

Douglas County's application of zoning to protect Columbian white-tailed deer has been an essential factor in the Douglas County DPS's recovery. The county has succeeded in limiting development and maintaining low human densities in the core of the deer population's range. The maintenance of open space on private lands significantly enhances the value of small publicly owned parcels used by the deer, such as Whistler's Bend County Park. Whistler's Bend County Park is directly south of the NBHMA, across the North Umpqua River. The park is 71 ha (175 ac) in size and has a population of about 100 Columbian white-tailed deer (S. Denney, ODFW, pers. comm. 2001). The park is managed for human recreation needs (DCPD 2000a), but also provides hiding cover for deer, which make forays onto adjacent private lands to forage in the pastures and suburban yards surrounding the park (S. Denney, ODFW, pers. comm. 2001). Small parcels such as this park function as important refugia for deer that meet many of their foraging requirements on adjacent private lands (Recovery Team, *in litt.* 2001).

Since management actions began, the Douglas County DPS population has increased, and its range has expanded. In the 1930s, the Columbian white-tailed deer population in Douglas County was estimated at fewer than 300 individuals within a range of about 79 km² (31 mi²) (Crews 1939). By 1983, the population had increased to about 2,500 deer (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).

B. Overutilization for commercial, recreational, scientific, or educational purposes. The white-tailed deer is a popular big-game animal. Past overutilization was considered a threat to the Douglas County DPS, and was one of the several factors leading to its listing as endangered.

Currently, the State of Oregon does not permit any hunting of white-tailed deer in western Oregon (ODFW 2001), and measures have been taken to reduce accidental shooting of white-tailed deer. For example, at present, black-tailed deer hunting is allowed on the NBHMA, but is limited by special permit only, usually 25 permits or fewer, and is limited to 1 or 2 weekends of the general deer season. Pre-hunt training on deer identification is mandatory to

prevent the accidental shooting of white-tailed deer. This has resulted in hunting having no significant impacts to the Douglas County DPS population in this area (Service 2001).

Recreational hunting and the possession of loaded firearms are not permitted in Douglas County parks, with the exception of limited waterfowl hunting in some reservoir parks. Therefore, deer hunting is prohibited at Mildred Kanipe Memorial Park and at Whistler's Bend County Park (J. Powers, pers. comm. 2001). Ms. Kanipe's will also states that no hunting or trapping is to be allowed in the park (Kanipe 1983). TNC also prohibits hunting on the Oerding Preserve in order to maintain a refugia for Columbian white-tailed deer (TNC 2001).

With the delisting of the Douglas County DPS, the Oregon Fish and Wildlife Commission, with input from the ODFW, will be responsible for determining whether a sport hunting season is justified. State guidelines direct the ODFW to manage wildlife populations to assure population health for present and future generations of Oregonians to enjoy (ODFW, *in litt.* 2001). Initially, the ODFW intends to focus its efforts on expanding the range of the Columbian white-tailed deer with a trap and relocation program (ODFW, *in litt.* 2001). A recreational hunt could be considered as another tool to reduce population densities and improve herd health in selected areas (ODFW, *in litt.* 2001). The population currently numbers more than 6,000 deer, a number considered large enough to withstand some level of regulated harvest (ODFW, *in litt.* 2001).

Poaching, or illegal hunting, of Columbian white-tailed deer has been documented in the Douglas County DPS (Ricca 1999; ODFW, *in litt.* 2001). During a recent 3-year study, 3 deer, out of 64 marked, were believed to have been taken by poachers (Ricca 1999). The Oregon State Police actively prosecutes poachers in Douglas County; cooperation among the Oregon State Police, the ODFW, our local biologists, and our National Fish and Wildlife Forensics Laboratory has resulted in many successful cases. In each of the past 3 years, the Oregon State Police has successfully prosecuted three to five poaching cases. Nine of these illegal kills were proved to be intentional poaching, whereas four were cases of misidentification (*i.e.*, confusion with legally hunted black-tailed deer) (Sgt. J. Myhre, pers. comm. 2001). This low level of illegal hunting is not considered a threat to the survival of the population (ODFW 1995).

Other than sport hunting, we do not anticipate an appreciable demand for Columbian white-tailed deer for commercial or recreational purposes. There may be a small demand for deer for research. Scientific studies, permitted under section 10(a)(1)(A) of the Act, have resulted in the take of as many as 40 deer during 1 year from the Douglas County DPS (Kistner and Denney 1991). These permitted takings have not had measurable impacts on population trends in the Douglas County DPS. Once the Douglas County DPS is delisted, the ODFW will administer scientific taking permits based on the merits of the proposed research and with consideration of the effects to the population (ODFW, *in litt.* 2001).

We believe that ample protections are in place under State law and regulations, and thus overutilization is unlikely to be a threat to the population in the future. Our proposed monitoring plan (see the Monitoring section, below) will track the status of the Douglas County DPS for at least 5 years following delisting, which would alert us to any new threat of overutilization.

C. Disease or predation. No known epizootic (epidemic in animals) diseases have affected the Douglas County DPS, although several studies have documented the incidence of bacterial and parasitic infections. For example, in a recent study, disease was determined to have contributed to the deaths of adult deer in poor nutritional condition. Of 29 adult deer that died during a 3-year study, 28 percent died of a combination of disease and emaciation (Ricca 1999; Ricca *et al.* 2002). Necropsies revealed pneumonia, lungworms, and high levels of ectoparasite infestation; none of these diseases would have been likely to kill an otherwise healthy adult deer, but in combination with a poor nutritional state (as evidenced by emaciation), these diseases were likely a factor in the cause of death (Ricca 1999; Ricca *et al.* 2002). Diseases noted in fawn necropsies also included pneumonia and occasional instances of bacterial or viral infections (Ricca 1999). An earlier study by the ODFW found moderate to high levels of internal and external parasites on adult deer and fawns, with low levels of viral diseases communicable to livestock (Kistner and Denney 1991).

High internal parasite loads have been considered an indication of high deer densities (ODFW, *in litt.* 2001), and recent research has found evidence that some Columbian white-tailed deer in Douglas County are suffering poor health resulting from high density (Ricca 1999). Delisting the Douglas