

## WEIGHTS AND MEASUREMENTS OF WOOD WARBLERS AT PELEE ISLAND<sup>1, 2</sup>

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Despite the large number of birds handled by banders there are few published records of the weights and measurements of living birds. Using methods developed in British bird observatories, most of the birds trapped at Pelee Island were weighed and measured before they were banded and released. The purpose of this paper is to describe the methods of weighing and measuring and to record the data obtained from 271 individuals of 20 species of wood warblers (Parulidae) during May, 1957.

### METHODS

Mist-nets were used to take all the individuals listed in table 1. After a bird was removed from the net it was placed in a cloth or paper bag. Warblers were sometimes held in bags for several hours without any casualties. Each bird was then examined and positively identified, measured, weighed and banded, in that order. Usually two people worked as a team. One identified, sexed and aged (if possible) the bird and examined it, checking such things as fat deposition, molt and possible deformities. The other measured, weighed and banded it. The average time needed to perform all these operations was 4 minutes.

### MEASUREMENTS

The best text showing proper techniques is Baldwin, Oberholser and Worley (1931). Measurements in this paper follow Baldwin *et al* (*op. cit.*) with the exception of the wing. The full names of the measurements as given by Baldwin *et. al.* are length of exposed culmen, length of tarsus and length of tail. The wing was flattened or 'straightened' against the measuring surface, and measured from the flesh at the bend of the folded wing to the tip of the longest primary.

Two pairs of calipers are useful—a small pair for measuring the culmen and tarsus and a larger pair to measure the tail. A small measuring board, incorporating a millimetre rule, similar to ones used by fisheries biologists, facilitates measuring the wing.

### WEIGHING

After it had been measured the bird was wrapped in a square (12" x 12") of cloth. A triple beam laboratory scale, sensitive to .1 gram, was used for weighing. The weight of the bird and cloth was entered on a form and the weight of the cloth alone was entered on the line below. The cloth was weighed at frequent intervals, as humidity affected its weight, especially in the morning or on a rainy day.

<sup>1</sup>Contribution of the Pelee Island Bird Observatory.

<sup>2</sup>Pelee Island, the largest island in Lake Erie, is a part of Essex County, Ontario. It is situated in latitude 41° 45' north and longitude 82° 40' west.

TABLE 1. WEIGHTS AND MEASUREMENTS

Species	Sex	No.	Wing	Bill	Tarsus	Tail	Weight
<i>Mniotilta varia</i>	♂	2	67-69 68	10-10 10	17-19 18	43-45 44	10.1-12.6 11.4
	♀	2	65-67 66	10-10 10	16-18 17	43-45 44	10.5-12.6 11.6
<i>Vermivora peregrina</i>	♂	3	63-67 64	10-11 10	17-18 17	37-39 38	10.1-12.1 11.3
	♀	3	61-66 64	9-11 10	17-18 17	36-42 39	10.0-13.8 11.5
<i>Vermivora celata</i>	♂	1	56	10	17	36	9.7
	♀	2	53-54 54	9-10 9	18-18 18	39-45 42	8.5-10.5 9.5
<i>Vermivora ruficapilla</i>	♂	4	53-60 56	9-10 10	18-20 19	35-44 41	9.0-12.7 11.4
	♀	2	54-54 54	9- 9 9	16-16 16	35-36 36	8.7-12.3 10.5
<i>Dendroica petechia</i>	♂	6	59-67 63	9-10 10	18-19 19	38-42 40	9.9-11.8 10.7
	♀	4	59-60 60	9- 9 9	19-19 19	36-38 37	9.3- 9.5 9.4
<i>Dendroica magnolia</i>	♂	51	55-63 59	8- 9 9	16-19 18	40-49 44	7.3-12.7 9.6
	♀	31	54-58 56	9- 9 9	17-19 18	40-44 42	7.5-11.6 9.3
<i>Dendroica tigrina</i>	♀	1	63	6	19	38	10.3
<i>Dendroica caeruleascens</i>	♀	3	64-65 65	10-10 10	18-18 18	43-45 44	10.8-11.4 11.1
<i>Dendroica coronata</i>	♂	9	71-73 72	10-10 10	19-20 20	50-52 51	11.8-12.2 12.0
	♀	8	65-68 67	10-10 10	18-20 19	50-52 51	11.8-12.7 12.2
<i>Dendroica virens</i>	♂	4	58-63 61	9- 9 9	17-19 18	41-47 44	9.9-10.8 10.4
	♀	3	57-60 58	9-10 10	18-18 18	42-44 43	9.0-10.0 9.5
<i>Dendroica fusca</i>	♂	4	66-66 66	9-10 10	18-18 18	43-43 43	11.1-11.3 11.2
	♀	3	65-66 66	9-10 10	18-19 19	42-43 43	10.1-11.0 10.5
<i>Dendroica pensylvanica</i>	♂	8	61-62 62	9-10 10	18-19 19	39-46 43	9.1-11.1 10.0
	♀	6	57-60 59	9-10 10	17-18 18	39-43 41	10.6-11.5 11.1
<i>Dendroica palmarum</i>	♂	2	61-62 62	11-11 11	21-21 21	45-46 46	9.5-12.8 11.2
	♀	1	63	11	20	49	10.4
<i>Oporornis philadelphia</i>	♂	18	58-63 61	10-11 10	20-22 21	42-50 44	12.1-14.5 13.6
<i>Geothlypis trichas</i>	♂	16	52-57 55	10-12 11	19-21 20	43-50 46	9.2-12.8 11.0
<i>Icteria virens</i>	♂	5	68-74 72	14-15 14	24-28 26	59-71 65	22.0-26.1 23.1
	♀	1	70	14	26	63	25.2
<i>Wilsonia citrina</i>	♀	1	61	10	20	50	11.2
<i>Wilsonia pusilla</i>	♂	21	53-56 54	8- 9 8	17-19 18	42-47 44	6.9- 9.5 8.1
<i>Wilsonia canadensis</i>	♂	20	60-68 64	8-10 9	18-20 19	46-55 51	8.6-11.6 10.4
	♀	12	60-65 62	9-10 9	18-20 19	44-48 46	9.6-12.2 10.7
<i>Setophaga ruticilla</i>	♂	6	60-65 63	8- 9 9	17-19 18	49-54 51	6.9- 9.8 8.2
	♀	8	56-62 59	8-10 9	16-18 17	47-52 49	7.3- 9.5 8.2

In table 1 all measurements are in millimetres and all weights are in grams. For each measurement and the weight, the spread and the average are given. The spread is the least and the greatest values obtained. The average (or arithmetic mean) is the sum of the values divided by the number of individuals.

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## REFERENCE

BALDWIN, S. P., OBERHOLSER, H. C., and WORLEY, L. G. 1931. Measurements of birds. Cleveland, Ohio; Cleveland Museum of Natural History. ix & 165 p.

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