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A rediscovery of *Eriochrysis rangacharii* C. E. C. Fisch. (Poaceae) in the Nilgiri Mountains of southern India

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ABSTRACT

PUYRAVAUD, J.-P., D. MOHANDASS & T. CHHABRA (2003). A rediscovery of *Eriochrysis rangacharii* C. E. C. Fisch. (Poaceae) in the Nilgiri Mountains of southern India. *Candollea* 58: 97-100. In English, English and French abstracts.

The Red Data Book of Indian Plants considers that *Eriochrysis rangacharii* C. E. C. Fisch. is extinct. However, this grass is very much utilized, because the Todas, a tribe of the high plateau of the Nilgiris, employ it as a thatching material for their temples and their traditional houses. It also provides fodder to their buffaloes. This plant, which thus constitutes a major resource for the perenniality of the traditions of this ethnic group, was managed in a careful way during centuries. Today, the swamps where it grows are threatened with destruction by inappropriate management. The swamps of the Nilgiris must quickly be protected, otherwise *E. rangacharii* might face a second extinction which could well be final. This rediscovery – which is not a rediscovery for the Todas – shows once more that traditional knowledge should be taken into consideration for a better management of the biodiversity.

RÉSUMÉ

PUYRAVAUD, J.-P., D. MOHANDASS & T. CHHABRA (2003). La redécouverte de *Eriochrysis rangacharii* C. E. C. Fisch. (Poaceae) dans les monts Nilgiris au sud de l'Inde. *Candollea* 58: 97-100. En anglais, résumés anglais et français.

Le Red Data Book of Indian Plants considère que l'espèce *Eriochrysis rangacharii* C. E. C. Fisch. est éteinte. C'est pourtant une graminée très utilisée, car les Todas, une tribu du haut plateau des Nilgiris, s'en servent comme chaume pour leurs temples et leurs maisons traditionnelles. Elle fournit aussi du fourrage à leurs buffles. Cette plante, qui constitue donc une ressource majeure pour la pérennité des traditions de cette ethnie, a été gérée de façon prudente pendant des siècles. Aujourd'hui, les mouillères où elle se trouve sont menacées de destruction par une gestion inappropriée. Les mouillères des Nilgiris doivent rapidement faire l'objet d'une stricte conservation afin d'éviter à *E. rangacharii* une seconde disparition qui pourrait bien être, cette fois, définitive. Cette redécouverte – qui n'en est pas une pour les Todas – montre une fois de plus que le savoir traditionnel peut contribuer à une meilleure gestion de la biodiversité.

KEY-WORDS: POACEAE – India – Endemism – Ethnobotany – Conservation.

Eriochrysis rangacharii C. E. C. Fisch. (FISCHER, 1932) is a grass endemic to the upper plateau of the Nilgiri mountains of southern India (Fig. 1), where it is restricted to an area of 2500 km² at about an elevation of 2000 m. *Eriochrysis rangacharii* is the only representative in India of the otherwise tropical American (6 species) and African (3 species) genus (BOR, 1960). Our specimens are kept in IFP ("Tamil Nadu, Nilgiris, Korekundah", 2240 m, 23.IX.2002,

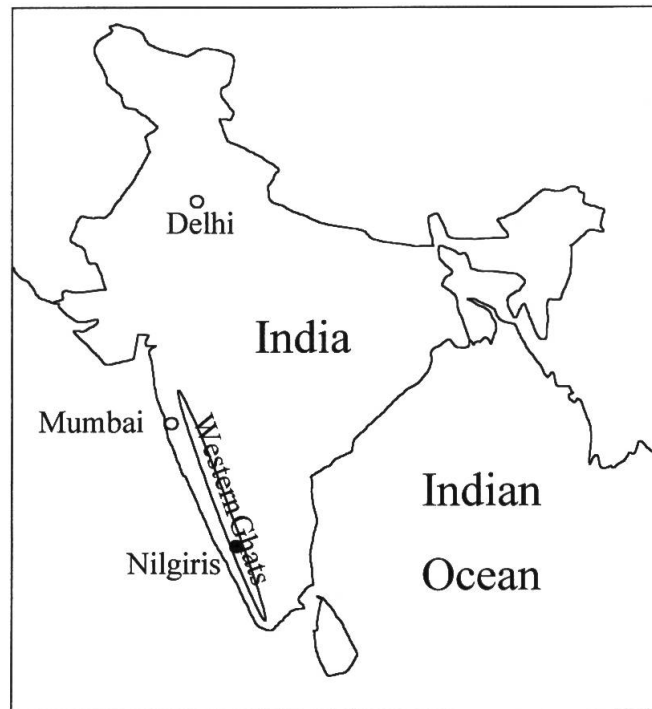


Fig. 1.— Location of the Nilgiri plateau.

J. P. Puyravaud & D. Mohandass s.n.). Our identification has been confirmed by Dr. Cope, Royal Botanic Gardens, Kew, with comparison to the type specimen (“Nilgiris, Pykara, c. 6000 ft”, VI.1900, *A. G. & Lady Bourne s.n.*).

According to the Red Data Book of Indian Plants (NAYAR & SASTRY, 1987) this species was presumed extinct and was collected only once in 1900. It had first been collected in a locality called Pykara, now a reservoir as well as a tourist spot. Little hope remained to save this plant and no measure was taken for its conservation. This was overlooking the fact that BLASCO (1971) recorded it.

If this species had been lost to science for a long time, the Todas, a tribal group of the upper plateau of the Nilgiris knew it well: *E. rangacharii* is used as an important thatch material in their temples and traditional houses. It grows mostly in swampy areas and it also provides fodder for

Table 1. - Comparisons between *Eriochrysis rangacharii* C. E. C. Fisch. and *Andropogon polypticus* Steud.

<i>E. rangacharii</i>	<i>A. polypticus</i>
Herbaceous, perennial, caespitose	
Culm erect 12-30 cm long	Culm erect 30-60 cm long
Leaf-blades ascending, linear, involute, 10-21 cm long, 2-5 cm wide, hirsute, hairy on both sides	Leaf-blades erect, linear, flat, 15-25 cm long, 2-7 mm wide, pilose
Inflorescence composed of racemes	
Racemes 3-4, linear, 2-3 cm long, rachis hair red	Racemes 1-6, linear, 4-8 cm long
Spikelets in pairs	
Fertile spikelets sessile and pedicelled, 4-6.2 mm long, spikelet callus bearded, red hairs	Fertile spikelets sessile, 6-7 mm long, spikelet callus pilose
Sessile spikelet unawned	Upper lemma of the sessile spikelet awned; awn 9 - 17 mm long



Fig. 2. – Nilgiris swamps with *Eriochrysis rangacharii* C. E. C. Fisch., near a mountane rain forest, locally called ‘shola’ (**top**). *Eriochrysis rangacharii* with inflorescences (**bottom**).

the Toda’s buffaloes (Fig. 2). The grass was sustainably exploited for almost a thousand years, since the Todas immigrated into the Nilgiris. We could collect it in swamps of the southern parts of the Nilgiris where it grows fairly abundantly.

Anthropologists were aware of the Toda’s unique traditions and efforts were made to identify their thatching material. NOBLE (1966) identified the grass as *Andropogon polypticus* var. *deccanensis* Bor. Later, WALKER (1986) repeated Noble’s findings. The misidentification is easy to explain: *E. rangacharii* and *A. polypticus* have similar vegetative characters (Table 1). They occur together in swampy areas and both have linear leaves covered with silvery hair. Moreover, both being *Andropogoneae*, the inflorescences are superficially similar. The absence of awn in *E. rangacharii* might have been taken as an extreme case of variability of *A. polypticus*.

However, if the two grasses are not easily identified by outsiders, the Todas recognize them from a distance because *E. rangacharii* looks grayer than *A. polypticus*. Moreover, the hairy leaf-blade of *E. rangacharii* is soft whereas it is rugose in one direction (from the top of the leaf to its base) in *A. polypticus*. Therefore, the Todas distinguish between the two species, whatever their phenological condition.

In recent years, the Todas became concerned about the increasing rarity of *E. rangacharii*. They find it difficult to harvest enough quantity for their traditional requirements. The Nilgiris have been subject to heavy immigration. Udthagamandalam (Ooty), the district headquarters has

become a summer holiday destination. Most of the sholas (mountane rain forests) have been replaced by tea plantations and the grasslands are being converted into vegetable gardens. To add to these ecological changes, the Forest Department grows *Acacia* in the grasslands and imposes a management policy on the Toda community.

Managed and maintained by a tribal society, this endemic species is now vulnerable because its natural environment has been affected by various factors. Direct causes of habitat destruction are conversion of the swamps to plantations, overgrazing, loss to hydroelectric reservoirs and pollution. Indirect causes include changing of fire policy, degradation of the water quality by the Pines, *Eucalyptus*, and *Acacia* and increased evapotranspiration by the tree plantations. Immediate protection of swamps and their watersheds could help to preserve *E. rangacharii* and its ecosystem. The present note is one more demonstration that tribal societies have in-depth knowledge of their environment. In this particular case, the Todas have proven botanical and management skills that surpass those of the environmental agencies. Sound environmental management policies of the Nilgiris grasslands should partly rest on traditional knowledge.

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