

TABLE 1.—REVISED ANNUAL TREND COUNTS (BASED ON SPRING CENSUSES) AND POPULATION ESTIMATES (BASED ON LINEAR REGRESSION) WITH CONFIDENCE INTERVALS (LOWER AND UPPER POPULATION ESTIMATES) FOR THE DOUGLAS COUNTY DPS OF COLUMBIAN WHITE-TAILED DEER, 1975–2002 (LINDSAY BALL, ODFW, *in litt.* 2002).—Continued

Year	Annual trend count (deer/mile)	Population estimate	95% confidence intervals	
			Lower population estimate	Upper population estimate
1983	2.5	2614	1413	3814
1984	2.7	2796	1548	4043
1985	2.6	2978	1683	4272
1986	2.2	3160	1818	4501
1987	4.1	3342	1953	4730
1988	5.6	3523	2088	4958
1989	5	3705	2223	5187
1990	6.6	3887	2358	5416
1991	7.7	4069	2493	5645
1992	5.6	4251	2628	5874
1993	6.6	4433	2763	6103
1994	5.3	4615	2898	6331
1995	4.3	4797	3033	6560
1996	4.3	4979	3168	6789
1997	5.5	5161	3303	7018
1998	4.6	5343	3438	7247
1999	7.7	5525	3573	7476
2000	5.4	5707	3708	7705
2001	6.9	5888	3843	7933
2002	8.6	6070	3978	8162

In the 1930s, the Columbian white-tailed deer population in Douglas County was estimated at 200 to 300 individuals within a range of about 79 square kilometers (km²) (31 square miles (mi²)) (Crews 1939). By 1983, the population had increased to about 2,500 deer (U.S. Fish and Wildlife Service (Service) 1983). The population has continued to grow and is currently estimated at over 6,000 deer (Lindsay Ball, ODFW, *in litt.* 2002). Along with this increase in numbers, the range also has expanded to the north and west, and the subspecies now occupies an area of approximately 800 km² (309 mi²) (ODFW 1995). In 2002, the ODFW estimated that there were 8.6 deer per mile along its standard census routes, with a sex ratio of 24 adult bucks to 100 adult does, and 34 fawns to 100 does (Lindsay Ball, ODFW, *in litt.* 2002). A recent 3-year study of the population found relatively low annual survival rates for adult deer (74 percent over 3 years), although the results were within the range of white-tailed deer survival rates in other parts of the country (Ricca *et al.* 2002). Fawn survival rates in this study were on the lower extreme of rates reported for other white-tailed deer populations (Ricca *et al.* 2002); the authors of the study suggest that poor fawn survival may be linked to high deer density in Douglas County. Annual population surveys indicate that deer density has doubled in the last 20 years,

and the population may be at or near carrying capacity in portions of its range within Douglas County (Ricca 1999).

The State of Oregon has had a long history of research and active management of the Douglas County DPS of Columbian white-tailed deer. In 1927, the Oregon State Legislature established a White-tailed Deer Refuge in Douglas County. Early studies estimated a population of 200 to 300 Columbian white-tailed deer on the refuge, and an approximately equal number of Columbian black-tailed deer (*Odocoileus hemionus columbiana*) (Crews 1939). The State of Oregon (ODFW 1995) subsequently considered white-tailed deer in Douglas County to be black-tailed deer or a hybrid between the black-tailed deer and the Columbian white-tailed deer; the refuge was dissolved in 1952, and regulated hunting resumed (Gavin 1984). In 1978, Oregon recognized the white-tailed deer population in Douglas County as the Columbian white-tailed deer, and prohibited hunting of white-tailed deer in that County (Service 1983).

Since 1978, the ODFW has conducted spring and fall surveys to estimate population size, recruitment, and sex ratios (ODFW, *in litt.* 2001). Standard routes for spotlight surveys have been established along 76.4 km (47.5 mi) of road within the known range of the population (ODFW, *in litt.* 2001). The fall deer census counts both Columbian white-tailed deer and Columbian black-

tailed deer throughout Douglas County, from November 15 through December 15 in most years, on nights with suitable survey conditions. All deer observed are classified by species, sex, and age (*i.e.*, fawns, does, or bucks by antler class). This allows an estimate of fawn production going into winter (fawns per 100 adults), and in the case of black-tailed deer, the post hunting season buck survival (bucks per 100 does) (Steve Denney, ODFW, *in litt.* 2001).

The spring census is similar to the fall count. On warm, wet nights in March, the ODFW conducts a spotlight count along the standard road routes, recording both white-tailed and black-tailed deer. All deer observed are recorded and classified as either adults or fawns; this provides an estimate of overwinter fawn survival (fawns per 100 does) and population trend (expressed as deer per mile) (S. Denney, ODFW, *in litt.* 2001).

The State also implements an active research program, in coordination with us and the Oregon State University, to investigate deer habitat use and movement of radio-tagged individuals (Ricca 1999; ODFW 1995; ODFW, *in litt.* 2001). Since 1998, for example, the ODFW has been transplanting radio-tagged Columbian white-tailed deer from areas of high deer densities to Mildred Kanipe Memorial Park in northwestern Douglas County. The goals of the project have been to boost numbers of deer in the park, accelerate