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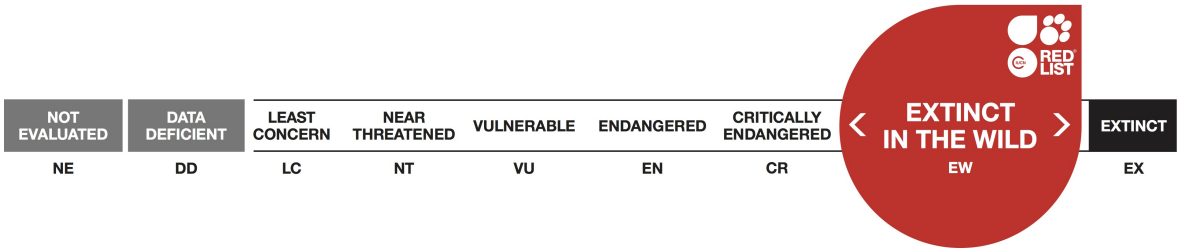
Brugmansia arborea, Borrachero

Assessment by: Hay, A.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Solanales	Solanaceae

Taxon Name: *Brugmansia arborea* (L.) Sweet

Synonym(s):

- *Datura arborea* L.

Common Name(s):

- Spanish: Borrachero

Taxonomic Source(s):

Hay, A., Gottschalk, M. & Holguín, A. 2012. *Huanduj - Brugmansia*. Florilegium, Sydney & Royal Botanic Gardens, Kew.

Taxonomic Notes:

The names *Datura arborea* and *Brugmansia arborea* have been misapplied to almost all other white-flowered Brugmansias for almost 250 years. Hence records under these names should be viewed sceptically unless supported by photographs and/or herbarium vouchers.

Brugmansia species as a whole have sometimes been viewed as cultigens (e.g. Bristol 1966). This view was not accepted by Hay *et al*. (2012: 15) who view them as species long conserved through cultivation by indigenous people. There is no evidence for any of the species having come into being under human husbandry from wild progenitors, since no candidates for wild progenitors exist.

Assessment Information

Red List Category & Criteria: Extinct in the Wild ver 3.1

Year Published: 2014

Date Assessed: April 5, 2014

Justification:

Most of the rationale for this assessment applies to all species of the genus:

- There are no herbarium collections of any species of this genus made from confirmed wild plants.
- No botanist specialising in this genus has ever reported seeing wild plants of any species.
- (Verbal) Reports by non-specialist botanists of the occurrence of 'wild' plants are either misidentifications (usually of *Datura*), or misinterpretation of remnants or localised escapes from cultivation, usually along creeks and occurring by vegetative propagation from stem fragments. In all such instances investigated in Ecuador and Colombia, the plants are of the anthropogenic hybrid *Brugmansia x candida* (Hay *et al*. 2012: 172-177). It is quite clear that such instances do not represent self-sustaining sexually reproducing populations.
- The complete lack of evidence of fruit dispersal or spontaneous seedlings, combined with the presence of large numbers of fruits containing viable seed, suggests their dispersers are extinct.

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• Hence, all the species should best be regarded as Extinct in the Wild.

• They are all threatened with total extinction in their native South America because of the ongoing practice of eradicating them from gardens because of their poisonous nature, combined with the progressive loss of the traditional (indigenous) knowledge of their multiple uses (which is what appears to have been the reason for their long-term survival, perhaps over millennia).

Geographic Range

Range Description:

Northern Chile, western Bolivia, Perú and Ecuador. It is also found in southern Colombia (Nariño) where it is considered introduced (Hay *et al*. 2012: 127-128).

Country Occurrence:

Regionally extinct: Bolivia, Plurinational States of; Chile; Ecuador; Peru

Distribution Map

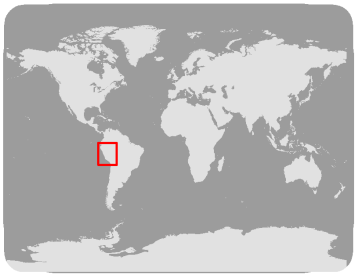
Brugmansia arborea

NE DD LC NT VU EN CR EW EXTINCT IN THE WILD EX

Range

Extinct

Compiled by:
IUCN (International Union for Conservation of Nature)



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

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Population

Since this genus survives only in cultivation, the wild population of this species is zero. There are anecdotal views expressed by some indigenous healers that plants of this (and other) *Brugmansia* species are being eradicated from some indigenous gardens due to its toxicity and the declining numbers of healers expert enough to use it safely. However, there are no quantitative data.

Habitat and Ecology (see Appendix for additional information)

The hardiest *Brugmansia* with respect to drought and cold, occurring cultivated in indigenous gardens or as relics of cultivation at 2000-3000 m alt in drier Andean valleys, withstanding light frosts. Although it sometimes co-occurs with *B. sanguinea*, hybrids are extremely rare. This species is invariably found bearing numerous fruits, as it is self-fertile (the only species of the genus to be so). Nevertheless seedlings are rarely encountered.

Systems: Terrestrial

Use and Trade (see Appendix for additional information)

There is a wide range of medicinal and spiritual uses, many shared with other species and hybrids, among the indigenous people who cultivate it (Hay *et al*. 2012: 22-73).

This species is occasionally cultivated outside South America as an ornamental.

Threats (see Appendix for additional information)

As with all other species of *Brugmansia*, there are no confirmed records at all of wild populations of *B. arborea*.

The absence of wild plants was first recorded (albeit in relation to other *Brugmansia* species) by Ruiz & Pavón in the late 18th Century (Schultes and von Thene de Jamarillo-Arango 1998: 114). Later, in spite of decades of field work in NW South America, R.E. Schultes and his students Lockwood and Bristol, who specialised in this genus and other neotropical psychoactive plants, recorded finding no wild brugmansias at all (Bristol 1966, Lockwood 1973). Recent examination by Hay of numerous herbarium collections has turned up no specimens collected from the wild (Hay *et al*. 2012: 172).

While it is valued by those who know well how to use it both medicinally and as an entheogen, it is feared for its toxicity and superstitions about its 'evil' nature by those who do not, and it is anecdotally reported as being eradicated from gardens, sometimes at the behest of local authorities in response to the use of scopolamine for criminal purposes.

Loss of interest in cultivating this species, through loss of traditional healing skills, as well as active steps to eradicate it in places are the principal and current threats, as with other *Brugmansia* species.

Conservation Actions (see Appendix for additional information)

The complete absence of wild plants suggests, as with other *Brugmansia* species, that the disperser(s) is extinct. The continued existence of this species within its presumed native range is currently dependent on its being cultivated by indigenous people.

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Its ongoing survival appears dependent on maintenance or rehabilitation of cultural traditions in which it is used. Education about its cultural and practical value, as well as its precarious conservation status seem essential to counteract the negativity with which these plants are often seen. Legal protection may be desirable to counteract knee-jerk eradication of the plants by local authorities in response to criminal use (burundanga).

Credits

Assessor(s): Hay, A.

Reviewer(s): Scott, J.A.

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Ruiz, H. 1777-1788. *Journals.* [Later translated and published as: Schultes, R.E. & von Thenen de Jaramillo-Arango, M.J.N. (1998). *The Journals of Hipólito Ruiz: Spanish Botanist in Perú and Chile 1777–1788.* Timber Press, Portland.].

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External Resources

For Images and External Links to Additional Information, please see the Red List website.

Appendix

Habitats
(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
14. Artificial/Terrestrial -> 14.4. Artificial/Terrestrial - Rural Gardens	-	Suitable	-
14. Artificial/Terrestrial -> 14.5. Artificial/Terrestrial - Urban Areas	-	Suitable	-

Use and Trade
(http://www.iucnredlist.org/technical-documents/classification-schemes)

End Use	Local	National	International
Medicine - human & veterinary	No	No	No
Establishing ex-situ production *	No	No	No
Other (free text)	No	No	No

Threats
(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
5. Biological resource use -> 5.2. Gathering terrestrial plants -> 5.2.3. Persecution/control	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
12. Other options -> 12.1. Other threat	Ongoing	Whole (>90%)	Unknown	Unknown
	Stresses:	2. Species Stresses -> 2.3. Indirect species effects -> 2.3.8. Other		

Conservation Actions Needed
(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Actions Needed
3. Species management -> 3.4. Ex-situ conservation -> 3.4.1. Captive breeding/artificial propagation
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.1. Legislation -> 5.1.4. Scale unspecified
5. Law & policy -> 5.2. Policies and regulations

Research Needed
(http://www.iucnredlist.org/technical-documents/classification-schemes)

Research Needed
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.5. Threats
2. Conservation Planning -> 2.1. Species Action/Recovery Plan
3. Monitoring -> 3.1. Population trends

Additional Data Fields

Distribution
Lower elevation limit (m): 2000
Upper elevation limit (m): 3000

The IUCN Red List Partnership

The IUCN Red List of Threatened Species™ is produced and managed by the IUCN Global Species Programme, the IUCN Species Survival Commission (SSC) and The IUCN Red List Partnership. The IUCN Red List Partners are: BirdLife International; Botanic Gardens Conservation International; Conservation International; Microsoft; NatureServe; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; Wildscreen; and Zoological Society of London.