

The forest fires that nature intended

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Rare pine barren ecosystems that spring from natural burns should be protected



Cones opening after a fire. DAVID PATRIQUIN

In Nova Scotia, we think of forest fires as man-made, the result of carelessness or a youthful prank gone wrong. Although this is part of the story, the other part is that the process of naturally occurring fires in our region has given the province a unique forest landscape that needs protecting.

European settlers torched our province, but in pre-European times, many centuries intervened between fires in the mixed Acadian forest which predominates in our province. Today, there are small traces of an ecosystem that has adapted to much shorter intervals between fires. Along the Atlantic shore, you might stumble into jack pine or broom crowberry barrens and wonder what happened to the Acadian forest.

This infrequent meeting of the boreal jack pine and the southern broom crowberry barrens occurs primarily in habitats naturally prone to repeated fires. It is found in a handful of sites in Nova Scotia, at even fewer sites in coastal Maine and nowhere else.

These patches occur on high, windswept outcrops of hard rock within a few kilometres of the Atlantic coast, from the Aspotogan Peninsula, east to Canso. Jack pine forms open woodlands, with the heath-like broom crowberry and reindeer lichen carpeting the treeless areas, often with a fringe of huckleberry between the broom crowberry and the jack pines.

These are droughty, nutrient-poor habitats, the jack pines often gnarly, suggesting Tom Thomson's painting *The Jack Pine*, so embedded in the Canadian psyche.

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. Huckleberry produces sweeps of fire-engine red vegetation in a final blast of fall colour before winter sets in.

All species in these barrens are adapted to fire, but none more so than jack pine and broom crowberry, which are quintessential fire-dependent species.

The key adaptation of jack pine is its serotinous cones, which are sealed shut by resins that melt at high temperatures. The closed cones are retained on trees over many years, but within days of a fire that kills the tree, the cones open and release seeds onto the burnt ground. Eventually, seedlings begin to appear, spurred on by the removal of competitors and release of nutrients by the fire.

Broom crowberry vegetation is completely destroyed by most fires, but regenerates from seeds stored by ants underground.

Huckleberry, blueberry, sheep laurel and rhodora are also killed by fire but their deeper rhizomes survive and start producing new vegetation within a few months of spring fires. In the next few years, they flower, producing brilliant blooms against blackened earth and dead trees. By five to 10 years, jack pines begin producing cones and broom crowberry, fruits.

Fires also remove the store of tinder. In between fires, a new tinderbox is built up from the dead lower branches of jack pine and accumulations of resinous needles and leaves and fine twigs from the woody shrubs. Dried lichens catch fire readily, acting as matchsticks.

A variety of open canopy and fire-structured species occur across North America.

Historically, these ecosystems have been reduced by settlement, agriculture, and in the last 50 to 100 years, through conversion to other vegetation types as a result of fire suppression.

Today, conservation of much of the remaining intact areas is a priority of many agencies and communities. It is now recognized that fire suppression often leads to more intense and dangerous fires than would occur under natural fire regimes.

Our own, nationally unique and globally rare jack pine-broom crowberry barrens support rare species and should be a conservation priority. Broom crowberry is especially significant, not because it is endangered in Nova Scotia, but because it continues to thrive.

In all other jurisdictions where it occurs (Iles-de-la-Madeleine, Prince Edward Island, Maine, Massachusetts, New Jersey, New York) conservation is a concern, and the same processes that have reduced broom crowberry abundance elsewhere are happening locally.

The sandy pine barrens of the Annapolis Valley, in which broom crowberry is a signature component, have been reduced to less than three per cent of their original cover through settlement and agriculture.

Our rocky jack pine-broom crowberry barrens are much more limited and are now being whittled away by development. Recent and proposed developments in the Purcells Cove backlands, on Halifax's south mainland, which harbour the most healthy and locally abundant jack pine-broom crowberry barrens in Nova Scotia, are a prime example.

These barrens are the types of landscapes with big vistas in which we evolved. They are good for our psyche when our urban world is confusing; they are super for walkers and runners and mountain bikers, and all we have to do is manage them naturally.

The first step is to recognize that the jack pine-broom crowberry barrens are rare ecosystems and that Nova Scotia has the prime responsibility for their conservation.

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