

2003-2008
Post-Delisting Monitoring Report
for the
Douglas County Distinct Population Segment
of the Columbian White-tailed Deer
(Odocoileus virginianus leucurus)



Prepared by the U.S. Fish and Wildlife Service
Roseburg Office
Roseburg, Oregon
June 2009

COLUMBIAN WHITE-TAILED DEER POST-DELISTING MONITORING REPORT 2003 - 2008

Background

Listing

On March 11, 1967, the U.S. Fish and Wildlife Service (Service) listed the Columbian white-tailed deer (*Odocoileus virginianus leucurus*) as an endangered species under the Endangered Species Preservation Act of 1966 (FR 32 4001, USFWS 1967). At that time, the subspecies was believed to occur only along the lower Columbia River, whereas the population in Douglas County was believed to be hybridized with the Columbian black-tailed deer (ODFW 1995). On March 8, 1969, the Service included the Columbian white-tailed deer on a list of fish and wildlife species threatened with extinction under the Endangered Species Conservation Act of 1969 (FR 34 5034, USFWS 1969). Species listed as endangered on the above-mentioned lists were automatically included in the Lists of Endangered and Threatened Wildlife when the Endangered Species Act (Act) was enacted in 1973.

In 1978, the State of Oregon determined white-tailed deer in the Roseburg area belonged to the Columbian subspecies (ODFW 1995). This determination resulted in the Douglas County population being considered as endangered, together with the Columbia River population.

The Columbian white-tailed deer was listed as endangered by the State with the passage of the Oregon Endangered Species Act in 1987 (ODFW 1995).

Recovery Plan

In accordance with the Act, the Service appointed a team of experts (the Columbian White-tailed Deer Recovery Team (Recovery Team)) to develop a recovery plan for the Columbian white-tailed deer. The Service approved the original Columbian White-tailed Deer Recovery Plan (Recovery Plan) in 1977, and the Recovery Team revised the Recovery Plan in 1983 to include the newly recognized Douglas County population (USFWS 1983). Because of the distance between the Columbia River and Douglas County populations and differences in habitats and threats, the Recovery Plan addresses the recovery of each population separately.

The Recovery Plan identified the following objectives for the Douglas County population: (1) To downlist the population to threatened, the Recovery Plan recommended the maintenance of 1,000 Columbian white-tailed deer in a viable status on lands within the Umpqua River basin of Douglas County, while keeping the relative proportions of deer habitat within the known range of the subspecies from further deterioration; and (2) to delist the population, it recommended the maintenance of a minimum population of 500 animals from the larger population, to be distributed on 5,500 acres of suitable, secure habitat within the Umpqua River basin of Douglas County on lands owned, controlled, protected, or otherwise dedicated to the conservation of the species (USFWS 1983).

The Recovery Plan defined secure habitat as those areas protected from adverse human activities (*e.g.*, heavy, unregulated grazing by domestic animals, clearing of woody plants) in the foreseeable future, and are relatively safe from natural phenomena that would

destroy their value to the subspecies (USFWS 1983). The Recovery Plan did not define secure habitat to include only publicly owned lands; rather, it provided further guidance on secure habitat by stating that local entities, including planning commissions, county parks departments, and farm bureaus, could secure habitat through zoning ordinances, land-use planning, parks and greenbelts, agreements, memoranda of understanding, and other mechanisms available to local jurisdictions (USFWS 1983). The Recovery Plan also recommended private conservation organizations be encouraged to secure habitat for Columbian white-tailed deer through easements, leases, acquisitions, donations, or trusts (USFWS 1983).

The Recovery Plan identified a series of tasks the Recovery Team recommended to meet the downlisting and delisting objectives for the Douglas County population of Columbian white-tailed deer (USFWS 1983). These tasks fall into five main categories: (1) Tracking population status; (2) Ensuring viability of the population through enforcement of existing laws and regulations; (3) Securing and protecting habitat to allow the population to increase; (4) Studying the ecology of the population and assessing the threat of hybridization with Columbian black-tailed deer; and (5) Encouraging public support for Columbian white-tailed deer restoration.

Delisting

In 1995, the Oregon Department of Fish and Wildlife (ODFW) reviewed the status of the Columbian white-tailed deer in Oregon (both Douglas County and Columbia River populations) and concluded the subspecies had recovered (ODFW 1995). At the November 1995 meeting of the Oregon Fish and Wildlife Commission, the Commissioners voted unanimously to remove the Columbian white-tailed deer from the State of Oregon List of Threatened and Endangered Species; the subspecies was placed on the State's Sensitive Species List for continued monitoring (Oregon Fish and Wildlife Commission 1995).

On July 24, 2003, the U.S. Fish and Wildlife Service published a rule, effective immediately, establishing two distinct population segments (DPS) of the Columbian white-tailed deer: the Douglas County DPS and the Columbia River DPS; and removing the Douglas County DPS from the List of Threatened and Endangered Wildlife. Delisting was possible with the attainment of 1) a viable population exceeding 1,000 individuals, 2) more than 5,500 acres of secure habitat; and, 3) the maintenance of a minimum population of 500 deer from the overall, larger population on secure habitat (FR 68 43647, USFWS 2003).

A major contributor in the Service's ability to successfully recover and delist the deer in 2003 was the 1994 acquisition of the 6,581 acre North Bank Habitat Management Area (NBHMA) by the Bureau of Land Management (BLM) and finalization of the management plan for the NBHMA in 2001 (BLM 2001). See section III., Page 7 for more information regarding the management objectives and importance of the NBHMA to the continued restoration of the deer in Douglas County.

Post-Delisting Monitoring Plan and Reporting

This Post-delisting Monitoring Report fulfills the requirement in the Post-delisting Monitoring Plan for the Douglas County DPS of the Columbian White-tailed Deer (deer), finalized in July 2005 (USFWS 2005). This report summarizes and presents the data

(tables, spreadsheets and figures) collected for calendar years 2007 and 2008 for the deer. This report also summarizes data collected during all years (2003 to 2008) of the post delisting monitoring period to date. This report, as is the case with previous reports (2003-2005 and 2006), will be available to all cooperators and will be posted on the webpage of the Service's Oregon Fish and Wildlife Office:

<http://www.fws.gov/oregonfwo/Species/Data/ColumbianWhiteTailedDeer/Delisting.asp>

The Post-delisting Monitoring Plan requires us to provide information on population trends, disease occurrence and habitat status during each calendar year of the post-delisting monitoring period. In the report, we also provide updates on the deer harvest and trap and transplant programs conducted by ODFW's Roseburg District.

In this report, we

- review the status of the population with respect to the five listing factors considered in Section 4 of the Endangered Species Act;
- summarize the monitoring results during the post-delisting-monitoring period, and
- list our recommendation and rationale to extend the monitoring period for an additional time period.

I. Population trends

ODFW has provided the following information regarding the deer population:

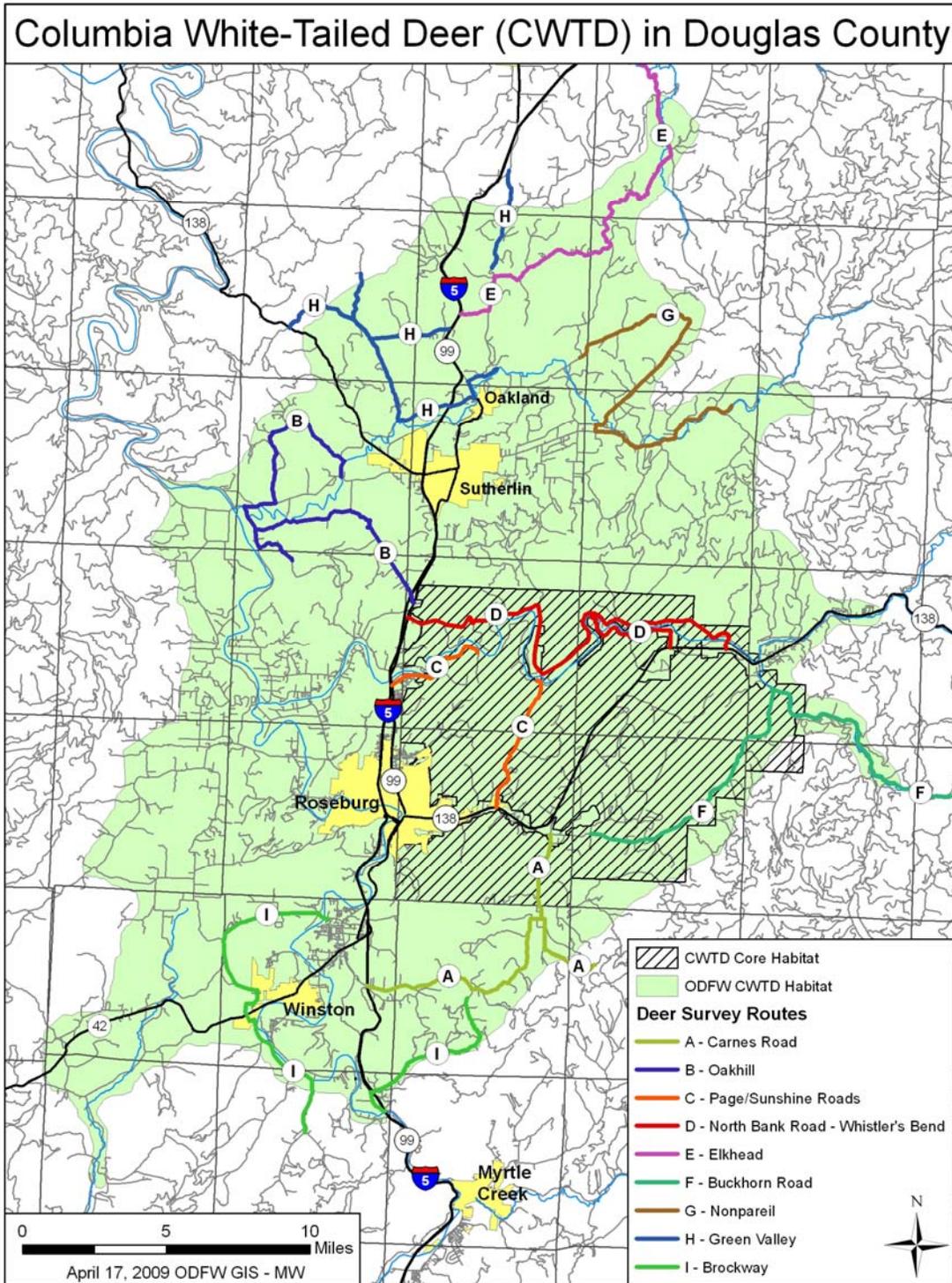
Spotlight survey information (deer per mile)

Since 1975, the ODFW has conducted spring and fall spotlight surveys to estimate population size, recruitment, and sex ratios. The ODFW has established standard routes along 130 miles of road within the known range of the deer (Figure 1). In 2007, the ODFW estimated there were 6.8 deer per mile along their standard spring time census routes (47.5 miles) in the core area of the population's range, and 0.9 deer per mile on survey routes (85.5) outside of the core area (Appendix A, spreadsheets 1 and 2) (Tod Lum, pers. comm. 2008). The lower value outside of the core area may be explained by the recent expansion of the deer into these historic, but only recently occupied segments of the deer's range.

While the NBHMA, a key component of secure habitat, is within the core area for the deer, spring and fall surveys were not conducted within the NBHMA. One route (North bank Road/Whistler's Bend) has been conducted adjacent to the west and south boundaries of the NBHMA. With the assistance of ODFW, BLM established and surveyed spotlight routes within the NBHMA. The initial routes totaled 11 miles in length for 2007 and were expanded to 17 miles in 2008. It is anticipated this will become the standard survey route in future years.

In 2007 surveys were conducted twice, in late August and early September, prior to hunting season. August and September surveys resulted in 4.91 deer per mile (Tod Lum, pers. comm. 2008 and 2009). In 2008 surveys efforts again were conducted twice and resulted in 4.5 deer per mile in August and 3.7 deer per mile in September (Tod Lum, pers. comm. 2009). The survey results for NBHMA (4.91 for 2007 and 4.5 and 3.7 for 2008) are lower than the ODFW standard core routes for 2007 and 2008 (5.9 deer/mile and 7.2 deer/mile, respectively).

Figure 1. CWTD Core Area and ODFW Spotlight Routes



This may be explained by the difference in miles surveyed (47.5 miles for core versus 11 miles and recently expanded to 17 miles for NBHMA) and the small sample size (two years) for NBHMA. Another variable possibly affecting the 2008 NBHMA information is a 40-acre burn that occurred between the August and September survey (Tod Lum, pers. comm. 2009). This burn could have affected deer use of the area in the short time leading up to the September survey effort. Continued survey of NBHMA is needed before a reliable trend within the area can be identified.

Overall, since 1975, the number of deer per mile, range-wide, has shown a steady, increasing trend (Appendix A, Spreadsheet 2).

Buck and fawn per 100 doe ratios

The buck/doe ratios (bucks per 100 does) in 2007 and 2008 were 26 and 18, respectively. Since 1980, buck/doe ratios have averaged 23.4 with a range of 0 to 57. Since 2003 the range is 18 to 26 with an average of 20.6. An average buck ratio of 20 (1 buck per 5 does) is sufficient to provide enough breeding males in the deer population (Tod Lum, pers. comm. 2009).

The fawn/doe ratios (fawns per 100 does) in 2007 and 2008 were 24 and 29, respectively. Since 1980, fawn/doe ratios have averaged 32.8 with a range of 14 to 57. Since 2003 the range is 14 to 29 with an average of 22.5. The deer have been protected for many years and only since 2003, have a limited number of bucks been allowed to be harvested. Does however, are still protected from hunter harvest. The only form of doe mortality comes from road kills, predation, and disease. It is plausible that the low deer fawn ratios may be indicative of an aging doe population where older does are less likely to have fawns. It may also be a function of a population approaching carrying capacity where there is less room for the population to expand due to limitations on available habitat (Tod Lum, pers. comm. 2009).

Appendix A (Spreadsheets 1 through 3) presents 2007 and 2008 buck, doe and fawn counts and ratios; spring counts 1975-2008; fall counts of bucks per 100 does 1980-2008; and counts of fawns per 100 does for 1980-2008.

Annual population estimates

Annual population estimates by ODFW for the deer have demonstrated a long-term upward trend since management for the deer population began in 1975. Population estimates for 2007 and 2008 continue this strong, upward trend (Figure 2). The deer population estimate for 2007 and 2008 is 6,295 deer and 6,450 deer, respectively (Tod Lum, pers. comm. 2008). These are the highest estimates since monitoring began. Appendix B presents population estimates from 1975 through 2008.

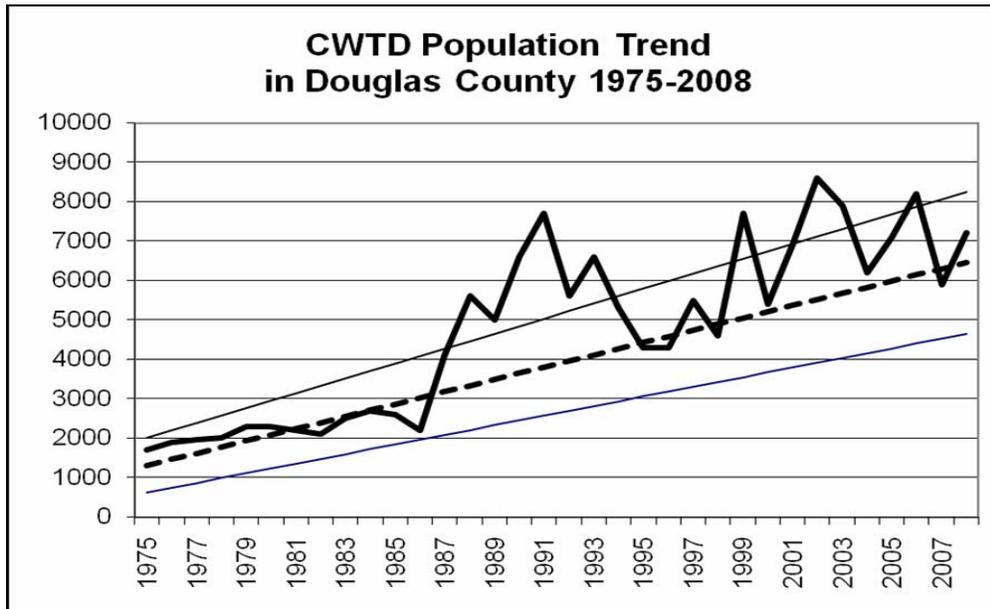
Range

The range of the deer continues to expand to the north and west, and the population occupies an area of approximately 530 square miles compared to an area estimated at 308 square miles in 2002 (Figures 3).

In summary, the Douglas County 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 31 square miles (Crews 1939). By

1983, the population had increased to about 2,500 deer (USFWS 1983). The population has continued to grow and is currently estimated at over 6,000 deer (Figure 2). Along with this increase in numbers, since 1995, the range also has expanded to the north and west, and the subspecies which occupied approximately 308 square miles in 2002, now occupies an area of approximately 530 square miles (Figure 3).

Figure 2: Deer Population Estimate 1975-2008



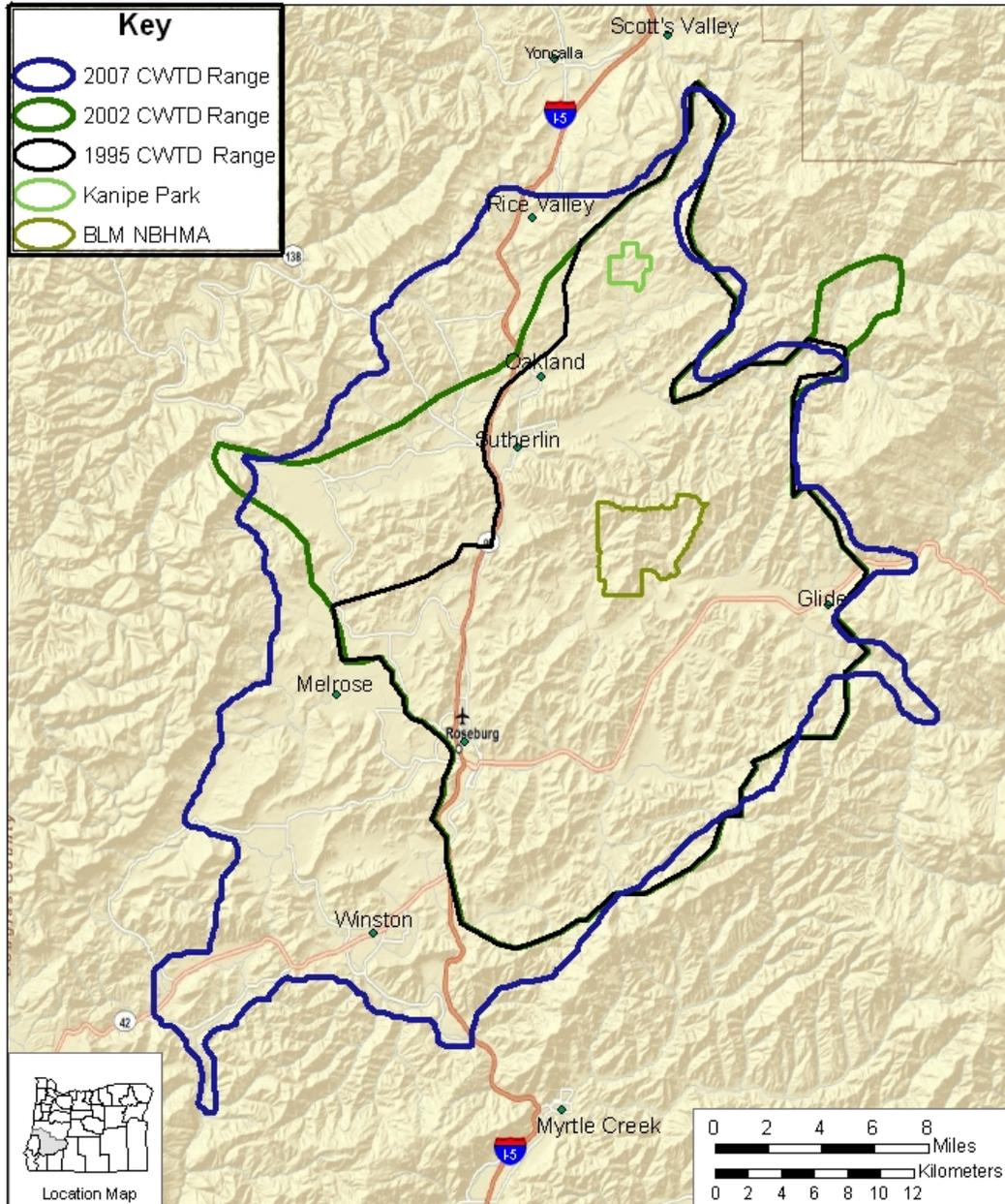
However, we lack sufficient monitoring data regarding deer and the topics below and recommend extending the monitoring phase in order to acquire answers to the following questions:

- How many deer occur within the NBHMA,
- While the deer population range-wide, is steady and increasing, within the NBHMA, are deer numbers increasing, decreasing, or stable,
- Establishing a spotlight route data set (or other wildlife census techniques, such as Forward Looking Infra-Red (FLIR)) large enough to identify trends; and,
- Are there possible conflicts between recreational activities (such as spring and fall turkey hunts, hiking, mountain biking, and equestrian activities) and deer use.

Addressing the above issues will assist in the continued restoration and management effort to benefit the deer and its habitat in Douglas County.

Figure 3. Range Expansion of Douglas County Population of Columbian white-tailed deer based on information provided by Oregon Department of Fish and Wildlife. 1995-2008

Range of the Douglas County Population
of the Columbian White-tailed Deer
1995 to 2007



No warranty is made by the U.S. Fish and Wildlife Service as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.



May 13, 2009
c:\WorkStation\ CWTD2002.mxd



II. Disease Occurrence and Disease Outbreak Early Alert System

Three diseases are monitored as part of the ongoing post-delisting monitoring program, two diseases (adenovirus hemorrhagic disease and deer hair-loss syndrome) are endemic in the population, and are monitored as part of ODFW's standard disease monitoring efforts. ODFW has provided the following information regarding the Douglas County deer population:

1. Adenovirus hemorrhagic disease

Sampling by ODFW has found adenovirus titers (evidence of past exposure) are present throughout the deer population. ODFW considers this disease to be present in the herd at low levels (endemic) (Tod Lum, pers. comm. 2008).

2. Deer hair loss syndrome

Deer that appear to be suffering from deer hair-loss syndrome are noted by ODFW on the twice annual population surveys. Deer hair-loss syndrome is not currently considered to be a threat to the population, but the post-delisting monitoring program is tracking the incidence of this condition. In 2007, 0.4 percent (1 occurrence in 254 deer) of the deer population had this syndrome (Tod Lum, pers. comm. 2008).

3. Chronic wasting disease

This disease has not been detected anywhere in Oregon to date (Tod Lum, pers. comm. 2008). This disease will continue to be monitored because should it ever be detected, the disease could pose a significant threat to the deer.

In summary, current data (from 2003 through 2008) show no evidence of increased mortality due to adenovirus hemorrhagic disease or deer hair loss syndrome. These diseases are present in the population at low levels, but at this time are not showing evidence of becoming more prevalent. Chronic wasting disease has not been detected in Oregon, and therefore is not currently a threat to the deer.

III. Habitat Status

The Recovery Team recognized conversion of habitat to rural residential homesites and intensive livestock grazing as the prime threats to Columbian white-tailed deer habitat in Douglas County (USFWS 1983). A large area of habitat used by the deer has been protected, which contributed to the deer's recovery. Since 1978, over 7,000 acres have come into public ownership within the deer's range. This acreage includes the BLM's NBHMA and Douglas County's Mildred Kanipe Memorial Park. In addition, several smaller parcels owned by the county and private landowners provide important refuge or hiding cover for deer.

The largest publicly owned parcel providing habitat for deer is the NBHMA. The NBHMA was previously managed as a working cattle ranch. It was acquired by the BLM in 1994 through a land exchange (BLM 1998) specifically to secure habitat for the deer

since it lies within the Douglas County core habitat. The NBHMA is located east of Roseburg in the North Umpqua River basin (Figure 3) and is characterized by four distinct habitat types: Grasslands and oak savannah (29 percent); hardwood/conifer forest (52 percent); oak woodlands (17 percent); and other habitat such as rock outcrops, riparian areas, and wetlands (2 percent) (BLM 1998). The ODFW estimated deer occurrence on the NBHMA ranged from 154 to 348 individuals during 1994 through 1997. (Steve Denney, pers. comm. 1997). No active habitat management occurred at the NBHMA in the period between its acquisition in 1994 and the completion of a management plan in 2001; this lack of management resulted in a decline in habitat quality (BLM 2000). Thatch (rank vegetation) had built up in grassland areas, and invasion of undesirable shrub species, cedar encroachment in meadow areas, and conifer seedling establishment in oak woodlands contributed to the decline in habitat quality by inhibiting forb production for deer forage, and by reducing the availability of preferred cover (BLM 1998). The delay in initiation of management activities resulted from the need to develop and approve a management plan for the parcel. A final management plan was approved in June 2001 (BLM 2001).

The primary goal of the Habitat Management Plan is to ensure habitat for the deer and special status species is managed to maintain species viability over time (BLM 2001). Management objectives identified in the final NBHMA management plan include: (1) Increased availability, palatability, and nutritional quality of deer forage and browse; (2) maintenance of mature oak, shrub, and herbaceous vegetation components; (3) control of noxious weeds; and (4) development of water sources (BLM 2001). Prescribed burning, thinning, timber management, seeding and planting, and livestock grazing are some of the management tools available to achieve these objectives (BLM 2001); these activities will be scheduled to avoid sensitive periods (such as fawning and nursing) for the deer (USFWS 2001). Prescribed burning and seeding will be used to increase the abundance of desirable forage plants; thinning in oak woodlands and removal of encroaching conifers will provide more preferred open canopy hiding cover for the deer (BLM 2001; USFWS 2001).

Mildred Kanipe Memorial Park, managed by the Douglas County Park Department (DCPD), is the second largest parcel of publicly owned land parcel, at 1,100 acres, within the deer's range. The park lies about 10 miles north of the NBHMA (Figure 3). Douglas County prepared a Coordinated Resource Management Plan with recommendations for the Park.

Whistler's Bend County Park is directly south of the NBHMA, across the North Umpqua River. The park is 175 acres in size and has a population of about 100 Columbian white-tailed deer (Steve Denney, pers. comm. 2001). The park is managed for human recreation needs (DCPD 1999), 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 (Steve Denney, 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).

Douglas County implemented land-use plans and zoning ordinances that apply to private lands to protect habitat and assist in deer recovery (DCPD 1995; Douglas County Board of Commissioners 2002). These protective measures include retention of existing land uses

that maintain essential habitat components. Minimum lot sizes for farm use and timberlands, as well as building setbacks along riparian zones, have been established to ensure maintenance of habitat and travel corridors (ODFW 1995; Douglas County Board of Commissioners 2002). Douglas County's Columbian White-tailed Deer Habitat Protection Program was established in 1980 (Douglas County Board of Commissioners 2002). The County, in conjunction with the ODFW and the Service, identified the range of habitat with the greatest density of Columbian white-tailed deer, and 73,495 acres were designated as Essential Habitat Areas (DCPD 1995). Potential conflicting uses within the Essential Habitat Areas were identified as: (1) Residential development in native riparian habitat; (2) additional livestock development in lowland river valleys; and (3) brush clearing, aimed at creating and improving pastures for livestock, that removes cover for deer (Douglas County Board of Commissioners 2002). To address these concerns, 96.5 percent (70,555) acres of the resource lands (agricultural or farm/forest) within the Essential Habitat Area are subject to a minimum parcel size of 80 acres; any land division requests of less than 75 acres must be reviewed by the ODFW (Douglas County Board of Commissioners 2002). Land zoned as non-resource lands within the Essential Habitat Area (3.5 percent) is limited to single family dwellings, and rural residential development is limited to 2-acre and 5-acre lots (DCPD 1995; Douglas County Board of Commissioners 2002). Another component of Douglas County's program to conserve habitat for the subspecies is a 100-foot structural development setback from streams to preserve riparian corridors within the Essential Habitat Area (Douglas County Board of Commissioners 2002).

1. Management Actions within Secure Habitat Areas

a. North Bank Habitat Management Area: General management actions have been implemented before and since de-listing of the deer (from 2001-2008) to restore stream, riparian and upland habitat. These management actions include prescribed burning, seeding, forage plot development, noxious weed treatment, mowing, planting, and installation of water developments (guzzlers) (Figure 5). Extensive work has been accomplished on stream headcuts and crossings along with associated road improvements to improve stream and riparian habitat (Figure 6). Refer to Table 1 for detailed information on management actions accomplished from 2001-2008 (Ariel Hiller, pers. comm. 2009).

Monitoring

The following monitoring efforts are occurring within the NBHMA:

- Stream and riparian monitoring has been implemented with the establishment of baseline stream channel and greenline surveys. Greenline surveys are designed to measure vegetation trends on streambanks and rely upon identification of riparian plant community types on a line intercept transect (Cagney 1993).
- Vegetation condition monitoring has been implemented with the establishment of permanent photo plots and transects within different habitat types. Plots and transects have been and will be re-visited as various management actions have taken place across the area.
- With the assistance of ODFW, BLM established and surveyed deer census spotlight routes within the NBHMA in 2007. The initial routes totaled 11 miles in length with expansion to 17 miles in 2008 and future years. Surveys were conducted twice, in late August and early September, prior to hunting season.

Figure 5. Prescribed burning at NBHMA 2007.



Figure 6. Stream restoration work in Jackson Creek on NBHMA in 2008.



Information gaps and recommendations regarding deer and deer habitat on NBHMA

It is unclear how deer are using treated habitat. In addition to the long-term tracking of deer population indexes using a spotlight survey the BLM, USFWS, and ODFW should consider other methods to monitor the deer's response to habitat altering activities; including, but not limited to:

- Continue the monitoring effort using GPS capable, radio collared deer to evaluate deer use of various habitat types including forage plots, as well as areas treated by prescribed fire, mowing, planting and seeding.
- Evaluate the effects of hunting on the CWTD population.
- Research the role of oak woodland/savannah restoration in relation to deer habitat use within the NBHMA.
- Evaluate the effects of the recreational activities on the deer population occurring within the NBHMA. Including the deer, quail/grouse, turkey and elk hunts.
- Examine the impacts of the ODFW NBHMA spring turkey hunt on fawning season.

b. Mildred Kanipe Memorial Park: In 2007 and 2008, Douglas Soil and Water Conservation District (DSWCD) staff continued oak savanna restoration projects to restore 100 acres of oak savanna and oak woodland in the park. Treatments targeted non-native and invasive species (English hawthorn, Himalayan blackberry and Scotch broom) through cutting, spraying and burning. Reseeding these areas will also occur with native understory species.

c. Whistler's Bend County Park: At this time, deer habitat management has not occurred in the Park.

2. Management Actions within Private lands

Habitat conservation and restoration projects on private lands have direct and indirect benefits to deer. Riparian protection (such as fences and off-stream watering facilities) along with actions such as native plantings, grass seeding and conversion of orchards and pasture back to native riparian vegetation provide deer with valuable fawning and/or hiding cover and thermal refugia during the hot summer months.

Several of these projects were funded under the auspices of stream and riparian restoration for salmon and steelhead (such as Oregon Watershed Enhancement Board (OWEB), Partners for Fish and Wildlife and Jobs-in-the-Woods). These projects, because of the deer's affinity for riparian habitat have contributed and will continue to assist in the restoration of deer throughout their expanding and historic range. Some examples are:

a. Oerding Preserve at Popcorn Swale: Oerding Preserve at Popcorn Swale is 30 acres. This land was received as a gift from the Oerding family to The Nature Conservancy. The deer are known to utilize this site. From fall of 2003 through 2008, work accomplished includes:

- Removal of 1,350 pear trees, ash and English hawthorn on five acres.
- Removal of 200-300 pear trees on two acres.
- Removal of pear trees from an ash stand on 0.25 acre.

- Seven acres of teasel cut annually.
- Two acres of blackberry removed.
- Approximately 700 square yards of reed canarygrass (non-native) covered with landscape fabric.
- 35 pounds of native seed gathered and used to reseed 0.35 acres.
- Annual vegetation monitoring to evaluate species cover and diversity.
- Annual photo-point monitoring to visually document changes.

b. Marilyn Gill Oak Restoration Project: Marilyn Gill oak restoration project occurred September 2004 through July 2005. A Service private stewardship grant was used to conduct treatments through the McKenzie River Trust and in cooperation with DSWCD.

- Treatments were completed on 61 acres to control noxious weeds (English hawthorn, Himalayan blackberry, Scotch broom, and exotic rose).
- Machine and hand thinning removal of conifers, dense oaks and brush to release oaks on 132 acres.
- Machine removal of Himalayan blackberry in a riparian area on 11 acres.
- Installed trial plots using an herbicide and native grass seeding to re-establish native bunchgrass.
- Installed trial using herbicide vs. hand cutting to thin oak seedlings in native bunchgrass.
- A perpetual conservation easement is in place on 202 acres to protect and enhance deer habitat.

c. Jobs-in-the-Woods Program: Funding for projects on private lands of four landowners was provided through the Service's Jobs-in-the-Woods program and in cooperation with DSWCD. Projects from 2003-2005 include:

- Invasive species removal (hawthorn, poison oak, blackberry, and Scotch broom) on 14 acres and replanted with conifers.
- Invasive species removal (hawthorn, blackberry, and Scotch broom) occurred on 58 acres and replanted with conifers on 39 acres out of 58 acres.
- Riparian planting with hardwoods and conifers on 12 acres, and fencing to exclude cattle.
- Removal of invasive species and conifer planting on 10 acres. Wetland enhancement work on 15 acres included backfill, enlarging a wetland area, planting hardwoods, conifers and shrubs.

d. Environmental Quality Incentives Program: The Natural Resources Conservation Service worked with landowners through the Environmental Quality Incentives Program to implement several projects from 2003 through 2008.

- Continuation of tree planting, riparian development, wildlife habitat development, pasture management, and grazing management on approximately 3,000 acres.

e. Umpqua Basin Watershed Council: The Umpqua Basin Watershed Council worked with eight landowners to implement projects from 2003-2008.

- Riparian planting with conifers and hardwoods on 28.5 acres.
- Riparian fencing on 7.2 acres.

f. Conservation Reserve Program (CRP), Continuous Conservation Reserve Program (CCRP) and Conservation Reserve Enhancement Program (CREP): The Farm Services Agency worked with several landowners enrolled in CRP, CCRP and CREP to implement projects through 2003-2008 (Cindy Bright, pers. comm. 2008 and 2009; David Chain, pers. comm. 2009).

- Converting crops to native cover on 400 acres.
- Riparian planting of trees and shrubs on 600 acres.

g. DSWCD: In addition to the specific project listed above the DSWCD also has implemented many projects since 2003 in cooperation with private landowners using several funding sources (such as OWEB, Oregon State Weed Board, Douglas County (SHIP) and Title II of the Payment to Counties Act) (Cindy Bright, pers. comm. 2008 and 2009). Projects include:

- Noxious weed control with 65 landowners on 1,661 acres.
- Conifer, wetland and riparian planting on 218 acres.
- Planting and reestablishment of native vegetation on 290 acres of riparian and oak woodland habitat.
- Construction of fences along 9,800 feet of streams to appropriately manage stock grazing in riparian areas.
- Pond installation, watering facilities and spring development.

3. Development and Habitat Management within Douglas County

As previously discussed in the 2003-2005 Post-delisting Monitoring Report for the deer, there has been a change in the Douglas County land use restrictions in terms of the removal of the deer habitat overlay by the county. Originally, this was a building setback of 100 feet in Roseburg city limits and 50-foot setback in the rest of Douglas County. Vegetation removal could occur in the riparian areas and habitat was not protected. Currently, with this rule change, there is still a 50-foot setback in the entire county from a riparian area for building a structure; however, vegetation removal can still occur down to the creek or river. Therefore, this rule change has no additional effect on the deer population (Cat Brown, pers. comm. 2006).

Residential developments within City of Sutherlin include:

- Mont Claire-18.6 acres, development continues to the present.
- Forest Heights-25.6 acres, development continues to the present.
- Cooper Creek Estates-11 acres, development continues to the present.
- 6th Street Heights-5.2 acres, development continues to the present.
- Quail Run-6.5 acres, development started in 2006.
- Daffodil-preliminary approval for development.
- Pear Lane- preliminary approval for development.
- North of Sutherlin-217 acres added to the Urban Growth Boundary (UGB), initial phase of annexation completed and continuing to plan a proposed residential development.

Additions for the city of Roseburg Urban Growth Boundary include:

- Ramp Canyon-680 acres; development is underway with new housing units planned.

- Charter Oaks-350 acres
- Page Road-100 acres
- Dixonville-350 acres

Ramp Canyon currently has suitable deer habitat with housing developments planned for 2006 and beyond. Charter Oaks, Newton Creek and Page Road have existing housing developments and will be annexed in to the city of Roseburg. Dixonville has very little suitable deer habitat. This level of development should not affect the overall deer population. The deer continue to be present in the city limits and should continue to be present in the future, but deer carrying capacity should be reduced. With an estimated 197,000 acres of suitable habitat occupied by the deer in Douglas County, the above acres affect less than one percent of the total suitable habitat (Cat Brown, pers. comm. 2006).

In summary, important habitats such as riparian areas and oak woodlands are being managed for the deer at NBHMA and Mildred Kanipe Memorial Park and private lands throughout the deer's expanding range in Douglas County. Some losses or changes in habitat condition and quality have been noted. At the time of delisting, some development was expected. Continued habitat restoration and conservation is occurring that offsets these habitat losses. Further monitoring and evaluation of overall habitat loss, habitat restoration and deer habitat use within the range of the deer should continue.

IV. Columbian white-tailed deer hunts in Douglas County

The Oregon Department of Fish and Wildlife is responsible for the state's management of wildlife and when appropriate, may offer recreational harvest opportunities of game animals to the public.

Population monitoring of the deer in Douglas County indicated stable to increasing numbers of deer during the pre- and post-delisting period. Offering a limited number of buck tags to the public would provide recreational harvest opportunity with little impact to the overall deer population (Tod Lum, pers. comm. 2009).

In 2005, the Oregon Fish and Wildlife Commission approved a limited number of rifle buck tags (Hunt # 123- Umpqua) for hunting white-tailed deer or Columbian black-tailed deer (black-tailed deer) within Douglas County, excluding the NBHMA. The oak woodland/savannah and riparian habitat areas heavily utilized by white-tailed deer meant the majority of hunting opportunity would be located at lower elevations on private lands. Therefore, the general public would have fairly restricted access to hunting white-tailed deer. However, it was the first opportunity hunters would have to hunt white-tailed deer since their listing as an endangered species in 1978. Although the hunt was only 12 days long in early October, it was well received by landowners who supported white-tailed deer populations on their lands throughout the 25 year closure.

In 2005, 96 hunters participated in one hunt providing an opportunity to harvest a white-tailed deer with Douglas County. They harvested 51 white-tailed deer bucks and six black-tailed deer bucks.

In 2006, an archery hunt was added to the Douglas County hunt (Hunt # 123R1- Umpqua Bow) and it provided archery hunters two weeks of hunting opportunity in the late August

through early September. The hunt was fairly restrictive as it was only two weeks long and limited archers to hunt in only this area and nowhere else. The bag limit for this archery hunt was a white-tailed buck or an either-sex black-tailed deer.

Up until 2006, hunting on NBHMA was geared towards the reduction of black tails to reduce competition with white-tailed deer. There were three youth hunts (any black tail bag limit) and one hunt for Master Hunters (antlerless black tail only). In 2006, ODFW began to provide some limited public hunting opportunity for white-tailed deer on the NBHMA by creating three new hunts and modifying an existing one. The new hunts were for archery hunters (Hunt # 123R2- N Bank Habitat Bow), muzzleloader hunters (Hunt # 123M2- N Bank Habitat) and rifle hunters (Hunt # 123B- N Bank Habitat). The first youth hunt (Hunt # 623T1- N Bank Habitat) was modified to allow youth hunters the same opportunity as the three new hunts, to harvest a buck white-tailed deer or any black-tailed deer.

Archery hunters were limited to a short couple of weeks in the late summer when hot and dry conditions are not always conducive to harvesting deer. The first youth hunt (623T1) followed with 16 days of hunting in October under usually better hunting conditions. The next two youth hunts (623T2 & 623T3) were for black-tailed deer only, and took the hunting season into early December. The muzzleloader hunters (123M2) were given nine days to hunt in mid- December and were followed by rifle hunters (123B) who hunted the last week in December. The last hunt of the season was for Master Hunters (623B) hunting for antlerless black-tailed deer during 16 days in mid-January.

In 2006, 140 hunters participated in six hunts providing an opportunity to harvest white-tailed deer. They harvested 17 white-tailed deer bucks, 11 black-tailed deer bucks and one black-tailed deer doe. In 2006, 57 hunters participated in four hunts within the NBHMA (Hunt #s 123B, 123R2, 123M2 and 623T1) with an opportunity to harvest a white-tailed deer. They harvested 11 black-tailed deer bucks, one black tailed deer doe and 17 white-tailed deer bucks.

The season structure remained the same in 2007 and in 2008 a second Master Hunter antlerless black-tailed deer hunt was added (623B2).

In 2007, seven controlled hunts occurred in Douglas County from early September to late January of 2008. Four of those hunts allowed the taking of a white-tailed buck (having not less than a forked antler) or one black-tailed buck. Two hunts allowed the taking of a black-tailed buck, and one hunt allowed the taking of antlerless black-tailed deer. At this time hunts targeting white-tailed does are not occurring.

In 2007, a total of 143 hunters harvested 23 black-tailed bucks and 45 white-tailed bucks. Six black-tailed does were taken during the hunting period. In 2007, within the NBHMA, four hunts (Hunt #s 123B, 123R2, 123M2 and 623T1) occurred with 61 hunters harvesting 13 black-tailed and 7 white-tailed bucks (Tod Lum, pers. comm. 2007 and 2008).

In 2008, 150 hunters harvested 32 black-tailed deer bucks, two black-tailed deer does and 38 white-tailed deer bucks. In 2008, again, four hunts (Hunt #s 123B, 123R2, 123M2 and 623T1) provided 57 hunters with an opportunity to harvest a white-tailed deer within the

NBHMA, 17 black-tailed deer bucks, two black-tailed deer does and six white-tailed deer bucks were harvested (Tod Lum, pers. comm. 2009).

Since 2005, when the harvest of a white-tailed buck was allowed, a total of 529 hunters have participated in 20 hunts offering an opportunity for the hunter to harvest a white-tailed buck. During this period, 151 white-tailed bucks have been harvested.

Within the NBHMA, hunters have harvested 74 animals (30 white-tailed bucks, 41 black-tailed-bucks and three black-tailed does) since 2006 when hunting within the NBHMA was initiated.

Appendix A (Spreadsheet 4) presents a summary of the hunts occurring from 2005 to 2008.

V. Deer Transplant

Currently, ODFW is transplanting deer from occupied habitat into historic, but unoccupied habitat west of Roseburg near the communities of Melrose and Winston; and in the Rice Valley and Scotts Valley areas of northern Douglas County (Figure 3). Populations are being established on additional acreage which results in a net increase of occupied habitat. During 2007, a total of 76 deer were captured and relocated to areas where deer were released in previous years. In 2008, 94 deer were captured and relocated. From 2004 through 2008 a total of 281 deer have been captured and relocated (Table 2).

Table 2. 2003-2008 Summary of Deer Transplant Program

| Year | Captured | Released* | Died | Euthanized | Relocated | |
|------------------|----------|-----------|------|------------|-----------|------|
| | | | | | Bucks | Does |
| 2004-2005 | 59 | 3 | 6 | 1 | 18 | 31 |
| 2005-2006 | 79 | 3 | 0 | 0 | 32 | 44 |
| 2007 | 71 | 5 | 4 | 0 | 33 | 29 |
| 2008 | 98 | 2 | 2 | | 30 | 64 |
| totals | 307 | 13 | 12 | 1 | 113 | 168 |

*Released at capture site

A portion of the deer from this relocation effort has been radio collared to allow for subsequent monitoring. Based on information collected by ODFW, it appears some of the deer have moved north into the southern Willamette Valley near Cottage Grove Reservoir (Tod Lum, pers. comm. 2008). ODFW is not ready to document a range expansion at this time, but if the deer transplant effort continues, the Service expects to see establishment of resident deer in the southern Willamette Valley in the next several years (Tod Lum, pers. comm. 2008).

VI. Status of the deer based on the five factors considered when a species is proposed for listing

Section 4 of the Endangered Species Act specifies five factors to be considered when determining if a species is threatened or endangered; these same five factors were reviewed in determining the Douglas County population of the deer merited removal from the list in 2003. In this section, we briefly review the status of the five factors.

1. The present or threatened destruction, modification, or curtailment of habitat or range.

In Section I. Population Trends and Section V. Deer Transplant, deer population numbers continue to exhibit a stable trend through 2008. The current deer population estimate is 6,450. This is the highest population estimate since monitoring of the deer population began (Figure 1 and Appendix B). Since 2003, the population trend continues to be positive, and the deer are well distributed throughout their expanding range in Douglas County, Oregon.

Figure 7. Rocket Nets being deployed over deer herd in area of North Bank Road, near Roseburg, Oregon.



Section III Habitat Status and Section V Deer Transplant show habitat continues to be managed for the benefit of the deer, and deer are utilizing additional habitats as a result of the transplant program. No new threats to habitat or range are apparent. To date, there is insufficient monitoring data regarding habitat quality within NBHMA and Mildred Kanipe with respect to restoration actions (i.e., removal of non-native invasive plants, prescribed burns); and other actions (such as forage plots within the NBHMA) to evaluate the effectiveness of management actions on the deer and their habitat

2. Overutilization for commercial, recreational, scientific, or educational purposes.

In Section IV, since 2005, when the harvest of a white-tailed buck was allowed, a total of 529 hunters have participated in 20 hunts offering an opportunity for the hunter to harvest a white-tailed buck. During this period, 151 white-tailed bucks have been harvested.

3. Disease or predation.

In Section II Disease Occurrence and Disease Outbreak Early Alert System, we reported adenovirus hemorrhagic disease and deer hair-loss syndrome disease, while present in the population, is prevalent in the deer population. Chronic wasting disease has not been detected in Oregon, and poses no threat at this time. Monitoring by ODFW will continue as part of their standard disease monitoring effort.

4. Inadequacy of existing regulatory mechanisms.

No threats associated with this factor are apparent. Existing regulatory mechanisms are in place to manage a controlled deer harvest. While land use planning regulations are in place in Douglas County, continued development in areas of the county supporting deer is a concern. While some development was expected, and continued habitat restoration and conservation is occurring which offsets these losses, overall habitat loss within the range of the deer is continuing. Monitoring efforts focusing on habitat loss, habitat restoration and deer habitat use should continue.

5. Other natural or manmade factors affecting its continued existence.

At this time, no other factors are identified as a concern to the deer population.

VII. Conclusion and Recommendations

Based on information presented in this report, we believe the threats to the deer do not cause concern, and conclude the deer in Douglas County remain secure absent the protections provided by the Act.

However, we also believe current monitoring data is insufficiently to analyze the effects to deer from the following:

- The status of deer population trends on secure habitat,
- Role of habitat restoration activities in maintaining or improving deer condition, and or population levels, and
- The effects of interaction between deer and the human recreation activities (e.g., hunting, equestrian, hiking and biking) on deer condition and population levels.

To address these deficiencies we recommend the following:

1. To allow time to establish population trends on secure habitat, we find the Post Delisting Monitoring Period should be extended through 2012.

Additionally we specifically ask BLM and ODFW, with Service support, to:

2. Continue the spotlight counts, established in 2007 and expanded in 2008, within the NBHMA to establish trend data for deer occurrence with the NBHMA.
3. Analyze effects of hunts on the deer population on NBHMA.
4. Analyze data on deer health using information gathered from deer capture and harvest data.
5. Continue the monitoring effort on NBHMA using GPS radio-collars on deer to evaluate deer use of various habitat types including areas treated by prescribed fire, mowing, planting and seeding.
6. Evaluate and monitor the role of oak woodland/savannah restoration in relation to deer habitat use.
7. Develop a monitoring program to evaluate the interactions within and between recreational uses and the deer populations occurring within secure habitat.
8. Provide input regarding continued development in the range of the deer within Douglas County.

To assist in the planning and implementation of these recommendations, the Roseburg Field Office of the Service will schedule quarterly meetings among partner organizations to further enhance communication and cooperative management of the deer and their habitat. With detailed information from these specific actions we can better evaluate the continued stresses on local deer herds and the effectiveness of habitat restoration and the possible benefits derived by the deer depending on the secure habitat within the range of the deer.

Literature cited

- BLM (Bureau of Land Management), U.S. Department of Interior. 1998. North Bank Habitat Management Area. Draft Management Plan and Environmental Assessment. Roseburg, Oregon. 131 pp.
- BLM (U.S. Bureau of Land Management). U.S. Department of Interior. 2000. Biological Assessment for the North Bank Habitat Management Area's Final Environmental Impact Statement. Roseburg District BLM, Roseburg, Oregon.
- BLM (U.S. Bureau of Land Management). U.S. Department of Interior. 2001. North Bank Habitat Management Area. Final Management Plan and Environmental Assessment. Roseburg, Oregon.
- Cagney, James. 1993. Riparian Area Management: Greenline Riparian-Wetland Monitoring. Bureau of Land Management, Crass Creek Resource Area, Wyoming. Technical Reference 1737-8
- DCPD (Douglas County Parks Department). 1999. Amount of suitable, secure habitat on County Park lands. Letter dated December 21, 1999.
- Douglas County Board of Commissioners. 2002. Comments of the Board of Commissioners, Douglas County, on the Proposed Rule Delisting the Douglas County Population of the Columbian White-tailed Deer. Letter dated August 14, 2002.
- DCPD (Douglas County Planning Department). 1995. Columbian White-tailed Deer in Douglas County, Oregon, an Analysis of Douglas County's habitat Protection Program. Prepared for: Board of County Commissioners of Douglas County, Oregon by the Douglas County Planning Department. December 8, 1995. 5 pages.
- Crews, A. K. 1939. A Study of the Oregon White-tailed deer, *Odocoileus virginianus leucurus* (Douglas). M.S. thesis. Oregon State College. Corvallis. 46 pp.
- Oregon Department of Fish and Wildlife. 1995. Columbian white-tailed deer biological status assessment. Report to Oregon Fish and Wildlife Commission. 83 pp.
- Oregon Fish and Wildlife Commission. 1995. Administration Rule to delist the Columbian White-tailed Deer. 9 pp.
- Recovery Team, *in litt*. 2001. Meeting Notes from the Recovery Team Meeting on June 7, 2001 at the U.S. Fish and Wildlife Service Office in Portland Oregon.
- USFWS (U. S. Fish and Wildlife Service). 1967. Federal Register notice (FR 32-4001) listing the Columbian white-tailed deer as endangered. U.S. Fish and Wildlife Service March 11, 1967.

USFWS (U. S. Fish and Wildlife Service). 1969. Federal Register notice (FR 34-5034) listing the Columbian white-tailed deer among the species identified as threatened with extinction. U.S. Fish and Wildlife Service March 8, 1969.

USFWS (U. S. Fish and Wildlife Service). 1983. Revised Columbian white-tailed deer recovery plan. Portland, Oregon. 75 pp.

USFWS (U. S. Fish and Wildlife Service). 2001. Formal consultation regarding proposed management activities for the North Bank Habitat Management Area. Section 7 log # 1-15-01-F-111, May 31, 2001, U.S. Fish and Wildlife Service, Roseburg, Oregon.

USFWS (U. S. Fish and Wildlife Service). 2003. Federal Register notice (FR 68-43647) Final Rule to remove the Douglas County, Oregon distinct population segment of Columbian white-tailed deer from the Federal list of endangered and threatened wildlife. U.S. Fish and Wildlife Service July 24, 2003.

USFWS (U.S. Fish and Wildlife Service). 2005. Post-delisting Monitoring Plan for the Douglas County Distinct Population Segment of the Columbian White-tailed Deer (*Odocoileus virginianus leucurus*). Portland, Oregon. 21 pp.

Personal Communication

Cindy Bright, Natural Resources Conservation Service. Roseburg, Oregon. Email communication, July 31, 2008.

Cindy Bright, Natural Resources Conservation Service. Roseburg, Oregon. Email communication, April 6, 2009.

Cat Brown, Fish and Wildlife Biologist. U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office. Portland, Oregon. Email communication, April 5, 2006. Providing comments from Steve Denney, Oregon Department of Fish and Wildlife. Roseburg, Oregon.

David Chain. Natural Resource Conservation Service. Roseburg, Oregon. May 4, 2009.

Ariel Hiller. U.S. Bureau of Land Management, Roseburg District. Roseburg Oregon. Email communication, April 23, 2009.

Amy Horstman, Fish and Wildlife Biologist. U.S. Fish and Wildlife Service, OFWO. Portland, Oregon. Email communication, February 9, 2007.

Jim Lee, Douglas Soil and Water Conservation District, Roseburg, Oregon. Email communication, July 31, 2008.

Jim Lee, Douglas Soil and Water Conservation District, Roseburg, Oregon. Email communication, April 2009.

Steve Denney. Oregon Department of Fish and Wildlife. Inter-departmental memorandum to CTWD Recovery Team members, Roseburg, Oregon. June 3, 1997.

Steve Denny. Oregon Department of Fish and Wildlife. Email communication. 2001.

Tod Lum, Wildlife Biologist, Oregon Department of Fish and Wildlife, Roseburg, Oregon. Email communication, 2007.

Tod Lum, Wildlife Biologist, Oregon Department of Fish and Wildlife, Roseburg, Oregon. Phone and Email communication, 2008.

Tod Lum, Wildlife Biologist, Oregon Department of Fish and Wildlife, Roseburg, Oregon. Email communication, 2009.

Appendix A. Spreadsheets

SPREADSHEET 1. 2007-2008 CWTD POPULATION COMPOSITION

| 2007-2008 CWTD POPULATION COMPOSITION | | | | | | | | DOES | FAWNS | CLASS TOTAL | BUCKS PER 100 DOES | FAWNS PER 100 DOES | FAWNS PER 100 ADULTS | HAIRLOSS NO. / % |
|---------------------------------------|--------|-----------|-------|----|----|---|------------|------|-------|-------------|--------------------|--------------------|----------------------|------------------|
| YEAR | UNIT # | UNIT NAME | BUCKS | | | | BUCK TOTAL | | | | | | | |
| | | | 1 | 2 | 3 | 4 | TOTAL | | | | | | | |
| 2007 | | | | | | | | | | | | | | |
| | 21 | INDIGO | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 6 | | 50.0 | 50.0 | 0/0 |
| | 22 | DIXON | 2 | 4 | 0 | 1 | 7 | 23 | 3 | 33 | 30.4 | 13.0 | 10.0 | 0/0 |
| | 23 | MELROSE | 4 | 18 | 11 | 4 | 37 | 141 | 35 | 213 | 26.2 | 24.8 | 19.7 | 1/.47 |
| 2008 | | | | | | | | | | | | | | |
| | 21 | INDIGO | 0 | 1 | 1 | 0 | 2 | 7 | 1 | 10 | 28.6 | 14.3 | 11.1 | 0.0 |
| | 22 | DIXON | 1 | 0 | 2 | 3 | 6 | 16 | 3 | 25 | 37.5 | 18.8 | 13.6 | 0.0 |
| | 23 | MELROSE | 5 | 7 | 14 | 1 | 27 | 167 | 52 | 246 | 16.2 | 31.1 | 26.8 | 6/2.44 |

Spreadsheet 2. Spring Deer Count 1975-2008

| Date | Deer/Mile |
|-------------|------------------|
| 1975 | 1.7 |
| 1976 | 1.9 |
| 1977 | 1.95 |
| 1978 | 2 |
| 1979 | 2.3 |
| 1980 | 2.3 |
| 1981 | 2.2 |
| 1982 | 2.1 |
| 1983 | 2.5 |
| 1984 | 2.7 |
| 1985 | 2.6 |
| 1986 | 2.2 |
| 1987 | 4.1 |
| 1988 | 5.6 |
| 1989 | 5 |
| 1990 | 6.6 |
| 1991 | 7.7 |
| 1992 | 5.6 |
| 1993 | 6.6 |
| 1994 | 5.3 |
| 1995 | 4.3 |
| 1996 | 4.3 |
| 1997 | 5.5 |
| 1998 | 4.6 |
| 1999 | 7.7 |
| 2000 | 5.4 |
| 2001 | 6.9 |
| 2002 | 8.6 |
| 2003 | 7.9 |
| 2004 | 6.2 |
| 2005 | 7.1 |
| 2006 | 8.2 |
| 2007 | 5.9 |
| 2008 | 7.2 |

This data set is derived from total Columbian white-tailed deer counted in the district divided by 47.5 miles (core route mileage)

Spreadsheet 3. Fall Buck to Doe and Fawn to Doe Ratios 1980-2008

| Year | CWTD buck/100 does based on fall compositional counts | CWTD fawns/100 does based on fall compositional counts |
|-------------|--|---|
| 1980 | 10 | 57 |
| 1981 | 57 | 48 |
| 1982 | 0 | 50 |
| 1983 | 18 | 30 |
| 1984 | 24 | 47 |
| 1985 | 16 | 71 |
| 1986 | 22 | 49 |
| 1987 | 31 | 42 |
| 1988 | 19 | 31 |
| 1989 | 21 | 31 |
| 1990 | 28 | 36 |
| 1991 | 30 | 36 |
| 1992 | 29 | 35 |
| 1993 | 29 | 44 |
| 1994 | 26 | 45 |
| 1995 | 21 | 44 |
| 1996 | 22 | 23 |
| 1997 | 22 | 33 |
| 1998 | 17 | 20 |
| 1999 | 32 | 35 |
| 2000 | 30 | 41 |
| 2001 | 22 | 34 |
| 2002 | 24 | 34 |
| 2003 | 22 | 25 |
| 2004 | 22 | 23 |
| 2005 | 20 | 14 |
| 2006 | 20 | 20 |
| 2007 | 26 | 24 |
| 2008 | 18 | 29 |

Spreadsheet 4. Summary of Results for Douglas County Deer Hunts 2005-2008

Note: NBHMA Hunts are bolded

| Hunt | Sold | LOP | Did Not Hunt | Hunted | Days Hunted | # Harvested | CWTD Buck | BTD Buck | BTD Doe | Days/Hunter | Days/Deer |
|--------------|-----------|----------|--------------|-----------|-------------|-------------|-----------|-----------|----------|-------------|-------------|
| 2005 | | | | | | | | | | | |
| 123 | 121 | 99 | 15 | 96 | 332 | 57 | 51 | 6 | N/A | 3.5 | 5.8 |
| 2006 | | | | | | | | | | | |
| 123A | 93 | 72 | 22 | 71 | 309 | 27 | | | | 4.4 | 11.4 |
| 123B | 10 | 0 | 2 | 8 | 32 | 6 | 3 | 3 | | 4.0 | 5.3 |
| 123R1 | 14 | 0 | 2 | 12 | 70 | 6 | | | | 5.8 | 11.7 |
| 123R2 | 17 | 0 | 0 | 14 | 87 | 3 | 3 | 0 | | 6.2 | 29.0 |
| 123M2 | 9 | 0 | 0 | 9 | 47 | 2 | 2 | 0 | | 5.2 | 23.5 |
| 623T1 | 32 | 0 | 6 | 26 | 108 | 18 | 9 | 8 | 1 | 4.2 | 6.0 |
| 2007 | | | | | | | | | | | |
| 123A | 77 | 55 | 11 | 66 | 223 | 48 | 38 | 10 | 0 | 3.4 | 4.6 |
| 123B | 10 | 0 | 2 | 8 | 31 | 6 | 3 | 3 | 0 | 3.9 | 5.2 |
| 123R1 | 19 | 0 | 3 | 16 | 71 | 11 | | | | 4.4 | 6.5 |
| 123R2 | 16 | 0 | 2 | 14 | 62 | 2 | 2 | 0 | 0 | 4.4 | 31.0 |
| 123M2 | 10 | 0 | 1 | 9 | 46 | 2 | 0 | 2 | 0 | 5.1 | 23.0 |
| 623T1 | 31 | 0 | 1 | 30 | 90 | 10 | 2 | 8 | 0 | 3.0 | 9.0 |
| 2008 | | | | | | | | | | | |
| 123A | 83 | 62 | 14 | 69 | 261 | 43 | 28 | 15 | | 3.8 | 6.1 |
| 123B | 8 | 0 | 2 | 6 | 26 | 5 | 2 | 3 | 0 | 4.3 | 5.2 |
| 123R1 | 25 | 0 | 2 | 23 | 102 | 4 | 4 | 0 | 0 | 4.4 | 25.5 |
| 123R2 | 16 | 0 | 2 | 14 | 64 | 0 | | | | 4.6 | 0.0 |
| 123M2 | 9 | 0 | 0 | 9 | 63 | 2 | 2 | | | 7.0 | 0.0 |
| 623T1 | 33 | 0 | 4 | 29 | 80 | 18 | 2 | 14 | 2 | 2.8 | 0.0 |

Appendix B. Population Trends 1975-2008

| Year | Lower Estimate | Population Estimate | Upper Estimate |
|-------------|-----------------------|----------------------------|-----------------------|
| 1975 | 615 | 1317 | 2018 |
| 1976 | 738 | 1472 | 2206 |
| 1977 | 860 | 1628 | 2395 |
| 1978 | 982 | 1783 | 2584 |
| 1979 | 1105 | 1939 | 2773 |
| 1980 | 1227 | 2094 | 2962 |
| 1981 | 1349 | 2250 | 3151 |
| 1982 | 1471 | 2406 | 3340 |
| 1983 | 1594 | 2561 | 3529 |
| 1984 | 1716 | 2717 | 3717 |
| 1985 | 1838 | 2872 | 3906 |
| 1986 | 1961 | 3028 | 4095 |
| 1987 | 2083 | 3183 | 4284 |
| 1988 | 2205 | 3339 | 4473 |
| 1989 | 2328 | 3495 | 4662 |
| 1990 | 2450 | 3650 | 4851 |
| 1991 | 2572 | 3806 | 5039 |
| 1992 | 2694 | 3961 | 5228 |
| 1993 | 2817 | 4117 | 5417 |
| 1994 | 2939 | 4272 | 5606 |
| 1995 | 3061 | 4428 | 5795 |
| 1996 | 3184 | 4584 | 5984 |
| 1997 | 3306 | 4739 | 6173 |
| 1998 | 3428 | 4895 | 6361 |
| 1999 | 3550 | 5050 | 6550 |
| 2000 | 3673 | 5206 | 6739 |
| 2001 | 3795 | 5361 | 6928 |
| 2002 | 3917 | 5517 | 7117 |
| 2003 | 4040 | 5673 | 7306 |
| 2004 | 4162 | 5828 | 7495 |
| 2005 | 4284 | 5984 | 7683 |
| 2006 | 4406 | 6139 | 7872 |
| 2007 | 4529 | 6295 | 8061 |
| 2008 | 4651 | 6450 | 8250 |