

in rapid growth of new cover. Eastern South Dakota was the one area of the prairies where wetland habitat conditions were generally worse than last year, mostly due to low soil moisture, little winter precipitation, and no significant rains in April. This region received several inches of rain in May, but most birds had probably flown to other regions with more favorable wetland conditions.

In the northern part of the traditional survey area, habitat was in generally good condition and most areas had normal water levels. The exception was northern Manitoba, where low water levels in small streams and beaver ponds resulted in overall breeding habitat conditions that were only fair. Warm spring temperatures arrived much earlier this year than the exceptionally late spring last year. However, a cold snap in early May may have hurt early nesting species such as mallards and pintails, particularly in the northern Northwest Territories.

This spring, habitat conditions in the eastern survey area ranged from excellent to fair. In the southern and western part of this survey area, water and nesting cover were plentiful and temperatures were mild. Habitat quality decreased to the north, especially in northern and western Quebec, where many shallow marshes and bogs were either completely dry or reduced to mudflats. Beaver pond habitat was also noticeably less common than normal. To the east in Maine and most of the Maritime provinces, conditions were excellent, with adequate water and vegetation, and warm spring temperatures.

Weather and habitat conditions during the summer months can influence waterfowl production. Good wetland conditions increase re-nesting and brood survival. July wetland conditions were rated fair to good over most of Prairie Canada, the Dakotas, and eastern Montana, but poor conditions prevailed in eastern South Dakota, south-central Manitoba, central Saskatchewan, and north-central Montana. However, uniformly good conditions were found in the northern portions of the prairie provinces, and spring and summer rains made for good-to-excellent conditions along the border of Saskatchewan and eastern Montana. Results of the July Production Survey indicate that the number of ponds in Prairie Canada and the north-central United States combined was 2.5 ± 0.1 million ponds. This was 35 percent above last year's estimate of 1.8 ± 0.1 million ponds, but still 8 percent below the long-term average. July ponds in Prairie Canada were estimated to be 1.5

± 0.1 million. This was 47 percent above last year's estimate of 1.0 ± 0.1 million but 16 percent below the long-term average. July ponds in the north-central United States were estimated at 1.0 ± 0.1 million. This was 21 percent above last year's estimate of 0.8 ± 0.1 million, but similar to the long-term average.

Breeding Population Status

In the traditional survey area, the total duck population estimate was 36.2 ± 0.7 million birds, 16 percent above ($P < 0.001$) last year's estimate of 31.2 ± 0.5 million birds, and 9 percent above ($P < 0.001$) the 1955–2002 long-term average. Mallard abundance was 7.9 ± 0.3 million birds, which was similar to last year's estimate of 7.5 ± 0.2 million birds ($P = 0.220$) and the long-term average ($P = 0.100$). Blue-winged teal abundance was estimated to be 5.5 ± 0.3 million birds. This value was 31 percent above last year's estimate of 4.2 ± 0.2 million birds ($P < 0.001$) and 23 percent above the long-term average ($P = 0.001$). Estimates of shovellers (3.6 ± 0.2 million; +56%) and pintails (2.6 ± 0.2 million; +43%) were above 2002 estimates ($P < 0.001$), while estimates of gadwall (2.5 ± 0.2 million), wigeon (2.6 ± 0.2 million), green-winged teal (2.7 ± 0.2 million), redheads (0.6 ± 0.1 million), canvasbacks (0.6 ± 0.1 million), and scaup (3.7 ± 0.2 million) were unchanged from 2002 estimates ($P \geq 0.149$). Gadwall (+55%) and shovellers (+72%) were above their 1955–2002 averages ($P < 0.001$), as were green-winged teal (+46%; $P < 0.001$), which were at their second highest level since 1955. Pintails (–39%) and scaup (–29%) remained well below their long-term averages ($P < 0.001$). Estimates of wigeon, redheads, and canvasbacks were unchanged from their long-term averages ($P \geq 0.582$).

The eastern survey area comprises strata 51–56 and 62–69. The 2003 total duck population estimate for this area was 3.6 ± 0.3 million birds. This estimate is 17 percent lower than that of last year (4.4 ± 0.3 million birds, $P = 0.065$), but is similar to the 1996–2002 average ($P = 0.266$). Numbers of the individual species were similar to those of last year and the 1996–2002 average, with the exception of mergansers (0.6 ± 0.1 million), which decreased 30 percent from the 2002 estimate ($P = 0.035$).

Breeding Activity and Production

The number of broods in the north-central United States and Prairie Canada combined was 434,900, 23 percent higher than last year's estimate, and 7 percent below the long-term average. The number of broods in Prairie Canada

and the north-central United States were 142 percent and 18 percent above last year's estimates, respectively. Brood indices in Prairie Canada were 24 percent below the long-term average, while brood counts were 31% above the long-term average in the north-central United States. Reflecting the lower concentration of ducks in the Canadian boreal forest this year compared to 2002, the brood index in this region was 72 percent lower than last year, and 76 percent below the long-term average. The late-nesting index, that is, the number of pairs and lone drakes without broods seen during July surveys, was 17 percent higher than last year, and 51 percent lower than the long-term average, for all areas combined. The late-nesting index was down 43 percent and 30 percent relative to last year in boreal Canada and Prairie Canada, respectively, but up 67 percent in the north-central United States. Late nesting indices were below the long-term average by 74 percent in boreal Canada, by 43 percent in the north-central United States, and by 46 percent in Prairie Canada.

Fall Flight Estimate

The size of the mid-continent mallard population, which comprises mallards from the traditional survey area, plus Michigan, Minnesota, and Wisconsin, was 8.8 million birds. This is similar to that of 2002 (8.6 million). The 2003 mid-continent mallard fall-flight estimate is 10.3 million birds, statistically similar to the 2002 estimate of 9.1 million birds. These estimates were based on revised mid-continent mallard population models and, therefore, differ from those previously published.

See section 1.B. Regulatory Alternatives for further discussion on the implications of this information for this year's selection of the appropriate hunting regulations.

Status of Geese and Swans

We provide information on the population status and productivity of North American Canada geese (*Branta canadensis*), brant (*B. bernicla*), snow geese (*Chen caerulescens*), Ross's geese (*C. rossii*), emperor geese (*C. canagicus*), white-fronted geese (*Anser albifrons*) and tundra swans (*Cygnus columbianus*). The timing of snowmelt and goose nesting activities in most areas of the Arctic and subarctic was near average in 2003. Only Alaska's North Slope, Banks and adjacent Arctic Islands, and Akimiski Island reported substantially delayed nesting phenology this year. Although Alaska's Yukon-Kuskokwim Delta experienced an early