



New Crop Report
Ischyrolepis subverticillata
Laura Schwarz



Taxonomy

- Scientific name: *Ischyrolepis subverticillata* Steud.
- Synonyms: None
- Common name: Broom restio, Besemriet, Dune Restio, Duineriet, Garden restio, Tuinriet
- Family: Restionaceae (Restio/ Cape Reed Family)



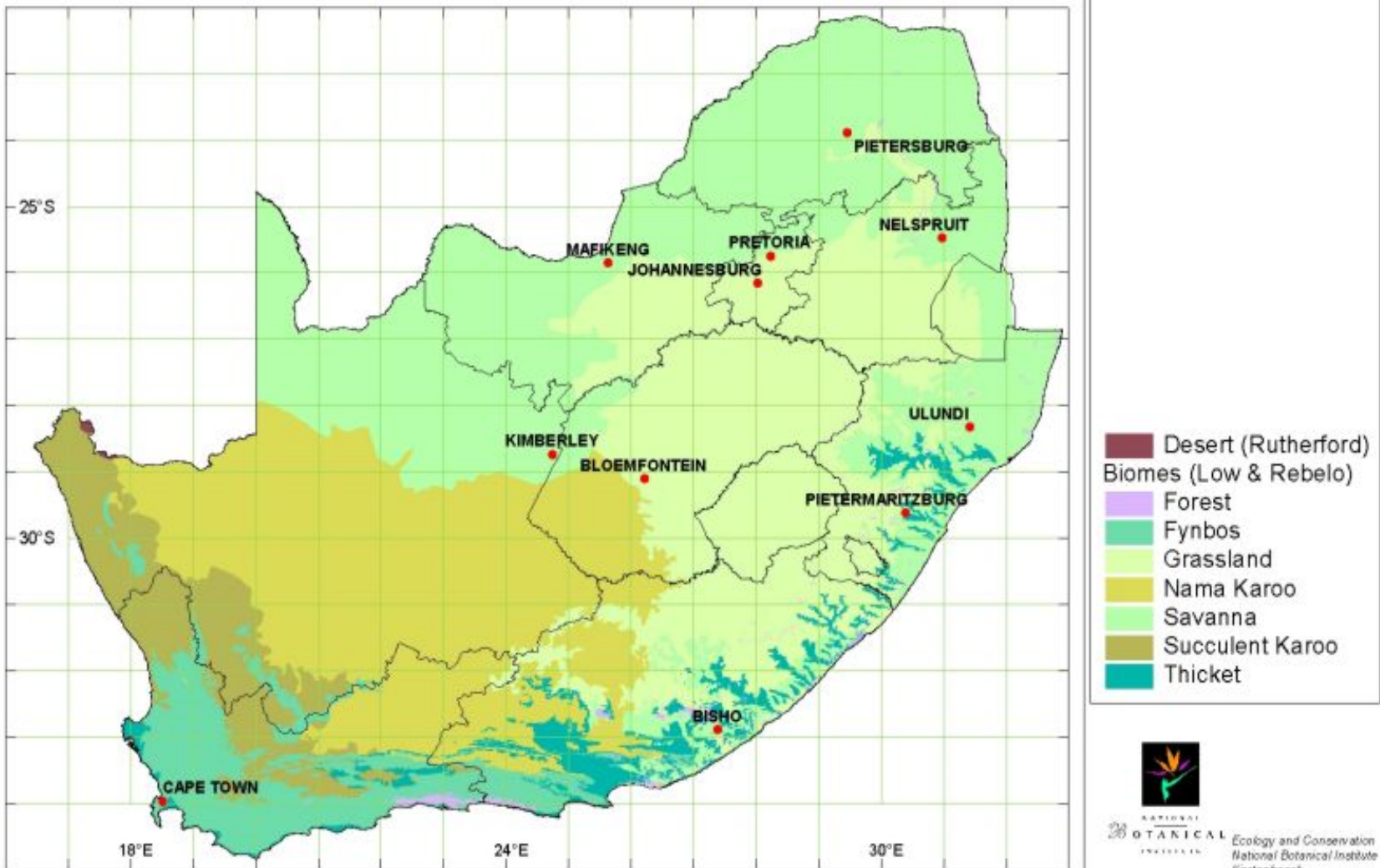
Geographic Distribution

- Continent: Africa
- Countries: South Africa
- Region: South Western Cape, from Caledon to Paarl.
 - Fynbos ecoregion (south-western tip of the country)
- Latitudinal range: Approximately 31° S to 35° S
- Altitude: Sea level to 2200 m
- General climate conditions: Mediterranean
 - cool, moist winters and hot, dry summers
 - Rainfall varies from 200 to over 2000 mm per year, occurring mainly in the winter months
 - Fire cycles occur every five to forty years. Broom restios are reliant upon the fires to stimulate seed germination and to reduce competition from other plants
- Tendency to naturalize or become invasive: Unknown

Biomes of South Africa

Biomes of vegetation units in Low & Rebelo (1996)

Desert identified by Rutherford (1997)



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Native Habitat

- Habitat: Sandy, low-nutrient soils, usually along streamlines or the margins of riverine scrub forest. Also found among sandstone bedrock in mountain valleys.
- Plant community: The fynbos ecoregion of the Cape Floristic Region, which is characterized by its high richness in plant species (8 700 species) and its high endemism (68% of plant species are confined to the Cape Floral Kingdom). Aside from Restionaceae, prominent plant families include Asteraceae, Fabaceae, Rubiaceae, Sterculiaceae, Thymelaeaceae, Rhamnaceae, Ericaceae, and Brunaiaceae.

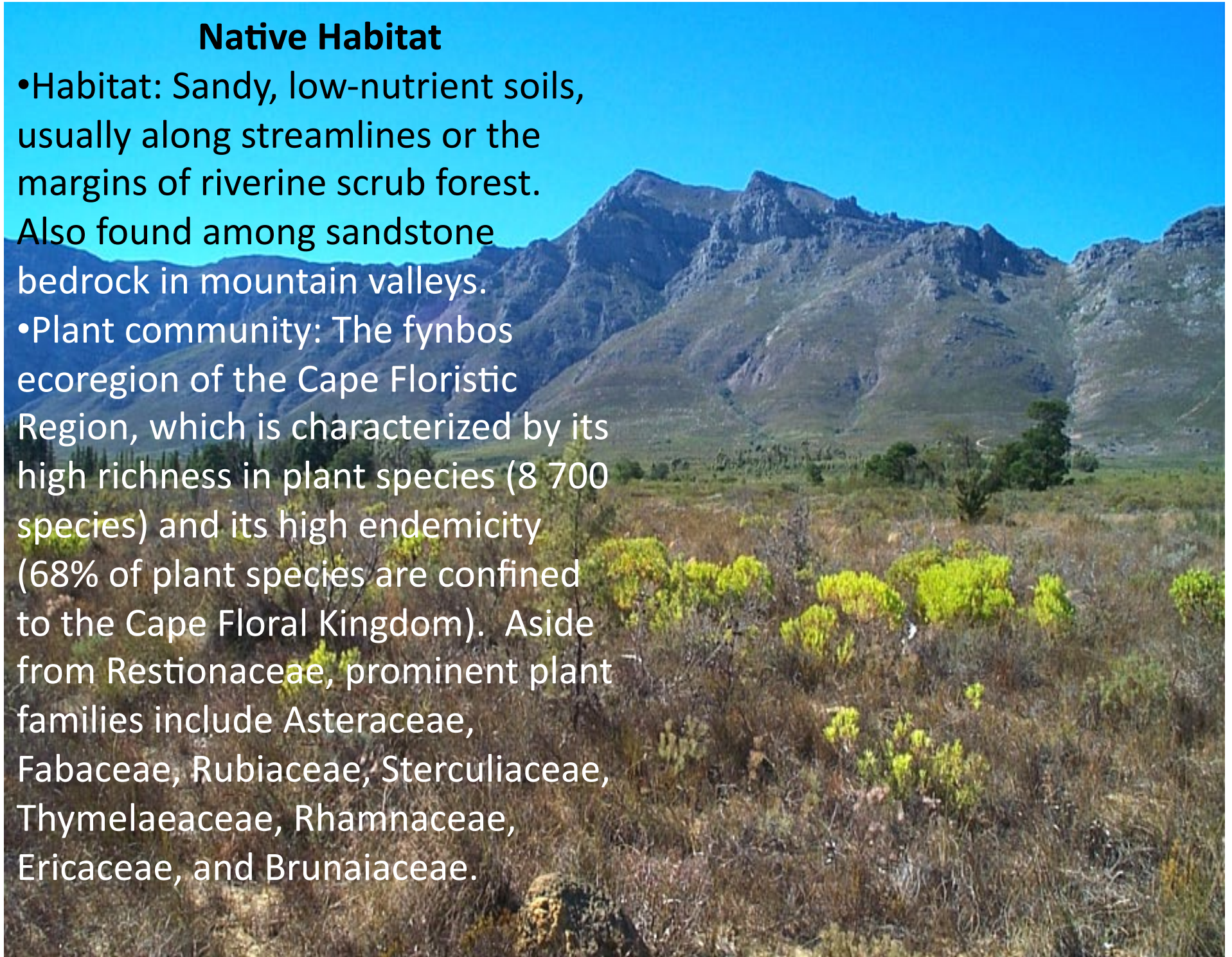


Table 3. The largest families and genera in the Cape Floral Kingdom. Included are all families with over 200 species (and their largest genus) and those families containing a genus with more than 100 species. (Source: Bond & Goldblatt 1984)

Family	Total species	Endemic species	Largest genus	Species
Daisy: Asteraceae	986	608	<i>Senecio</i>	113
Heath: Ericaceae	722	700	<i>Erica</i>	550
Vygie: Mesembryanthemaceae	660	507	<i>Ruschia</i>	138
Pea: Fabaceae	644	525	<i>Aspalathus</i>	245
Iris: Iridaceae	612	485	<i>Gladiolus</i>	88
Protea: Proteaceae	320	306	<i>Leucadendron</i>	80
Cape Reed: Restionaceae	310	290	<i>Restio</i>	85
Figwort: Scrophulariaceae	310	160	<i>Selago</i>	59
Buchu: Rutaceae	259	242	<i>Agathosma</i>	130
Bellflower: Campanulaceae	222	157	<i>Lobelia</i>	42
Orchid: Orchidaceae	206	124	<i>Disa</i>	52
Sedges: Cyperaceae	203	124	<i>Ficinia</i>	57
Milkwort: Polygalaceae	139	117	<i>Muraletia</i>	106
Jujube: Rhamnaceae	136	122	<i>Phyllica</i>	133
Storkbill: Geraniaceae	133	67	<i>Pelargonium</i>	125
Sorrel: Oxalidaceae	129	90	<i>Oxalis</i>	129
Rose: Rosaceae	114	97	<i>Cliffortia</i>	106



Taxonomic Description

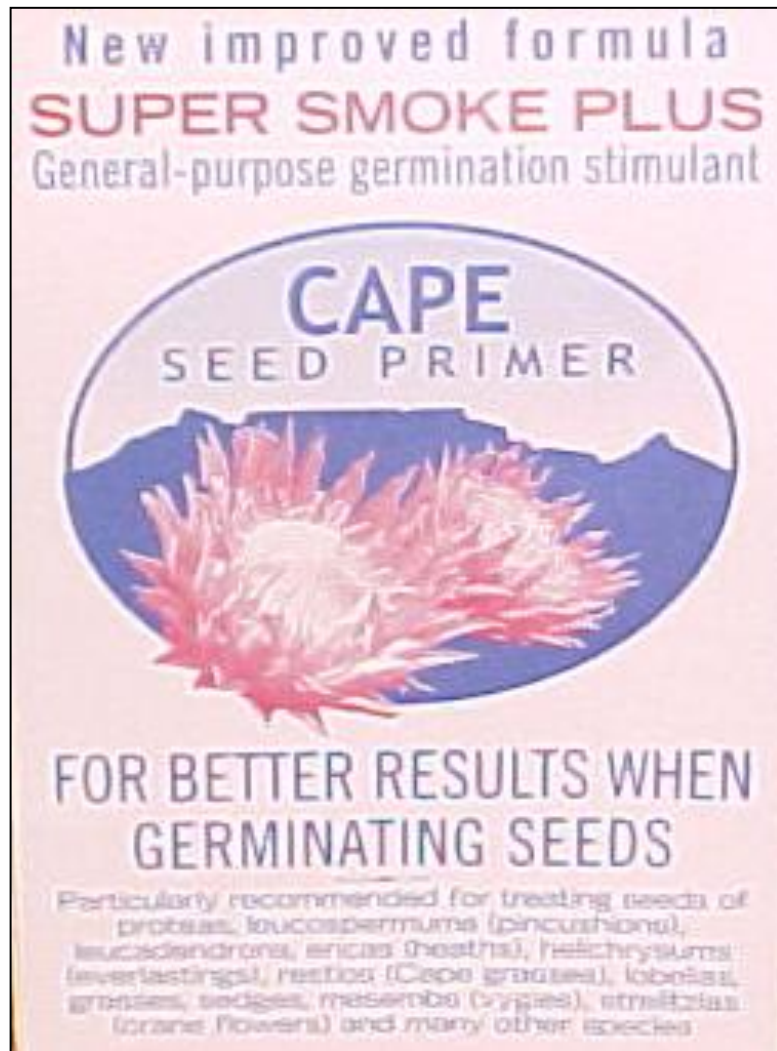
- Overall Plant Habit/Description: Herbaceous perennial. Dioecious. 6' tall by 4' wide at maturity. (Over the course of one growing season, height will be 3'.) Densely clumping. Its growth form is very distinctive, with tall arching cane-like stems, which have soft green whorls of modified branches at each node. Silvery seed capsules form at the end of female inflorescences.
- Root System Type: Rhizomatous
- Presence/Type of Underground Storage Organs: Rhizomes
- Leaves: Alternate, mostly scattered along stem, usually reduced to an open leaf sheath with a rudimentary blade
- Flower: Dioecious. Female flowers are white, while male flowers are greenish-yellow and rather negligible. Flowers are wind-pollinated.
- Season of bloom: In its native habitat, the broom reed flowers in March or April. Seeds ripen by November.

- Use(s) by indigenous people: Historically, the stems have been used for brooms and roof thatching. More recently, a renewed interest in traditional architecture has led to a flourishing thatching industry in the African Cape.

- Other uses: Seed heads and stems are used in the international cut-flower industry.

- Additional Notes:
Broom restios hold great potential for ornamental use.





Varieties/Cultivars on the Market

- None currently available

Propagation Method(s)

- Vegetative vs. Seed:
 - Almost always seed propagated
 - Do not respond well to root-disturbances
 - Limited research on vegetative propagation
- Seed dormancy: Seeds have a chemical, smoke-dependent dormancy. Seeds need to be exposed to the chemicals in plant-derived smoke in order to overcome this dormancy.
 - Commercial propagation: instant smoke papers can be used to imitate fynbos smoke. The seeds need to be soaked for 24 hours in a solution of instant smoke paper and water.
- Germination temperatures/duration: 30° F difference between day and night temperature (after sowing, until germination occurs).



Market Niche

- Foliage could be grown for autumn holidays, specifically Halloween and Thanksgiving. The plants themselves could be produced for the usual Mother's Day sale date.
- Could be forced year-round with careful temperature and moisture regulation
- Competing crops: Tall perennial and annual ornamental grasses, e.g. *Miscanthus sp.*, *Calamagrostis sp.*, *Schizachyrium sp.*, etc.
- Will this ever be a major crop? Maybe. Because of the difficulties of mass-producing broom reed grass, it will not become a major crop unless germination is improved. They could be quite popular as annuals in colder climates, especially due to their vast height. In climates where broom reed grass will be cold-hardy, they have great potential as ornamentals.
- Initial crop limitations/problems: Germination can take up to six weeks (or possibly longer). Even with instant smoke, germination rates are low. Seedlings need constant moisture, which makes the crop high maintenance in its youth. The fact that broom reed grass are dioecious might also cause a problem, as female plants are more ornamentally desirable.
- Product is NOT already identifiable to the growers & consumers

Anticipated Cultural Requirements

- Winter Hardiness (USDA Zones): Zone (7)8-9 – Marginally hardy to 20 degrees.
- Heat/Drought Tolerance: Young seedlings need constant moisture for the first six weeks to two months, as they usually germinate during the rainy season in their native habitat; however, more mature broom restios will eventually tolerant heat and limited drought.
- Temperature (day/night): Unknown
- Light quantity, quality, duration; photoperiod response: Sun to partial shade. No available information about photoperiod.
- Nutrition: Organic fertilizers (Seagro and Kelpak) and ammonium sulfate recommended for mature plants.
- Soil: Sandy/well-drained, acidic, low fertility, low phosphorus levels
- Plant growth regulators: Unknown
- Disease Resistance/Susceptibility: Unknown
- Fungicides, Insecticides: Unknown



Needs Assessment for Genetic Improvement



- Seed germination rates -- even with instant smoke applications, only around 65 percent of seeds germinate
- Vegetative propagation, especially cuttings
- Better drought tolerance in seedlings
- A more compact form
- In northern climates, genetic improvement could be made on length of time to seed maturity, as the attractive seed heads would not mature before cold temperatures killed the plants