

# **Grass, rush or sedge?**

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## ABSTRACT

Rushes and sedges are superficially similar to grasses. In this article I describe how to tell by brief inspection whether a plant is a true grass, a rush, or a sedge. I also discuss the meanings of the related terms reed, cane and bulrush, so that you can correctly use all these terms in your dictionary work. Pipeworts, yet another kind of plant associated with aquatic environments, also receive a brief mention.

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## VERSION HISTORY

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# Grass, rush or sedge?

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Rushes and sedges are superficially similar to grasses. In this article I describe how to tell by brief inspection whether a plant is a true grass, a rush, or a sedge. I also discuss the meanings of the related terms reed, cane and bulrush, so that you can correctly use all these terms in your dictionary work. Pipeworts, yet another kind of plant associated with aquatic environments, also receive a brief mention.

## Confessions of a naïve lexicographer

VIGNETTE 1. As we traipsed across the fallow rice paddy, something in the weedy undergrowth was stinging my legs—but I couldn't figure out what it was. When we arrived back at the garden hut and I had washed the mud off my legs, I discovered tiny serrations crisscrossing my shins. My Mori companions knew exactly what the culprit was, a plant which they called *kilala*. Later on the way home they pointed out a specimen so that in the future I would know to avoid it. The triangular arrangement of the leaves was intriguing. I took some notes, and later added the following entry to my Mori dictionary:

**kilala** k.o. grass with a triangular stem, leaves arranged spirally such that every third leaf is directly above the third one below it, the leaf margins serrate and able to scratch the skin

VIGNETTE 2. I had them bring our motorized sampan around. Here in the middle of the *lowo* (flooded river plain), I didn't want to pass up this opportunity to see an actual, live specimen of *sesei*. I had heard about *sesei*, and had even seen its dried 'leaves' (so I thought) being used in weaving mats, but I had never gotten a good description of the plant itself. Some people had described it as *pandan hutan*, but the plant before me now was clearly not any species of screwpine. In fact but for a small crown, it seemed to be almost entirely stem. Later I wrote:

**sesei** k.o. reed of marshy areas, the long (greater than 1 m) stem is triangular in cross-section and strongly keeled from the lower portions to the very top; the outer portion of the stem is stripped, dried, and used in weaving

As I came to find out, however, both of my dictionary entries were seriously flawed: *kilala* was no grass, and *sesei* was no reed!

## The place of grasses, rushes and sedges in the plant kingdom

If you've ever seeded a lawn, or had an opportunity to watch grass seed grow, you know that a grass sprout emerges as a tiny thread. A bean sprout, however, as it emerges from

the ground, opens into two tiny, oval leaves. Well, not exactly a leaf. Technically it's called a cotyledon (cat-uh-LAID-n).<sup>1</sup> Furthermore, the difference between the grass and bean sprouts is indicative of the major division of all flowering plants (angiosperms) into monocots (short for monocotyledon, having a single initial 'seed leaf'), and dicots (short for dicotyledon, meaning having a pair of 'seed leaves').

A number of other morphological features are also associated with monocots and dicots. In monocots, for example, major leaf veins usually all run parallel, versus the reticulated pattern of leaf veins in dicots. In monocots, flowering parts usually come in threes and sixes. In dicots, flowering parts usually come in multiples of four or five.

The class of monocots comprises several major families, including:

Palmae (or Aracaceae)	palms, including rattans
Liliaceae (or Amaryllidaceae, Alliaceae)	lilies, including onions and garlic
Iridaceae	irises
Orchidaceae	orchids
Araceae	aroids (or philodendrons), including taro
Typhaceae	cattails
Gramineae (or Poaceae)	grasses, including grains and bamboos
Juncaceae	rushes
Cyperaceae	sedges
Eriocaulaceae	pipeworts

Now, most of us can picture a palm tree, a lily, an iris, an orchid, a philodendron, a cattail, and, of course, grass. But what, exactly, are rushes, sedges and pipeworts?

## How to distinguish grasses, rushes and sedges

Rushes and sedges are indeed grass-like (graminoid) when you consider their general shape or habit. However, grasses, rushes and sedges are quite distinct morphologically, and—provided you're properly clued in—even a moment's inspection can quickly put you on the right track. Here's what to look for.

**STEM.** First, look at the stem (technically, the culm). Does it have prominent (knobby) nodes? If so, it is likely to be a grass, as both rushes and sedges lack prominent nodes. A flattened stem is also a good indicator of a grass, though many grasses have round stems. Finally, grass stems are often (but not always) hollow. If the stem is cylindrical, without prominent nodes, erect, and pithy on the inside, it is likely to be a rush. However, the chambered or solid pith in some rushes can eventually dry up, giving the stems of aged plants a hollow appearance. If the stem is solid (pithy) and triangular in cross-section, the plant is likely to be a sedge. Or as encapsulated in a mnemonic ditty, "Rushes are round, sedges have edges." Be aware, however, that a number of sedges have round stems,

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<sup>1</sup> From Greek *kotylē* 'container,' the same root whence we get the English word *kettle*.

though some triangularity may be visible just below the inflorescence, or by cutting a cross-section near the base.

**LEAF.** Second, look at the leaves. The leaf consists of two main parts, a sheath which wholly or partly wraps around the stem, and a blade. In grasses, leaves are often two-ranked, that is, the blades come off the stem on alternating sides in a single vertical plane. In general, the sheaths of grass leaves are not closed, that is, the sheaths are at least partly open near where the blade comes off. In sedges, leaves are often three-ranked, that is, they come off the stem in three different directions, and sheaths are closed (they go entirely around the stem without any 'break'). Also, blades are often folded at the midrib into a V-shape, or folded again near the margins to make a W-shaped cross-section. For rushes, this criterion is less distinctive, as the leaves can be unranked (they come off the cylindrical stem in no particular direction), two-ranked, or three ranked. In some sedges and rushes, the leaves do not develop blades, or are reduced to basal scales, thus they can appear to be 'all stem.'

**FLOWER.** Finally, look at the inflorescence (flowering structure). In grasses, the florets (small flowers) are single or spaced out along a central axis, with panicles sometimes laterally flattened. In rushes the inflorescence emerges near the end of the stem or appears to emerge out of the side. Flowers are usually clustered, with clusters (technically spikelets) radiating from a central point, thus giving the inflorescence a flattened, more umbrella-like shape. In sedges, each flower is almost entirely enclosed in a bract, and these bracts in turn are compactly clustered, often spirally arranged (a spiral arrangement of florets never occurs in grasses). In some species the flowers are so small and tightly compacted that botanists have resorted to electron microscopes in order to study their structure!

So now you know: both *kilala* and *sesei* are kinds of sedges!



**Grass**, inflorescence and leaf  
(*Phragmites australis* (Cav.)  
Trin. ex Steud., common reed)

**Rush**, inflorescence and  
habit (*Juncus effusus* L.,  
common rush)

**Sedge**, habit and spikelet  
(*Cyperus esculentus* L.,  
yellow nutsedge)

## Reeds, canes and bulrushes

REED. The term 'reed' is most often associated with plants of the genera *Phragmites* and *Arundo*, and sometimes also of the genus *Ammophila*. All three of these genera belong to the Gramineae family, thus from a botanical point of view reeds are a kind of grass. The typical reed has a hollow stem, broad leaves, and large, feathery terminal panicles. Reeds are also associated in the imagination with wetlands, but this need not be so in reality. Reeds have various uses, for example stems of the giant reed (*Arundo donax* L., Mediterranean to South Asia, stems up to 6 m tall) were used to make the original panpipes, and have also been used in papermaking and weaving as well as for measuring rods, walking sticks, fishing poles, and support poles for climbing plants. Stems of the common reed (*Phragmites australis* (Cav.) Trin. ex Steud., found worldwide), have been used to make rafts, baskets, mats, roofing thatch, paper, adobe and shafts for spears and arrows.

Despite botanists' best attempts to corral its meaning, the term 'reed' is often applied more loosely of other grass-like plants growing in water, or plants with useful stems. For example, the so-called 'reeds' used in wickerwork are in actuality rattans. Papyrus (*Cyperus papyrus* L., perhaps the world's most famous sedge) fits both criteria, and is sometimes called 'paper reed.'

CANE. If Aunt Polly had wanted to cane her young ward Tom Sawyer, she very well might have reached for a switch of *Arundinaria gigantea* Walter. *A. gigantea*, commonly 'river cane,' is the only bamboo native to the United States, and it used to form large, nearly impenetrable groves (called canebrakes) as far north as Ohio. While species of the genus *Arundinaria* may be considered the primary reference for 'cane,' the term is also applied to various other plants because of their resemblance in one way or another (tall, jointed, flexible, useful, etc.) to *A. gigantea*. Sugarcane is a grass, but its jointed stem somewhat resembles bamboo. The long strips of 'cane' used in caning chairs are actually from rattans, and rattans are also used in the other type of caning (the kind which hurts). Even the stems of blackberry and raspberry bushes can be called canes, presumably because these plants can form tangled, impenetrable masses.

Furthermore, there seems to be some overlap between cane and reed. *A. gigantea* is not only called 'river cane,' 'canebrake bamboo' and 'giant cane' but also 'giant reed.' *P. australis* (see above) is not only called 'common reed' but also 'Spanish cane.'

BULRUSH. Despite their name, bulrushes are not rushes. Rather, 'bulrush' is the name given to sedges of the genus *Scirpus* and similar sedges with stout stems.<sup>2</sup> Bulrushes have round or triangular stems which are topped by brown spikelets. An hypothesis which I am pursuing is that Mori *sesei* is in fact the giant bulrush (*Actinoscirpus grossus* (L.f.) Goetgh. & D. A. Simpson), but I need to find a specimen in flower in order to confirm this. In the Bible, 'bulrush' refers to papyrus.

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<sup>2</sup> Bulrush is also the name in England for the plants which Americans call 'cattails.' The *bul-* of bulrush comes from the word *bole* meaning '(tree) trunk,' in reference to the stout stems.

## Pipeworts

Finally I would like briefly to mention pipeworts. These plants (family Eriocaulaceae)<sup>3</sup> are neither grass, nor rush, nor sedge. Pipeworts are easily recognized when in flower because of the dense, white heads of flowers atop a leafless stalk. In fact in aquatic varieties the only part of the plant you may be aware of is the flower head rising above the water's surface on a slender stem. Because of the plants' general appearance, pipeworts are colloquially called 'buttonrods' in English. The Indonesian name, *rumpit butang*, has a similar derivation, perhaps even calqued from an European language.

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<sup>3</sup> *Eriocaulon* is from Greek *erion* 'wool' and *kaulos* 'plant stem.'