Sporobolus africanus **System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Liliopsida	Cyperales	Poaceae

Common name Parramatta grass (English), rat's-tail grass (English), rat-tail grass (English), smut grass (English), African dropseed (English), tufty grass (English), motie hikutaha (Niuean), cat's tail (English), cape grass (English)

Synonym *Sporobolus indicus var. capensis*

Similar species

Summary The rat-tail grass *Sporobolus indicus* is a tuft forming perrenial grass native to various countries in continental Africa and often introduced as a pasture grass. It is capable of forming dense stands once established which can exclude native species and alter ecological conditions such as light, nutrients and moisture availability. As a pasture weed, it is capable of having serious economic impacts and reducing land value. Management of *S. indicus* at present is difficult and costly due to its ease of spread and the creation of a very large seed bank that remains viable for up to 10 years.

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Species Description
Sporobolus indicus is a perenial grass that grows in dense tufts (caestipose). Sheathes are papery and culms are erect being 30 - 110 cm long and 1.5 - 3 mm in diameter. Ligule a fringe of hairs. Leaf-blades flat, or convolute; 2 0– 40 cm long and 1 – 4 mm wide. Leaf-blade apex filiform. Inflorescence a contracted or spiciform, linear panicle 10 - 35 cm long, contracted about primary branches. Primary panicle branches appressed; 1 - 2 cm long; bearing spikelets almost to the base. The panicle branches glabrous in axils. Spikelets are solitary with fertile spikelets pedicelled. Spikelets comprising one fertile florets without rhachilla extension. Spikelets are lanceolate and subterete being (1.5-)2.1 - 2.8 mm long; breaking up at maturity; disarticulating below each fertile floret. Glumes are deciduous and dissimilar being shorter than the spikelet. The lower glume is oblong being 0.4 – 0.7 mm long about 0.4 - 0.5 of the length of the upper glume which is usually 1 – 1.5 mm long. Upper and lower glumes are without keels and lateral veins while the lower glume has an obtuse apex and the upper glume has an acute apex. Fertile lemma are ovate; (1.5–)2.1 – 2.8 mm long, membranous and dark green without a keel and 1-veined. The lemma apex is acute and the palea is 2-veined with approximate keels. Flowers have 3 anthers, 0.6 - 0.8 mm long. *Sporobolus indicus* produces an ellipsoid quadrangular caryopsis with a free, soft pericarp. Caryopsis is (0.8-) 1.1 - 1.2 mm long (Clayton *et al.*, 2006 onwards).
Please follow this link PIER, 2009 for images.

Notes
Much of the literature refers to *Sporobolus indicus* as its synonym, *S. africanus*.

Uses
In Mexico, the fruits are regarded as diuretic and antispasmodic. The fruit decoction is used to bathe wounds and heal sores in the mouth. A sirup prepared from the fruit is taken to overcome chronic diarrhea. The astringent bark decoction is a remedy for mange, ulcers, dysentery and for bloating caused by intestinal gas in infants. In the Philippines, the sap of the bark is used to treat stomatitis in infants. The juice of the fresh leaves is a remedy for thrush. A decoction of the leaves and bark is employed as a febrifuge. In southwestern Nigeria, an infusion of shredded leaves is valued for washing cuts, sores and burns. Researchers at the University of Ife have found that an aqueous extract of the leaves has antibacterial action, and an alcoholic extract is even more effective. The gum-resin of the tree is blended with pineapple or soursop juice for treating jaundice. Most of the other uses indicate that the fruits, leaves and bark are fairly rich in tannin (Global Commpendium of Weeds, 2007).

Habitat Description
Sporobolus indicus is capable of naturalising in disturbed areas such as along roadsides and in grasslands and pastures in Hawaii (PIER, 2009). Other reports from New Zealand and Niue confirm that this is common in other areas where *S. indicus* has established (PIER, 2009). In Queensland, Australia *S. indicus* is a serious pasture weed which has significant economic impacts (Department of Primary Industries and Fisheries, 2007). Growth in pasture is maximised in the absence of ground cover as seedlings are susceptible to competitive effects when young (Department of Primary Industries and Fisheries, 2007).

Reproduction
Sporobolus indicus produces a large amount of seeds, up to 80 000 / m², with 90% of them being viable. Seed is produced all year iin Australia, but mostly in summer and autumn. Seeding is difficult to prevent and quickly builds up a large seed bank which remains viable for up to 10 years. Seed germination occurs when there is low levels of competition from cover-forming species like pasture grasses, allowing *S. indicus* to take advantage of disturbance events. Early seedling survival is sensitive to competition until the seedlings are about 5 cm tall. At this stage, they are much more resistant to competition and moisture stress. In a pasture, *S. indicus* will not be selectively grazed, while the grazing of the more paltable pasture species allows more *S. indicus* seeds to germinate successfully. The adult plant is capable of living over four years, flowers within 3 months, and is capable of producing seed at any time given favourable conditions (Department of Primary Industries and Fisheries, 2007).

General Impacts
Sporobolus indicus is capable of dominating particular sites, forming dense cover when it becomes established which can result in the exclusion and decline of native species. This also has the effect of altering natural ecological conditions, such as light, nutrients and moisture availability (Gray *et al.*, 2005). *S. indicus* quite often forms exclusive ground covers with communities of other introduced species which has thought to have contributed to the decline of a number of threatened species (Cronk, 1986b; Gray *et al.*, 2005; 2009). As *S. indicus* provides a good combustible material, dense stands may be able to propagate wildfires which could enormously retard the recovery of native shrubs and herbs. (Loope *et al.*, 1992). When established in pastures, *S. indicus* can dramatically decrease producers' economic viability and lower land values, with current infestations in Australia costing the pastoral industry in the vicinity of AU$ 60 million per year in lost production and control costs (Department of Primary Industries and Fisheries, 2007).

Management Info
Please follow this link for detailed information on the management and control of *Sporobolus indicus* (rat-tail grass). A summary is provided below.
Preventative measures: Guidelines have been produced by the Department of Primary Industries and Fisheries (2007) outlining ways to prevent spread of rat-tail grass. These include cleaning vehicles and machinery as well as providing quarantine areas for livestock grazing in infested areas.
Physical control: While, hand pulling or digging is effective on individual plants, on a larger scale, this would be too labour intensive. Additionally, slashing promotes seed producion and increases the risk of spreading seeds. If used correctly, fire can play a useful role in reducing the soil seed bank and encourage remaining seed to germinate further depleting seed reserves (Department of Primary Industries and Fisheries, 2007).
Chemical control: Both flupropanate and glyphosate herbicides have been identified as being effective for control of *S. indicus* in pastures, with application methods differing depending on the scale of infestation (Department of Primary Industries and Fisheries, 2007).
Cultural control: The Department of Primary Industries and Fisheries (2007) has suggested that the spread of *S. indicus* can be prevented by changing the way landowners manage their land, such as reducing bare or waste areas and preventing pasture overgrazing.
Biological control: Biological control of *S. indicus* was investigated using the stem wasp, *Tetramesa sp.* and the smut, *Ustilago sporoboli-indici*. Both were unsuccessful and future efforts are concentrated on the development of a pathogen already present in Australia as a mycoherbicide (Palmer *et al*., 2010).
Integrated management: At present a combination of preventative measures, chemical and cultural control techniques is used to effectively control current infestations and prevent spread of *S. indicus*. The large persistent seed bank created by infestations however make it a labour intensive and expensive procedure (Department of Primary Industries and Fisheries, 2007).

Pathway
The seeds of *Sporobolus indicus* become sticky when wet, allowing them to stick to animals, clothes, vehicles and machinery (Department of Primary Industries and Fisheries, 2007). The seeds of *S. indicus* are also capable of spreading via soil on machinery and vehicles (Department of Employment, Economic Development and Innovation, 2010)The seeds of *Sporobolus indicus* are capable of spreading via soil on machinery and vehicles (Department of Employment, Economic Development and Innovation, 2010)The seeds of *Sporobolus indicus* can be propagated through contaminated hay or pasture seed (Department of Primary Industries and Fisheries, 2007).

Principal source: Department of Primary Industries and Fisheries, 2007. Weedy *Sporobolus* grasses. Best Practice Manual. The original edition (1999, 2001) was compiled by the Giant Rats Tail team: Felicity McIntosh, Bill Schulke, Graeme Elphinstone, Steven Bray, Wayne Vogler, Col Paton, Bernie Shore, Michael Yee and Nigel Gallas. The revised edition (2007) has been updated by Steven Bray and David Officer.

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ALIEN RANGE

[2] AUSTRALIA
[1] LESSER ANTILLES
[3] NEW ZEALAND
[1] NORFOLK ISLAND
[5] FRENCH POLYNESIA
[1] MAURITIUS
[1] NIUE
[1] NORTHERN MARIANA ISLANDS

[1] PITCAIRN
[3] SAINT HELENA
[9] UNITED STATES

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Summary: This compilation of information sources can be sorted on keywords for example: Baits & Lures, Non Target Species, Eradication, Monitoring, Risk Assessment, Weeds, Herbicides etc. This compilation is at present in Excel format, this will be web-enabled as a searchable database shortly. This version of the database has been developed by the IUCN SSC ISSG as part of an Overseas Territories Environmental Programme funded project XOT603 in partnership with the Cayman Islands Government - Department of Environment. The compilation is a work under progress, the ISSG will manage, maintain and enhance the database with current and newly published information, reports, journal articles etc.

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