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Gerald E. Rehfeldt, Nicholas L. Crookston, Cuauhtémoc Sáenz-Romero, and Elizabeth M. Campbell. 2012. North American vegetation model for land-use planning in a changing climate: a solution to large classification problems. *Ecological Applications* 22:119–141.

Appendix C. Discussion of agreement and uncertainty among projections.

Mapping the consensus among six projections (Fig. 4), hides disagreement among the disparate projections. Because high agreement provides a measure of confidence about future conditions, we mapped (Fig. C1) the counts on which the consensus in Figure 4 was based. High uncertainty, defined by a consensus based on three or fewer of the projections, was found for 9.8 %, 15.3 %, and 20.3 % of the continent for the decades surrounding 2030, 2060, and 2090, respectively (Table C1). The highest levels of uncertainty tended to be associated with the boundaries between biomes, and were most pronounced in interior Mexico, throughout the mountainous western USA and Canada, and along Alaska’s south coast (Fig. C1).

Percentages in Table C1 are weighted by the large number of grid cells from two large biomes that remain relatively stable across the century, biomes 47 and 48 (Table 4). Percentages calculated without these two biomes were 54.6 %, 37.7 %, and 25.9 % for the number of grid cells showing agreement of all six projections for 2030, 2060, and 2090, respectively. Our conclusion is that despite the disparate effects of these GCMs and emissions scenarios (e.g., Fig. 3), there is considerable agreement beneath the variation.

Yet, defining uncertainty as a consensus of three or fewer projections would be illogical when only three projections agreed but those agreeing were of the same emissions scenario. This would mean that projections were perfectly aligned with the scenarios but differences occurred between the scenarios; it would also mean that the consensus prediction (Fig. 4) had been determined randomly. In this eventuality, the response, rather than being uncertain, could have been predicted from the scenario if only the projections had not been as an ensemble. However, Figure 3 suggests that this eventuality could be prominent by 2090 but inconsequential earlier, largely because the three projections of the two scenarios do not separate completely until 2090. In fact, only 0.2 %, 0.4 %, and 2.7 % of the 2030, 2060, and 2090 grid cells, respectively, have a consensus among only three projections which consisted of projections from the same scenario. A mapping of these data points (Fig. C2) shows that their occurrence would be inconsequential even for settling conflicts in establishing boundaries between biomes. These results demonstrate again (see Fig. 3) that the variation imposed by the disparate GCMs tends to obliterate effects of the scenarios until late in the century.

TABLE C1. Percent of total grid cells in a 0.0083° grid of North America assorted according to the number of projections agreeing in the consensus predictions mapped in Figure 4.

Plurality count	2030	2060	2090
1	0.0 ^a	0.0 ^b	0.0 ^c
2	0.8	2.2	3.4
3	9.1	13.1	16.9
4	15.8	18.4	20.7
5	13.7	17.7	18.7
6	60.6	48.5	40.2

Total grid cells, 42,471,100

^a 46 grid cells

^b 904 grid cells

^c 10,987 grid cells

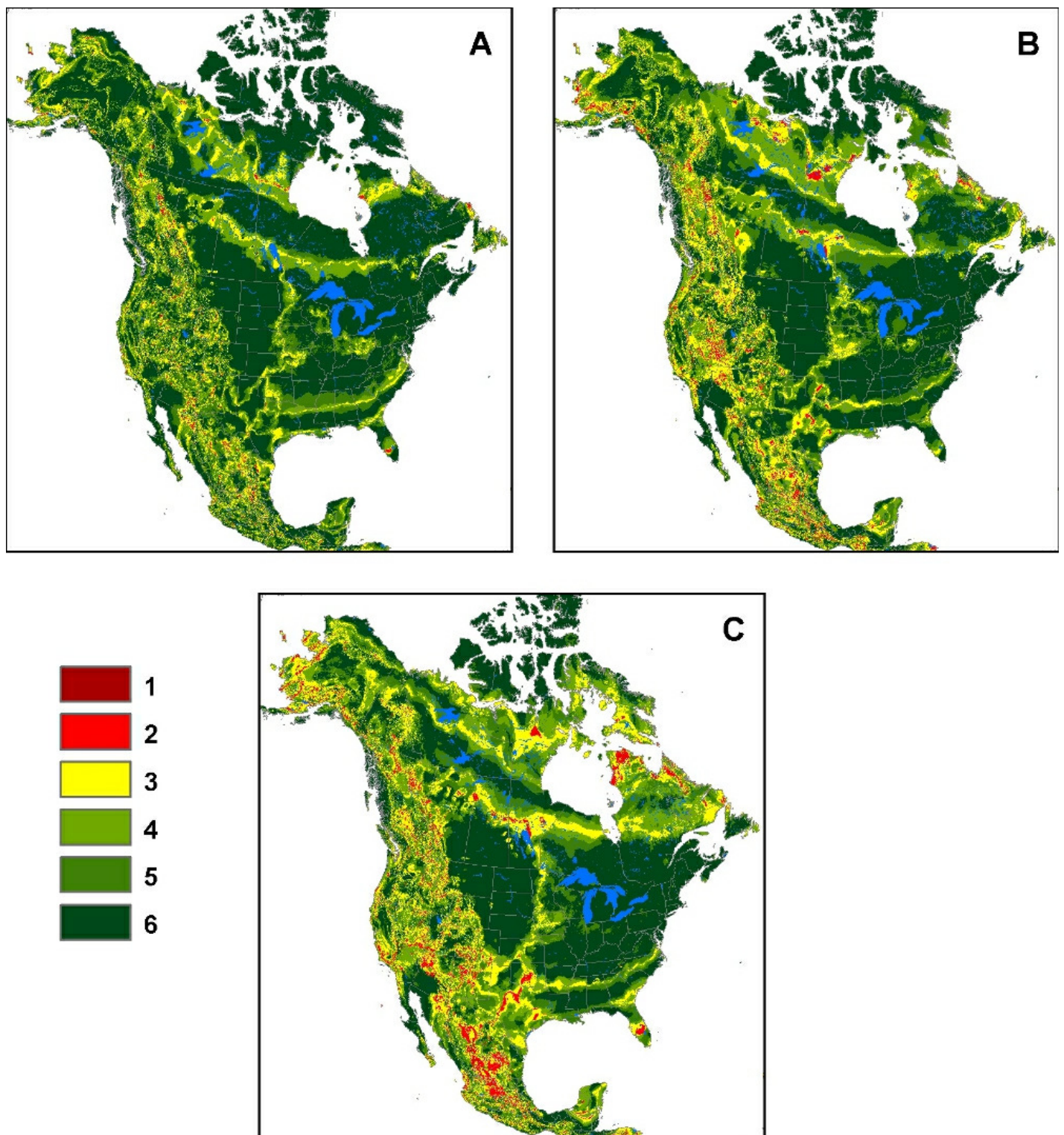


FIG. C1. Number of projections in agreement for consensus maps (Fig. 5) for the decade surrounding 2030 (A), 2060 (B), and 2090 (C).

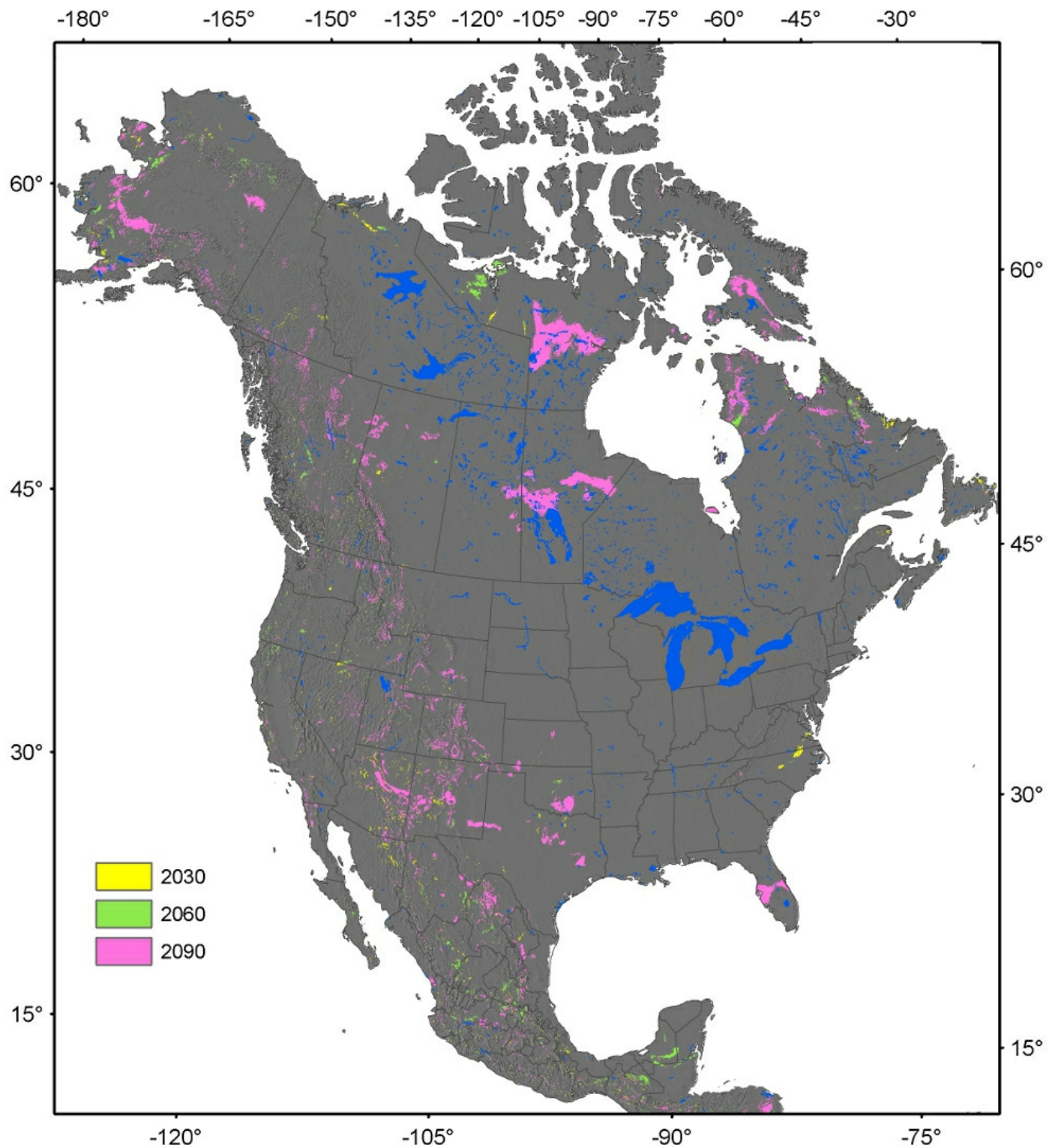


FIG. C2. Grid cells for which three projections agree A, and those agreeing are from the same emissions scenario.

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