

Celebrating our Broom Crowberry

by David Patriquin

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Male (towards back) and female plants (foreground) in flower, late April. [Photo by author]

Broom crowberry, *Corema conradii*, is our earliest flowering native species after skunk cabbage. It is dioecious (separate male and female plants) with terminal flowers appearing in April, (sometimes in March) through to mid-May, depending on the site and year. Male plants (and colonies developed from a single male plant) are much more common than female plants. Raymond Fielding in *Shrubs of Nova Scotia* (1988) aptly describes male colonies as presenting "a haze of wine-coloured anthers".

one of three crowberries

Corema conradii, the broom crowberry, is one of three "crowberries" found in Nova Scotia. The others are the black crowberry, *Empetrum nigrum*, and the pink or (or red or purple) crowberry, *Empetrum eamesii*. They are low evergreen shrubs with small, needle-like ericoid leaves and reduced, wind-pollinated flowers. In Nova Scotia, the *Empetrum* species are largely restricted to coastal barrens. *E. nigrum*, black crowberry, can occur inland but only in more damp and exposed locations.

Where the three species co-occur, in some coastal barren habitats, all form fairly low, creeping mats and may require close inspection to tell them apart when they are not flowering or in fruit. (See www.nswildflora.ca/species/Ericaceae/CorConradii/ for details).

In this case, the common name "crowberry" also reflects the modern molecular phylogeny, *Corema*, *Empetrum* and *Ceratiola* constituting the 3 genera of the Tribe Empetreae (subfamily Ericoideae, Family Ericaceae).

Corema conradii habitats

The prime habitats for *C. conradii* are

- droughty, acidic, rocky outcrops or barrens usually set back by a few hundred meters from the coast
- the inland sand or pine barrens in the Annapolis Valley and to a more limited extent in SW Nova Scotia
- absent from Guysborough and Antigonish Counties and Cape Breton.

On rocky barrens, broom crowberry commonly occurs as discrete patches up to 5 m diameter which have developed from a single or a few initial seedlings over several decades. Reindeer lichens often fill in spaces in less dense colonies or where older ramets have died out. Large, dense, meadow-like stands can develop on sand barrens, sometimes mixed with bearberry (*Arctostaphylos uva-ursi*) or sweetfern (*Comptonia peregrina*).

On inland sandy habitats where only *C. conradii* is likely to be found, this species assumes its characteristic broom-like stature and can look very much like a garden heath (*Erica* spp.), growing 30- 50 cm in height. I have wondered if it could be domesticated for use in gardens. A splendid example of its potential as such can be seen near Kingston in the Annapolis Valley where a gardener has integrated large patches of naturally occurring broom crowberry into a residential landscape and even mows some of it. My limited experience suggests broom crowberry takes quite readily to a garden situation if given appropriate soil conditions - very well drained, acidic, sandy or coarse soil in sunny location.

a fire-dependent species

Broom crowberry is considered to be a fire-dependent species. Its vegetation is completely destroyed by most fires, but it regenerates from seeds stored underground. An interesting twist: broom crowberry co-opts ants to assist in seed dispersal, equipping each of its fruits with a fat-rich packet called an elaiosome. Ants carry the fruits into their underground nests where they feed the fruity tissue to their larvae. The seeds are discarded but remain in storage until stimulated to germinate by a fire. In some near-coastal barrens, stresses other than fire may be sufficient to limit competition and allow regeneration without fire. However, recurrent fire appears to be required for most populations to thrive.

“nationally unique and globally rare”

My favourite setting for broom crowberry is in association with jack pine, also fire-dependent and a boreal species. The two are found together only on scattered rocky barrens along the Atlantic coast of Nova Scotia, and in a few locales in Maine. Thus the association is considered nationally unique and globally rare. Traversing these barrens, one has a sense of walking through a garden. The broom crowberry forms as tidy a heath as any of our garden heaths of exotic origins. Glacial boulders provide accent. *Rhodora* in wetter spots provides spring blooms and *Sheep laurel* and the rare golden heather and mountain sandwort offer their blooms in summer. Blueberries and huckleberries can be bountiful in August, especially a few years after fires. Finally, huckleberry produces sweeps of fire-engine red vegetation in a final blast of fall colour before winter sets in.

In Nova Scotia, we tend to take broom crowberry for granted. We shouldn't. This Atlantic Coastal Plain species has a NatureServe¹ S4 status (apparently secure) in Nova Scotia, but is precarious outside of Nova Scotia and is losing ground within Nova Scotia. It is imperiled (S2) in the



Broom crowberry and sweet fern on sand barrens in SW Nova Scotia. [Photo by author]



Developing fruits and elaiosomes in July. [Photo by author]

Magdalene Islands of Quebec and in P.E.I.; it has S3/S4 status in Maine and S1 (critically imperiled) to S3 (vulnerable) status for other U.S. states where it occurs (Massachusetts, New Jersey, New York). It was either never present or is extirpated in New Brunswick.

Threats to broom crowberry habitats

The threats to broom crowberry habitats as cited by the Center for Plant Conservation in the U.S. apply to Nova Scotia. These include

- o shoreline erosion
- o deer browsing
- o trampling
- o fire suppression
- o development
- o invasion by Scots Pine



One-year old Jack pine seedling and recently-germinated broom crowberry in late August 2010 in an area burnt in the spring of 2009. [Photo by author]

The Annapolis heathlands, dominated by broom crowberry, have been reduced to less than 3% of their pre-colonial area of approximately 200 km². Our rocky crowberry barrens are being whittled away by development, especially in the Halifax area. Also, barrens close to settled areas tend to be favourite sites for mountain biking and atvs, both of which, if not focused on specific trails, are very destructive of barrens habitats.

Broom crowberry is a species Nova Scotians should celebrate and brag about – and protect from further losses!

1. NatureServe is a non-profit conservation organization whose mission is to provide the scientific basis for effective conservation action. NatureServe and its network of natural heritage programs are the leading source for information about rare and endangered species and threatened ecosystems <http://explorer.natureserve.org/ranking.htm> ☞



Jack Pine/Broom crowberry barrens in Purcell's Cove Backlands. [Photo by author]