GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Morus alba***

Morus alba **System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Urticales	Moraceae

Common name Russian mulberry (English), chin sang (English), mulberry (English), common mulberry (English), Chinese white mulberry (English), white mulberry (English), silkworm mulberry (English), chi sang (English), moral blanco (English)

Synonym *Morus alba* , var. *tatarica* Ser.
Morus tatarica , L.
Morus alba , L. var. *multicaulis* (Perr.) Loudon

Similar species *Morus rubra*

Summary *Morus alba*, or white mulberry, is native to China and has become invasive in the United States, Canada, South America, and South Africa. It hybridizes with and replaces red mulberry (*Morus rubra*) in Ontario where it is endangered, and in the United States. *M. alba* is also known to displace native vegetation and problematic in urban and disturbed environments.

view this species on IUCN Red List

Species Description
Morus alba is a small to medium sized shrub or tree which may grow to about 15 m. It has a rounded crown, short trunk, and dense canopy with spreading branches. Its leaves are alternate, simple, broadly ovate, polymorhic, and have 3 main veins running from the rounded or notched base. They are shiny green on top, paler and slightly hairy underneath, coarsely-toothed, and measure 6-18 cm long and 5-13 cm wide. Its bark is light brown to gray and fairly smooth but becomes furrowed a the edges. *M. alba* is dioecious with male inflorescences being green and very tiny, occuring in long catins, while female flowers are inconspicuous and crowded in short spikes. Its fruits are cylindrical aggregrate \"mulberries\" which are white, purple, or pinkish; 10-19 mm long (Little, 1980; Invasive.org, 2010; USDA-NRCS, 2010; Pensker *et al*, 2009).

Notes
Morus alba is cultivated for use as a biofuel. Some of its invasive populations are believed to be the result of their escape from such cultivation (GISP, 2008). \r\n
Morus alba may occur as a tree or a shrub (Boyce, 2010).

Uses
Morus alba is the food source of silkworms. It was introduced to North America and locations throughout the world in attempts to start silk manufacturing. *Morus alba* escaped cultivation and established throughout the northeastern North America in the late 1800s. There is also an ornamental variety of *M. alba* that is commonly planted (Haber, 1998). *M. alba* has been cultivated extensively in East, Central, and South Asia for papermaking, silk and timber production, and medical materials (Wu *et al*, 2009). Its fruits may be eaten raw or made into jellies, jams, pies, and other foods (USDA-NRCS, 2010).

Habitat Description
Morus alba commonly invades old fields, roadsides, forest edges, urban environments, and other disturbed areas. It prefers a warm, moist, well-drained loamy soil in a sunny position. However it is adapted to coarse, medium, and fine soils and is described as having intermediate shade tolerance and medium drought tolerance. It may tolerate a pH range of 5.0-7.0 and rainfall between 30-60 in/yr. It can survive temperatures down to -27 °C and is quite salt tolerant once established (USDA-NRCS, 2010; Invasive.org, 2010; Burgess & Husband, 2004; Pensker, 2009).

Reproduction
Morus alba blooms in the early spring. Fruits are abundantly produced from the spring to the summer. Its seeds are vigorous and germinate readily (USDA-NRCS, 2010).

General Impacts
Morus alba hybridizes with native species red mulberry, (*Morus rubra*), and displaces other native plants in introduced environments. *M. alba* is reported to rapidly replace and hybridize with the *M. rubra* in Ontario (see Species at risk in Ontario), where it is currently endangered, and in the United States (*M. rubra* is listed as 'Endangered' in the states of Connecticut and Massachusets and 'Threatened' in the states of Vermont and Michigan (USDA-NRCS 2010). *M. alba* and hybrids were evaluated to be consistently more fit than the native *M. rubra* in a laboratory study. *M. alba* can also transmit root disease to native *M. rubra* (Swearingen *et al*., 2004 in Boyce, 2009).\r\n\r\n
M. alba also outcompetes and displaces other native plant plants in the United States and South Africa because of its high growth rate and great adaptability to adverse environments which allow it to establish and spread quickly. It has been documented as being particularly problematic in urban and disturbed environments (Ayala *et al*, 2007; Burgess & Husband, 2006; Wu *et al*, 2009; Invasive.org)
For the status of *Morus rubra* see USDA-NRCS, 2010b.

Management Info
Preventative measures: *Morus alba* was determined to be a category 4 invasive in the Great Lakes States (Falck & Garske, 2003).
Morus alba is a Category 3 plant invader in South Africa and is not be allowed to occur anywhere except in biological control reserves (ARC-PPRI, 2006)
A risk assessment of *Morus albas* concerning its threat to Europe yielded a score of 25, which designates it as an intermediate risk (Weber & Gut, 2004).\r\n\r\n
Mechanical control: *Morus alba* can be pulled by hand. Other options include cutting the tree and grinding the stump, or the plant can be girdled (Swearingen *et al*., 2002).\r\n\r\n
Chemical control: The cut tree stump may also be painted with a systemic herbicide such as glyphosate to prevent resprouting (Swearingen *et al*., 2002).

Pathway
Morus alba serves as the natural food of silk moths and has been introduced to many locations for use in the production of silk (Haber, 1998). *Morus alba* is cultivated for use as a biofuel. Some of its invasive populations are believed to be the result of their escape from such cultivation (GISP, 2008).

Principal source:

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ALIEN RANGE

[1] ARGENTINA
[3] CANADA
[1] HUNGARY
[1] JAPAN
[1] SOUTH AFRICA
[1] BRAZIL
[1] ECUADOR
[1] ITALY
[1] ROMANIA
[3] UNITED STATES

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