Useful Plants

Data sources
A list of datasets where information on categories of use is available was compiled January – September 2015. From this list the datasets accessed for the analysis are shown in Table 1 below.

Table 1: Datasets accessed between August 2015 and March 2016 for inclusion in analysis of the number and categories of use of useful plant species.

<table>
<thead>
<tr>
<th>Dataset</th>
<th>Managed by</th>
<th>Date accessed</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicinal Plant Names Services (MPNS)</td>
<td>Bob Allkin, Kew</td>
<td>17/11/2015</td>
<td>global resource for medicinal plant names with access to information about plants and plant products</td>
</tr>
<tr>
<td>Economic Botany Collection</td>
<td>Dr. Mark Nesbitt, Kew</td>
<td>04/12/2015</td>
<td>a database of Kew’s Economic Botany collection containing over 121,263 economic botany collection specimens</td>
</tr>
<tr>
<td>Survey of Economic Plants for Arid and Semi-Arid Lands (SEPSAL)</td>
<td>Steve Davis, Kew</td>
<td>09/10/2015</td>
<td>a database of 16,407 uses records for species from the African Arid and Semi-Arid areas</td>
</tr>
<tr>
<td>Useful Plants of West Tropical Africa</td>
<td>Dr. Don Kirkup, Kew</td>
<td>13/11/2015</td>
<td>a database of Useful Plants from West Tropical Africa</td>
</tr>
<tr>
<td>Project MGU-Useful Plants Project (UPP)</td>
<td>Alex Hudson/Dr. Tiziana Ulian, Kew</td>
<td>17/11/2015</td>
<td>a compiled database of uses of species selected by communities and partners in the UPP from Botswana, Kenya, Mali, Mexico and South Africa (database not online yet)</td>
</tr>
<tr>
<td>Plants for Malaria plants for Fever</td>
<td>Dr. William Milliken, Kew</td>
<td>18/11/2015</td>
<td>a database of plant species used by the Yanomami to treat malaria and fever following a bibliographic survey (book)</td>
</tr>
<tr>
<td>Palmweb</td>
<td>Dr. Bill Baker, Kew</td>
<td>08/10/2015</td>
<td>an online palm encyclopaedia gleaned from taxonomic publications</td>
</tr>
<tr>
<td>eMonocot</td>
<td>Dr. Bill Baker, Kew</td>
<td>15/12/2015</td>
<td>a global online biodiversity information resource for monocotyledons.</td>
</tr>
<tr>
<td>Crop wild relative Inventory</td>
<td>Global Crop Diversity Trust</td>
<td>29/01/2016</td>
<td>a global priority CWR inventory, based on both gene pool and taxon group concepts (Vincent et al. 2013).</td>
</tr>
<tr>
<td>Plant Resources of Tropical Africa (PROTA)</td>
<td>Wageningen University</td>
<td>16/08/2015</td>
<td>an online resource of useful plant information from Africa</td>
</tr>
<tr>
<td>GRIN National Genetic Resources Program</td>
<td>John H. Wiersema, National Germplasm Resources Laboratory</td>
<td>21/03/2016</td>
<td>an online database of taxonomic information on cultivated plants in the USDA-ARS germplasm resources information network (GRIN)</td>
</tr>
</tbody>
</table>
Number of useful plant species categorised by use

*Featured online and on page 20 of the report*

Only names at species rank were considered. The categories of uses were defined according to the Economic Botany Data Standard (Cook, 1995). This is the most commonly used standard and provides a unified system to describe the uses of plants. This standard was published in 1995 and resulted from discussions at the International Working Group on Taxonomic Databases for Plant Sciences (TDWG). It includes three levels of terms for uses with each additional level providing more detail, from the first level of ‘Food’, through to plant parts and food types.

For this analysis we used an adapted version of the standard, grouping species at the highest level into the following categories of uses: (i) Animal Food; (ii) Environmental Uses; (iii) Fuels; (iv) Gene Sources; (v) Human Food; (vi) Invertebrate Food; (vii) Materials; (viii) Medicines; (ix) Poisons; (x) Social Uses – see Table 2 below. The adaptations grouped the original categories of ‘bee plants’ and ‘invertebrate food’ into the single category ‘Invertebrate Food’, ‘food’ and ‘food additives’ into ‘Food’, and all poisons under the single classification of ‘Poisons’.

Table 2. Definitions of uses of plants and plant products, according to the Economic Botany Data Collection Standard (Cook, 1995) and adapted from Ulian et al. (2016).

<table>
<thead>
<tr>
<th>Uses</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>Animal food</td>
<td>Forage and fodder for vertebrate animals only</td>
</tr>
<tr>
<td>Environmental use</td>
<td>Plants used for environmental purposes such as agroforestry, as companion plants, ornamentals, barrier edges, shade plants, firebreaks, soil improvers, plants for revegetation, erosion control, pollution control, and indicators of the presence of metals, pollution, and underground water.</td>
</tr>
<tr>
<td>Invertebrate food</td>
<td>Plants used as pollen or nectar sources for honey production, or food for invertebrates useful to humans such as silk worms or edible grubs.</td>
</tr>
<tr>
<td>Food</td>
<td>Food, including beverage and food additives for humans only.</td>
</tr>
<tr>
<td>Fuels</td>
<td>Wood, charcoal, petroleum substitutes, fuel, alcohols, tinder, and non-woody fuel.</td>
</tr>
<tr>
<td>Gene sources</td>
<td>Wild relatives of crop plants that may contain useful traits of value, for example drought tolerance or disease resistance, in breeding programmes.</td>
</tr>
<tr>
<td>Invertebrate food</td>
<td>Plants used as pollen or nectar sources for honey production, or food for invertebrates useful to humans such as silk worms or edible grubs.</td>
</tr>
<tr>
<td>Materials</td>
<td>Wood, fibres, cork, cane, tannins, dyestuffs, latex, rubber, resins, gums, waxes, lipids, and their derived products.</td>
</tr>
<tr>
<td>Medicine</td>
<td>To treat human and veterinary medical disorders</td>
</tr>
<tr>
<td>Poisons</td>
<td></td>
</tr>
</tbody>
</table>
Plants which are both accidental and useful poisons for vertebrate and non-vertebrate animals, plants, bacteria, and fungi, e.g. for hunting and fishing, molluscicides, herbicides, insecticides.

<table>
<thead>
<tr>
<th>Social use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plants used for social purposes which are not classified as food or medicines, such as adulterants, hallucinogens, masticatories, sacred/spiritual and ritual plants, sedatives, smoking materials, snuff, and stimulants.</td>
</tr>
</tbody>
</table>

References


Useful links
- CWR Inventory: [http://www.cwrdiversity.org/checklist/](http://www.cwrdiversity.org/checklist/)
- Genesys: [https://www.genesys-pgr.org/welcome](https://www.genesys-pgr.org/welcome)
- PwC CWR value study: [http://www.pwc.co.uk/services/sustainability-climate-change/insights/understanding-the-value-of-seeds.html](http://www.pwc.co.uk/services/sustainability-climate-change/insights/understanding-the-value-of-seeds.html)