# GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Neyraudia reynaudiana***

***Neyraudia reynaudiana*** 简体中文 正體中文

**System:** Terrestrial

| Kingdom | Phylum | Class | Order | Family |
|---|---|---|---|---|
| Plantae | Magnoliophyta | Liliopsida | Cyperales | Poaceae |

**Common name** silk reed (English), cane grass (English), false reed (English), burma reed (English)

**Synonym**
*Arundo reynaudiana* , Kunth
*Arundo zollingeri* ,Büse
*Neyraudia arundinacea* , (L.) Henrard var. *zollingeri* (Büse) Henrard
*Neyraudia madagascariensis* , (Kunth) Hook.f. var. *zollingeri* (Büse) Hook.f.
*Phragmites zollingeri* , (Büse) Steud.

**Similar species** *Phragmites australis, Saccharum giganteum*

**Summary** Neyraudia reynaudiana presents a threat to ecosystems due to its ability to promote frequent fires and outcompete with native vegetation. Neyraudia reynaudiana thrives from sea level to altitudes of 1980 metres. It is remarkably tolerant with respect to edaphic and light regimes, although it seems to prefer open, high light areas. Most invasions of Neyraudia reynaudiana have been preceded by some form of disturbance. It has often been collected in marshy areas, or areas with brackish water, and is becoming increasingly common in dry pinelands. It spreads via rhizomes and reproduces by seeds, which are dispersed by wind.

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## Species Description
*Neyraudia reynaudiana*, is commonly known as Burma reed, silk reed, cane grass, and false reed. It is a tall, perennial, large-plumed grass belonging to the *Poaceae* family. The stems, including the flowering stalks, are from 1 to almost 5m in height, depending on soil and moisture conditions. The leaves are 20 - 25cm long and hairless, except for a single line of horizontal hairs at the juncture of the upper and lower portions of the leaf. Stems are approximately 13mm in width, are round, solid, and have nodes (stem-leaf junctures) every 8 -13cm along the stem. The flower plumes, which can be up to a metre long, are composed of many hundreds of tiny flowers and have a shimmery, silky appearance. Each clump produces an average of forty stalks and twelve to twenty flowering plumes. It is seen growing in clumps in sunny upland areas (Rasha, 1999).

## Lifecycle Stages
Guala (1990) states that the size of the plants of this species seems to give an indication of the age of the population. Young plants (<2yrs) are often approximately 1 metre high while older, well-established populations almost always have many of the individuals reaching 2.5m or more.

## Uses
Flower plumes are used in flower arrangements (Joe Maguire., pers.comm., 2004). Neyraudia is used as a wind-break around crops in southeastern Asia (Renee Rasha., pers. comm., 2004).

**Habitat Description**
In its native range, which is characterized by a warm, subtropical climate, *Neyraudia reynaudiana* thrives from sea level to altitudes of 1980 m. It occurs in bogs, in open savannahs, on upland cliffs, and along forest and road edges. In the USA it is seen to initially colonize margins of roadways, fields, and forests, from where it can spread to undisturbed areas. Its ability to survive high altitudes in its native range indicates a tolerance to cold and the potential for it to spread further north in the USA (Rasha, 1999). Guala (1990) states that it is remarkably tolerant with respect to edaphic and light regimes although it seems to prefer open, high light, areas. It has often been collected in marshy areas, possibly even of brackish water, and it is very common in upland situations and is becoming increasingly common in dry pinelands. It is observed that the common characterisitic amongst the different habitat types is some form of disturbance. This is especially true in drier situations, and the disturbance can be anything from bulldozing to fire. This range of habitats is comparable to that in its native range (Lazarides 1980, in Guala, 1990). Freezing temperatures usually kill aerial stems, but they were observed to vigorously resprout from rhizomes after hard frosts (Guala 1990, in FLEPPC, Undated).

**Reproduction**
Rasha (1999) states that *Neyraudia reynaudiana* reproduces by seed and through underground stems (rhizomes). The plants flower twice each year, producing hundreds of thousands of tiny seeds that are dispersed by the wind. New clumps of *N. reynaudiana* emerge from rhizomes that may be embedded in sand, soil, or rubble.

**Nutrition**
In its native range, *Neyraudia reynaudiana* is reported to grow gregariously on infertile and rocky soils (Lazarides 1980, in FLEPPC, Undated). Unpublished data that I collected in 1994 indicates that Neyruadia in Miami-Dade County was much more prevalent on sandy soils, including Pine Rocklands with sand deposits \"Opa Locka Outcrop\" soils. Neyraudia was much less abundant in southern Dade's \"Cardsound\" soils (Joe Maguire., pers.comm., 2004).

**General Impacts**
Rasha (1999) states that *Neyraudia reynaudiana* damages native ecosystems by crowding and shading out understory plant species and by creating conditions for extremely hot and destructive wildfires. It is a highly combustible fuel source because of its overall plant mass, its large feathery flower plumes, and the dense, hay-like leaf litter it produces. This hay-like litter enhances the fire's movement along the ground, while the flower plumes carry the flames high into the air. With the aid of winds, these plumes often detach and fly through the air like torches, providing the potential for additional spread.
In South Florida Pine Rocklands, the native understory is typically 1-1.5 metres in height. Infestations of Neyraudia can raise the height of the understory to 4-5 metres. Neyraudia infestations of 30% cover increase the fuel load by 3 tons per 0.40 hectare (per acre). When wildfires occur under these conditions, Neyraudia promotes much higher flamelengths and increased heat transfer into the slash pine canopy, frequently killing the overstory (Joe Maguire., pers.comm., 2004).

**Management Info**
Rasha (1999) states that the restoration of sites infested with *Neyraudia reynaudiana* requires a long-term commitment to ensure effective control and to allow native vegetation to become established.
Integrated management: Its deep roots make mechanical removal an extremely labor intensive and costly undertaking and causes extensive disturbance to the soil. A more effective management approach involves a combination of cutting or prescribed burning, followed by application of herbicides. A 90% kill rate can be achieved by cutting culms with a steel bladed weed eater, allowing resprouting to 15 - 20 centimetres and applying Roundup (George Gann-Matzen of Ecohorizons, Inc., in Guala, 1990). It is recommended that the remaining plants be removed by hand and that the site be monitored for at least two years (George Gann-Matzen of Ecohorizons, Inc., in Guala, 1990). The cut culms should be removed in pineland situations so as not to add nutrients to the soil and hence, make a more suitable environment for other exotics (George Gann-Matzen of Ecohorizons, Inc., in Guala, 1990). By applying Roundup at 1% with a surfactant (Improve or the cheaper brand Frigat) at 1%, without cutting the culms, a 100% kill rate can be achieved (Terry and Barbara Glancy, private land owners in Homestead, in Guala, 1990). Guala (1990) states that a wick application of Roundup might be a reasonable course of action especially in areas in which small native herbs are still persisting within the population. Cutting or mowing alone does not work. Fire may even compound the problem by introducing disturbance. Mechanical removal may work if done by hand but bulldozing may also compound the problem due to the ability of the grass to resprout from rhizome segments. Rasha (1999) states that a successful burn reduces the plant's massive stalks to ash, eliminating the cost of vegetation removal.
The Natural Areas Management Division of Miami-Dade County's Park & Recreation Department uses the following treatment regime: Cut and haul culms of dense clumps of Neyraudia. After the plants regrow to about .5 metres, treat the foliage with 5% Round Up Pro with a marker dye. Follow up treatment on individual stems: cut the stem with hand clippers. Treat the cut surface of the stem with a few drops of 10% Garlon 4. Garlon 4 is used so crew members don't have to carry an assortment of herbicide mixes. Exotic hardwoods and resprout of Neyraudia can be treated with the same mix) (Joe Maguire., pers.comm., 2004).

**Pathway**
Rasha (1999) states that it was first introduced into the United States in 1916 by the U.S. Department of Agriculture, possibly to investigate its potential as an ornamental plant. It was grown in a test garden in Coconut Grove, Florida, from where it escaped and spread.

**Principal source:** Burma Reed *Neyraudia reynaudiana* (Kunth) Keng ex A.S. Hitchc. (Rasha, 1999)

**Compiler:** National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

**Review:** Joe Maguire, Natural Areas Manager. Park & Recreation Department, Florida USA and Renee Rasha, M.S., Nature Center Program Coordinator, Grassy Waters Preserve. West Palm Beach, Florida USA.

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**ALIEN RANGE**

**[1]** BAHAMAS

**[1]** UNITED STATES

**BIBLIOGRAPHY**
**8** references found for **Neyraudia reynaudiana**

**Managment information**
Guala G.F. 1990 *Element Stewardship Abstract for Neyraudia reynaudiana*. The Nature Conservancy.
**Summary:** An Element Stewardship Abstract containing detail report on description, distribution, dispersal methods, impacts, habitats and control.
Available from: http://tncweeds.ucdavis.edu/esadocs/documnts/neyrrey.html [Accessed 10 June 2003]
Platt, William J; Gottschalk, Robert M. 2001. Effects of exotic grasses on potential fine fuel loads in the groundcover of south Florida slash pine savannas. International Journal of Wildland Fire.10(2). 155-159.

Rasha R., 1999 *Burma Reed: Neyraudia reynaudiana (Kunth) Keng ex A.S. Hitchc.* National Park Service, Plant Conservation Alliance, Alien Plant Working Group.
**Summary:** Detailed report on description, distribution, habitat, reproduction methods and management.
Available from: http://www.nps.gov/plants/alien/fact/nere1.htm [Accessed 10 June 2003]

**General information**

ITIS (Integrated Taxonomic Information System), 2005. Online Database *Neyraudia reynaudiana*
**Summary:** An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.
Available from: http://www.cbif.gc.ca/pls/itisca/taxastep?king=every&p_action=containing&taxa=Neyraudia+reynaudiana&p_format=&p_ifx=plglt&p_lang= [Accessed March 2005]
Langeland, K.A. and Burks, K. C (Eds) 1998. Identification and Biology of Non-Native Plants in Florida s Natural Areas, University of Florida. *Neyraudia reynaudiana.*
**Summary:** Information on plants that pose threats to natural resource areas in Florida.
Available from: http://www.fleppc.org/ID_book/Neyraudia%20reynaudiana.pdf [Accessed 10 June 2003]
USDA-ARS (United States Department of Agriculture, Agricultural Research Service) National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). [Online Database] National Germplasm Resources Laboratory, Beltsville, Maryland.
**Summary:** Information on common names, synonyms, distributional range of species.
Available from http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?312862 [Accessed 22 May 2003]
USDA-NRCS (United States Department of Agriculture, Natural Resources Conservation Service). 2002. *The PLANTS Database, Version 3.5.* Baton Rouge, Louisiana: National Plant Data Center.
**Summary:** Brief report on distribution, taxonomy and links to information about the invasive.
Available from http://plants.usda.gov/cgi_bin/topics.cgi [Accessed 22 May 2003]
USF-AFVP (University of South Florida - Atlas of Florida Vascular Plants) 2003. *Institute for Systematic Botany: Neyraudia reynaudiana*
**Summary:** Short list of common names and synonyms.
Available from: http://www.plantatlas.usf.edu/main.asp?plantID=1347 [Accessed 10 June 2003]