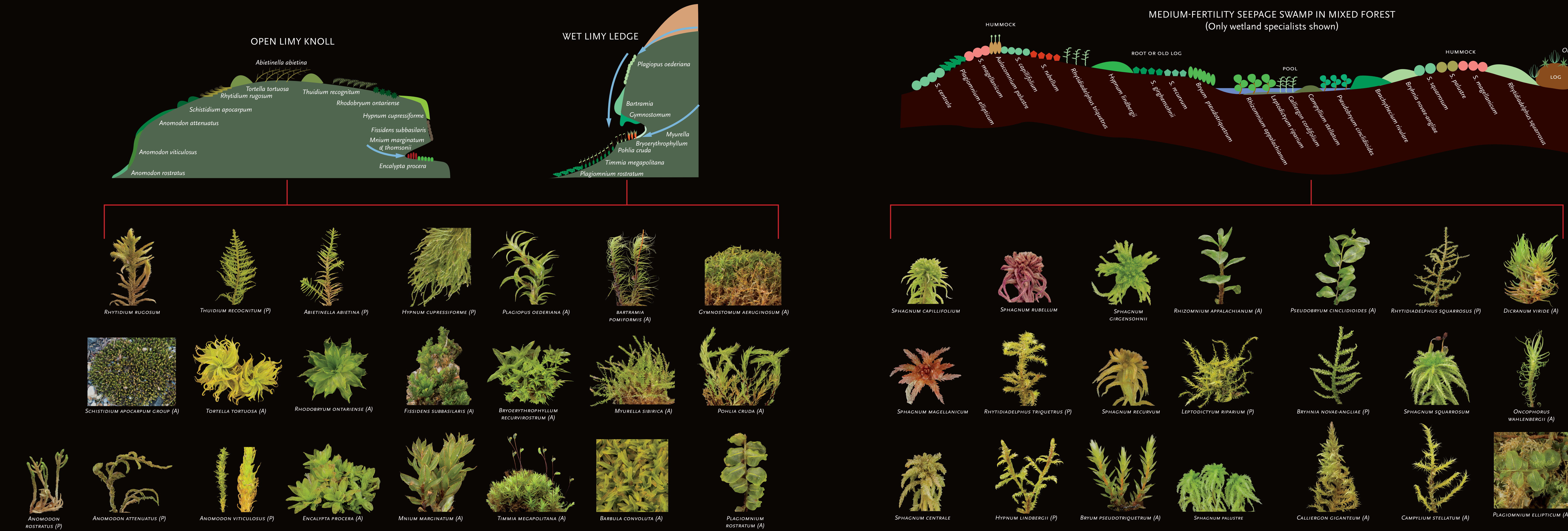
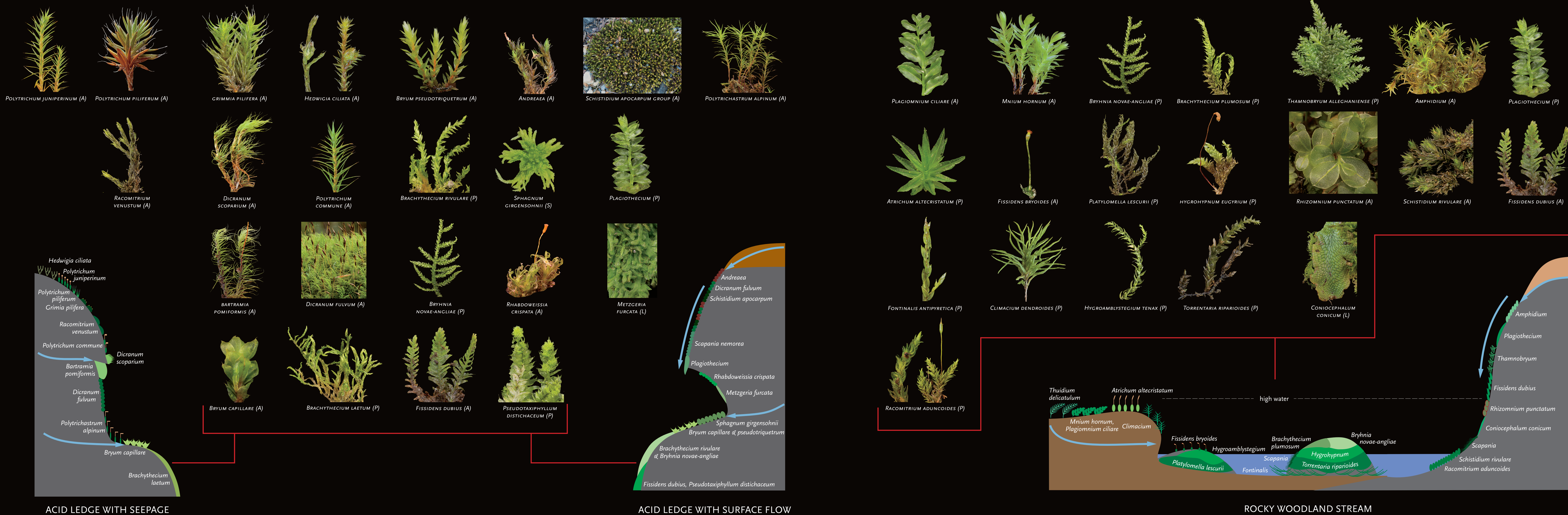


MOSS MAPS FOR THE NORTHERN FOREST: LEDGES, STREAM, MIXED SWAMP ♦ JERRY JENKINS ♦ 2018



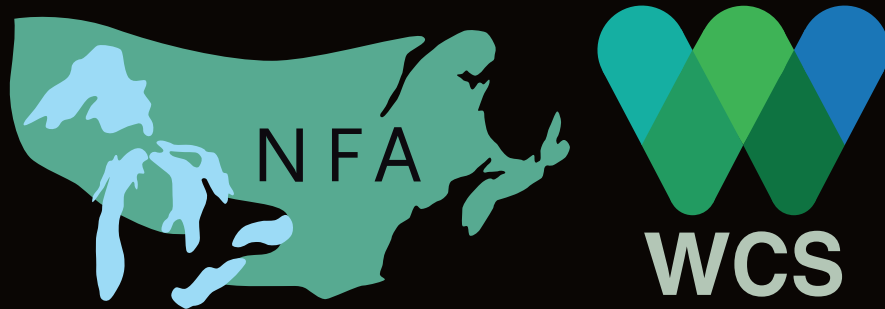
LEFT, acid and limy outcrops. The ledge flora is large; we show the common ledge specialists. Most of the common forest floor species also occur on the bases of ledges, and an equal number of rarer species occur, especially on the limy ledges.

The ecology of ledges depends on the chemistry of the rock, the water supply, and the chemistry of the water, which is often different from that of the rock. Ledges are commonly dry at crests and wetter at their bases. They also tend to have steeper and limier flows from their crevices than over their surfaces.

All this affects the flora. The acid and limy ledges have very little overlap. Dry ledges have mostly cushion, thin-mat, and wire-frame species; moist ledges can be very lush, with cushions, thick mats, and mosses. Permanently wet cliffs may have a lot of winter ice damage, and have disturbance tolerant species that die back in the winter.

RIGHT ABOVE, a rocky woodland stream, with a low sandy bank maintained by deposition and scouring, and a wet ledge with surface flow from a bank above. The banks and ledges get water from spray, seepage, and condensation; in addition, they are often in concave topography and well shaded. As a result, they are often wet much of the growing season, and have a hydric flora, large, often frondose mosses and liverworts like *Mnium*, *Coniocephalum*, *Thamnobryum*, *Thuidium*, and *Rhizomnium* that like continuous humidity. Three, largely separate bryofloras are involved. Tall, flood-tolerant species like *Mnium hornum* and *Climacium dendroideum* on the alluvial banks; wet-cliff species like *Plagiothecium* and *Amphidium* on the ledges in the spray zone; and a specialized group of submergence-tolerant species on the rocks in the spray zone.

RIGHT BELOW, a wooded swamp, on peat, but with a mixed hardwood-conifer forest and some microtopographic seepage, making more fertile than a spruce-fir swamp. The structure, as in many swamps, is hummocks and pools; moss hummocks built around tree bases and shrubs; mossy roots interconnecting the hummocks, and shallow seasonal pools between the roots. The hummocks are often nutrient poor and sphagnum dominated. The pools are richer often have large, non-evergreen mosses, particularly *Rhizomnium* and *Calliergon*. Many common forest-floor species (*Hypnum*, *Thuidium*, *Pleurozium*, ...), not shown on our map, also occur. If the seepage is mineral poor, the diversity will be lower, 20 species or less. But if it is mineral rich, the diversity may be much higher, with 50 species or more.



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