NOTES ON THE BIOLOGY AND PHYTOGEOGRAPHY OF WESTERN AUSTRALIAN PLANTS, PART 2 : TRIODIA R.Br. (POACEAE).

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Abstract:

Triodia in Western Australia comprises 24 species of perennial tussock grasses, all adapted to wind pollination. The genus is largely confined to the Eremean and Northern Botanical Provinces.

To be quoted as:

Keighery G.J. (1979, unpublished) Notes on the Biology and Phytogeography of Western Australian Plants Part 2 : Triodia R.Br. (Poaceae). Kings Park and Botanic Garden, West Perth, Western Australia.

INTRODUCTION:

Triodia is one of the diagnostic features of the Australian Eremean Region (fig 1.). The genus is of considerable importance to the pastoral industry, and has, for a large Australian genus received considerable taxonomic and ecological study (Burbidge 1946, 1953, 1959, 1960) in Western Australia.

Despite this attention new collections made over the last twenty years have uncovered many taxonomic problems, several probable new species and large range extensions in some taxa.

This paper reviews current knowledge of the biology and distribution of Triodia within Western Australia. It is hoped that this may stimulate increased study of this important genus.

BIOLOGY:

Remarkably little has been documented about the biology of most species. There is virtually no detailed information about phenology, fire ecology, vegetative reproduction, pollination ecology or breeding systems of any species. Basic natural history studies of a range of species are needed.

PHYTOGEOGRAPHY:

Species are mapped on the 1^{o} x 1.5^{o} grid scale, which is the most useful scale for such wide-ranging species. It is immediately noticable that most (if not all) species require additional collecting to define their true ranges even at this broad scale. Many species have quite different ranges from those shown in Burbidge (1953), and equally radical changes can be anticipated as collections improve.

The genus is however, as previously noted largely confined to the Eremean and Northern Botanical Provinces (figure 1). Extensions into the South Western Botanical Province are largely the species Triodia scariosa, which has several outlying populations (Watheroo, Lake Magenta, One mile rocks) in this province. The Southern Boundary of the generic range is still poorly defined, and the extensive bulge (where no Triodia collections are known from the Southern Cross, Bencubbin or Jackson grid sheets) is certainly due to a lack of collections from these, areas.

Burbidge (1953) stated that the "number of species is greatest around the periphery of the generic range and is in agreement with the hypothesis that speciation has been most marked in areas subjected to climatic fluctuations during Post-Pleistocene times." This statement is borne out to a degree in figure 2, where 6/4 species are recorded for the Pilbara and 6 on one sheet in the Kimberlies. The data is suspect for the Kimberlies, as seven species are known from only one area in this region and several of these (T. cunninghamii, T. microstachya and T. stenostachya) are so similar that futher collecting may show them to be con-specific. Detailed studies on the variation patterns of several species groups are needed in this region. The Pilbara concentration is more realistic

as the area has been subjected to a greater amount of collecting and study by Burbidge (1959). Since the Southern boundary of the generic range is singularly depaupuarate in species, the considerable diversity in relief and hence habitats of the Pilbara must rate as equally important as climatic instability.

As noted by Burbidge (1953) over 25 years ago Triodia needs a detailed biosystematic study to elucidate speciastion and species variation patterns. Equally detailed natural history studies are needed to compliment any biosystematic investigation.

REFERENCES:

Burbidge, N.T. (1946) "A revision of the Western Australian species of Triodia R.Br." Journ. Roy. Soc. West. Aust. 30 : 15-33.

Burbidge, N.T. (1953) "The genus Triodia R.Br." Aust. J. Bot. 1 : 121 - 184.

Burbidge, N.T. (1959) "Plants and Plant Habitats in the Pilbara District, Western Australia" C.S.I.R.O. Div. Plant Industry. Tech. Pap. No. 12.

Burbidge, N.T. (1960) "Further notes on Triodia R.Br. (Gramineae), with description of five new species and one variety." Aust. J. Bot. 3 : 381 - 395.

NOTES ON INDIVIDUAL SPECIES

Triodia angusta N.T.Burbidge

Tussocks to 1m. diameter, 2m. tall, leaves glaucous, fls. 2-5.
red sand, limestone, quartizite, shaly.
(produces radiating stolons)

T basedowii E.Pritzel

Tussocks to 2m. diameter, fls. 4-9-(10)
red sand, sand over limestone, gravelly loam.

T brizoides N.T.Burbidge

Small dense tussocks, to 50cm. high, fls. 5-6
Stony lateritic slopes, shale.

T concinna N.T.Burbidge

Tussocks to 2m. diameter, 70m. tall, leaves glaucous, fls. 7-9. red loam.

T cunninghamii Benth.

Dense tussocks to 1.5m. wide x 2m. tall, fls. ?
quartzite.

T fitzgeraldii N.T.Burbidge

Dense tussocks 60cm. wide x 60cm. tall, fls ?
skeletal soil over sandstone.

T inaequiloba N.T.Burbidge

Tussocks to 1m.diameter x 1m. tall, leaves pale green, fls. ?-5-?. red sandy loam.

T intermedia Cheel

Tussocks to 1m. diameter x 60cm. tall, leaves green, fls. reddish, (1)-4-8.
sandstone, laterite, sandy loam.

T irritans R.Br. var irritans

Dense tussocks to 1m. diameter x 70 cm. high, fls. variegated green/ dull purple, ?-7-?
lateritic soils.

T lanigera Domin

Tussocks up to 1.5m. diameter x 50cm. tall, fls 2-9.
sand, clay.

T longiceps J.M.Black

Large tussocks up to 5m. diameter, x 2.5m.
tall, leaves glaucous, fls.5-6.
lateritic red sand, limestone, quartzite loam.

T microstachya R.Br.

Tussocks dense, to 80cm. wide x 80cm. tall,
leaves green, fls.?-8-?
sand, white alluvial soil.

T plectrachnoides N.T.Burbidge

Tussocks to 1m, wide x 1m. tall, leaves green, fls. ?
skeletal soil over sandstone.

T plurinervata N.T.Burbidge

Large tussocks to 2.5m. wide x 50cm. tall, fls. ?-7-?
white or red sand.
(Burbidge (1960) tentatively places an overmature specimen collected on Yelma Station, near Wiluna in this species. If this collection is correctly placed considerable range extensions can be expected for this species).

T procera R.Br.

Large tussocks to 2m. diameter, fls ?

T pungens R.Br.

Large tussocks to 2m. diameter, fls. (1)-5-8.
red sand. loam, clay, granitic sand.
(Burbidge (1946, 1953, 1959) notes that a distinctive form of this species is confined to the Pilbara. Detailed studies are needed of this variable species to determine the status of the Pilbara populations)

T racemigera C.A.Gardn.

no data.
sandstone.

T roscida N.T.Burbidge

Large dinse tussocks, to 1m. diameter x 50cm. tall,
fls ? stony alluvium.

T scariosa N.T.Burbidge

Large tussocks to 1m. diameter x 50cm. tall, fls. 7-10-(12)
red sand, loam, dolerite, yellow sand,
sand over limestone, lateritic sand or clay.

T secunda N.T.Burbidge

Low loose tussocks formed by elongated stolons to 3m. diameter, leaves green. fls. ?-4-?.

T spicata N.T.Burbidge

Compact tussocks to 1m. diameter, fls. ?-7-?
rocky red sand.

T stenostachya Domin

Large tussocks to 1.5m. diameter x 1.5m. tall,
fls ?-8-?
sandstone.

T triticoides C.A.Gardn.

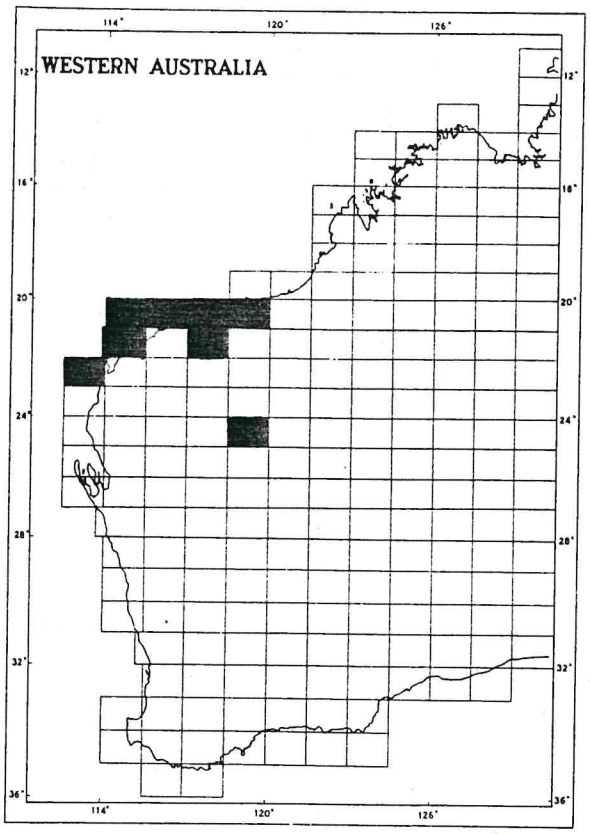
Tussocks ? , fls ?
sandstone hills.

T wiseana C.A.Gardn. var brevifolia N.T.Burbidge

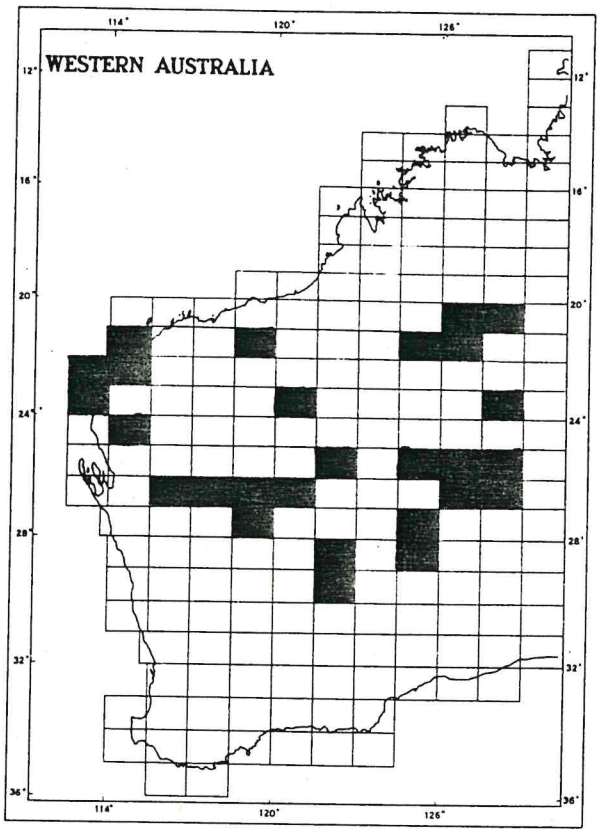
Dense tussocks, leaves glaucous, fls. 2-10,
red rocky sand.
(differs from typical variety in having finer, shorter leaves).

T wiseana C.A.Gardn. var wiseana

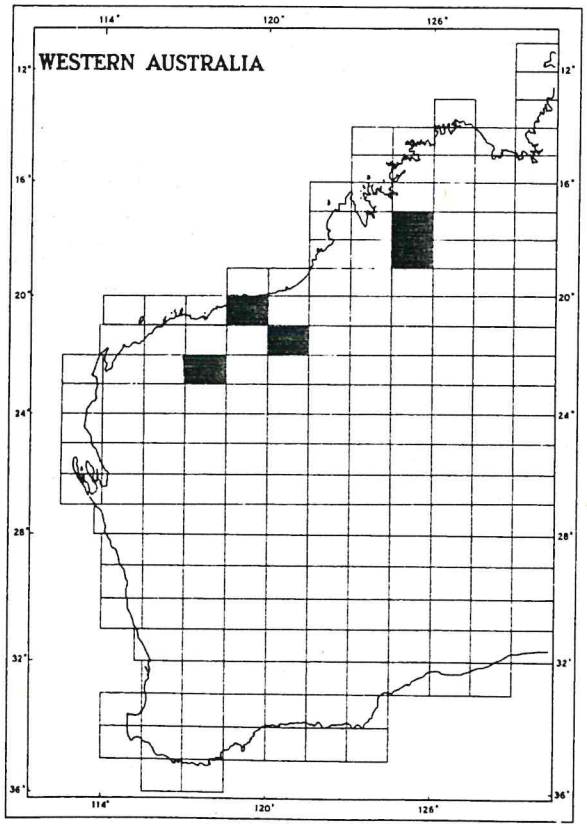
Dense tussocks to 2m. diameter, leaves glaucous,
fls 3-8.
sandstone , limestone,ironstone ridge, sanddunes,
red sand.



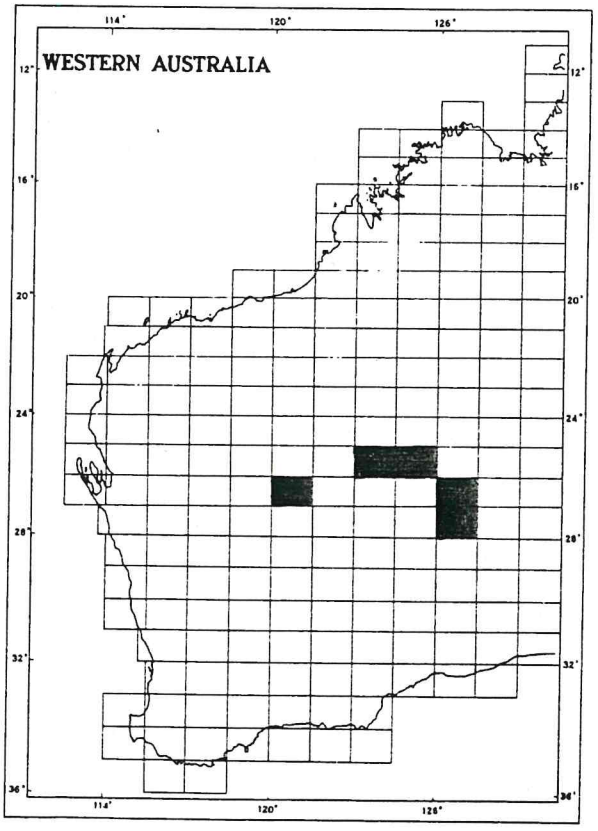
Triodia angusta



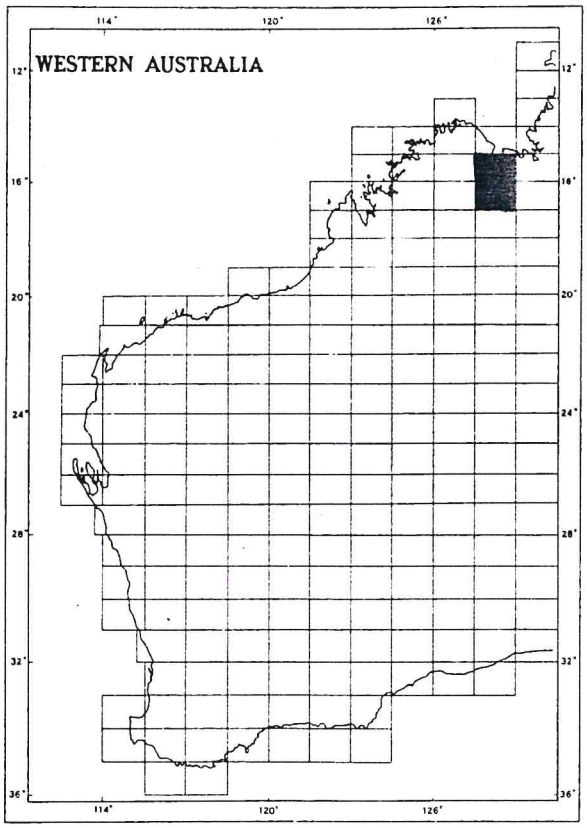
T basedowii



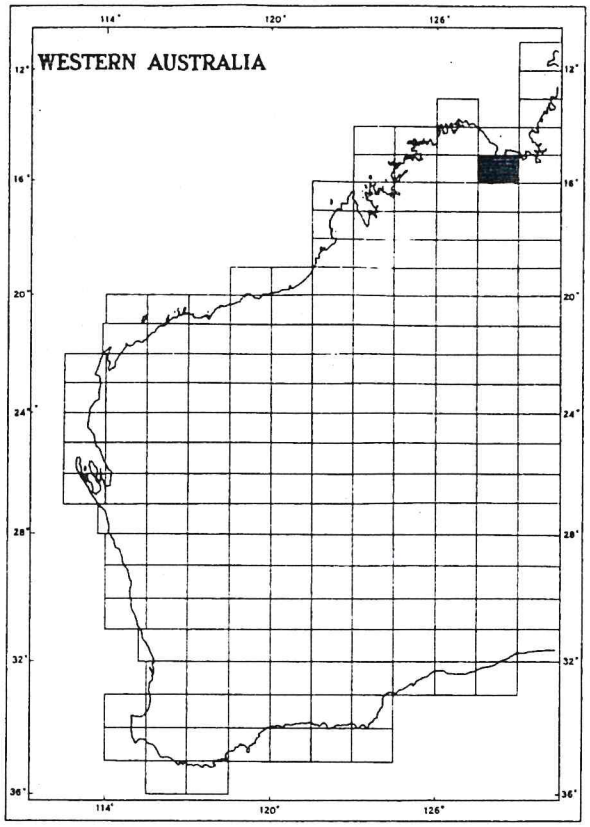
T brizoides



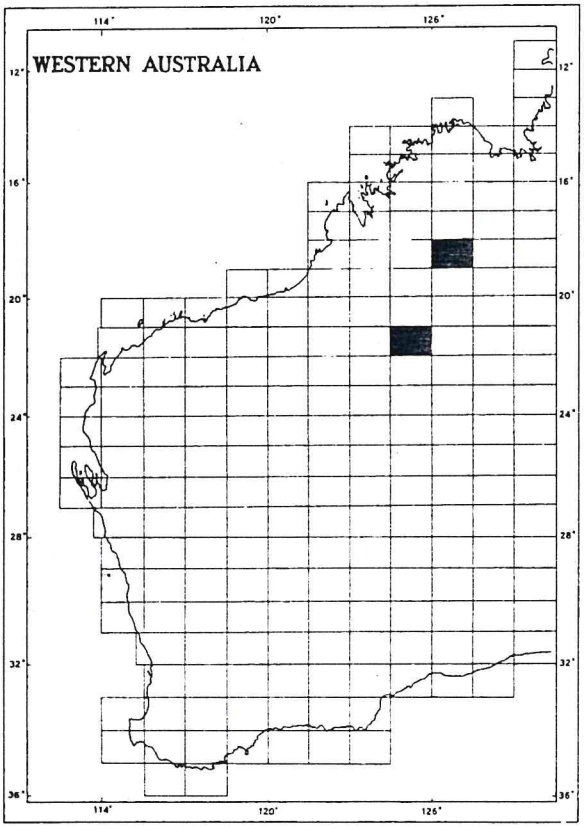
T concinna



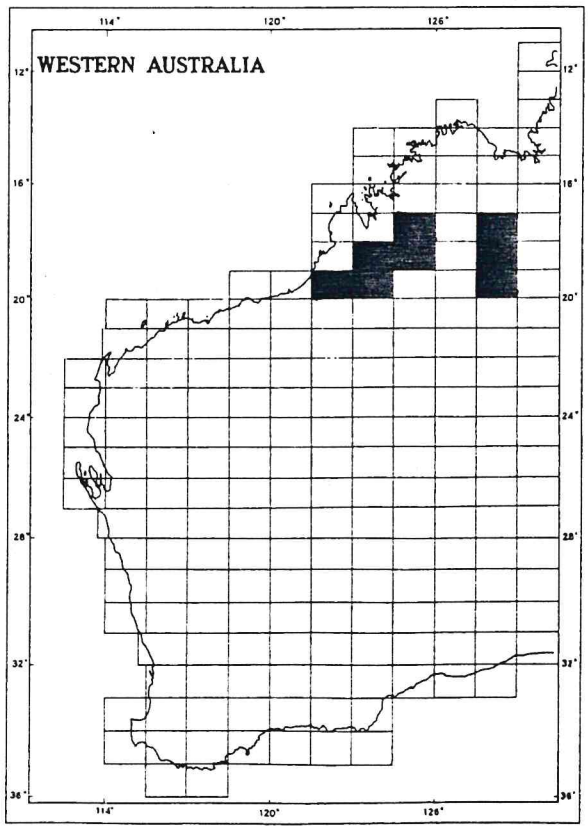
T cunninghamii



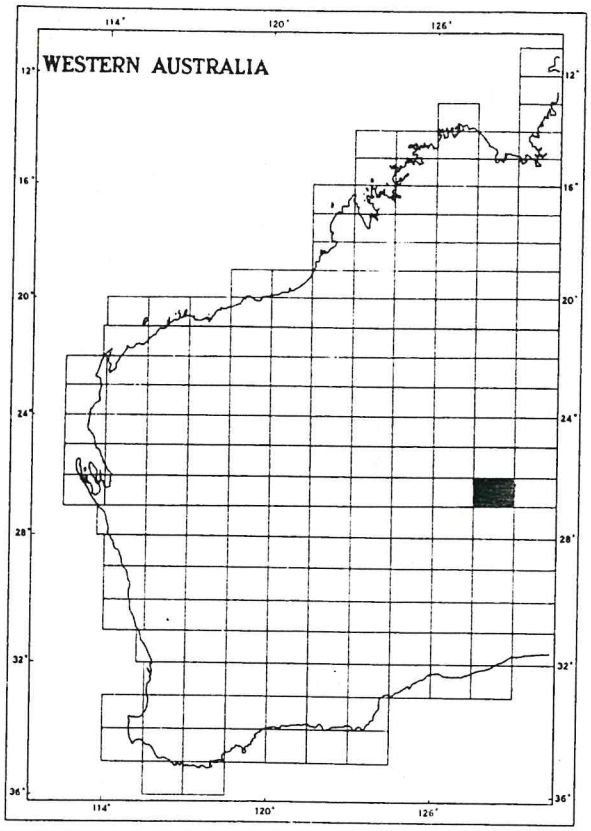
T fitzgeraldii



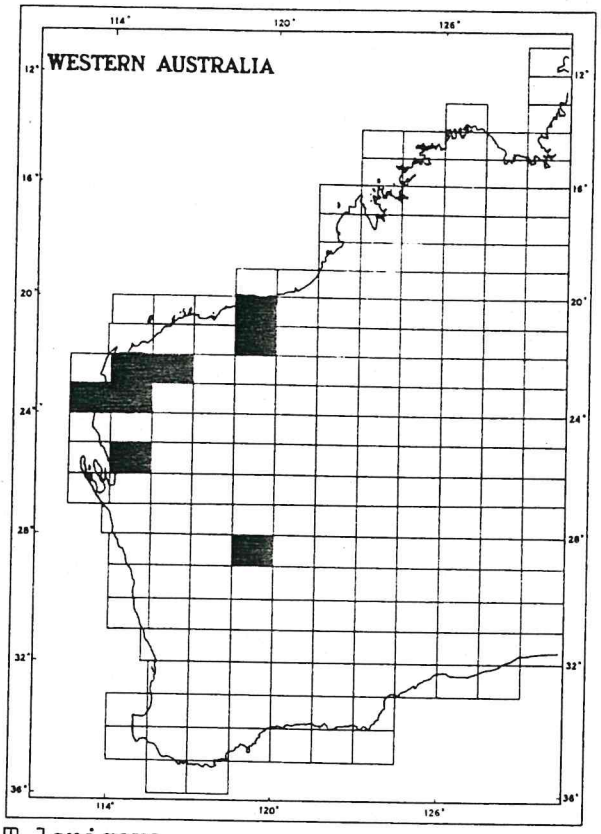
T inaequiloba



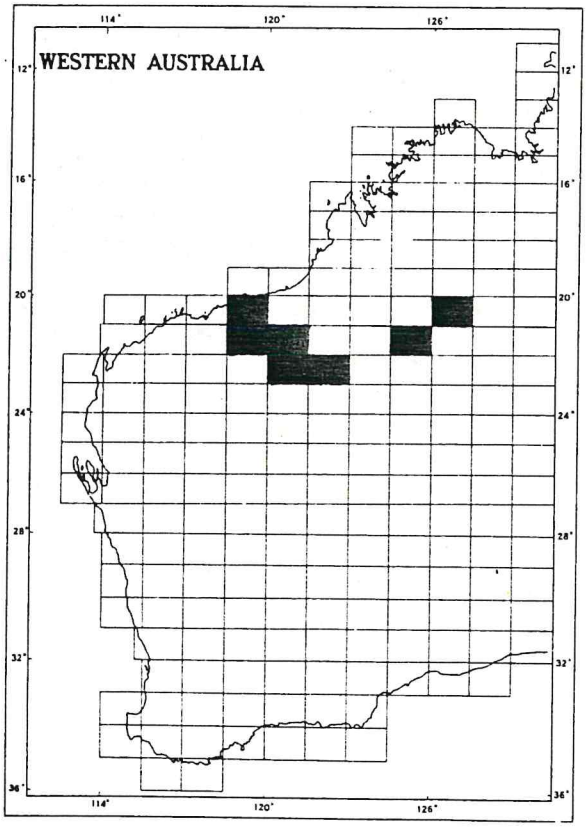
T intermedia



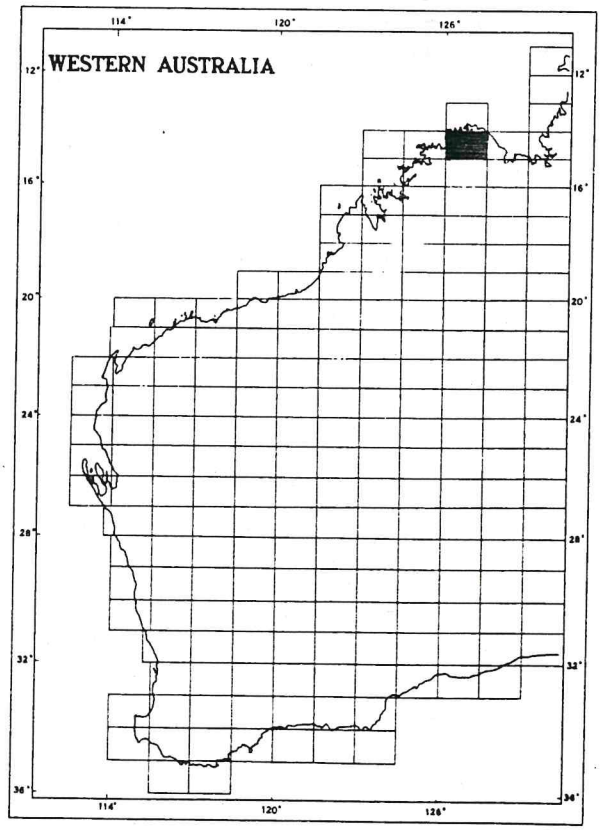
T irritans



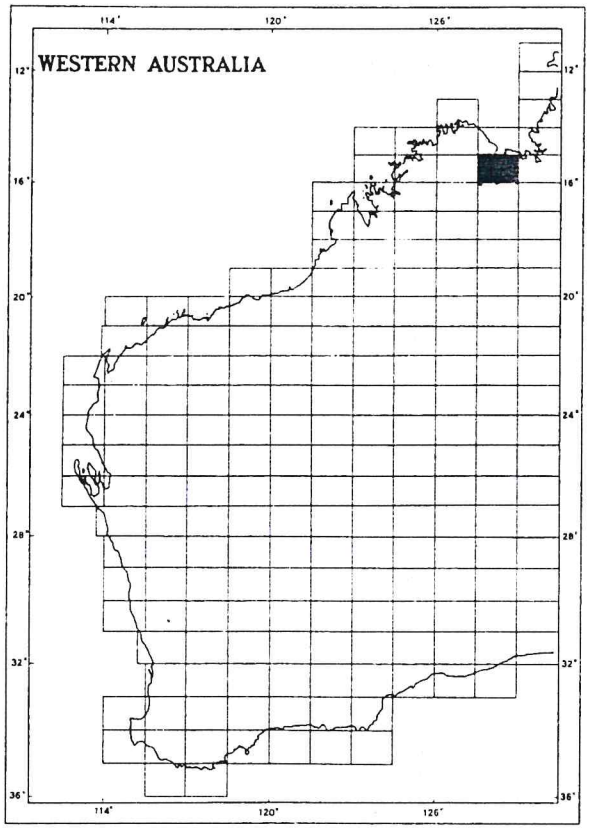
T lanigera



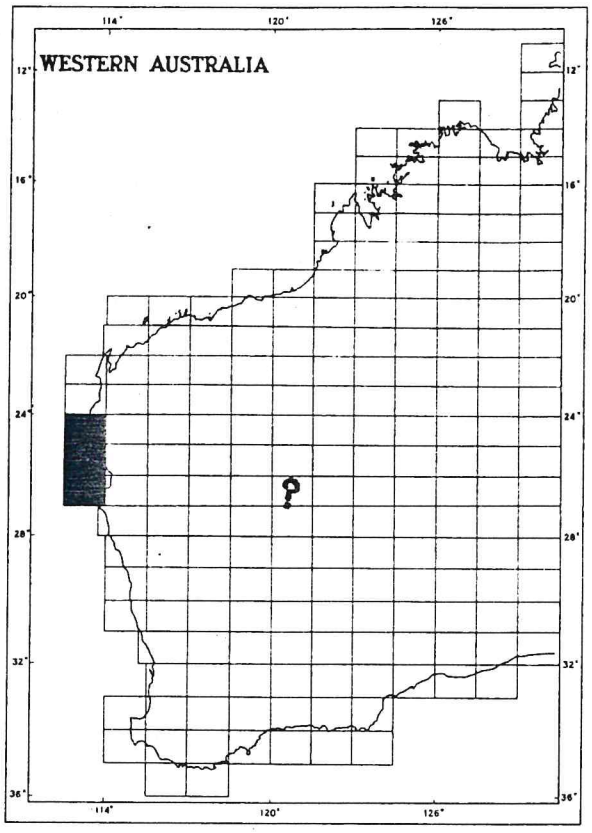
T longiceps



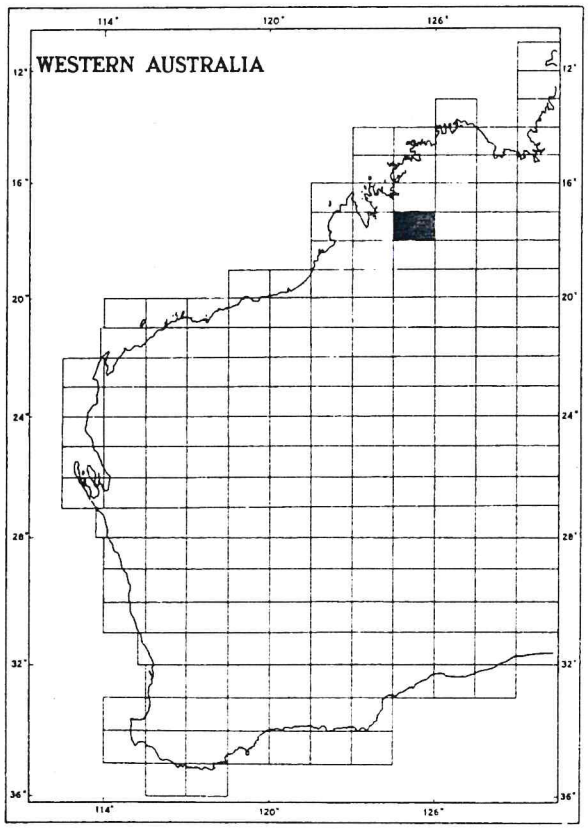
T microstachya



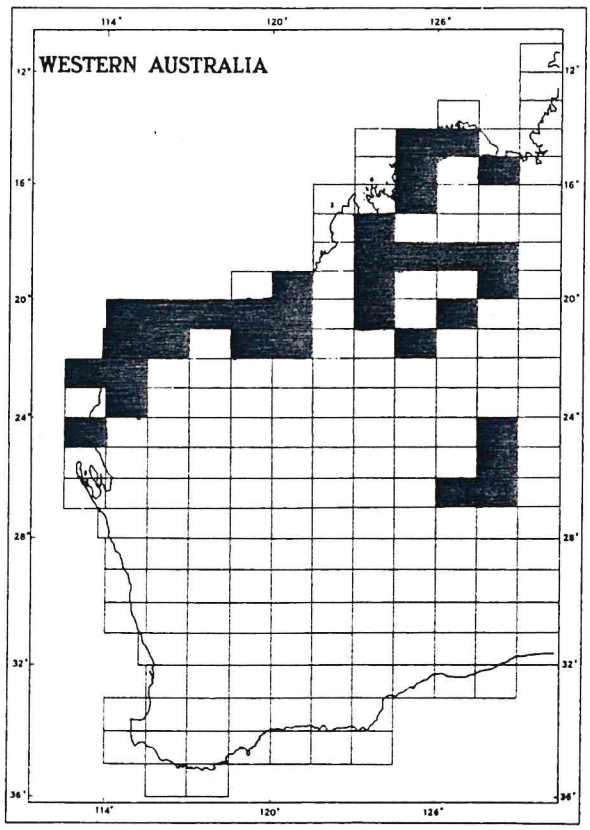
T plectrachnoides



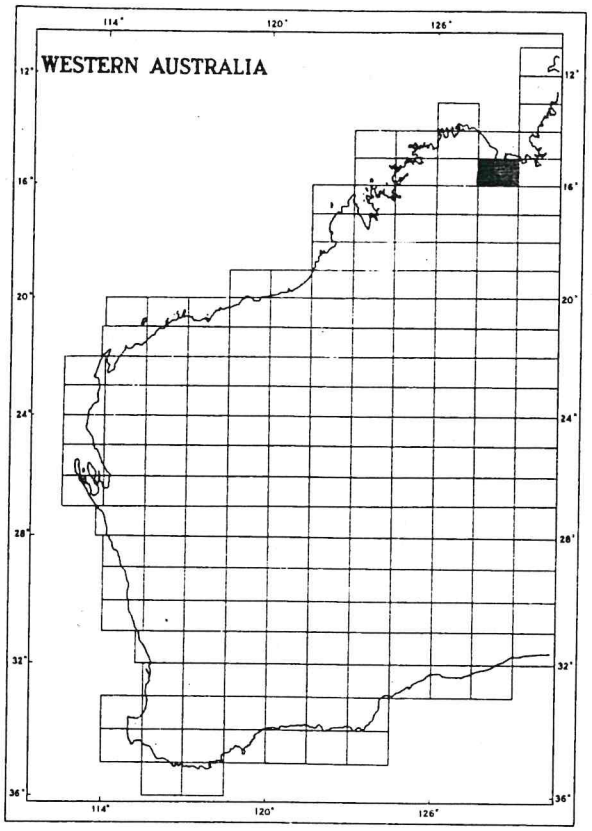
T plurinervata



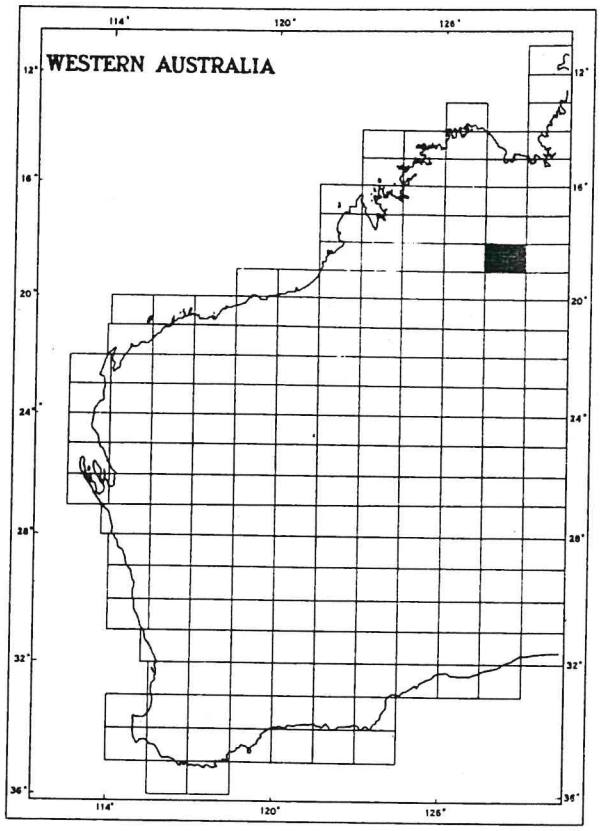
T procera



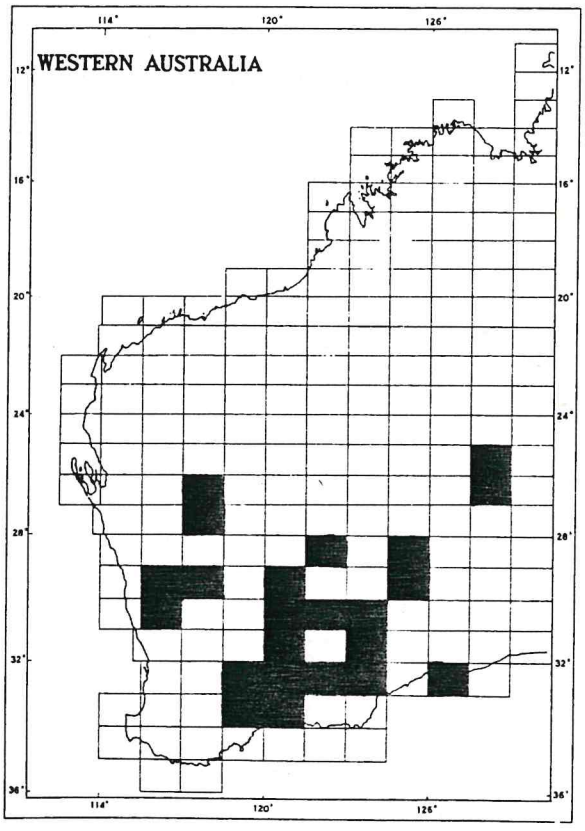
T pungens



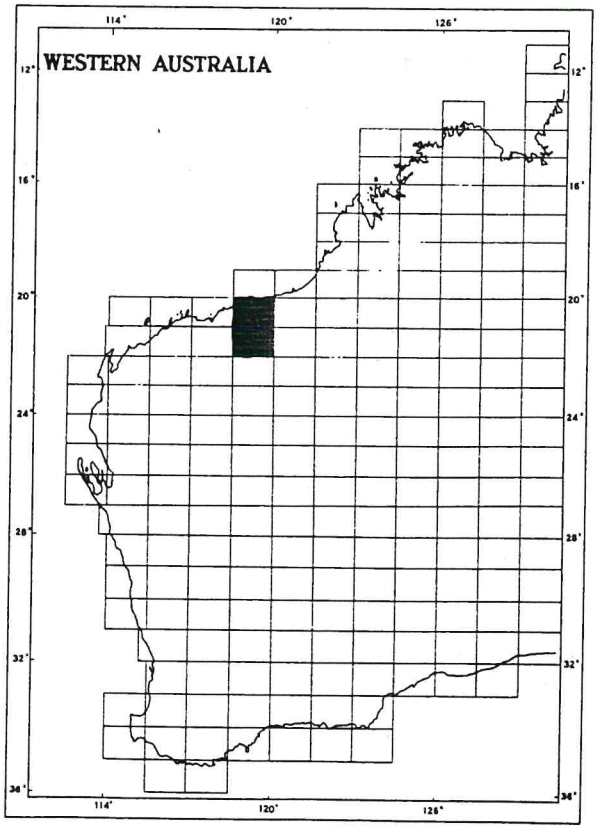
T racemigera



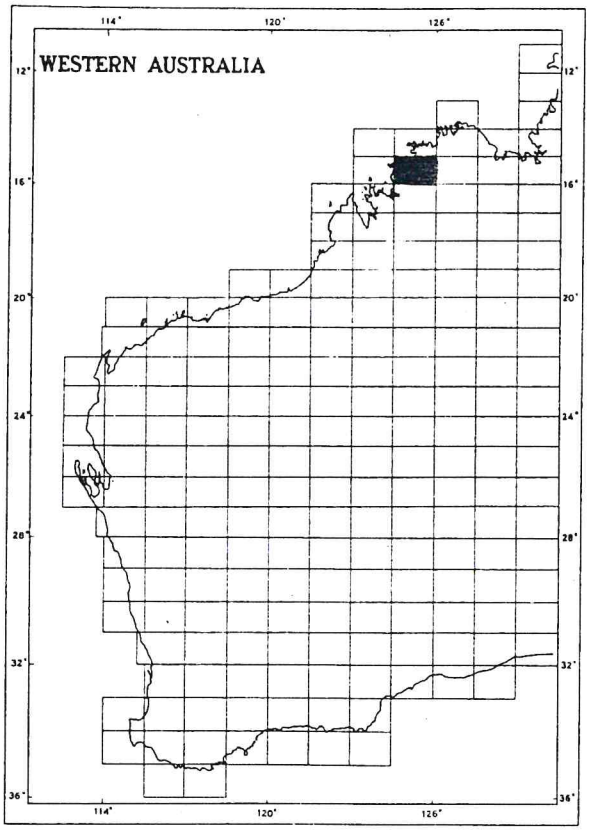
T roscida



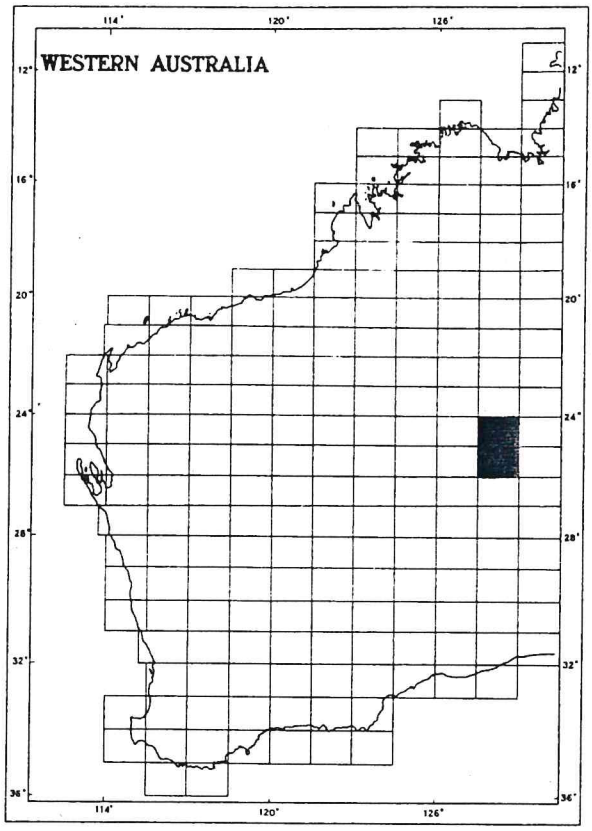
T scariosa



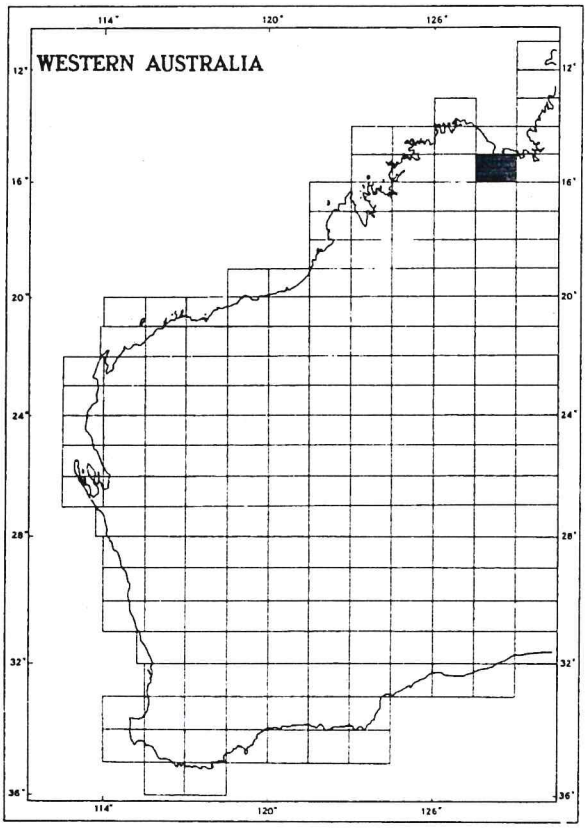
T secunda



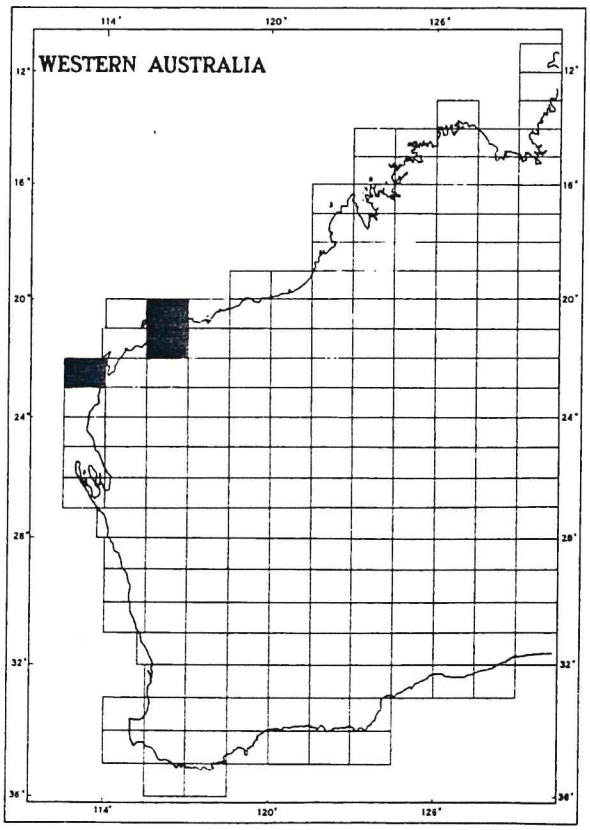
T stenostachya



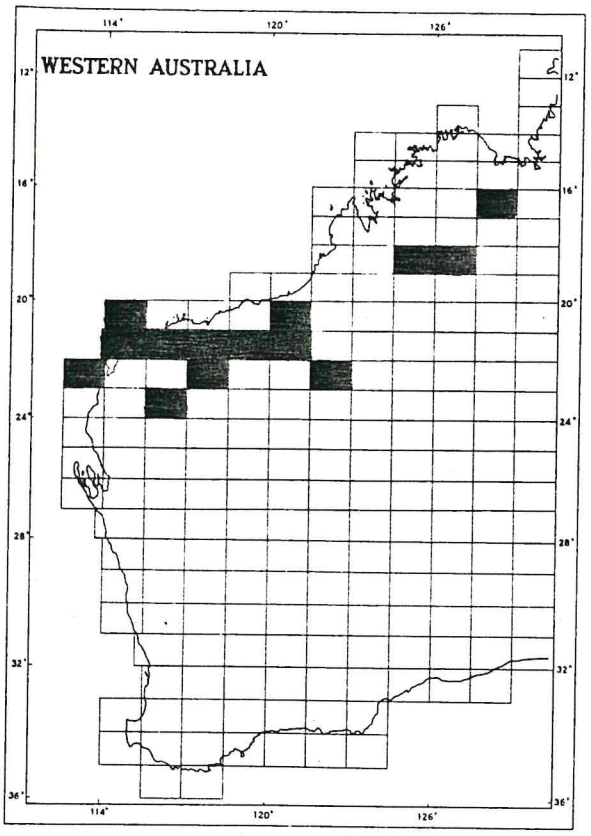
T spicata



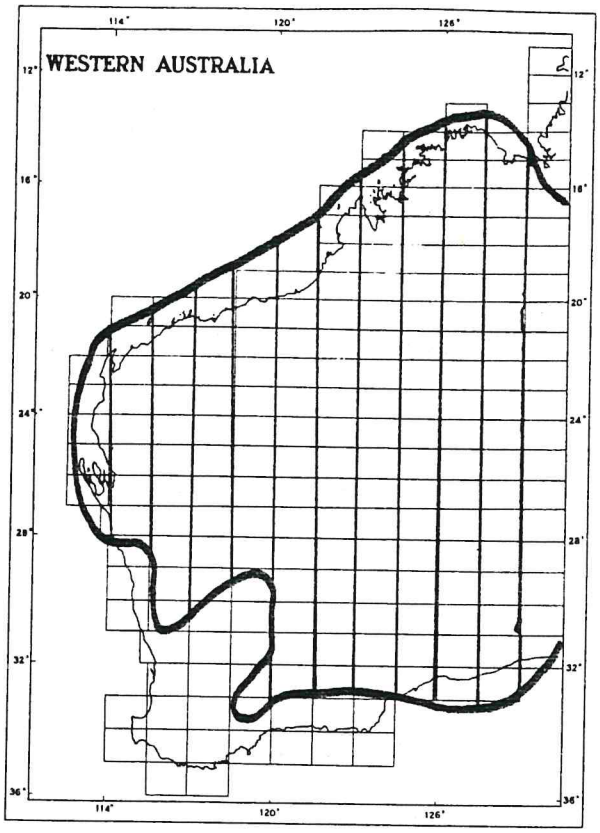
T triticoides



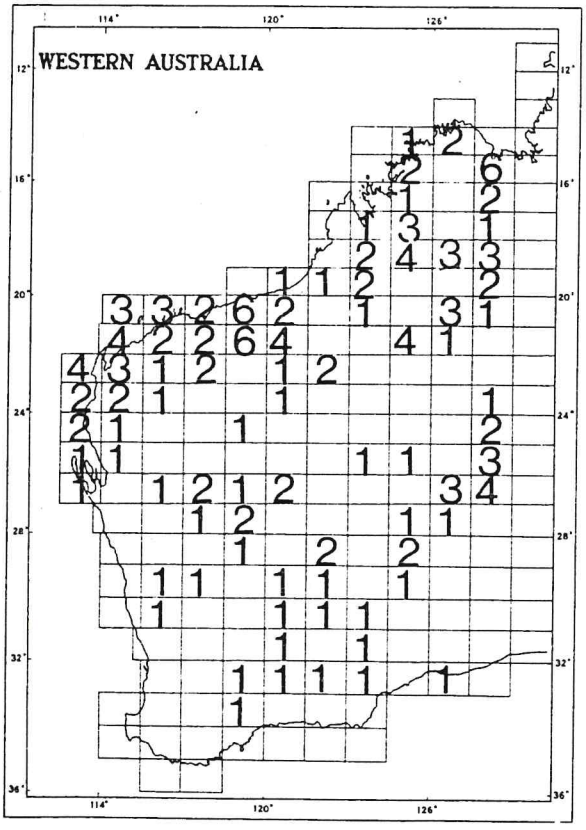
T wiseana var brevifolia

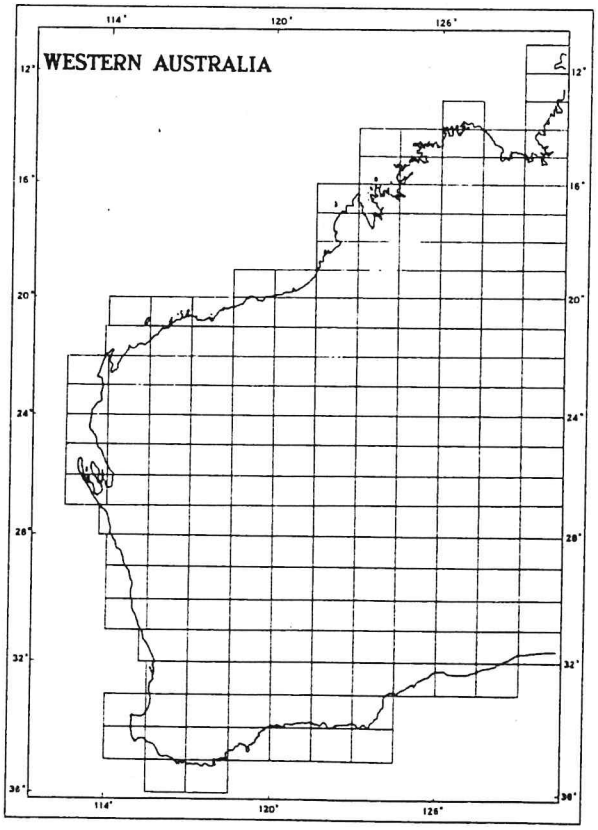


T wiseana var wiseana



I: Range of the genus Triodia in Western Australia





2: Species diversity in Triodia in Western Australia.