Bassia scoparia

Scientific Name

*Bassia scoparia* (L.) A.J. Scott

Two sub-ordinate taxa are currently thought to be present in Australia:
*Bassia scoparia* (L.) A.J. Scott subsp. *densiflora* (Turcz. ex B.D. Jacks.) Ciruja & Velayos
*Bassia scoparia* (L.) A.J. Scott 'Trichophylla'

Synonyms

For *Bassia scoparia*:
Chenopodium scoparia L.
Kochia scoparia (L.) Schrad.

For *Bassia scoparia* subsp. *densiflora*:
Kochia densiflora Turcz. ex B.D. Jacks.
Kochia scoparia (L.) Schrad. subsp. densiflora (Turcz. ex B.D. Jacks.) Ciruja & Velayos
Kochia scoparia (L.) Schrad. var. subvellosa Moq.

For *Bassia scoparia* 'Trichophylla':
*Bassia scoparia* (L.) A.J. Scott subsp. *trichophylla* (Schmeiss.) Schinz & Thell.
*Kochia scoparia* (L.) Schrad. forma *trichophylla* (hort. ex Voss) Schinz & Thell.
*Kochia scoparia* (L.) Schrad. var. *trichophylla* (Stapf) Bailey
*Kochia trichophylla* hort. ex Voss

Family

Chenopodiaceae

Common Names

belvedere, belvedere cypress, broom-cypress, burning bush, common kochia, fireball, firebush, fireweed, kochia, Mexican burningbush, Mexican firebush, Mexican fireweed, mock cypress, red belvedere, summer cypress, tumbleweed

Origin

This species is native to eastern Europe (i.e. Belarus, Ukraine and Russia) and Asia (i.e. Cyprus, Iran, Turkey, Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Nepal, Pakistan, China, Korea and Japan).

Cultivation

This species was deliberately introduced into Australia and used to rehabilitate salt-affected agricultural land in south-western Western Australia (i.e. it was grown for forage and as a soil stabiliser). However, it soon spread out of control and it is no longer cultivated for this purpose.

Another form known as summer cypress (*Bassia scoparia* 'Trichophylla') is sometimes also cultivated as a garden ornamental in the temperate regions of Australia, because of its attractive bright red autumn foliage.

Naturalised Distribution

Not yet widely naturalised in Australia, and mostly confined to the south-western regions of Western Australia. Also recorded in some parts of Sour Australia and Tasmania.

It has also become naturalised throughout most of Europe as well as in Argentina, Canada, USA, Africa and New Zealand.

Habitat

A potential weed of cropping areas, roadsides, tracks, pastures, fencelines, firebreaks, rangelands, railway lines, eroded banks, gardens, waste areas and disturbed sites in temperate and semi-arid regions.

Habit

An upright (i.e. erect), summer-growing, short-lived (i.e. annual) plant growing from 25-200 cm tall.

Distinguishing Features

- a short-lived, upright, small shrub or herbaceous plant growing 25-200 cm tall.
- its stems, leaves and flowers are initially green in colour, but they often turn yellow, orange, red or brown as they mature.
- its small leaves (up to 6 cm long and 2-8 mm wide) are very narrow or lance-shaped and somewhat hairy.
- its tiny flowers (about 3 mm across) are clustered near the tips of the branches and do not have any obvious petals.
- mature plants break off and are blown around by the wind like a 'tumbleweed'.

**Stems and Leaves**

The stems and leaves are initially green in colour, however they often turn yellow, orange, red or brown in colour as they mature. Stems and branches are somewhat hairy (i.e. pubescent).

The alternately arranged leaves are very narrow (i.e. linear) or lance-shaped (i.e. lanceolate). They are borne on short stalks (i.e. petioles) towards the base of the plant and are stalkless (i.e. sessile) towards the tips of the stems. These leaves (2-6 cm long and 2-8 mm wide) are somewhat hairy (particularly on their undersides and along their edges) and have entire margins with a pointed tip (i.e. acute apex).

**Flowers and Fruit**

The flowers are inconspicuous (about 3 mm across) and groups of 1-6 flowers are clustered in the leaf forks near the tips of the branches (i.e. they are borne axillary clusters). Large numbers of these tiny clusters of flowers are produced and they are arranged into larger spike-like clusters (i.e. sparse spiciform panicles). The flowers are initially green and generally change colour as they mature (i.e. like the leaves). These flowers do not have true petals, but instead have five persistent 'perianth segments', five stamens and a very short style topped with two stigmas. Flowering occurs mostly during late summer and early autumn (i.e. from February to April), though plants can flower at any time of the year if conditions are suitable.

The small fruit (i.e. achene) has five small structures (i.e. the old perianth segments) that enclose the seed, and this gives the fruit a star-shaped appearance. The seeds (1.5-2 mm long and 1-1.5 mm wide) are egg-shaped (i.e. ovoid) and either brown, dark reddish brown or black in colour.

**Reproduction and Dispersal**

This plant reproduces by seed. When the plant reaches maturity it usually breaks off at the base of the stem and rolls along in the wind like a 'tumbleweed', thereby dispersing its seed over large areas. Seeds may also be dispersed in contaminated agricultural produce (e.g. crop and pasture seeds). For example, on several occasions kochia (Bassia scoparia) has been accidentally introduced into Tasmania in contaminated carrot seed imported from the USA.

**Environmental Impact**

Kochia (Bassia scoparia) is on the Alert List for Environmental Weeds, a list of 28 invasive plants that have the potential to threaten biodiversity and cause other environmental damage in Australia. It was included on this list because of its rapid spread from deliberate plantings in Western Australia, and because of its history of invasiveness overseas (e.g. it is one of the fastest spreading of all invasive plants in the USA). It can also alter fire regimes in natural ecosystems and form dense infestations that reduce the abundance of native plants.

**Other Impacts**

Although palatable to livestock, kochia (Bassia scoparia) may be toxic in large quantities. It also has the potential to cause damage to agricultural production, by invading crops and replacing more useful pasture species in areas that are not salt-affected. Because it thrives in warm, low rainfall environments it is seen as a major threat to the cereal-growing regions of the southern mainland states of Australia.

**Legislation**

This species is declared under legislation in the following states and territories:

- **ACT:** C1 - a notifiable pest plant, (a pest plant whose presence must be notified), and C4 - a prohibited pest plant (a pest plant whose propagation and supply is prohibited). This species is declared as *Kochia scoparia* in the ACT.
- New South Wales: **Class 1** - a state prohibited weed. The presence of the weed on land must be notified to the local control authority and the weed must be fully and continuously suppressed and destroyed (throughout the entire state). This declaration does not include *Bassia scoparia subsp. trichophylla* (i.e. Bassia scoparia 'Trichophylla').
- Queensland: **Class 1** - introduction into the state is prohibited, and landowners must take reasonable steps to keep land free of this species (throughout the entire state). It is also illegal to sell a declared plant or its seed in this state.
- South Australia: **9** - considered to be an excluded weed (throughout the entire state). This species is declared as *Kochia scoparia* in the state and this declaration does not include *Kochia scoparia var. trichophylla* (i.e. Bassia scoparia 'Trichophylla').
- Tasmania: **D** - the importation or sale of this species is prohibited and measures to reduce its population in an area, eradicate it from an area, or restrict it to a particular area may be required.
- Western Australia: **P1** - trade, sale or movement into the state prevented, and **P2** - to be eradicated (throughout the entire state).

**Management**

For information on the management of this species see the following resources:

- the Western Australian Department of Agriculture and Food Information page on this species, which is available online at [http://www.agric.wa.gov.au](http://www.agric.wa.gov.au).
Similar Species

This species is highly variable, with four or five sub-species and one distinctive cultivated form currently recognised. One of these sub-species was introduced into Australia for land rehabilitation and has become weedy (i.e. *Bassia scoparia* subsp. *densiflora*), and the less weedy ornamental form is also present (i.e. *Bassia scoparia* 'Trichophylla'). These two plants can be distinguished by the following differences:

- **Kochia** (*Bassia scoparia* subsp. *densiflora*) has a spreading habit with a rounded appearance, and its lower branches are curved upward (i.e. arcuate). Its leaves are relatively broad (up to 8 mm wide) and its flowers are surrounded by a dense tuft of long hairs.

- **Summer cypress** (*Bassia scoparia* 'Trichophylla') has a more upright habit with a cypress-like appearance (i.e. it is usually ovoid in shape). Its leaves are relatively narrow (usually about 1 mm wide) and its flowers are not surrounded by a dense tuft of long hairs.

*Kochia* (*Bassia scoparia*) is very similar to *bassia* (*Bassia hyssopifolia*) and relatively similar to *roly poly* (*Salsola kali*). These species can be distinguished by the following differences:

- **Summer cypress** (*Bassia scoparia*) has flattened, narrow (i.e. lanceolate or linear) and somewhat hairy (i.e. pubescent) leaves (up to 6 cm long) and its fruit do not have any spines. The entire plant may turn yellow, orange, red, or brown in colour as it matures and old plants often detach near the base and form a 'tumbleweed'.

- **Bassia** (*Bassia hyssopifolia*) has flattened, relatively narrow (i.e. lanceolate or oblong) and somewhat hairy (i.e. pubescent) leaves (up to 6 cm long) and its fruit have five hooked spines.

- **Roly poly** (*Salsola kali*) has fleshy (i.e. succulent), very narrow (i.e. linear), lower leaves (up to 6 cm long and about 1 mm wide) and shorter, grooved, spine-tipped, upper leaves. All of its leaves are hairless (i.e. glabrous) and its fruit are spineless (however there are two spine-tipped bracts below each flower). The entire plant often detaches near its base and forms a 'tumbleweed' when mature.

*Kochia* (*Bassia scoparia*) also has a similar habit and appearance to numerous native burrs (*Sclerolaena* spp.), however these species can be easily distinguished by the spiny fruit along their stems.