SPRUCE IDENTIFICATION BY TWIG CHARACTERISTICS¹

By A. G. GORDON

Present methods of field identification of the three species of spruce native to eastern Canada are far from satisfactory. Cone differences, while often valuable, are quite variable, and cones may not be readily available. Needle characteristics are extremely erratic due to differences in site and genetics. Twig colour or pubescence and bud structure seem to be subject to similar disadvantages. There is a definite need for a simple, reliable method of identification which can be used in the field.

The method of identification proposed in this paper is based entirely upon the nature of the twig surfaces. This surface is composed of a series of decurrent ridges which run longitudinally along the twig. The decurrent ridge terminates at its upper end in a peg like projection, which bears a needle, and is called a pulvinus (see Fig 1, 2, 3).

In field identification the twig should be bent to make examination of the cross section of the decurrent ridges possible. Red spruce and white spruce have ridges which are laterally rounded (see Fig. 2 and 1). However the twigs of white spruce are covered by relatively larger ridges which are quite glabrous compared to those of red spruce. Black spruce has decurrent ridges which are flattened (see Fig. 3) and which give the twig an appearance of being an almost smooth cylinder from which project the pulvini and needles.

The current year's twig growth does not show these characteristics as well as the growth either one plus or two plus years old. The accompanying photographs show the proper section of the twigs to use for identification.

Other characteristics, particularly size and colour and needle colour, will aid in identification of course, but the decurrent ridges appear to offer the most certain means of identification.

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¹Separation of Black Spruce (*Picea mariana* (Mill.) B.S.P.) from Red Spruce (*P. rubens* Sarg.) and White Spruce (*P. glauca* Moench) Voss) by Twig Characteristics