

BRIEF NO. 111. THE NUMBER OF SENATE SEATS TO WHICH EACH WISCONSIN COUNTY IS ENTITLED ACCORDING TO THE 60% POPULATION, 40% AREA FORMULA\*

Prepared by Wisconsin Legislative Reference Library, June 1962

This sheet explains how an apportionment might be made using both area and population. As an illustration, the computation is for the Wisconsin Senate of 33 members, based on an apportionment formula which distributes the seats 60% according to population, and 40% according to area.

Other ratios could have been used, e.g. 20% area and 80% population (this was the basis of the "Rogan Act", Chapter 242, Laws of 1953) or 30% area and 70% population, or any other combination adding up to 100%. The formula could also take into account, as had been proposed in several constitutional amendments unsuccessfully suggested in past sessions, such other factors as the assessed valuation of a county, or the amount of income tax accruing to the state from each county.

#### THE COMPUTATION IN GENERAL

You divide the number of seats, in the house to be apportioned, according to the division of the formula -- if we use the Assembly as an example, a 40-60 division would allocate 40 seats according to one factor and 60 seats according to the other.

Then you take the number of seats allocated to the factor, say area, and divide that by the total number of acres in the state to get the seat-entitlement of each individual acre. Next, you multiply that figure by the number of acres in a particular county: the result is the county's seat-entitlement for that particular factor.

Then you repeat the same process for the other factor and add the two results for each county. This gives you (in a two-factor apportionment), the total seat-entitlement for each county.

Finally, you combine enough adjacent counties to achieve a total of approximately "one" (the "one" being one seat). This final process is no less difficult in an apportionment based on a number of factors than it is in an apportionment based on population alone -- it is equally difficult to make a district to contain exactly 39,528 people as it is to make a district to contain exactly one whole seat-entitlement.

#### ILLUSTRATION: SENATE APPORTIONMENT 40% LAND AREA, 60% POPULATION

Population: The formula sets aside 60% of the 33 Senate seats, or 19.8 seats, to be apportioned according to population. The most recent revised data indicates that the 1960 population of Wisconsin was 3,952,765; therefore, each person in Wisconsin is entitled to a Senate seat share equaling 19.8 divided by 3,952,765. This figure then can be used as the multiplier to establish for each county that

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portion of a Senate seat to which it is entitled on the basis of its population.

The population multiplier is: .000 005 009 151 821.

Area: The formula sets aside 40% of the Senate seats, or 13.2 seats, to be apportioned according to area. Data made available by the Wisconsin Conservation Department for the "land area" ("gross area" less "water area") of Wisconsin counties show a state-wide total of 34,800,178 acres. Therefore, each acre of Wisconsin soil is entitled to a Senate seat share of 13.2 divided by 34,800,178. To find out the Senate seat share to which each county is entitled, the per-acre share is then multiplied by the number of acres in the county.

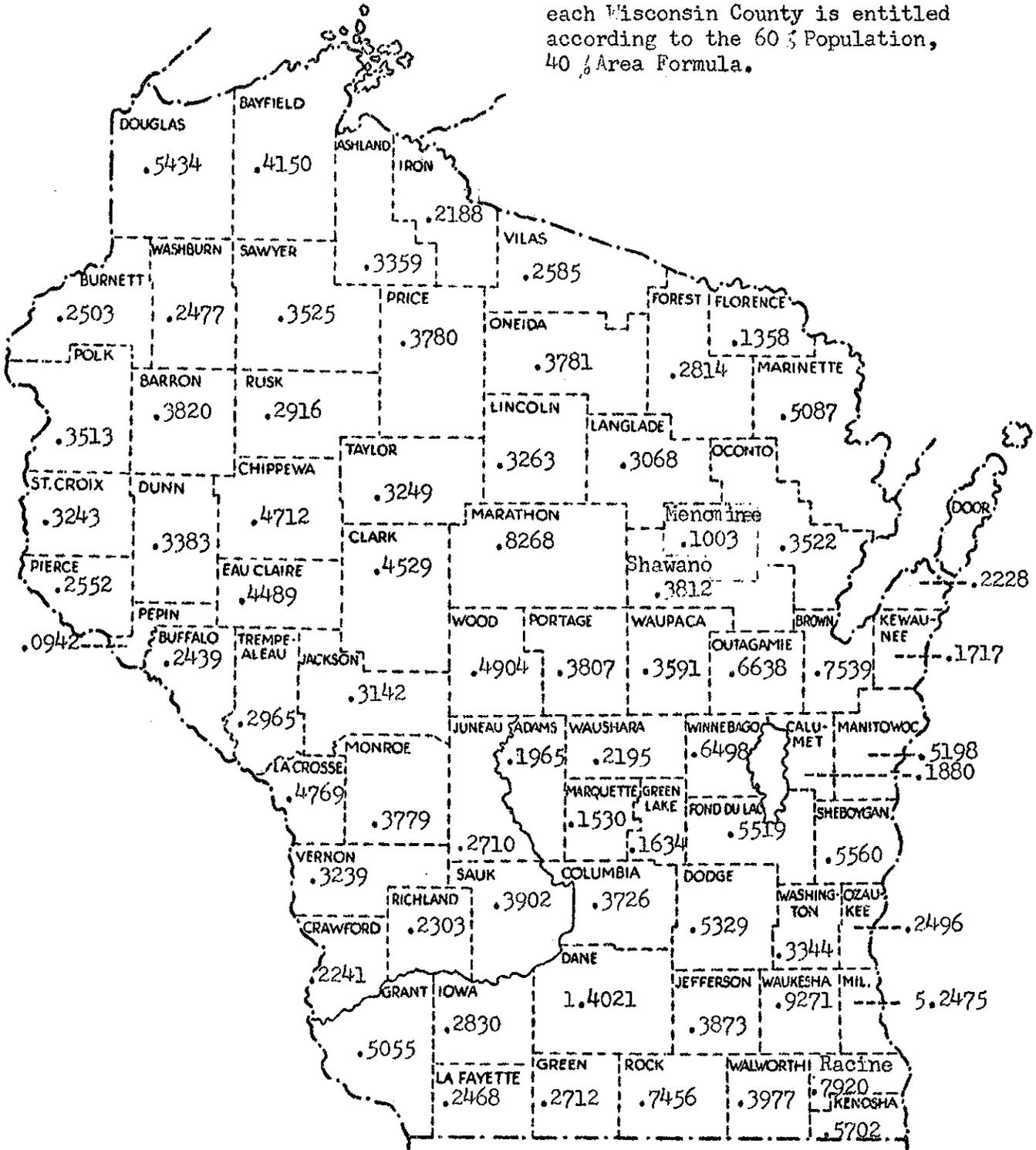
Land area figures are not available for Oconto and Shawano Counties minus those portions which have since become Menominee County; prior to the creation of the new county land area in the two counties was: Oconto -- 699,250 acres, Shawano -- 743,170 acres. A land area figure for Menominee County was computed by the Federal Government: Menominee -- 229,805. The computations below are based on the assumption that 3/10 of Menominee's territory was taken from Oconto, and 7/10 was taken from Shawano County.

The area multiplier is: .000 000 379 308 405.

County	60%		40%		Senate Seats	
	Population Seats	Area Seats	Area Seats	Entitled To	County	Entitled To
Adams	0.0379	0.1586	0.1586	0.1965	Marathon	0.8268
Ashland	0.0870	0.2489	0.2489	0.3359	Marquette	0.5087
Barron	0.1718	0.2102	0.2102	0.3820	Menominee	0.1530
Bayfield	0.0696	0.3554	0.3554	0.4150	Milwaukee	0.1003
Brown	0.6265	0.1274	0.1274	0.7539	Monroe	5.2475
Buffalo	0.0711	0.1728	0.1728	0.2439	Oconto	0.3779
Burnett	0.0461	0.2042	0.2042	0.2503	Oneida	0.3522
Calumet	0.1115	0.0765	0.0765	0.1880	Outagamie	0.3781
Chippewa	0.2258	0.2454	0.2454	0.4712	Ozaukee	0.6638
Clark	0.1579	0.2950	0.2950	0.4529	Pepin	0.2496
Columbia	0.1839	0.1887	0.1887	0.3726	Pierce	0.0942
Crawford	0.0819	0.1422	0.1422	0.2241	Polk	0.2552
Dane	1.1125	0.2896	0.2896	1.4021	Portage	0.3513
Dodge	0.3164	0.2165	0.2165	0.5329	Price	0.3807
Door	0.1036	0.1192	0.1192	0.2228	Racine	0.3780
Douglas	0.2254	0.3180	0.3180	0.5434	Richland	0.7920
Dunn	0.1310	0.2073	0.2073	0.3383	Rock	0.2303
Eau Claire	0.2920	0.1569	0.1569	0.4489	Rusk	0.7456
Florence	0.0172	0.1186	0.1186	0.1358	St. Croix	0.2916
Fond du Lac	0.3761	0.1758	0.1758	0.5519	Sauk	0.3243
Forest	0.0377	0.2437	0.2437	0.2814	Sawyer	0.3902
Grant	0.2225	0.2830	0.2830	0.5055	Shawano	0.3525
Green	0.1295	0.1417	0.1417	0.2712	Sheboygan	0.3812
Green Lake	0.0772	0.0862	0.0862	0.1634	Taylor	0.5560
Iowa	0.0983	0.1847	0.1847	0.2830	Trempealeau	0.3249
Iron	0.0392	0.1796	0.1796	0.2188	Vernon	0.2965
Jackson	0.0758	0.2384	0.2384	0.3142	Vilas	0.3239
Jefferson	0.2509	0.1364	0.1364	0.3873	Walworth	0.2585
Juneau	0.0876	0.1834	0.1834	0.2710	Washburn	0.3977
Kenosha	0.5039	0.0663	0.0663	0.5702	Washington	0.2477
Kewaunee	0.0915	0.0802	0.0802	0.1717	Waukesha	0.3344
La Crosse	0.3630	0.1139	0.1139	0.4769	Waupaca	0.9271
Lafayette	0.0909	0.1559	0.1559	0.2468	Waushara	0.3591
Langlade	0.0998	0.2070	0.2070	0.3068	Winnebago	0.2195
Lincoln	0.1119	0.2144	0.2144	0.3263	Wood	0.6498
Manitowoc	0.3768	0.1430	0.1430	0.5198		0.4904

County	60%		40%		Senate Seats	
	Population Seats	Area Seats	Area Seats	Entitled To	County	Entitled To
Marathon	0.4451	0.3817	0.3817	0.8268	Marathon	0.8268
Marquette	0.1736	0.3351	0.3351	0.5087	Marquette	0.5087
Menominee	0.0427	0.1103	0.1103	0.1530	Menominee	0.1530
Milwaukee	0.0131	0.0872	0.0872	0.1003	Milwaukee	0.1003
Monroe	5.1897	0.0578	0.0578	5.2475	Monroe	5.2475
Oconto	0.1564	0.2215	0.2215	0.3779	Oconto	0.3779
Oneida	0.1245	0.2277	0.2277	0.3522	Oneida	0.3522
Outagamie	0.1108	0.2673	0.2673	0.3781	Outagamie	0.3781
Ozaukee	0.5099	0.1539	0.1539	0.6638	Ozaukee	0.6638
Pepin	0.1926	0.0570	0.0570	0.2496	Pepin	0.2496
Pierce	0.0367	0.0575	0.0575	0.0942	Pierce	0.0942
Polk	0.1127	0.1425	0.1425	0.2552	Polk	0.2552
Portage	0.1250	0.2263	0.2263	0.3513	Portage	0.3513
Price	0.1852	0.1955	0.1955	0.3807	Price	0.3807
Racine	0.0720	0.3060	0.3060	0.3780	Racine	0.3780
Richland	0.7102	0.0818	0.0818	0.7920	Richland	0.7920
Rock	0.0885	0.1418	0.1418	0.2303	Rock	0.2303
Rusk	0.5706	0.1750	0.1750	0.7456	Rusk	0.7456
St. Croix	0.0741	0.2175	0.2175	0.2916	St. Croix	0.2916
Sauk	0.1461	0.1782	0.1782	0.3243	Sauk	0.3243
Sawyer	0.1868	0.2034	0.2034	0.3902	Sawyer	0.3902
Shawano	0.0474	0.3051	0.3051	0.3525	Shawano	0.3525
Sheboygan	0.1603	0.2209	0.2209	0.3812	Sheboygan	0.3812
Taylor	0.4332	0.1228	0.1228	0.5560	Taylor	0.5560
Trempealeau	0.0894	0.2355	0.2355	0.3249	Trempealeau	0.3249
Vernon	0.1171	0.1794	0.1794	0.2965	Vernon	0.2965
Vilas	0.1285	0.1954	0.1954	0.3239	Vilas	0.3239
Walworth	0.0467	0.2118	0.2118	0.2585	Walworth	0.2585
Washburn	0.2623	0.1354	0.1354	0.3977	Washburn	0.3977
Washington	0.0516	0.1961	0.1961	0.2477	Washington	0.2477
Waukesha	0.2310	0.1034	0.1034	0.3344	Waukesha	0.3344
Waupaca	0.7926	0.1345	0.1345	0.9271	Waupaca	0.9271
Waushara	0.1770	0.1821	0.1821	0.3591	Waushara	0.3591
Winnebago	0.0676	0.1519	0.1519	0.2195	Winnebago	0.2195
Wood	0.5406	0.1092	0.1092	0.6498	Wood	0.6498
	0.2960	0.1944	0.1944			

The Number of Senate Seats to which each Wisconsin County is entitled according to the 60% Population, 40% Area Formula.



Computations by Wisconsin Legislative Reference Library, June 1962.  
 Computations based on final figures of 1960 Census of Population, dry land area data supplied by Wisconsin Department of Conservation.