



ON THE NEST MATERIAL OF THE WILLOW WARBLER: A QUANTITATIVE ANALYSIS.

Jaanus Elts

Estonian Ornithological Society, Veski 4, Tartu 51005. E-mail:

jaanus.elts@eoy.ee

Abstract. The paper gives a quantitative description of a nest of the willow warbler (*Phylloscopus trochilus*), found inside a farmyard. By mass, herbs made up 74.3%, mosses 10.6%, feathers 7.6%, bark and leaves 6.0% and other material (wool, cord) 1.5% of the building material. Altogether 195 feathers, derived mainly from domestic geese, were used. Length of the longest feather was 112 mm.

There is only general information without any quantitative specification known of the nest material of many passerines. Since the nests of the songbirds are usually compact basketries it is difficult to distinguish various components from each other. Therefore, in this paper the nest material of a single willow warbler (*Phylloscopus trochilus*) has been studied in detail.

This particular nest was found inside a farmyard in 2004. It was built into the grass 15 cm from the ground under a young spruce (*Picea abies*) tree. There was a hole bored at the rear of the nest thus it has been destroyed by mice during incubation time. The nest was dried at room temperature for two weeks and subsequently taken apart by avoiding the breakage of different items. These components were measured to the nearest millimetre with a ruler and weighed to the nearest milligram with a torsion scale.

The measurements of the nest were 13x11x18 cm and the hollow of the nest had a diameter of 7cm. Dry weight of the nest was 21,8 g with the heaviest particle being apparently a rhizome of a cocksfoot (*Dactylis glomerata*) along with several stubbles, all together 162 mm long. The longest component of the nest was a graminaceous leaf that was 298 mm long while weighing only 35 g. The majority of the nest material consisted of grass plants and made up 74,3% of the total mass which is 16,2 g. Mosses weighed 2,3 g and bark together with leaves (one leaf of aspen and two leaves of birch) 1,3 g.

Measurements of the two biggest pieces of bass found in the nest material were 206 mm/112 mg and 183 mm/ 132mg. There were also 10 bundles of sheep wool weighing from 15 to 57 mg, all together 264 mg.

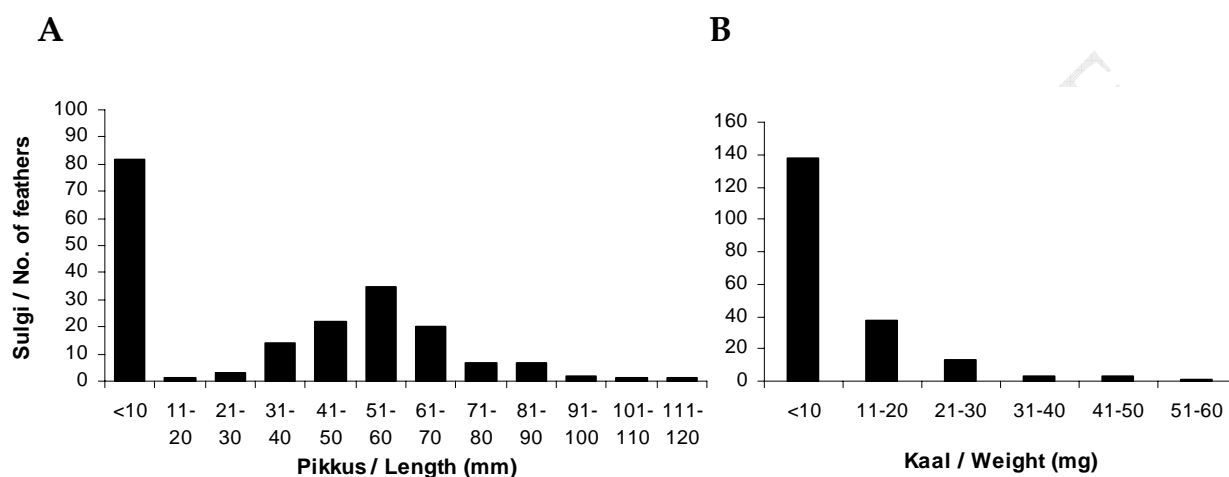


Fig. 1. Distribution of the length (A) and weight (B) of the feathers found at the nest of the Willow Warbler.

The inside of the nest was covered with feathers forming a thick thermal proof layer. In all 195 feathers weighing 1,66 g were found in this nest. The majority of these feathers were coverts and down feathers stemming from domestic geese. There were also several coverts from crows and about ten rectrices from finches. The longest feather used as nest building material was 112 mm long and weighed 52 mg. The majority of the feathers were up to 1 cm long and made up 42% of the total and were used to line the inside of the nest (Fig. 1.). The coverts from domestic geese were twisted to a curve to line the upper part of the nest. Almost three-quarters of the total amount of the feathers weighed less than 0,01 g (Fig. 2.) but it is comprehensible when considering their specific volume. A noteworthy finding was a piece of cord from a hay bale (160mm and 70 mg). It was also the only artificial material found among the components forming the nest.

In contrast to other passerines the nest material of the willow warbler consisted to a high degree of feathers. Only long-tailed tits (*Aegithalos caudatus*) are known to use even more feathers as nest building material, counted even up to 1500 per nest (Hansell 1994). That is eight times more than in the willow warbler nest in this study. Other species are known to use this component yet in a lesser degree (Hansell 1995).

Generally, birds prefer to gather nest building material in the vicinity of their own nest. The ones that need a large amount of feathers to build a nest may be confronted with difficulties as feathers are not distributed equally in the nesting territory and may be found insufficiently at a greater distance from the nest as well. Long-tailed tits are even claimed to gather feathers 200m off their own nest and apparently these feathers derive from the plumage of moulting or dead birds (Hansell 1995). Therefore, it is presumable that the willow warbler in this study was using feathers from domestic geese for they were the most accessible to the bird. Yet, it remains unknown if the distribution curve of the size of the feathers used as nest material would look different in case a sufficient amount of small feathers had been available to the birds. Or wheter the goose coverts were quite in an optimal size for lining the upper part of the nest.

Acknowledgements. The author thanks Kaja Peterson and Ülo Väli for providing constructive criticism on the manuscript as well as for making correctiones.

References. Hansell, M.H. 1994: The Long-tailed Tits nest, inside and out. BTO News 192: 8.
– Hansell, M.H. 1995: The demand for feathers as building material by woodland nesting birds. Bird Study 42: 240–245.