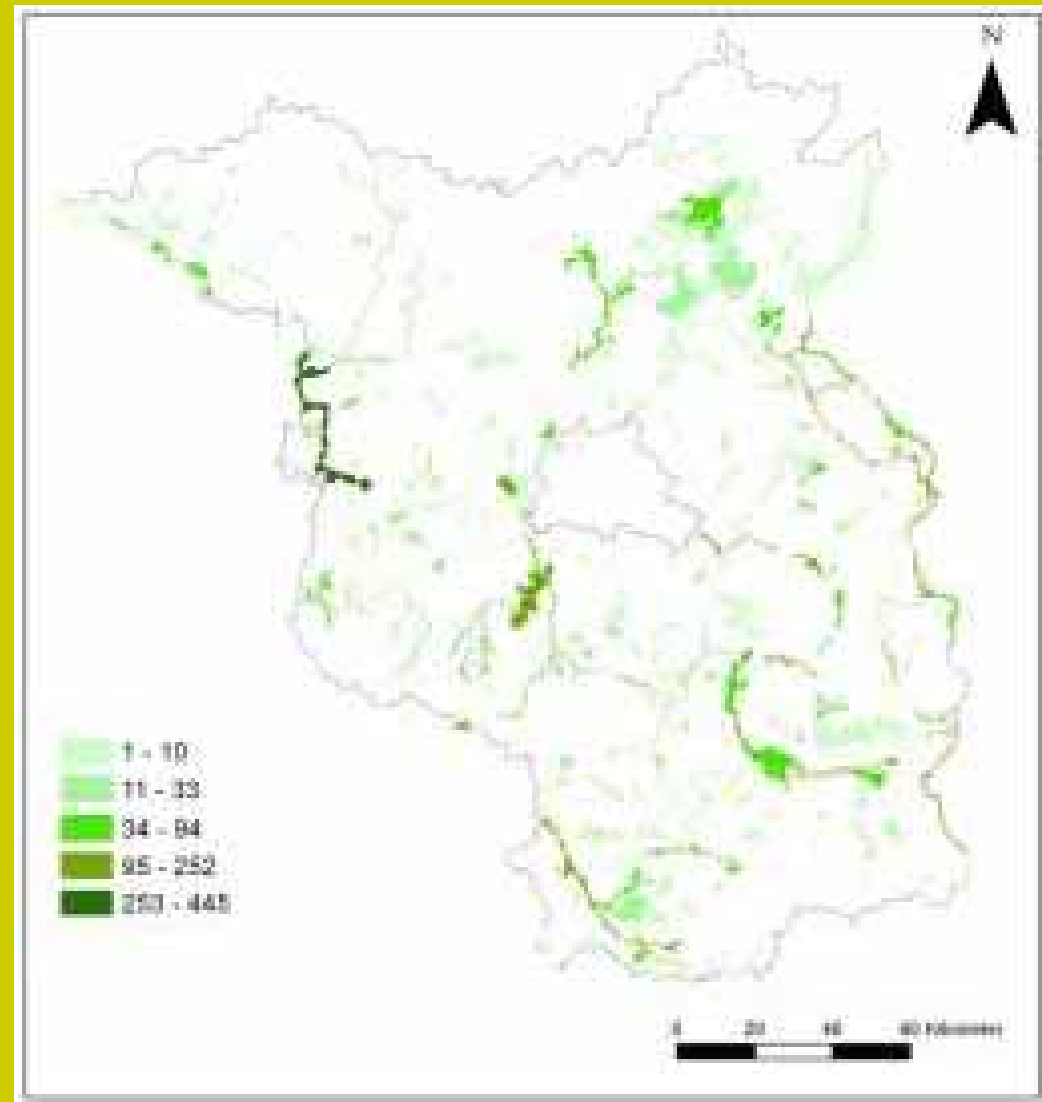
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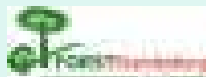
report and monitoring system for *in situ*-conservation of plant genetic resources

direct presentation and analysis using GIS- interface

number of occurrences of
selected CWR situated
inside FFH-area (GIS-pres.)



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report and monitoring system for *in situ*-conservation of plant genetic resources

map-presentation XML-based (g.ex.: KML*)

linked to www.floraweb.de

* Keyhole Markup Language



**cwr-species: -
occurrences in
Brandenburg,
viewing and
description of
site and data
(presented by
Google Earth)**

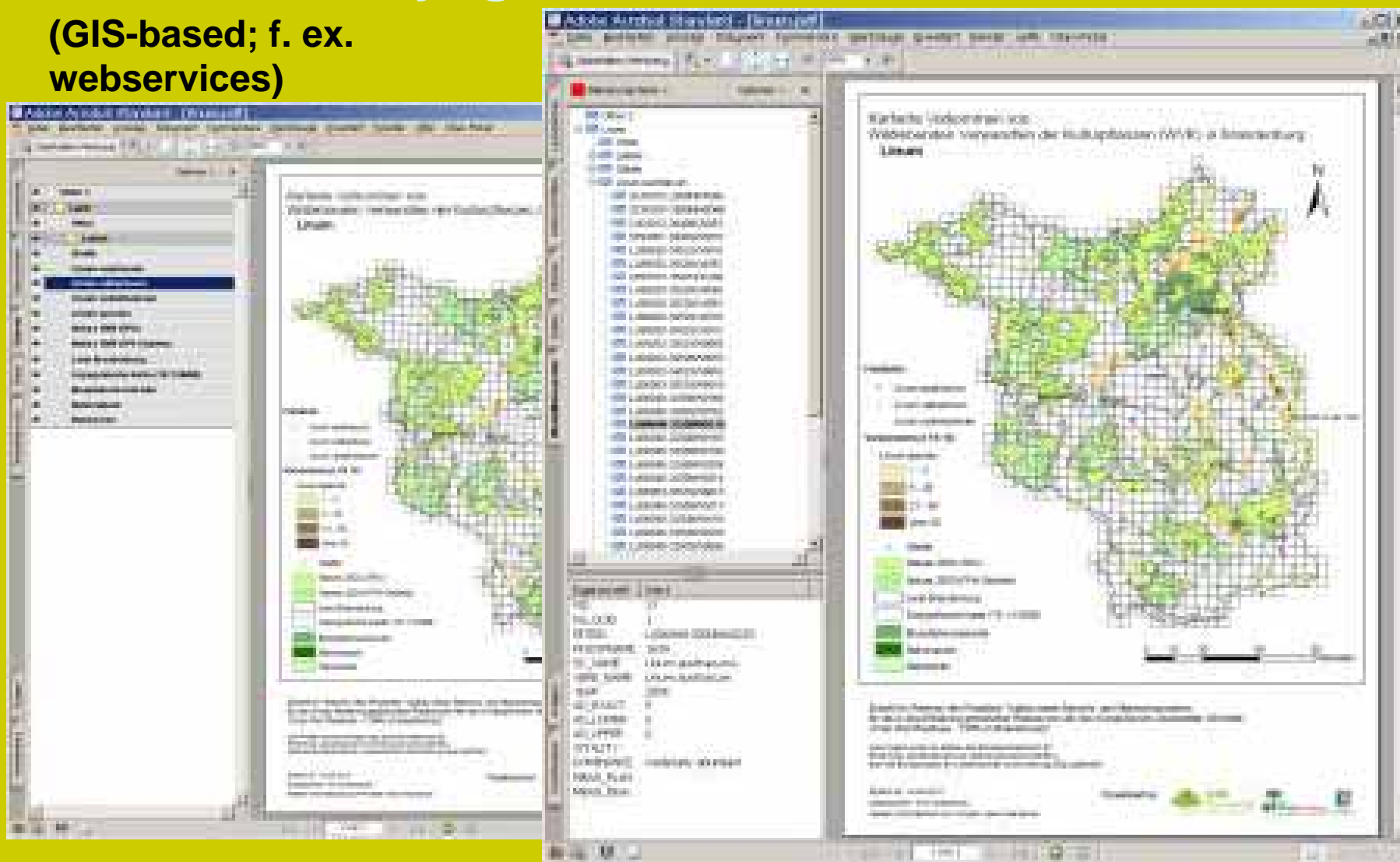
**example:
*Linum catharticum***

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Visualisation by georeferenced PDF-document

(GIS-based; f. ex. webservices)



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6. Synergy of nature protection – conservation of PGR ?

nature protection targets

conserving and protecting
species of specific

- responsibility
- threats
- legal responsibility
- ...



**f.e. flora protection
program: „target
species", "priority
species"**



**protection and conservation of species, protection of
genetic resources, conservation of biodiversity**

PGR-conservation targets

conserving of a broad genetic
variety as a background for
sustainable food and agriculture



**project:
documentation of
CWR-sites for *In-situ*-
conservation**



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achieved results

- **wild relatives inventory: 155 geni, 1750 species (excl. ornamental sp., 03/2010)**
- **wild relatives regional inventory of important CWR: 110 geni, 13 of special importance**
- **database structure (model) for CWR**
- **database with 0,7 mio. occurrences of CWR (regional BB), 1,7 mio. wild species (with integration of data from different sources)**
- **creation of a data transfer system to national authorities for report and documentation (PGRDEU)**



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conclusions and outlook

- **general view on status quo of CWR-species**
- **recognizing of special need of action for species of high economic importance; basis of a (not yet existing) catalogue of priority-CWR-species**
- **arguments for nature and species protection**
- **responsibility of agriculture**
- **documentation of development (monitoring)**
- **running of a permanent system for reporting and monitoring on CWR**



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Thanks for your attention

further informations av.:

<http://www.hnee.de/cwr>

<http://www.mugv.brandenburg.de/cms/detail.php/bb1.c.215099.de>

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