



**Meeting the information challenge for crop
wild relatives (CWR) *in situ* conservation:
A global portal hosting national and
international data on CWR**

**13th World Congress of the International Association
of Agricultural Information Specialists (IAALD)
26 – 29 April 2010, Montpellier, France**





Overview of presentation

- CWR – definition and importance
- The global CWR project
- Challenges at beginning of project
- Addressing the challenges
- Results: national information systems and global portal
- Some conclusions and lessons learned
- Future needs / local – global linkage





CWR – definition and importance

- Wild species more or less closely related to crops, but unlike them, have not been domesticated.
- Threatened by global change. An estimated 16-22% of CWR species studied might go extinct by 2055.
- Seriously under-conserved *ex situ* and *in situ*
- But many CWRs harbor genetic traits that could hold the key for many crops to adapt to climate change





The global CWR project

- Title: ***In situ* conservation of crop wild relatives through enhanced information management and field application**
- Supported by UNEP/GEF
- Implemented by Bioversity International
- April 2004 – February 2010
- Partner countries
 - Armenia, Bolivia, Madagascar, Sri Lanka, Uzbekistan
- Partner organizations
 - BGCI, BLE, FAO, IUCN, UNEP-WCMC
- Co-financing: BMZ, Germany





Challenges at beginning of project

Develop CWR information management systems and capacity when:

In general

- very little information activities on CWR exist as examples
- information is very scattered and difficult to access
- no global web site exist dedicated to CWR

In partner countries

- only one targeted information activity exists (CWR atlas in BOL)
- data are dispersed, in format not readily usable
- little data are digitized, in particular location data
- data structures are different in institutes within one country
- Very different national settings regarding in-country collaboration, IT infrastructure and capacities





Addressing the challenges

- Development of CWR descriptors for data types and fields necessary to capture all relevant information about CWR
- Digitization and aggregation of existing but dispersed information in national or institutional databases based on descriptors
- Collection of new occurrence data from numerous field surveys
- Use of and integration into existing IT structure
- New collaborations between different institutions within a country
- Training on GIS and national CWR information systems within the countries

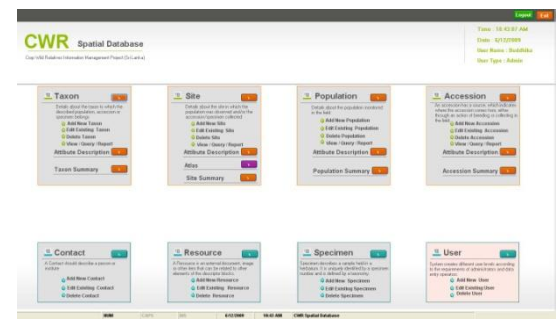
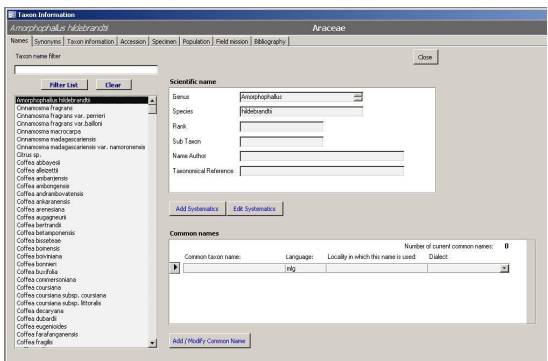
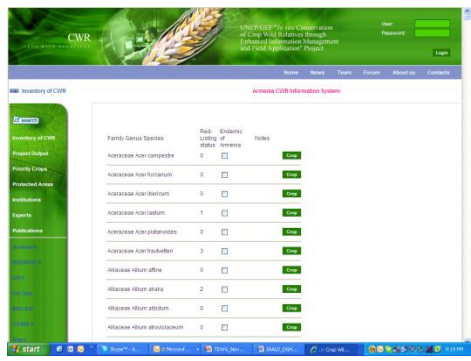




Results

CWR information systems in the countries

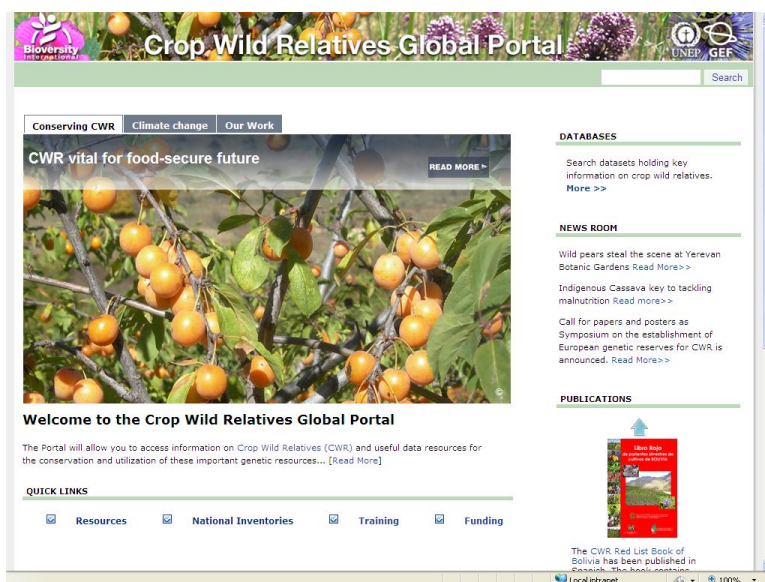
- National information systems to manage CWR data, integrated in national settings, making best use of existing infrastructure:
 - The establishment varied from building up a web based system from scratch, to adapting existing Access databases through providing CWR to an already existing national data portal
- National web sites providing access to CWR information and data
- Systems now hosted in national organizations with relevant capacity, committed to maintenance, updating and long-term sustainability



Results

CWR global portal

www.cropwildrelatives.org



- All five national inventories searchable through a unique search function
- links to international resources that provide additional information about the CWR taxa
- Content management system: easy management; sustainability
- Other features: News, events, publications, experts, institutes, projects
- Straightforward user contributions



Some conclusions and lessons learned

- Establishment of effective partnership in the countries among institutions that formerly had not worked together has been crucial to the successful development of the national inventories
- all major players in the area of content as potential contributors and users need to be involved, in order to make the content provided as comprehensive as possible
- Taking care of local context and embedding the national information systems well into the national context, building on existing capacity, infrastructure and ways of collaboration has shown to be a solution that best addresses issues of sustainability in the future





Future needs / local – global linkage

Future needs

- Identification of further national and international information sources and additional national inventories
- Consideration on how characterization and evaluation data can be integrated or linked.
- Provide training and capacity building materials to assist in increasing practical experience in CWR in situ conservation

Local – global linkage

- National data from 5 countries can be searched through one search interface
- Data exchange has been formalized through data sharing agreements and is based on a commonly used data standard, i.e. Darwin Core.





National information systems

Armenia

- Web-based system (MySQL and PHP) for data entry and management
- Input mask deployed to 6 institutes that provide data to a central database
- Quality check at central database





National information systems

Armenia

- Contains *ex situ* records, occurrence data from field surveys, plant images, maps, red listing data
- detailed information for 104 species; about 2000 species in the national inventory
- Web site where that data can be browsed
- www.cwr.am





CWR am
CROP WILD RELATIVES

UNEP/GEF "In situ Conservation of Crop Wild Relatives through Enhanced Information Management and Field Application" Project

User:
 Password:

[Home](#) [News](#) [Team](#) [Forum](#) [About us](#) [Contacts](#)

Inventory of CWR

Armenia CWR Information System

-
- Inventory of CWR
- Project Output
- Priority Crops
- Protected Areas
- Institutions
- Experts
- Publications
- Seminars
- BIOVERSITY
- CRIS
- GIS Data
- BIOCASE
- CWRDCS
- Maps

Family Genus Species	Red-Listing status	Endemic of Armenia	Notes
Aceraceae Acer campestre	0	<input type="checkbox"/>	<input type="button" value="Crop"/>
Aceraceae Acer hyrcanum	0	<input type="checkbox"/>	<input type="button" value="Crop"/>
Aceraceae Acer ibericum	0	<input type="checkbox"/>	<input type="button" value="Crop"/>
Aceraceae Acer laetum	1	<input type="checkbox"/>	<input type="button" value="Crop"/>
Aceraceae Acer platanoides	0	<input type="checkbox"/>	<input type="button" value="Crop"/>
Aceraceae Acer trautvetteri	3	<input type="checkbox"/>	<input type="button" value="Crop"/>
Alliaceae Allium affine	0	<input type="checkbox"/>	<input type="button" value="Crop"/>
Alliaceae Allium akaka	2	<input type="checkbox"/>	<input type="button" value="Crop"/>
Alliaceae Allium albidum	0	<input type="checkbox"/>	<input type="button" value="Crop"/>
Alliaceae Allium atroviolaceum	0	<input type="checkbox"/>	<input type="button" value="Crop"/>



Locality Elements

[Add](#) [Delete](#)

<input type="radio"/>	StateProvince: Aragatsotn	County: Aparan	Locality: APARAN	Elevation: 1935	Latitude: 44,34	Longitude: 40,59
<input type="radio"/>	StateProvince: Aragatsotn	County: Aparan	Locality: APARAN	Elevation: 1984	Latitude: 44,35	Longitude: 40,58
<input type="radio"/>	StateProvince: Aragatsotn	County: Ashtarak	Locality: State	Elevation: 1964	Latitude: 44,26	Longitude: 40,37
<input type="radio"/>	StateProvince: Ararat	County: Masis	Locality: Sayat Nova	Elevation: 834	Latitude: 44,40	Longitude: 40,07
<input type="radio"/>	StateProvince: Ararat	County: Artashat	Locality: Berqanush	Elevation: 836	Latitude: 44,51	Longitude: 39,97
<input type="radio"/>	StateProvince: Ararat	County: Ararat	Locality: Ararat	Elevation: 825	Latitude: 44,70	Longitude: 39,83

* Higher Geography: Transcaucasia,Caucasus, former USSR

Biological Elements

* Fill Sex: ?

* Fill LifeStage: ?

* Fill Attributes: ?

Collecting Event Elements

* Collecting Method: ?

* Year: ?

* Month:

* Day:

* Collector: ?

Record Level Elements

* Catalog Number: ?

* Information Withheld: ?

* Remarks: ?

[RM](#)

[Back](#)





National information systems

Bolivia

- 9 institutes set up institutional CWR databases with very detailed data
- 3010 records for 162 species
- Institutes send data for agreed descriptors via web services to national portal available at <http://www.cwrbolivia.gov.bo/inicio.php>
- CWR atlas <http://www.cwrbolivia.gov.bo/atlaspsc/>





PORTAL NACIONAL SOBRE PARIENTES SILVESTRES DE CULTIVOS

"Bolivia digna, soberana, productiva y democrática para vivir bien"



Inicio | Mapa del Sitio | Contáctenos | Búsquedas | Inglés | Portal Internacional

- Bolivia País Megadiverso
- Parientes Silvestres
- Acerca del Proyecto
- Acceso a Datos
- Sitios de Interés
- Atlas sobre PSC

Búsqueda de Datos

Consulta a Base de Datos de Socios Nacionales:

Esta opción de búsqueda le permite obtener datos sobre especies de parientes silvestres de cultivos, registrados por las instituciones socias del proyecto en el formato del estándar Darwin Core. Para realizar las búsquedas debe escribir la letra inicial del género o el nombre científico. También tiene la opción de realizar Búsquedas Avanzadas haciendo clic sobre el enlace para personalizar su consulta

Nombre Científico

Para realizar Búsqueda Avanzada hacer clic en el enlace
[Búsqueda Avanzada](#)



Los PARIENTES SILVESTRES de PLANTAS CULTIVADAS

Su distribución, diversidad y estado de conservación en Bolivia

- Página inicial
- Presentación
- Resumen
- Introducción
- Metodología
- Los acervos ...
- Las especies ...
- Conservación ...
- Conclusiones y ...
- Mapas
- Bibliografía
- Archivos XLS
- Enlaces
- Agradecimientos



Desarrollado por:



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National information systems

Madagascar

- Central Access database based on CWR descriptors
- Data for 154 CWR species
- Customization of existing national data portal on biodiversity data, REBIOMA, for the publishing of CWR data at national level rather than developing a dedicated CWR portal





Taxon Information

Amorphophallus hildebrandtii Araceae

- Names
- Synonyms
- Taxon information
- Accession
- Specimen
- Population
- Field mission
- Bibliography

Taxon name filter

Close

Filter List

Clear

- Amorphophallus hildebrandtii**
- Cinnamosma fragrans
- Cinnamosma fragrans var. perrieri
- Cinnamosma fragrans var. bailloni
- Cinnamosma macrocarpa
- Cinnamosma madagascariensis
- Cinnamosma madagascariensis var. namoronensis
- Citrus sp.
- Coffea abbayesii
- Coffea alleizettii
- Coffea ambanjensis
- Coffea ambongensis
- Coffea andrambovatensis
- Coffea ankaranensis
- Coffea arenesiana
- Coffea augagneurii
- Coffea bertrandii
- Coffea betamponensis
- Coffea bisseteae
- Coffea boinensis
- Coffea boiviniana
- Coffea bonnierii
- Coffea buxifolia
- Coffea commersoniana
- Coffea coursiana
- Coffea coursiana subsp. coursiana
- Coffea coursiana subsp. littoralis
- Coffea decaryana
- Coffea dubardii
- Coffea eugenioides
- Coffea farafanganensis
- Coffea fragilis

Scientific name

Genus	<input type="text" value="Amorphophallus"/>
Species	<input type="text" value="hildebrandtii"/>
Rank	<input type="text"/>
Sub Taxon	<input type="text"/>
Name Author	<input type="text"/>
Taxonomical Reference	<input type="text"/>

Add Systematics

Edit Systematics

Common names

Number of current common names: 0			
Common taxon name:	Language:	Locality in which this name is used:	Dialect:
<input type="text"/>	mlg	<input type="text"/>	<input type="text"/>

Add / Modify Common Name



National information systems

Sri Lanka

- Multi-user database
- CWR data integrated with display and generation of distribution maps

CWR Spatial Database V 1.00

Crop Wild Relatives Information Management Project (Sri Lanka)



Spatial database components

Diagrams



Maps



Tabular Data

ID	Name	Protable Name
01	ANDORRA	Andorra
02	UNITED ARAB EMIRATES	United Arab
03	AFGHANISTAN	Afghanistan
04	ANTIGUA AND BARBUDA	Antigua and
05	ANGUILLA	Anguilla
06	ALBANIA	Albania
07	ARMENIA	Armenia
08	NETHERLANDS ANTILES	Netherlands

CWR Spatial Database .



Charts



Vector GIS map Layer



Site photo , Forms and Documents



Metadata

Emp. ID	First Name	Last Name	Dept.	Emp. No.	Week Ending
32238	Adam	Landing	Sales	6569	21/3/2007
Project	Purpose of Trip				Miles/Mile
Task Show	Get Product				0.28

Station	Week	Day	Emp. No.	Start	End	Time	Total
W101	2/7	Thu	6569	07:00	07:11	00:11	00:11
W102	2/7	Thu	6569	07:11	07:22	00:11	00:22
W103	2/7	Thu	6569	07:22	07:33	00:11	00:33
W104	2/7	Thu	6569	07:33	07:44	00:11	00:44
W105	2/7	Thu	6569	07:44	07:55	00:11	00:55
W106	2/7	Thu	6569	07:55	08:06	00:11	01:06
W107	2/7	Thu	6569	08:06	08:17	00:11	01:17
W108	2/7	Thu	6569	08:17	08:28	00:11	01:28
W109	2/7	Thu	6569	08:28	08:39	00:11	01:39
W110	2/7	Thu	6569	08:39	08:50	00:11	01:50
W111	2/7	Thu	6569	08:50	09:01	00:11	02:01
W112	2/7	Thu	6569	09:01	09:12	00:11	02:12
W113	2/7	Thu	6569	09:12	09:23	00:11	02:23
W114	2/7	Thu	6569	09:23	09:34	00:11	02:34
W115	2/7	Thu	6569	09:34	09:45	00:11	02:45
W116	2/7	Thu	6569	09:45	09:56	00:11	02:56
W117	2/7	Thu	6569	09:56	10:07	00:11	03:07
W118	2/7	Thu	6569	10:07	10:18	00:11	03:18
W119	2/7	Thu	6569	10:18	10:29	00:11	03:29
W120	2/7	Thu	6569	10:29	10:40	00:11	03:40
W121	2/7	Thu	6569	10:40	10:51	00:11	03:51
W122	2/7	Thu	6569	10:51	11:02	00:11	04:02
W123	2/7	Thu	6569	11:02	11:13	00:11	04:13
W124	2/7	Thu	6569	11:13	11:24	00:11	04:24
W125	2/7	Thu	6569	11:24	11:35	00:11	04:35
W126	2/7	Thu	6569	11:35	11:46	00:11	04:46
W127	2/7	Thu	6569	11:46	11:57	00:11	04:57
W128	2/7	Thu	6569	11:57	12:08	00:11	05:08
W129	2/7	Thu	6569	12:08	12:19	00:11	05:19
W130	2/7	Thu	6569	12:19	12:30	00:11	05:30
W131	2/7	Thu	6569	12:30	12:41	00:11	05:41
W132	2/7	Thu	6569	12:41	12:52	00:11	05:52
W133	2/7	Thu	6569	12:52	13:03	00:11	06:03
W134	2/7	Thu	6569	13:03	13:14	00:11	06:14
W135	2/7	Thu	6569	13:14	13:25	00:11	06:25
W136	2/7	Thu	6569	13:25	13:36	00:11	06:36
W137	2/7	Thu	6569	13:36	13:47	00:11	06:47
W138	2/7	Thu	6569	13:47	13:58	00:11	06:58
W139	2/7	Thu	6569	13:58	14:09	00:11	07:09
W140	2/7	Thu	6569	14:09	14:20	00:11	07:20
W141	2/7	Thu	6569	14:20	14:31	00:11	07:31
W142	2/7	Thu	6569	14:31	14:42	00:11	07:42
W143	2/7	Thu	6569	14:42	14:53	00:11	07:53
W144	2/7	Thu	6569	14:53	15:04	00:11	08:04
W145	2/7	Thu	6569	15:04	15:15	00:11	08:15
W146	2/7	Thu	6569	15:15	15:26	00:11	08:26
W147	2/7	Thu	6569	15:26	15:37	00:11	08:37
W148	2/7	Thu	6569	15:37	15:48	00:11	08:48
W149	2/7	Thu	6569	15:48	15:59	00:11	08:59
W150	2/7	Thu	6569	15:59	16:10	00:11	09:10
W151	2/7	Thu	6569	16:10	16:21	00:11	09:21
W152	2/7	Thu	6569	16:21	16:32	00:11	09:32
W153	2/7	Thu	6569	16:32	16:43	00:11	09:43
W154	2/7	Thu	6569	16:43	16:54	00:11	09:54
W155	2/7	Thu	6569	16:54	17:05	00:11	10:05
W156	2/7	Thu	6569	17:05	17:16	00:11	10:16
W157	2/7	Thu	6569	17:16	17:27	00:11	10:27
W158	2/7	Thu	6569	17:27	17:38	00:11	10:38
W159	2/7	Thu	6569	17:38	17:49	00:11	10:49
W160	2/7	Thu	6569	17:49	18:00	00:11	11:00
W161	2/7	Thu	6569	18:00	18:11	00:11	11:11
W162	2/7	Thu	6569	18:11	18:22	00:11	11:22
W163	2/7	Thu	6569	18:22	18:33	00:11	11:33
W164	2/7	Thu	6569	18:33	18:44	00:11	11:44
W165	2/7	Thu	6569	18:44	18:55	00:11	11:55
W166	2/7	Thu	6569	18:55	19:06	00:11	12:06
W167	2/7	Thu	6569	19:06	19:17	00:11	12:17
W168	2/7	Thu	6569	19:17	19:28	00:11	12:28
W169	2/7	Thu	6569	19:28	19:39	00:11	12:39
W170	2/7	Thu	6569	19:39	19:50	00:11	12:50
W171	2/7	Thu	6569	19:50	20:01	00:11	13:01
W172	2/7	Thu	6569	20:01	20:12	00:11	13:12
W173	2/7	Thu	6569	20:12	20:23	00:11	13:23
W174	2/7	Thu	6569	20:23	20:34	00:11	13:34
W175	2/7	Thu	6569	20:34	20:45	00:11	13:45
W176	2/7	Thu	6569	20:45	20:56	00:11	13:56
W177	2/7	Thu	6569	20:56	21:07	00:11	14:07
W178	2/7	Thu	6569	21:07	21:18	00:11	14:18
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W181	2/7	Thu	6569	21:40	21:51	00:11	14:51
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W183	2/7	Thu	6569	22:02	22:13	00:11	15:13
W184	2/7	Thu	6569	22:13	22:24	00:11	15:24
W185	2/7	Thu	6569	22:24	22:35	00:11	15:35
W186	2/7	Thu	6569	22:35	22:46	00:11	15:46
W187	2/7	Thu	6569	22:46	22:57	00:11	15:57
W188	2/7	Thu	6569	22:57	23:08	00:11	16:08
W189	2/7	Thu	6569	23:08	23:19	00:11	16:19
W190	2/7	Thu	6569	23:19	23:30	00:11	16:30
W191	2/7	Thu	6569	23:30	23:41	00:11	16:41
W192	2/7	Thu	6569	23:41	23:52	00:11	16:52
W193	2/7	Thu	6569	23:52	00:03	00:11	17:03
W194	2/7	Thu	6569	00:03	00:14	00:11	17:14
W195	2/7	Thu	6569	00:14	00:25	00:11	17:25
W196	2/7	Thu	6569	00:25	00:36	00:11	17:36
W197	2/7	Thu	6569	00:36	00:47	00:11	17:47
W198	2/7	Thu	6569	00:47	00:58	00:11	17:58
W199	2/7	Thu	6569	00:58	01:09	00:11	18:09
W200	2/7	Thu	6569	01:09	01:20	00:11	18:20

Reports



Internet

CWR Spatial Database Control Panel

CWR Spatial Database

Crop Wild Relatives Information Management Project (Sri Lanka)

[Logout](#) [Exit](#)

Time : 10:43:07 AM
Date : 6/12/2009
User Name : Buddhika
User Type : Admin

Taxon >

Details about the taxon to which the described population, accession or specimen belongs

- [Add New Taxon](#)
- [Edit Existing Taxon](#)
- [Delete Taxon](#)
- [View / Query / Report](#)

[Attribute Description](#) >

[Taxon Summary](#) >

Site >

Details about the site in which the population was observed and/or the accession/specimen collected:

- [Add New Site](#)
- [Edit Existing Site](#)
- [Delete Site](#)
- [View / Query / Report](#)

[Attribute Description](#) >

[Atlas](#) >

[Site Summary](#) >

Population >

Details about the population monitored in the field

- [Add New Population](#)
- [Edit Existing Population](#)
- [Delete Population](#)
- [View / Query / Report](#)

[Attribute Description](#) >

[Population Summary](#) >

Accession >

An accession has a source, which indicates where the accession comes from, either through an action of breeding or collecting in the field.

- [Add New Accession](#)
- [Edit Existing Accession](#)
- [Delete Accession](#)
- [View / Query / Report](#)

[Attribute Description](#) >

[Accession Summary](#) >

Contact >

A Contact should describe a person or institute

- [Add New Contact](#)
- [Edit Existing Contact](#)
- [Delete Contact](#)

Resource >

A Resource is an external document, image or other item that can be related to other elements of the descriptor blocks.

- [Add New Resource](#)
- [Edit Existing Resource](#)
- [Delete Resource](#)

Specimen >

Specimen describes a sample held in a herbarium. It is uniquely identified by a specimen number and is defined by a taxonomy.

- [Add New Specimen](#)
- [Edit Existing Specimen](#)
- [Delete Specimen](#)

User >

System creates different user levels according to the requirements of administrators and data entry operators.

- [Add New User](#)
- [Edit Existing User](#)
- [Delete User](#)

NUMCAPSIHS6/12/200910:43 AMCWR Spatial Database

Taxon Module main window

Taxon
Details about the taxon to which the described population, accession or specimen belongs

Taxon by Full Taxon Name

Full Taxon Name: **Cinnamomum citriodorum**

1 Quick Access window

2 Data manipulation window

3 Query and quick access tool bar

4 Data manipulation Tool bar

Taxonomy

Rank Name:
SubTaxon:
Author:
Reference: 10
Full Taxon Name: Cinnamomum citriodorum
Family:
Common Name: Cinnamomum
Language:
Local Name: Pangirikurudu

Biological Data

Plant Sex:
Pollination:
LifeForm:

Taxon Endangerment Status

Endangerment status according to IUCN criteria

Endangerment Criteria:
Assessment Criteria:
Assessment Level:

Query and quick access tool bar


Reload Query Reports In List Reports In Detail Map Selected

Total Records : 55
Query Records : 0
Query Criteria : All Records

Data manipulation Tool bar

Add New Edit Delete Reports Population Accession Modification History Specimen

Actinodaphne spp.
Cajanus rugarosa
Cinnamomum verum
Celtis cinnamomea
Cinnamomum ovalifolium
Cinnamomum spp
Cinnamomum dubium
Cinnamomum citriodorum
Cinnamomum capparucoronde
Cinnamomum litseaefolium
Neolitsea spp.
Musa acuminata
Litsea glutinosa
Cinnamomum rivulorum
Cinnamomum sinharajaense
Garcinia spp
Yam
Cucumis
Piper betle
Piper nigrum



Browse Photo

User Name : Buddhika
User Type : Admin

Using Google Earth to Map CWR Site Locations and Save Them to a File

Google Earth in CWR Spatial Database

When you click the button on



CWR atlas, all queried sites will be



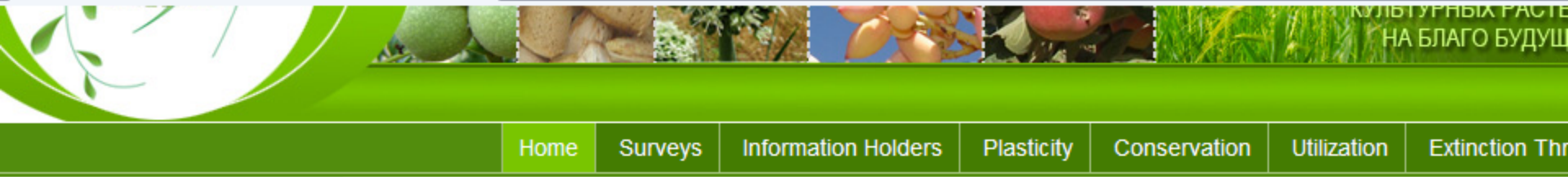


National information systems

Uzbekistan

- Access databases created
 - *in situ* based on field survey form used in the project
 - *ex situ* data from 6 research institutions
- Distribution maps
- All this is available from national website at www.cwr.uz





Русский

Priority Crops

- Pskemenic Onion
- Almond
- Walnut
- Pistachio
- Apple
- Barley

Documents

- Management Plan for *Amygdalus bucharica* L. (Rosaceae) in Chatkal Biospheric State Reserve, Uzbekistan

UNEP-GEF Global Project "In situ Conservation of Crop Wild Relatives through Enhanced Information Management and Field Application"



Crop Wild Relatives of Uzbekistan - National Information System

"In-situ conservation of crop wild relatives through enhanced information management and field application" is a UNEP/GEF co-financed project that addresses national and global needs to improve global food security through effective conservation and use of crop wild relatives. These wild relatives include the ancestors of modern crops and varieties and species related to them.

This project brings together five countries: Armenia, Bolivia, Madagascar, Sri Lanka and Uzbekistan, IPGRI and five other international conservation agencies: the Food and Agriculture Organization of the United Nations (FAO), Botanic Gardens Conservation International (BGCI), the United Nations Environment Program's World Conservation Monitoring Centre (UNEP-WCMC), the World Conservation Union (IUCN) and Federal Agency for Agriculture and Food, BLE (before the German Centre for Documentation and Information in Agriculture (ZADI)). Each of the countries has significant numbers of important and threatened crop wild relatives.

